Transportation Analysis

Northside Hospital Gwinnett Expansion DRI #3858

City of Lawrenceville, Georgia

January 2023

Prepared for:

Realty Trust Group

Prepared by:

Kimley-Horn and Associates, Inc.
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EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts of the proposed *Northside Hospital Gwinnett Expansion* development located in Gwinnett County, Georgia. The expansion project will impact approximately 20-acres of the existing Northside Hospital Gwinnett campus. The existing campus is located in the south quadrant of the University Parkway (SR 316) and Duluth Highway interchange in the City of Lawrenceville, Georgia.

The proposed development will consist of the following land uses and densities contained in **Table 1**. The project is expected to be completed by 2030 (approximately 8 years).

Table 1: Proposed Land Use and Density

Land Use	Proposed Density
Medical Office Building	155,000 SF
Hospital Beds	480 beds

The DRI analysis includes an estimation of the overall vehicle trips projected to be generated by the development, also known as gross trips. Mixed-use and pass-by reductions to gross trips are included in the trip generation, as outlined in the Georgia Regional Transportation Authority (GRTA) Letter of Understanding (dated November 22, 2022).

Capacity analyses were performed for the study intersections under the Existing 2022 conditions, the Projected 2030 No-Build conditions, and the Projected 2030 Build conditions.

- Existing 2022 conditions represent current traffic volumes collected in November 2022.
- Projected 2030 No-Build conditions represent the Existing 2022 traffic volumes grown for eight (8) years using a 2.0% per year growth rate.
- Projected 2030 Build conditions represent the Projected 2030 No-Build conditions plus the addition of the project trips that are anticipated to be generated by the *Northside Hospital Gwinnett Expansion* development.

No-Build *(System Improvements)*

Due to the low level-of-service (LOS) at the following intersections under the Existing 2022 and Projected 2030 No-Build conditions, the following intersection improvements are recommended to serve background traffic, with or without the development and are shown in red on **Figure 6**:

- Duluth Highway at Medical Center Boulevard (Site Driveway A) (Intersection 1)
  - Construct dual northbound left-turn lanes along Medical Center Boulevard (Site Driveway A)
  - Provide one (1) receiving lane for vehicles entering Medical Center Boulevard from Duluth Highway
    - Utilize other existing receiving lane along Medical Center Boulevard to tie into planned free-flow slip ramp from University Parkway (SR 316), which is currently under construction
- Duluth Highway at SR 316 SB Ramps (Intersection 3)
  - Convert the existing southbound right-turn lane from yield control to a free-flow right-turn movement utilizing the existing add lane along Duluth Highway

Build *(Site Access Improvements)*

There are no recommended Build improvements needed to serve development traffic for the study network.

Duluth Highway at Medical Center Boulevard (Site Driveway A) – (Intersection 1)

Overall LOS Standard: D Approach LOS Standard: D / E*				Medical Center Blvd Northbound*			Hayes Driveway Southbound			Duluth Hwy Eastbound			Duluth Hwy Westbound		
				L	T	R	L	T	R	L	T	R	L	T	R
2030 NO-BUILD IMPROVED	(Signal)	AM	Overall LOS	A (5.6)											
			Approach LOS	E (67.5)			E (72.7)			A (0.1)			A (9.7)		
			Storage	240											
			50th Queue	10	0	0		2	0	2	217		4	167	
			95th Queue	25	0	0		12	0	6	208		16	573	
		PM	Overall LOS	A (9.2)											
			Approach LOS	E (68.7)			E (72.2)			A (0.2)			B (13.3)		
			Storage	240											
			50th Queue	55	0	0		15	0	4	267		3	435	
			95th Queue	88	0	0		42	0	7	272		9	799	
2030 BUILD IMPROVED	(Signal)	AM	Overall LOS	A (9.3)											
			Approach LOS	E (68.3)			E (70.1)			A (0.2)			B (12.7)		
			Storage	240											
			50th Queue	69	0	0		2	0	3	350		92	226	
			95th Queue	105	0	35		12	0	7	276		195	679	
		PM	Overall LOS	C (20.6)											
			Approach LOS	E (59.4)			E (72.0)			A (0.4)			C (28.9)		
			Storage	240											
			50th Queue	252	0	71		15	0	5	396		50	716	
			95th Queue	301	0	133		42	0	8	513		119	1222	

**The northbound approach operates at LOS F in the PM peak hour under the Existing 2022 Conditions; therefore, the northbound approach standard for future conditions was considered to be LOS E.*

Duluth Highway at SR 316 SB Ramps – (Intersection 3)

Overall LOS Standard: D / E* Approach LOS Standard: D / E**				SR 316 Ramp Northbound			SR 316 Ramp Southbound**			Duluth Hwy Eastbound			Duluth Hwy Westbound		
				L	T	R	L	T	R	L	T	R	L	T	R
2030 NO-BUILD IMPROVED	(Signal)	AM	Overall LOS	B (17.8)											
			Approach LOS				E (67.6)			C (21.5)			A (9.9)		
			Storage												
			50th Queue					148	802		377	18	638	269	
			95th Queue					218	1055		474	88	883	372	
		PM	Overall LOS	C (23.0)											
			Approach LOS				E (75.0)			C (29.3)			B (13.8)		
			Storage												
			50th Queue					73	631		602	59	660	113	
			95th Queue					130	868		681	135	856	195	
2030 BUILD IMPROVED	(Signal)	AM	Overall LOS	C (26.4)											
			Approach LOS				E (63.5)			C (33.6)			B (16.3)		
			Storage												
			50th Queue					223	802		401	23	792	292	
			95th Queue					313	1055		507	94	1044	398	
		PM	Overall LOS	D (48.2)											
			Approach LOS				E (75.5)			D (41.1)			D (53.0)		
			Storage												
			50th Queue					126	654		616	61	1105	195	
			95th Queue					200	891		720	137	1369	275	

***The intersection operates at LOS F overall under the Existing 2022 Conditions; therefore, the overall LOS standard for future conditions was considered to be LOS E.*

***The southbound approach operates at LOS F under the Existing 2022 Conditions; therefore, the southbound approach standard for future conditions was considered to be LOS E.*

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analysis of the anticipated traffic impacts of the proposed *Northside Hospital Gwinnett Expansion* development located in the City of Lawrenceville, Gwinnett County, Georgia. The existing Northside Hospital Gwinnett Campus is located in the south quadrant of the University Parkway (SR 316) and Duluth Highway interchange. The approximate 20-acre expansion site is located on the north/northwest portion of campus and will consist of a new expanded bed tower, medical office building, and additional on-site parking. The project site will remain under the existing zoning BGC (Central General Business). A Land Disturbance Permit (LDP) was filed on October 18, 2021 and approved on April 11, 2022. **Figure 1** provides a location map of the project site. **Figure 2** provides an aerial view of the project site and surrounding area.

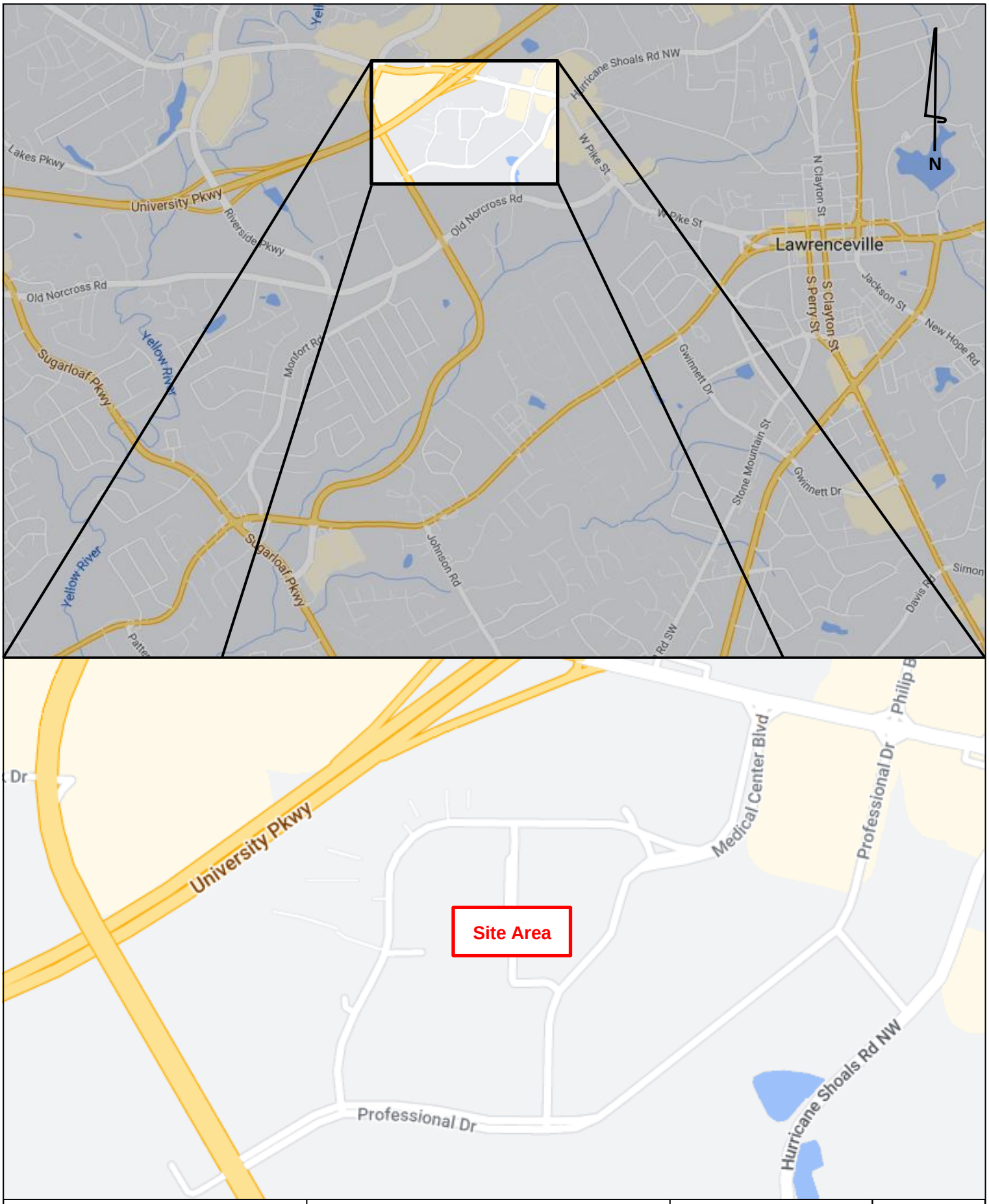
The proposed development will consist of the following land uses and densities contained in **Table 2**. The project is expected to be completed by 2030 (approximately 8 years).

Table 2: Proposed Land Use and Density

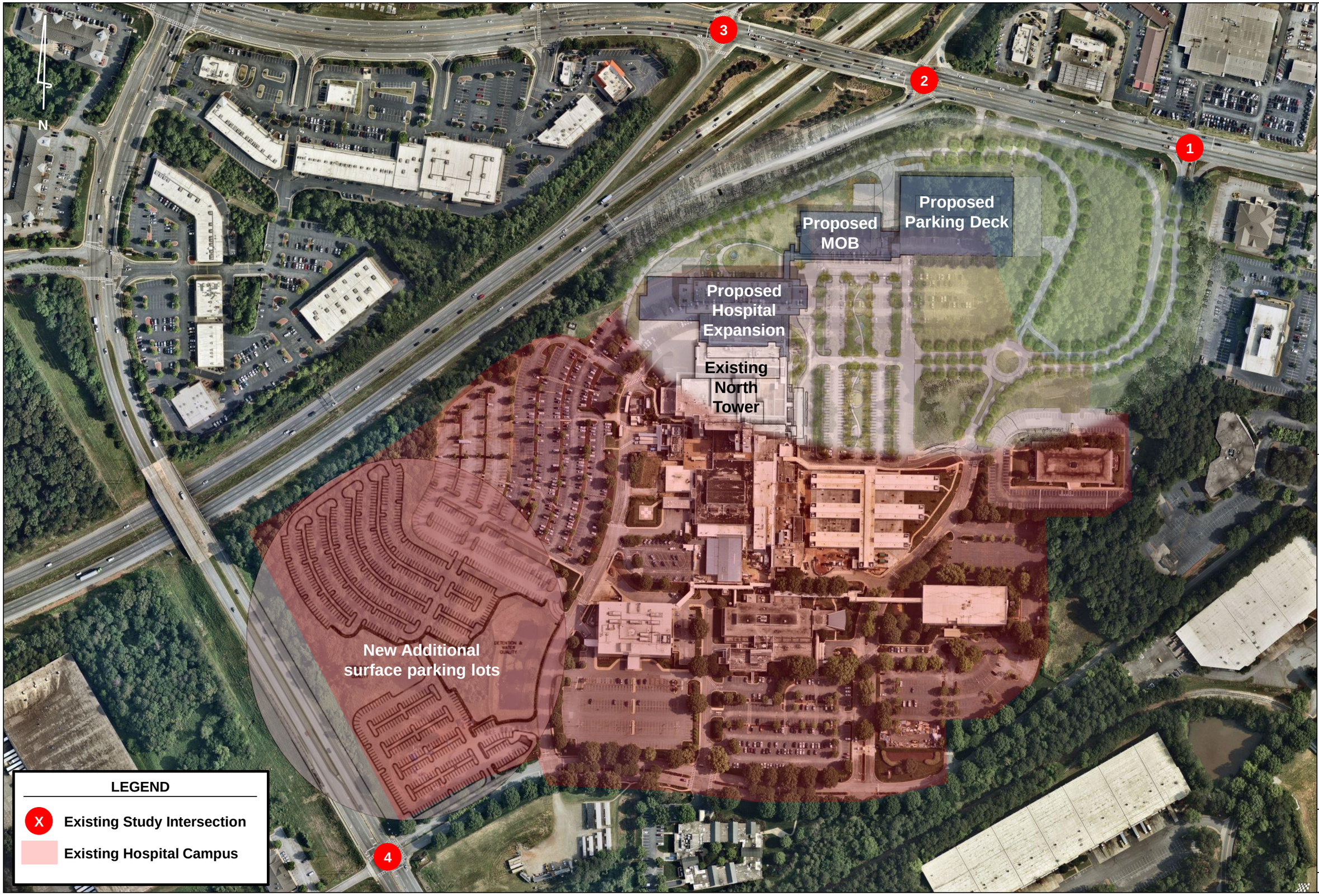
Land Use	Proposed Density
Medical Office Building	155,000 SF
Hospital Beds	480 beds

A reference of the proposed site plan is provided in **Appendix A**. A full-sized site plan consistent with GRTA's Site Plan Guidelines is also being submitted as part of the review package.

The project is considered a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review due to the project size exceeding 400 new beds or generating more than 375 peak hour vehicle trips per day in an Established Suburb Development area (per UGPM). The DRI was formally triggered with the filing of the Initial DRI Information (Form 1) on November 1, 2022, by the City of Lawrenceville. This transportation analysis includes all inputs and methodologies discussed at the DRI Methodology Meeting with GRTA, ARC, and other stakeholders. The inputs and methodologies are outlined in the GRTA Letter of Understanding (LOU) dated November 22, 2022.



Kimley»Horn	***Northside Hospital Gwinnett Expansion DRI #3858***	**Site Location Map**	**Figure 1**
			Page 5



Site Aerial

Northside Hospital Gwinnett Expansion DRI #3858

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Figure 2

1.2 Site Access

As currently envisioned, the proposed development will be accessible via two (2) existing access points:

1. **Medical Center Boulevard (Site Driveway A)** – an existing full-movement, signalized access point located along Duluth Highway, approximately 850 feet east of SR 316 (University Parkway) Northbound Ramps.
2. **Professional Drive (Site Driveway B)** – an existing full-movement, signalized access point located along US 29 (Lawrenceville-Suwanee Road) approximately 1,825 feet north of Old Norcross Road.

1.3 Internal Circulation Analysis

The proposed site is to be accessed via both Medical Center Boulevard (Site Driveway A) and Professional Drive (Site Driveway B). Internal, private roadways throughout the site provide access to all residential and commercial buildings and parking facilities.

1.4 Parking

The current number of additional site parking spaces to be provided are listed below in **Table 3**.

Table 3: Proposed Parking

Land Use	Parking Type	Minimum	Proposed
Hospital	Car	960 spaces (2 per bed)	1,784 spaces
Medical Office Building	Car	600 spaces (1 per 250 SF GFA)	761 spaces
Total	**Car**	**1,560 spaces**	**2,545 spaces**

Additional parking details are provided on the proposed site plan in **Appendix A**. In addition to standard vehicle parking, electric vehicle charging stations will be provided in accordance with City of Lawrenceville Standards and will be coordinated with the staff during the permitting process.

1.5 Alternative Transportation Facilities

Pedestrian facilities are currently provided throughout the study network, though sidewalk gaps do exist. Transit facilities are currently provided nearby along Professional Drive. The proposed pedestrian infrastructure will improve connectivity to the existing bus stop locations. Additionally, there is a planned micro-transit system to be implemented by Gwinnett County services.

1.6 Enhanced Focus Area for Dense Urban Environments

Per Section 3.2.4.2 of the GRTA *Development of Regional Impact Review Procedures*, the *Northside Hospital Gwinnett Expansion* development does not qualify for this enhanced focus area review.

2.0 TRAFFIC ANALYSES, METHODOLOGY AND ASSUMPTIONS

2.1 Study Network Determination

The study area was determined at the methodology meeting with input from GRTA, ARC, and other local agency stakeholders. The study includes the following four (4) intersections described in **Table 4** and shown in **Figure 2**.

Table 4: Intersection Control Summary

Intersection	Jurisdiction	Control
1. Duluth Highway at Medical Center Boulevard (Site Driveway A)	Gwinnett County/GDOT	Signalized
2. Duluth Highway at SR 316 NB Ramps	Gwinnett County/GDOT	Signalized
3. Duluth Highway at SR 316 SB Ramps	Gwinnett County/GDOT	Signalized
4. Lawrenceville-Suwanee Road (US 29) at Professional Drive (Site Driveway B)	Gwinnett County/GDOT	Signalized

2.2 Existing Roadway Facilities

Roadway classification descriptions and estimated Annual Average Daily Traffic (AADT) for roadway segments within the study network are provided in **Table 5** (bolded roadways are adjacent to the site).

Table 5: Roadway Classifications

Roadway	Lanes	Posted Speed Limit	AADT (GDOT, 2021)	GDOT Functional Classification
Duluth Highway	**4***	**45 MPH**	**41,000**	**Minor Arterial**
Lawrenceville-Suwanee Road	**4***	**45 MPH**	**22,600**	**Minor Arterial**
SR 316	6	55 MPH	78,600	Principal Arterial

**Turn lanes present along corridor*

2.3 Traffic Data Collection

Traffic counts were collected at all four (4) existing study intersections on Wednesday, November 9, 2022, and Tuesday, November 15, 2022.

Traffic count peak hours for all the study intersections are shown in **Table 6**. The collected peak hour turning movement traffic counts are available upon request.

Table 6: Traffic Count Summary

Intersection	Count Date	AM Peak Hour	PM Peak Hour
1. Duluth Highway at Medical Center Boulevard (Site Driveway A)	11/2022	7:30 – 8:30 AM	4:15 – 5:15 PM
2. Duluth Highway at SR 316 NB Ramps	11/2022	7:15 – 8:15 AM	4:45 – 5:45 PM
3. Duluth Highway at SR 316 SB Ramps	11/2022	7:15 – 8:15 AM	4:30 – 5:30 PM
4. Lawrenceville-Suwanee Road (US 29) at Professional Drive (Site Driveway B)	11/2022	7:15 – 8:15 AM	4:30 – 5:30 PM

2.4 Background Growth

Background traffic is defined as expected traffic on the roadway network in future year(s) absent the construction and opening of the proposed *Northside Hospital Gwinnett Expansion* development. Background traffic can include a base growth rate, which is based on historical count data and population growth data as well as trips anticipated from nearby or adjacent other projects.

Based on methodology outlined in the GRTA Letter of Understanding (LOU), a 2.0% per year background traffic growth rate from 2022 to 2030 (8 years) was used for all roadways.

The Projected 2030 No-Build conditions represent the Existing 2022 traffic volumes grown for eight (8) years at 2.0% per year throughout the study network.

The Projected 2030 Build conditions represent the project trips generated by the *Northside Hospital Gwinnett Expansion* development (discussed in Section 3.0 and 4.0) added to the Projected 2030 No-Build Conditions.

2.5 Programmed and Planned Projects

Programmed and planned projects near the project site were researched to account for any improvements or modifications within the study network before or by the build-out year of the development. The following programmed projects were identified:

- Project SP-002 | Lawrenceville Slip Ramp at SR 316 – Estimated Completion Year 2023
  - Free flow slip ramp from SR 316 northbound exit ramp to Medical Center Boulevard.
- PI 0013375 | West Pike Street Safety Improvement – Estimated Completion Year 2023
  - Safety improvement project that consists of a raised skinny median to replace the existing two-way left-turn lane, sidewalk improvements, and curb and gutter installation.
- F-1277-03 Gwinnett County – Estimated Completion Year TBD
  - Safety improvement project which will analyze interchange improvements to the SR 316 Northbound Ramps and SR 316 Southbound Ramps interchange along Duluth Highway
  - Note: This analysis considers the estimated existing traffic volumes which would utilize the slip ramp (currently under construction) from SR 316 Northbound Ramps to Medical Center Boulevard (Site Driveway A) identified by the F-1277-03 on-going project.

2.6 Level-of-Service Overview

Level-of-service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels-of-service, LOS A through LOS F, with A being the best and F being the worst. LOS analyses were conducted at all intersections within the study network using *Synchro 11*. Existing traffic signal phasing and timing data were retrieved for available intersections.

LOS for signalized intersections and all-way stop controlled intersections are reported for the overall intersection. One or more movements at an intersection may experience a low LOS while the overall intersection may operate acceptably.

LOS for unsignalized intersections with stop control on the minor street only is reported for the side street approaches and the major street left-turn movements. Low LOS for side street approaches is not uncommon, as vehicles may experience delays in turning onto a major roadway.

2.7 Level-of-Service Standards

For the purposes of this traffic analysis, a LOS standard of D was assumed for all study intersections per section 3.2.2.1 of the GRTA *Development of Regional Impact Review Procedures* as specified in the LOU.

3.0 TRIP GENERATION

Gross trips associated with the proposed development were estimated using the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition*, using equations where available. Reductions to gross trips including alternative transportation mode reductions are considered in the analysis based on methodology outlined in the GRTA Letter of Understanding (LOU).

Alternative modes reductions are taken when a site can be accessed by modes other than vehicles (walking, bicycling, transit, etc.). Alternative modes reductions were taken in this analysis per the GRTA LOU.

Table 7 summarizes the gross trip generation, reductions, net trip generation, and driveway volumes for the proposed *Northside Hospital Gwinnett Expansion* development.

Table 7: Trip Generation

Land Use	Density	Daily Traffic			AM Peak Hour		PM Peak Hour	
		Total	Enter	Exit	Enter	Exit	Enter	Exit
Proposed Project Trips								
610 – Hospital (Bed Tower)	480 beds	10,714	5,357	5,357	618	241	338	656
720 – Medical Office Building	155,000 SF	5,388	2,694	2,694	340	80	252	394
Gross Project Trips		**16,102**	**8,051**	**8,051**	**958**	**321**	**590**	**1,050**
Alternative Mode Reductions (10%)		*-1,610*	*-805*	*-805*	*-96*	*-32*	*-59*	*-105*
New Trips		**14,492**	**7,246**	**7,246**	**862**	**289**	**531**	**945**

A more detailed trip generation analysis summary table is provided in **Appendix B**.

4.0 TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of new project trips was based on the project land uses, a review of land use densities and road facilities in the area, engineering judgement, and methodology discussions with GRTA, ARC, and other local stakeholders.

The anticipated assignment of the site project trips throughout the study roadway network is shown in **Figure 3.** These trip assignment percentages were applied to the net project trips expected to be generated by the development, and the volumes were assigned to the roadway network. The peak hour project trips are shown by turning movement throughout the study network in **Figure 4**.

Detailed intersection volume worksheets are provided in **Appendix C**.

5.0 TRAFFIC ANALYSIS

Capacity analyses were performed using *Synchro 11* for the AM and PM peak hours under the Existing 2022 conditions, Projected 2030 No-Build conditions, and Projected 2030 Build conditions. The capacity analyses were performed using methodologies from the *Highway Capacity Manual (HCM), 6th Edition* unless otherwise noted.

These analyses included existing roadway laneage for each of the scenarios. The traffic volumes and roadway laneage used for each scenario are shown in Error! Reference source not found.**Figure 5** for Existing 2022 conditions, **Figure 6** for Projected 2030 No-Build conditions, and **Figure 7** for Projected 2030 Build conditions.

Sections 5.1 – 5.4 provide the results of the capacity analyses are presented for each study intersection and include projected LOS, delay, and queue lengths.

Project Trip Distribution and Assignment

Northside Hospital Gwinnett Expansion DRI #3858

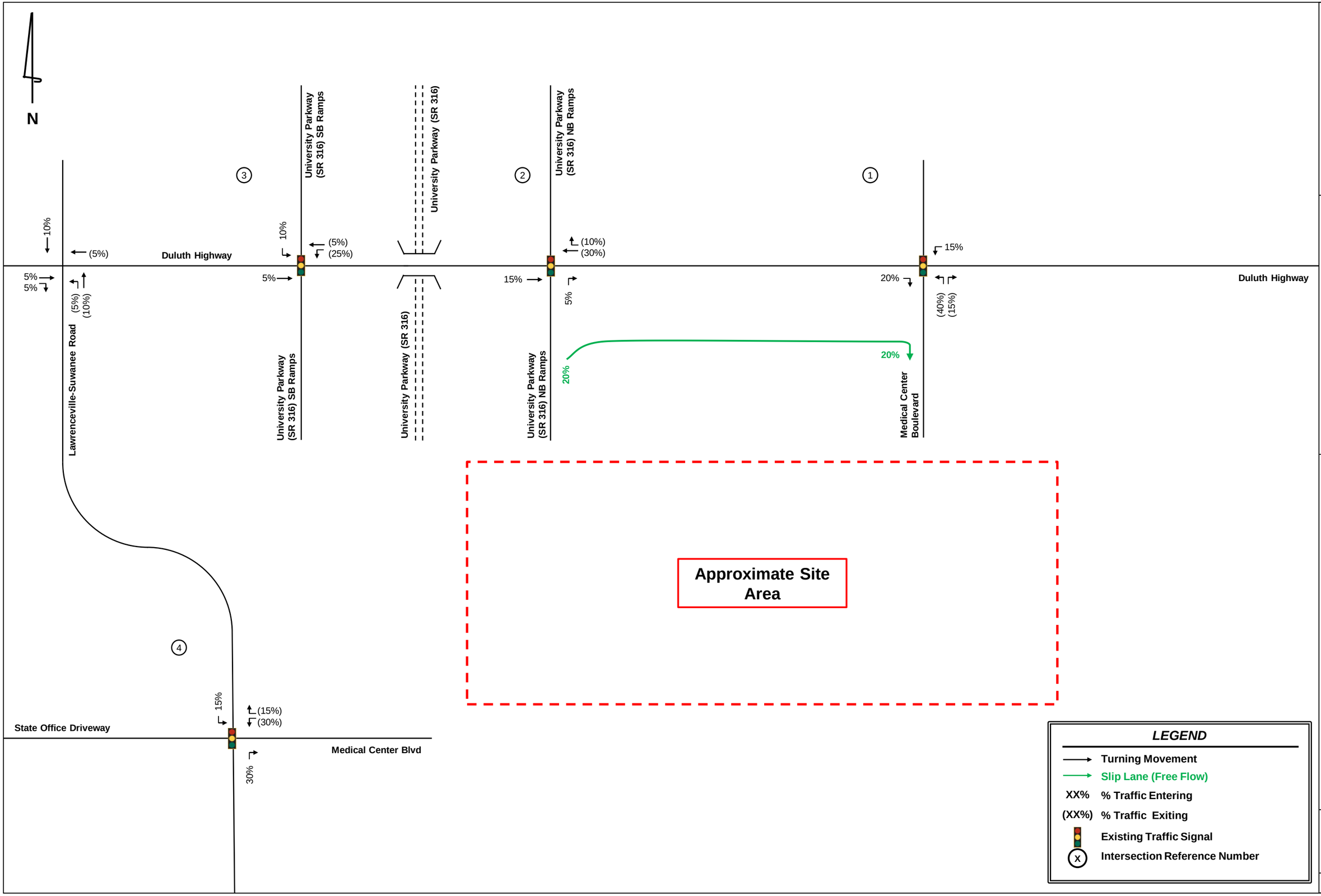

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Figure 3

N

Lawrenceville-Suwanee Road

Duluth Highway

Duluth Highway

University Parkway (SR 316) SB Ramps

University Parkway (SR 316)

University Parkway (SR 316) NB Ramps

Medical Center Boulevard

State Office Driveway

Medical Center Blvd

3

2

1

4

87 (53)

15 (48)
72 (237)

(26) 43

(80) 129

29 (95)
87 (284)

(26) 43

(106) 172

129 (80)

(378) 116
(142) 44

(106) 172

(106) 172

129 (80)

44 (142)
87 (284)

(159) 259

Approximate Site Area

LEGEND

- Turning Movement
- Slip Lane (Free Flow)
- XX AM Project Trips
- (XX) PM Project Trips
- Existing Traffic Signal
- (X) Intersection Reference Number

Project Trips

Northside Hospital Gwinnett Expansion DRI #3858

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Figure 4

5.1 Duluth Highway at Medical Center Boulevard (Site Driveway A) – (Intersection 1)

Overall LOS Standard: D Approach LOS Standard: D			Medical Center Blvd Northbound			Hayes Driveway Southbound			Duluth Hwy Eastbound			Duluth Hwy Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
2022 EXISTING (Signal)	AM	Overall LOS	A (3.4)											
		Approach LOS	E (73.4)			E (71.1)			A (0.1)			A (5.2)		
		Storage												
		50th Queue		17	0		2	0	1	66		3	126	
		95th Queue		45	0		11	0	2	149		8	302	
	PM	Overall LOS	C (28.4)											
		Approach LOS	F (440.8)			E (62.5)			B (10.7)			B (14.8)		
		Storage												
		50th Queue		93	0		13	0	4	380		2	234	
		95th Queue		152	11		35	0	6	442		7	494	
2030 NO-BUILD (Signal)	AM	Overall LOS	A (4.5)											
		Approach LOS	E (72.7)			E (69.2)			A (0.1)			A (7.4)		
		Storage												
		50th Queue		20	0		2	0	1	232		4	176	
		95th Queue		50	0		11	0	3	172		10	416	
	PM	Overall LOS	C (34.5)											
		Approach LOS	F (542.4)			E (62.7)			B (11.9)			B (18.7)		
		Storage												
		50th Queue		108	0		14	0	4	490		2	348	
		95th Queue		170	20		38	0	6	514		8	720	
2030 BUILD (Signal)	AM	Overall LOS	D (40.5)											
		Approach LOS	F (707.2)			E (60.5)			A (0.2)			B (15.2)		
		Storage												
		50th Queue		135	0		2	0	4	609		91	351	
		95th Queue		208	41		10	0	7	275		234	653	
	PM	Overall LOS	F (484.1)											
		Approach LOS	F (3269.3)			E (62.7)			D (42.1)			B (19.7)		
		Storage												
		50th Queue		798	79		14	0	5	794		50	497	
		95th Queue		1027	166		42	0	6	546		142	765	

The intersection of Duluth Highway at Medical Center Boulevard (Site Driveway A) currently operates at an acceptable overall LOS under the Existing 2022 conditions during the AM and PM peak hours. Under the projected 2030 No-Build conditions, the study intersection is projected to continue operating at an acceptable overall LOS during the AM and PM peak hours. Under the projected 2030 Build conditions, the study intersection is projected to operate at LOS D and LOS F during the AM and PM peak hours, respectively. The side-street approaches of the study intersection (northbound and southbound) currently operate at LOS E/F and are projected to continue operating at low levels of service (high delay).

In order to meet GRTA's LOS requirements under the Projected 2030 No-Build conditions and Projected 2030 Build Conditions, the following system improvements (needed to serve background traffic, without the expansion development project) are recommended (shown in red on **Figure 6** and **Figure 7**):

- Construct dual northbound left-turn lanes along Medical Center Boulevard (Site Driveway A)
- Provide one (1) receiving lane for vehicles entering Medical Center Boulevard from Duluth Highway
    - Utilize other existing receiving lane along Medical Center Boulevard to tie into planned free-flow slip ramp from University Parkway (SR 316), which is currently under construction

The analysis results for the improved conditions at Intersection 1 are shown in the table below.

Overall LOS Standard: D Approach LOS Standard: D / E*				Medical Center Blvd Northbound*			Hayes Driveway Southbound			Duluth Hwy Eastbound			Duluth Hwy Westbound		
				L	T	R	L	T	R	L	T	R	L	T	R
2030 NO-BUILD IMPROVED	(Signal)	AM	Overall LOS	A (5.6)											
			Approach LOS	E (67.5)			E (72.7)			A (0.1)			A (9.7)		
			Storage	240											
			50th Queue	10	0	0		2	0	2	217		4	167	
			95th Queue	25	0	0		12	0	6	208		16	573	
		PM	Overall LOS	A (9.2)											
			Approach LOS	E (68.7)			E (72.2)			A (0.2)			B (13.3)		
			Storage	240											
			50th Queue	55	0	0		15	0	4	267		3	435	
			95th Queue	88	0	0		42	0	7	272		9	799	
2030 BUILD IMPROVED	(Signal)	AM	Overall LOS	A (9.3)											
			Approach LOS	E (68.3)			E (70.1)			A (0.2)			B (12.7)		
			Storage	240											
			50th Queue	69	0	0		2	0	3	350		92	226	
			95th Queue	105	0	35		12	0	7	276		195	679	
		PM	Overall LOS	C (20.6)											
			Approach LOS	E (59.4)			E (72.0)			A (0.4)			C (28.9)		
			Storage	240											
			50th Queue	252	0	71		15	0	5	396		50	716	
			95th Queue	301	0	133		42	0	8	513		119	1222	

**The northbound approach operates at LOS F in the PM peak hour under the Existing 2022 Conditions; therefore, the northbound approach standard for future conditions was considered to be LOS E.*

With the noted system improvements applied to the study intersection, the northbound and southbound side-street approaches under the No-Build 2030 and Build 2030 scenarios are projected to operate at LOS E. Although the side-street approaches are projected to operate at LOS E, no feasible improvements exist, as the low LOS is due to the existing signal timings, which prioritizes major street traffic at the expense of side-street operations. The overall intersection LOS is projected to operate at LOS A and LOS C during the AM and PM peak hours, respectively, with manageable queuing.

It should be noted that Project SP-002 | Lawrenceville Slip Ramp at SR 316 is currently under construction and is anticipated to reduce the number of eastbound right-turning vehicles at this intersection.

5.2 Duluth Highway at SR 316 NB Ramps – (Intersection 2)

Overall LOS Standard: D Approach LOS Standard: D			SR 316 NB Ramp Northbound			SR 316 NB Ramp Southbound			Duluth Hwy Eastbound			Duluth Hwy Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
2030 EXISTING (Signal)	AM	Overall LOS	B (11.2)											
		Approach LOS	E (74.1)						B (17.8)			A (3.6)		
		Storage												
		50th Queue		82	1046				265	5			432	5
		95th Queue		141	1307				361	0			317	36
	PM	Overall LOS	C (30.1)											
		Approach LOS	E (72.1)						B (14.8)			D (42)		
		Storage												
		50th Queue		119	1042				420	57			443	46
		95th Queue		191	1297				531	64			523	142
2030 NO-BUILD (Signal)	AM	Overall LOS	C (21.1)											
		Approach LOS	E (73.3)						B (12.3)			C (23.7)		
		Storage												
		50th Queue		96	1351				311	7			550	14
		95th Queue		161	1616				414	0			368	46
	PM	Overall LOS	C (32.9)											
		Approach LOS	E (74.9)						B (13.2)			D (49.2)		
		Storage												
		50th Queue		141	1335				492	68			573	77
		95th Queue		219	1596				650	116			641	180
2030 BUILD (Signal)	AM	Overall LOS	C (21.0)											
		Approach LOS	E (73.3)						B (11.4)			C (24.4)		
		Storage												
		50th Queue		96	1527				301	19			427	16
		95th Queue		161	1792				401	2			523	79
	PM	Overall LOS	D (35.7)											
		Approach LOS	E (74.9)						B (12.5)			D (53.1)		
		Storage												
		50th Queue		141	1414				492	77			621	103
		95th Queue		219	1677				671	122			571	129

The intersection of Duluth Highway at SR 316 NB Ramps (Intersection 2) is projected to operate at an acceptable overall LOS under the Existing 2022, No-Build 2030, and Build 2030 conditions during the AM and PM peak hours. The northbound approach is projected to operate at LOS E during the AM and PM peak hours under each scenario.

It should be noted that per GRTA's DRI guidelines, an improvement should be considered if an approach operates at a failing LOS, even if the overall intersection operates acceptably. The intersection operates at an acceptable overall LOS, and existing signal timings and cycle lengths prioritize vehicular progression on the major street (Duluth Highway) at the expense of side street operations. Although the northbound approach is projected to operate at LOS E, no feasible improvements exist within the scope of this project. No improvements are recommended to be conditioned.

5.3 Duluth Highway at SR 316 SB Ramps – (Intersection 3)

Overall LOS Standard: D Approach LOS Standard: D			SR 316 Ramp Northbound			SR 316 Ramp Southbound			Duluth Hwy Eastbound			Duluth Hwy Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
2022 EXISTING (Signal)	AM	Overall LOS	E (72.6)											
		Approach LOS				F (260.7)			C (31.1)			A (7.3)		
		Storage												
		50th Queue					147	664		253	0	418	108	
		95th Queue					230	935		325	54	542	147	
	PM	Overall LOS	F (92.5)											
		Approach LOS				F (510.6)			C (29.0)			B (15.7)		
		Storage												
		50th Queue					61	370		440	22	539	66	
		95th Queue					112	598		497	78	693	62	
2030 NO-BUILD (Signal)	AM	Overall LOS	F (114.4)											
		Approach LOS				F (429.8)			D (35.8)			B (10.5)		
		Storage												
		50th Queue					187	995		323	0	543	96	
		95th Queue					276	1248		376	56	711	171	
	PM	Overall LOS	F (119.5)											
		Approach LOS				F (648.9)			D (42)			B (19)		
		Storage												
		50th Queue					73	631		555	46	686	78	
		95th Queue					130	868		620	113	939	118	
2030 BUILD (Signal)	AM	Overall LOS	F (113.9)											
		Approach LOS				F (399.6)			D (44.4)			B (11.8)		
		Storage												
		50th Queue					282	1000		340	3	649	116	
		95th Queue					396	1253		394	60	900	191	
	PM	Overall LOS	F (142.1)											
		Approach LOS				F (603.4)			D (42.6)			F (86.3)		
		Storage												
		50th Queue					126	654		567	48	1191	121	
		95th Queue					200	891		633	116	1455	203	

The signalized intersection of Duluth Highway at SR 316 SB Ramps (Intersection 3) currently operates at LOS E and LOS F during the AM and PM peak hours, respectively. The study intersection is projected to continue operating at LOS F during both the AM and PM peak hours under all future 2030 scenarios.

In order to meet GRTA's LOS requirements under the Projected 2030 No-Build conditions and Projected 2030 Build Conditions, the following system improvements (needed to serve background traffic, without the development) are recommended (shown in red on **Figure 6** and **Figure 7**):

- Convert the existing southbound right-turn lane from yield control to a free-flow right-turn movement utilizing the existing add lane along Duluth Highway

The analysis results for the improved conditions at Intersection 3 are shown in the table below.

Overall LOS Standard: D / E* Approach LOS Standard: D / E**				SR 316 Ramp Northbound			SR 316 Ramp Southbound**			Duluth Hwy Eastbound			Duluth Hwy Westbound		
				L	T	R	L	T	R	L	T	R	L	T	R
2030 NO-BUILD IMPROVED	(Signal)	AM	Overall LOS	B (17.8)											
			Approach LOS				E (67.6)			C (21.5)			A (9.9)		
			Storage												
			50th Queue					148	802		377	18	638	269	
			95th Queue					218	1055		474	88	883	372	
		PM	Overall LOS	C (23.0)											
			Approach LOS				E (75.0)			C (29.3)			B (13.8)		
			Storage												
			50th Queue					73	631		602	59	660	113	
			95th Queue					130	868		681	135	856	195	
2030 BUILD IMPROVED	(Signal)	AM	Overall LOS	C (26.4)											
			Approach LOS				E (63.5)			C (33.6)			B (16.3)		
			Storage												
			50th Queue					223	802		401	23	792	292	
			95th Queue					313	1055		507	94	1044	398	
		PM	Overall LOS	D (48.2)											
			Approach LOS				E (75.5)			D (41.1)			D (53.0)		
			Storage												
			50th Queue					126	654		616	61	1105	195	
			95th Queue					200	891		720	137	1369	275	

***The intersection operates at LOS F overall under the Existing 2022 Conditions; therefore, the overall LOS standard for future conditions was considered to be LOS E.*

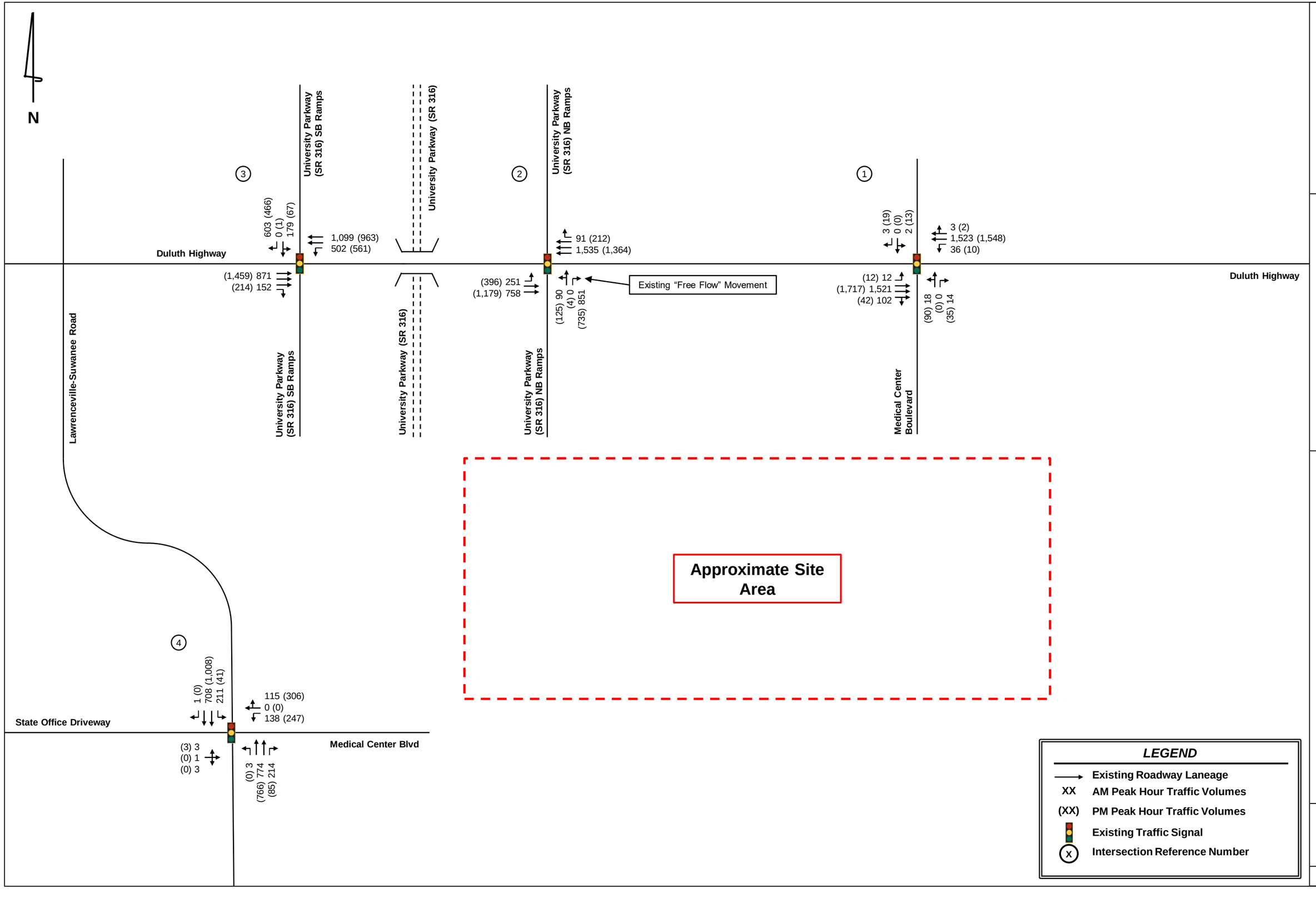
***The southbound approach operates at LOS F under the Existing 2022 Conditions; therefore, the southbound approach standard for future conditions was considered to be LOS E.*

With the implementation of the improvements listed above, the study intersection of Duluth Highway at University Parkway (SR 316 SB Ramps) is projected to operate at or above its overall and approach LOS standards under the Projected 2030 No-Build Improved, and Projected 2030 Build Improved conditions.

5.4 Lawrenceville-Suwanee Road (US 29) at Professional Drive (Site Driveway B) – (Intersection 4)

Overall LOS Standard: D Approach LOS Standard: D			Lawrenceville-Suwanee Rd Northbound			Lawrenceville-Suwanee Rd Southbound			Professional Drive Eastbound			State Office Driveway Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
2022 EXISTING (Signal)	**AM**	Overall LOS	B (13.8)											
		Approach LOS	B (16.4)			A (7.9)			D (38)			C (24.5)		
		Storage												
		50th Queue	1	100	12	23	48	0		1		38	0	
		95th Queue	7	258	70	121	150	0		12		98	0	
	PM	Overall LOS	(18)											
		Approach LOS	B (18.9)			B (14.5)			D (53.4)			C (23)		
		Storage												
		50th Queue		121	0	6	117			1		77	0	
		95th Queue		336	19	32	317			9		169	0	
2030 NO-BUILD (Signal)	**AM**	Overall LOS	B (17.1)											
		Approach LOS	C (21.8)			A (9.8)			D (36.5)			C (24.4)		
		Storage												
		50th Queue	1	127	20	29	62	0		1		46	0	
		95th Queue	8	341	95	174	190	0		15		113	0	
	PM	Overall LOS	C (22.6)											
		Approach LOS	C (24.9)			B (19.7)			D (50)			C (24.6)		
		Storage												
		50th Queue		158	0	8	160			1		93	0	
		95th Queue		433	29	38	464			11		199	0	
20230 BUILD (Signal)	**AM**	Overall LOS	D (41.3)											
		Approach LOS	D (51)			D (36.2)			D (38.4)			C (23.9)		
		Storage												
		50th Queue	1	145	50	92	78	0		2		74	0	
		95th Queue	9	387	271	373	223	0		16		167	0	
	PM	Overall LOS	D (42.1)											
		Approach LOS	D (53.1)			C (26.5)			D (54.3)			D (49.3)		
		Storage												
		50th Queue		216	37	33	235			2		241	0	
		95th Queue		428	122	83	462			11		541	14	

The intersection of Lawrenceville-Suwanee Road (US 29) at Professional Drive (Intersection 4) is projected to operate at an acceptable overall LOS under the Existing 2022, No-Build 2030, and Build 2030 conditions during the AM and PM peak hours. Each approach of the intersection is projected to operate acceptably under all studied scenarios. No improvements are recommended to be conditioned.

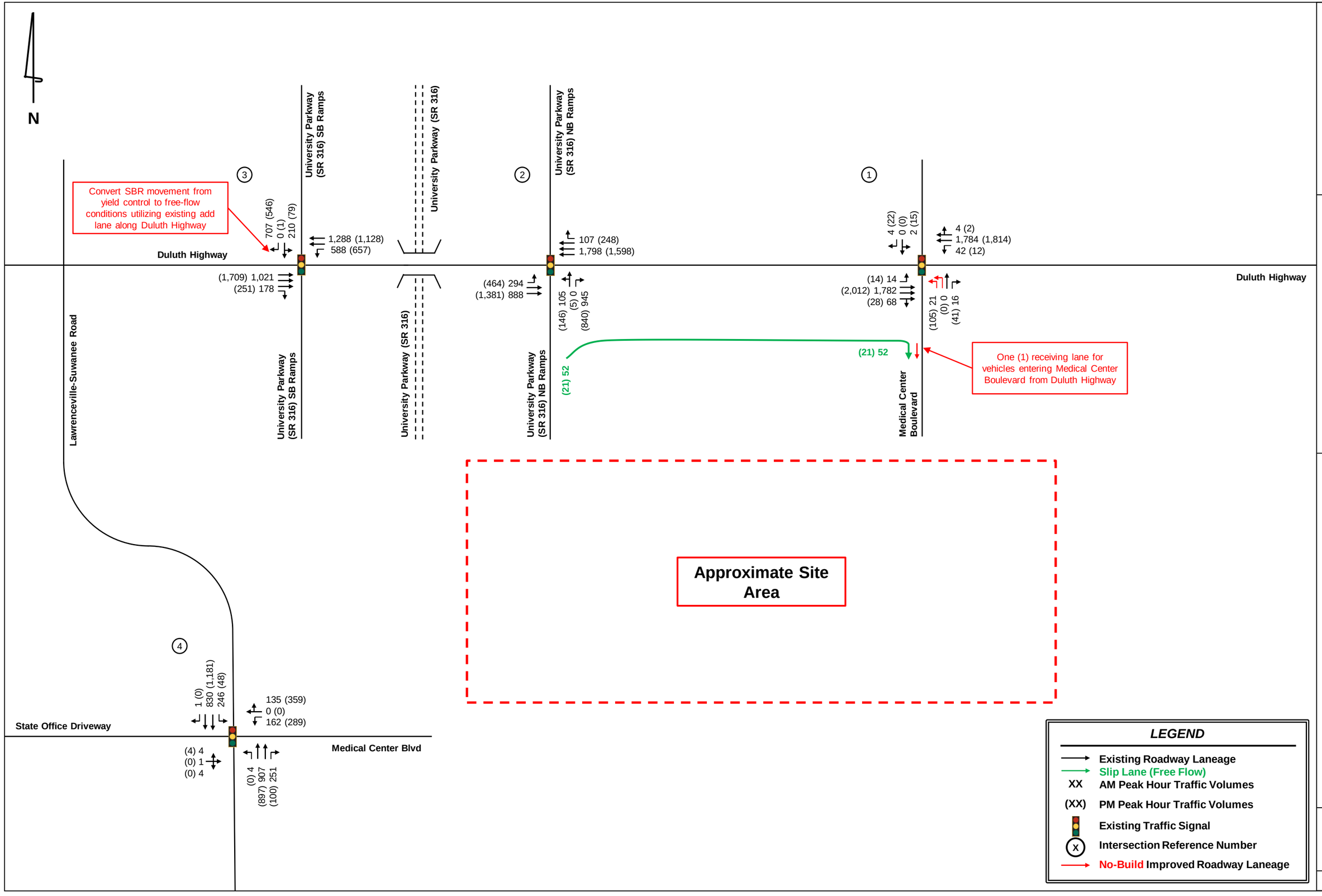


Existing 2022 Traffic Conditions

Northside Hospital Gwinnett Expansion DRI #3858

Kimley»Horn

Figure 5

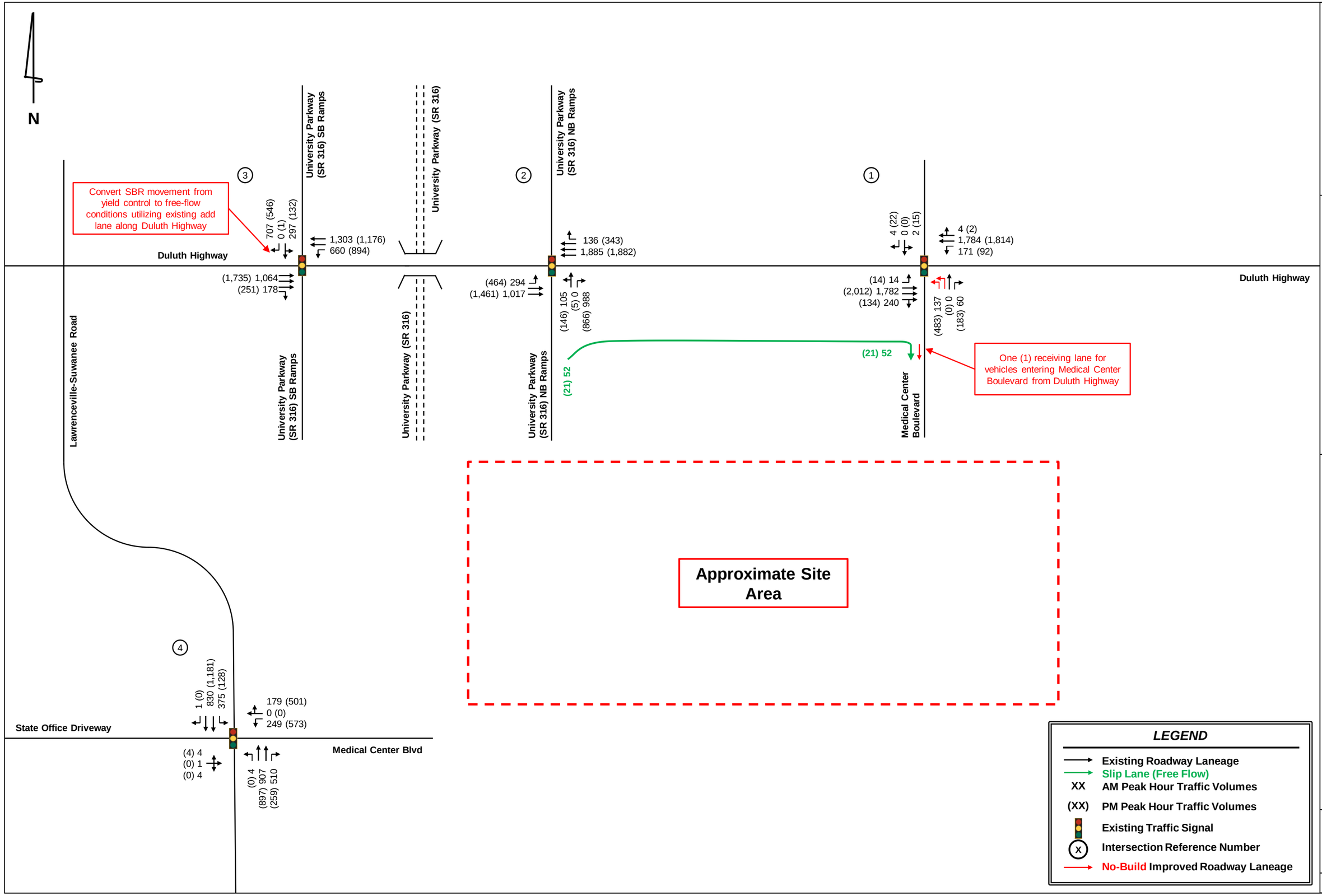


Projected 2030 No-Build Traffic Conditions

Northside Hospital Gwinnett Expansion DRI #3858

Kimley»Horn

Figure 6



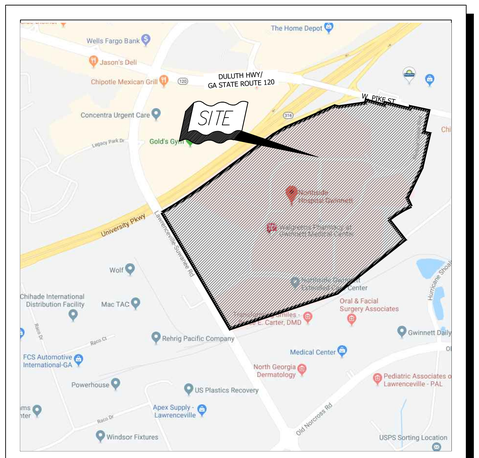
Projected 2030 Build Traffic Conditions

Northside Hospital Gwinnett Expansion DRI #3858

Kimley»Horn

Figure 7

Proposed Site Plan



VICINITY MAP

SCALE: NTS

N

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GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

WEST PIKE STREET
(VARIABLE R/W)

EMERGENCY ROOM DR

GEORGIA HWY. NO. 316
VARIABLE WIDTH R/W
ATLANTA

ATLANTA

PROPOSED SIDEWALK

PROPOSED LOADING DOCK (RESTRICTIVE DRIVE)

PROPOSED PARKING DECK 5 STORIES 584,057 SF

PROPOSED MOB 5 STORIES 155,000 SF

PROPOSED HOSPITAL EXPANSION 16 STORIES 735,598 SF FFE = 1030.0

PROPOSED PEDESTRIAN BRIDGE

PROPOSED SIDEWALK

PROPOSED LOADING DOCK (RESTRICTIVE DRIVE)

EX. LOADING DOCK (RESTRICTIVE DRIVE)

PROPOSED CEP 2 STORIES 47,309 SF

EXISTING HOSPITAL

EX. LOADING DOCK (RESTRICTIVE DRIVE)

FUTURE PARKING DECK (NOT YET DESIGNED)

AMBULANCE PARKING/DELIVERY (RESTRICTIVE DRIVE)

ED DEPT.

ED EXP

100 MOB

MEDICAL CENTER BLVD

DRIVEWAY A

EX. SIDEWALK

EX. SIDEWALK

EMERGENCY ROOM DR

631 MOB

WOMEN'S PAVILION

EX. PEDESTRIAN BRIDGES

500 MOB

DETENTION & WATER QUALITY

DETENTION & WATER QUALITY

PROPOSED SIDEWALK

EX. SIDEWALK

BUS STOP

EX. SIDEWALK

PROFESSIONAL DR.

PROFESSIONAL DR.
DRIVEWAY B

LAWRENCEVILLE SUWANEE ROAD

PARKING

SKILLED NURSING FACILITY

PROFESSIONAL DRIVE

N/F
ADA PARTNERS IV
D.B. 2917, PG. 318 &
D.B. 46245, PG. 425
ZONED OI

N/F
NNN HEALTHCARE-
OFFICE REIT GWINNETT
D.B. 48171, PG. 023
ZONED OI

N/F
NNN HEALTHCARE-
OFFICE REIT GWINNETT
D.B. 48171, PG. 023
ZONED OI

GWINNETT 316
PHASE 1
TRACT 2, BLOCK 'A'
P.B. 37, PG. 121
ZONED HM

GWINNETT 316
PHASE 1
TRACT 2, BLOCK 'A'
P.B. 37, PG. 121
ZONED HM

GWINNETT 316
PHASE 1
TRACT 2, BLOCK 'A'
P.B. 37, PG. 121
ZONED HM

SEE SHEET NOTES

SUMMARY TABLE

NORTHSIDE HOSPITAL GWINNETT EXPANSION DRI #3858

DATE: 01/20/23

SITE ACREAGE: ~ 102.3 ACRES

JURISDICTION: CITY OF LAWRENCEVILLE

PARKING EXISTING: 2859 SPACES
PARKING PROPOSED: 4373 SPACES

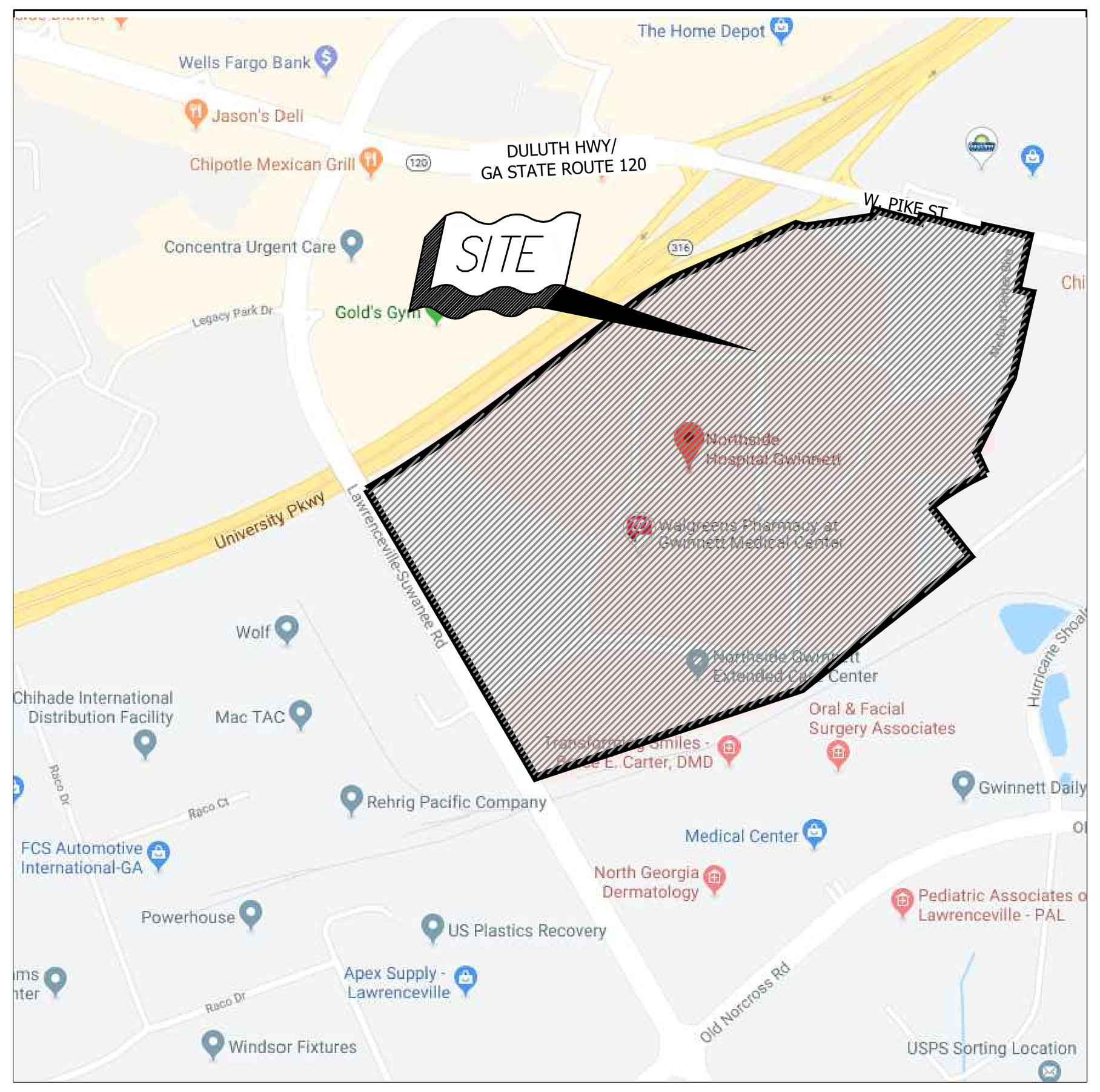
CIVIL ENGINEER: HUSSEY GAY BELL
3100 BRECKINRIDGE BLVD
BUILDING 300
DULUTH, GA 30096-4986
MARK BOND
770-923-1600

TRAFFIC ENGINEER: KIMLEY-HORN
817 WEST PEACHTREE ST. NW.
SUITE 601
ATLANTA, GA 30308
MATT FLYNN
404-900-7005

OWNER: NORTHSIDE HOSPITAL
1000 MEDICAL CENTER BLVD.
LAWRENCEVILLE, GA 30046

SITE PLAN
100-SC

keith hightower 1/20/2023 11:26 AM normal.ctb L:\projects\2021\21011e-nsg north tower expansion\dwg\production\dft\rsh-transportation base.dwg



VICINITY MAP

SCALE: NTS

N

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(IN FEET)
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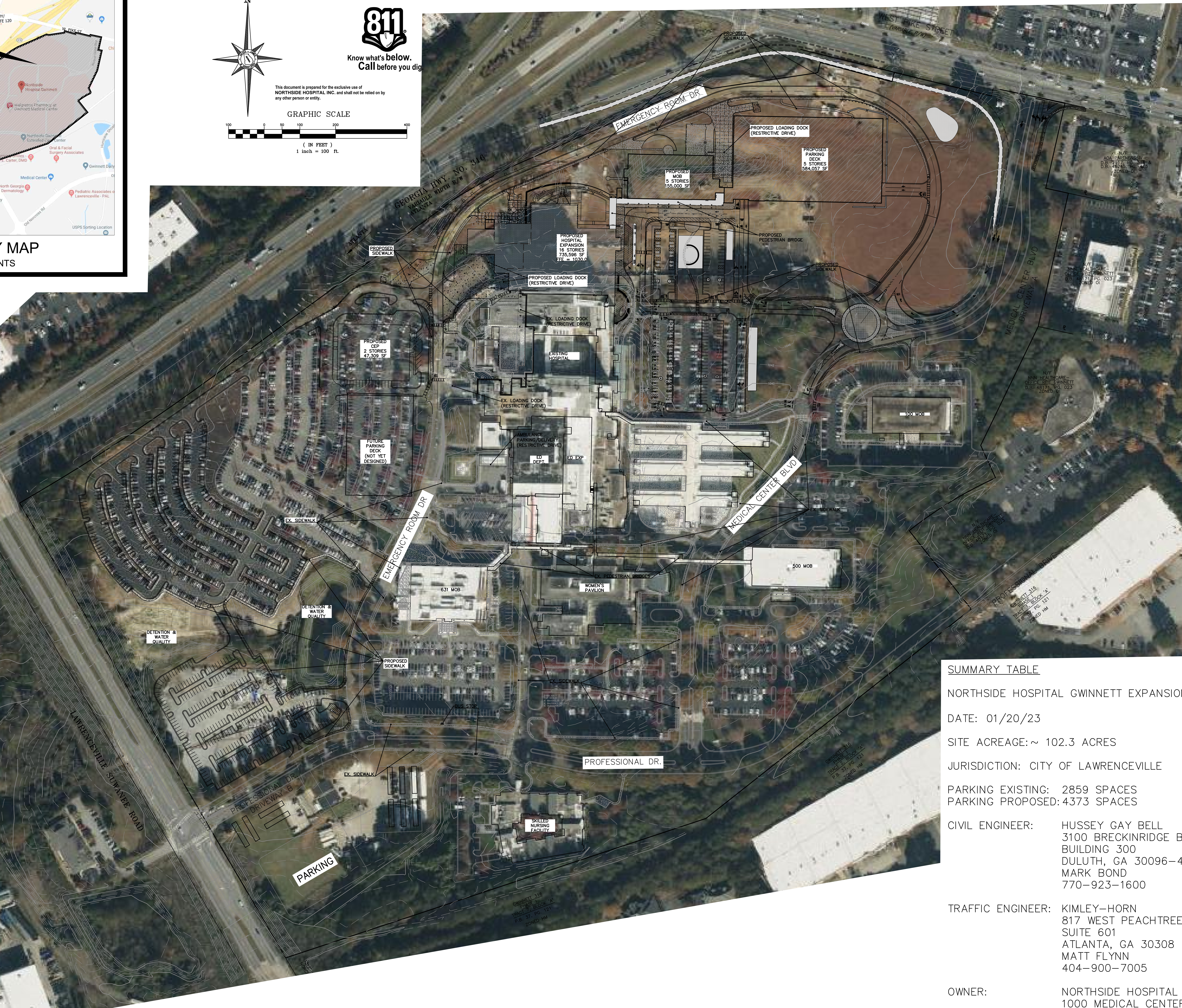
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LAWRENCEVILLE SUWANEE ROAD
PARKING

SUMMARY TABLE

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LAWRENCEVILLE, GA 30046

SITE PLAN
100-SC

keith hightower 1/20/2023 11:29 AM normal.ctb i:\aprojeng\2021\21011e-nsg north tower expansion\dwg\production\dri\nsh-transportation base.dwg

Trip Generation Analysis

Trip Generation Analysis (11th Ed. With *2nd Edition Handbook* Daily IC & *3rd Edition* AM/PM IC)
NSG Expansion DRI
Gwinnett County, GA

Land Use		Density		Daily Trips			AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out
Proposed Project Trips												
LUC	Land Use	Density	Units	**HIDE THIS ROW**	Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8
610	Hospital	480	Beds	10,714	5,357	5,357	859	618	241	994	338	656
720	Medical-Dental Office Building	155,000	Sq. Ft. GFA	5,388	2,694	2,694	420	340	80	646	252	394
Gross Project Trips				**16,102**	**8,051**	**8,051**	**1,279**	**958**	**321**	**1,640**	**590**	**1,050**
Office Trips				5,388	2,694	2,694	420	340	80	646	252	394
	Mixed-Use Reductions			*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Alternative Mode Reductions			*-538*	*-269*	*-269*	*-42*	*-34*	*-8*	*-65*	*-25*	*-39*
	Adjusted Office Trips			4,850	2,425	2,425	378	306	72	581	227	355
Other Non-Residential Trips				10,714	5,357	5,357	859	618	241	994	338	656
	Alternative Mode Reductions			*-1,072*	*-536*	*-536*	*-86*	*-62*	*-24*	*-99*	*-34*	*-66*
	Adjusted Other Non-Residential Trips			9,642	4,821	4,821	773	556	217	895	304	590
Mixed-Use Reductions - TOTAL				*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Alternative Mode Reductions - TOTAL				*-1,610*	*-805*	*-805*	*-128*	*-96*	*-32*	*-164*	*-59*	*-105*
Pass-By Reductions - TOTAL				*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
New Trips				**14,492**	**7,246**	**7,246**	**1,151**	**862**	**289**	**1,476**	**531**	**945**

Intersection Volume Worksheets

INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #1

Duluth Hwy at Medical Center Blvd/Hayes Driveway

AM PEAK HOUR

	Medical Center Blvd Northbound				Hayes Driveway Southbound				Duluth Hwy Eastbound				Duluth Hwy Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2022 Traffic Volumes	2	16	0	14	0	2	0	3	1	11	1,521	102	1	35	1,523	3
Count Balancing																
Pedestrians		0				0				0				0		
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles				0				0				0				0
Heavy Vehicles	0	0	0	2	0	0	0	1	0	1	62	3	0	3	41	0
Heavy Vehicle %	2%	2%	2%	14%	2%	2%	2%	33%	2%	9%	4%	3%	2%	9%	3%	2%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	2	16	0	14	0	2	0	3	1	11	1,521	102	1	35	1,523	3
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	3	0	2	0	0	0	1	0	2	261	18	0	6	261	1
Future Slip Lane Projection												-52				
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	2	19	0	16	0	2	0	4	1	13	1,782	68	1	41	1,784	4
2030 No-Build Heavy Vehicle %	2%	2%	2%	14%	2%	2%	2%	33%	2%	9%	4%	3%	2%	9%	3%	2%
Trip Distribution IN												20%		15%		
Trip Distribution OUT		(40%)		(15%)												
Balancing Adjustment																
Office Trips	0	29	0	11	0	0	0	0	0	0	0	61	0	46	0	0
Trip Distribution IN												20%		15%		
Trip Distribution OUT		(40%)		(15%)												
Balancing Adjustment																
Other Non-Residential Trips	0	87	0	33	0	0	0	0	0	0	0	111	0	83	0	0
Total Vehicular Project Trips	0	116	0	44	0	0	0	0	0	0	0	172	0	129	0	0
2030 Build Traffic	2	135	0	60	0	2	0	4	1	13	1,782	240	1	170	1,784	4
2030 Build Heavy Vehicle %	2%	2%	2%	14%	2%	2%	2%	33%	2%	9%	4%	3%	2%	9%	3%	2%

PM PEAK HOUR

	Medical Center Blvd Northbound				Hayes Driveway Southbound				Duluth Hwy Eastbound				Duluth Hwy Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2022 Traffic Volumes	1	89	0	35	0	13	0	19	0	12	1,717	42	0	10	1,548	2
Pedestrians		0				0				0				0		
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Heavy Vehicles	0	0	0	0	0	1	0	1	0	1	34	0	0	2	24	0
Heavy Vehicle %	2%	2%	2%	2%	2%	8%	2%	5%	2%	8%	2%	2%	2%	20%	2%	2%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	1	89	0	35	0	13	0	19	0	12	1,717	42	0	10	1,548	2
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	15	0	6	0	2	0	3	0	2	295	7	0	2	266	0
Future Slip Lane Projection												-21				
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	1	104	0	41	0	15	0	22	0	14	2,012	28	0	12	1,814	2
2030 No-Build Heavy Vehicle %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trip Distribution IN												20%		15%		
Trip Distribution OUT		(40%)		(15%)												
Balancing Adjustment																
Office Trips	0	142	0	53	0	0	0	0	0	0	0	45	0	34	0	0
Trip Distribution IN												20%		15%		
Trip Distribution OUT		(40%)		(15%)												
Balancing Adjustment																
Other Non-Residential Trips	0	236	0	89	0	0	0	0	0	0	0	61	0	46	0	0
Total Vehicular Project Trips		378	0	142	0	0	0	0	0	0	0	106	0	80	0	0
2030 Build Traffic	1	482	0	183	0	15	0	22	0	14	2,012	134	0	92	1,814	2
2030 Build Heavy Vehicle %	2%	2%	2%	2%	2%	8%	2%	5%	2%	8%	2%	2%	2%	20%	2%	2%

INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #2

GA-120 Duluth Hwy (West)/I-40 SB Exit Ramp at SR 316 NB Exit Ramp/SR 316 NB Entry Ramp

AM PEAK HOUR

	SR 316 NB Exit Ramp Northbound				SR 316 NB Entry Ramp Southbound				GA-120 Duluth Hwy (West) Eastbound				I-40 SB Exit Ramp Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2022 Traffic Volumes	0	90	0	851	0	0	0	0	0	251	758	0	0	0	1,535	91
Count Balancing																
Pedestrians			0				0				0				0	
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles				0				0				0				0
Heavy Vehicles	0	7	0	39	0	0	0	0	0	15	21	0	0	0	44	2
Heavy Vehicle %	2%	8%	2%	5%	2%	2%	2%	2%	2%	6%	3%	2%	2%	2%	3%	2%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	0	90	0	851	0	0	0	0	0	251	758	0	0	0	1,535	91
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	15	0	146	0	0	0	0	0	43	130	0	0	0	263	16
Future Slip Lane Projection				-52												
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	0	105	0	945	0	0	0	0	0	294	888	0	0	0	1,798	107
2030 No-Build Heavy Vehicle %	2%	8%	2%	5%	2%	2%	2%	2%	2%	6%	3%	2%	2%	2%	3%	2%
Trip Distribution IN				5%							15%					
Trip Distribution OUT															(30%)	(10%)
Balancing Adjustment																
Office Trips	0	0	0	15	0	0	0	0	0	0	46	0	0	0	22	7
Trip Distribution IN				5%							15%					
Trip Distribution OUT															(30%)	(10%)
Balancing Adjustment																
Other Non-Residential Trips	0	0	0	28	0	0	0	0	0	0	83	0	0	0	65	22
Total Vehicular Project Trips	0	0	0	43	0	0	0	0	0	0	129	0	0	0	87	29
2030 Build Traffic	0	105	0	988	0	0	0	0	0	294	1,017	0	0	0	1,885	136
2030 Build Heavy Vehicle %	2%	8%	2%	5%	2%	2%	2%	2%	2%	6%	3%	2%	2%	2%	3%	2%

PM PEAK HOUR

	SR 316 NB Exit Ramp Northbound				SR 316 NB Entry Ramp Southbound				GA-120 Duluth Hwy (West) Eastbound				I-40 SB Exit Ramp Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2022 Traffic Volumes	0	125	4	735	0	0	0	0	0	396	1,179	0	0	0	1,364	212
Pedestrians			0				0				0				0	
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Heavy Vehicles	0	1	0	18	0	0	0	0	0	15	12	0	0	0	17	3
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	0	125	4	735	0	0	0	0	0	396	1,179	0	0	0	1,364	212
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	21	1	126	0	0	0	0	0	68	202	0	0	0	234	36
Future Slip Lane Projection				-21												
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	0	146	5	840	0	0	0	0	0	464	1,381	0	0	0	1,598	248
2030 No-Build Heavy Vehicle %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trip Distribution IN				5%							15%					
Trip Distribution OUT															(30%)	(10%)
Balancing Adjustment																
Office Trips	0	0	0	11	0	0	0	0	0	0	34	0	0	0	107	36
Trip Distribution IN				5%							15%					
Trip Distribution OUT															(30%)	(10%)
Balancing Adjustment																
Other Non-Residential Trips	0	0	0	15	0	0	0	0	0	0	46	0	0	0	177	59
Total Vehicular Project Trips		0	0	26	0	0	0	0	0	0	80	0	0	0	284	95
2030 Build Traffic	0	146	5	866	0	0	0	0	0	464	1,461	0	0	0	1,882	343
2030 Build Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%

INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #3

GA-120 Duluth Hwy (West)/GA-120 Duluth Hwy (East) at SR 316 SB Entry Ramp/SR 316 SB Exit Ramp

AM PEAK HOUR

	SR 316 SB Entry Ramp Northbound				SR 316 SB Exit Ramp Southbound				GA-120 Duluth Hwy (West) Eastbound				GA-120 Duluth Hwy (East) Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2022 Traffic Volumes	0	0	0	0	0	179	0	603	0	0	871	152	0	502	1,099	0
Count Balancing																
Pedestrians			0				0				0				0	
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles				0				0				0				0
Heavy Vehicles	0	0	0	0	0	0	0	28	0	0	34	10	0	9	40	0
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	4%	7%	2%	2%	4%	2%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	0	0	0	0	0	179	0	603	0	0	871	152	0	502	1,099	0
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	0	0	0	0	31	0	104	0	0	150	26	0	86	189	0
Future Slip Lane Projection																
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	0	0	0	0	0	210	0	707	0	0	1,021	178	0	588	1,288	0
2030 No-Build Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	4%	7%	2%	2%	4%	2%
Trip Distribution IN						10%					5%					
Trip Distribution OUT														(25%)	(5%)	
Balancing Adjustment																
Office Trips	0	0	0	0	0	31	0	0	0	0	15	0	0	18	4	0
Trip Distribution IN						10%					5%					
Trip Distribution OUT														(25%)	(5%)	
Balancing Adjustment																
Other Non-Residential Trips	0	0	0	0	0	56	0	0	0	0	28	0	0	54	11	0
Total Vehicular Project Trips	0	0	0	0	0	87	0	0	0	0	43	0	0	72	15	0
2030 Build Traffic	0	0	0	0	0	297	0	707	0	0	1,064	178	0	660	1,303	0
2030 Build Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	4%	7%	2%	2%	4%	2%

PM PEAK HOUR

	SR 316 SB Entry Ramp Northbound				SR 316 SB Exit Ramp Southbound				GA-120 Duluth Hwy (West) Eastbound				GA-120 Duluth Hwy (East) Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2022 Traffic Volumes	0	0	0	0	0	67	1	466	0	0	1,459	214	0	561	963	0
Pedestrians			0				0				0				0	
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Heavy Vehicles	0	0	0	0	0	2	0	8	0	0	23	9	0	9	10	0
Heavy Vehicle %	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	0	0	0	0	0	67	1	466	0	0	1,459	214	0	561	963	0
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	0	0	0	0	12	0	80	0	0	250	37	0	96	165	0
Future Slip Lane Projection																
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	0	0	0	0	0	79	1	546	0	0	1,709	251	0	657	1,128	0
2030 No-Build Heavy Vehicle %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trip Distribution OUT														(25%)	(5%)	
Balancing Adjustment																
Office Trips	0	0	0	0	0	23	0	0	0	0	11	0	0	89	18	0
Trip Distribution IN						10%					5%					
Trip Distribution OUT														(25%)	(5%)	
Balancing Adjustment																
Other Non-Residential Trips	0	0	0	0	0	30	0	0	0	0	15	0	0	148	30	0
Total Vehicular Project Trips		0	0	0	0	53	0	0	0	0	26	0	0	237	48	0
2030 Build Traffic	0	0	0	0	0	132	1	546	0	0	1,735	251	0	894	1,176	0
2030 Build Heavy Vehicle %	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%

INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #4

Professional Drive/State Office Driveway at US 29 (Lawrenceville-Suwanee Rd)

AM PEAK HOUR

	US 29 (Lawrenceville-Suwanee Rd) Northbound				US 29 (Lawrenceville-Suwanee Rd) Southbound				Professional Drive Eastbound				State Office Driveway Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2021 Traffic Volumes	0	3	774	214	1	210	708	1	0	3	1	3	0	138	0	115
Count Balancing																
Pedestrians			0				0				0				0	
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles				0				0				0				0
Heavy Vehicles	0	0	10	6	0	3	17	0	0	0	0	0	0	2	0	2
Heavy Vehicle %	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	0	3	774	214	1	210	708	1	0	3	1	3	0	138	0	115
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17		1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	1	133	37	#VALUE!	36	122	0	0	1	0	1	0	24	0	20
Future Slip Lane Projection																
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	0	4	907	251	0	246	830	1	0	4	1	4	0	162	0	135
2030 No-Build Heavy Vehicle %	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Trip Distribution IN				30%		15%										
Trip Distribution OUT														(30%)		(15%)
Balancing Adjustment																
Office Trips	0	0	0	92	0	46	0	0	0	0	0	0	0	22	0	11
Trip Distribution IN				30%		15%										
Trip Distribution OUT														(30%)		(15%)
Balancing Adjustment																
Other Non-Residential Trips	0	0	0	167	0	83	0	0	0	0	0	0	0	65	0	33
Total Vehicular Project Trips	0	0	0	259	0	129	0	0	0	0	0	0	0	87	0	44
2030 Build Traffic	0	4	907	510	0	375	830	1	0	4	1	4	0	249	0	179
2030 Build Heavy Vehicle %	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

PM PEAK HOUR

	US 29 (Lawrenceville-Suwanee Rd) Northbound				US 29 (Lawrenceville-Suwanee Rd) Southbound				Professional Drive Eastbound				State Office Driveway Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2021 Traffic Volumes	0	0	766	85	2	39	1,008	0	0	3	0	0	1	246	0	306
Pedestrians			0				0				0				0	
Conflicting Pedestrians		0		0		0		0		0		0		0		0
Heavy Vehicles		0	1	4	0	1	12	0	0	0	0	0	0	3	0	3
Heavy Vehicle %	2%	2%	2%	5%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2022 Volumes	0	0	766	85	2	39	1,008	0	0	3	0	0	1	246	0	306
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Background Growth Trips	0	0	131	15	0	7	173	0	0	1	0	0	0	42	0	53
Future Slip Lane Projection																
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030 No-Build Traffic	0	0	897	100	2	46	1,181	0	0	4	0	0	1	288	0	359
2030 No-Build Heavy Vehicle %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trip Distribution IN				30%		15%										
Trip Distribution OUT														(30%)		(15%)
Balancing Adjustment																
Office Trips	0	0	0	68	0	34	0	0	0	0	0	0	0	107	0	53
Trip Distribution IN				30%		15%										
Trip Distribution OUT														(30%)		(15%)
Balancing Adjustment																
Other Non-Residential Trips	0	0	0	91	0	46	0	0	0	0	0	0	0	177	0	89
Total Vehicular Project Trips		0	0	159	0	80	0	0	0	0	0	0	0	284	0	142
2030 Build Traffic	0	0	897	259	2	126	1,181	0	0	4	0	0	1	572	0	501
2030 Build Heavy Vehicle %	2%	2%	2%	5%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

Growth Rate Considerations

NDOT Recommended Growth Rate	2.0%

Population Data

County (ARC) Population Annual Growth Projection (2015-2050)	X%
County (Census) Population Annual Growth (2010-2019)	X%
City (Census) Population Annual Growth (2010-2019)	X%

Nearby Developments

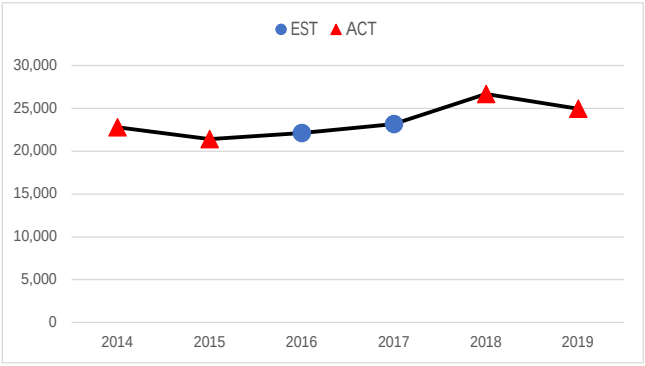
No nearby developments with known growth rates were identified.

Historical ADT Count Data

Source:	TDOT
Location:	Church St
	w/o 15th Ave
Route #:	
Route Type:	Minor Arterial
Station:	19000324

Count Type	Count Year	Volume	Growth Rate
ACT	2014	22,815	
ACT	2015	21,419	-6.12%
EST	2016	22,143	3.38%
EST	2017	23,193	4.74%
ACT	2018	26,692	15.09%
ACT	2019	24,964	-6.47%

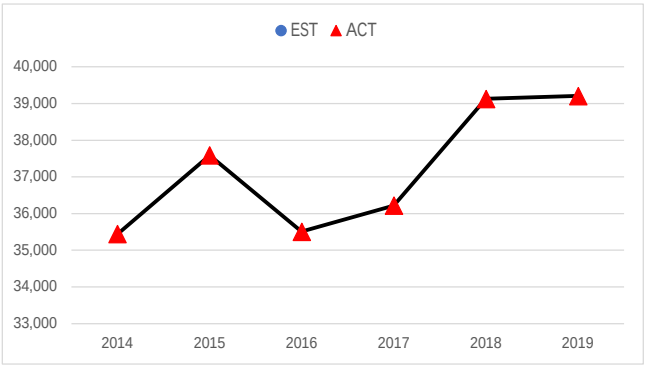
5 Year Growth Rate	**1.82%**
Avg. 1 Year Growth Rate	**2.12%**
Most Recent Actual Count Growth Rate	**-6.47%**



Source:	TDOT
Location:	Charlotte Ave
	e/o 15th Ave
Route #:	
Route Type:	Other Principal Arterial
Station:	19000323

Count Type	Count Year	Volume	Growth Rate
ACT	2014	35,444	
ACT	2015	37,589	6.05%
ACT	2016	35,509	-5.53%
ACT	2017	36,220	2.00%
ACT	2018	39,129	8.03%
ACT	2019	39,206	0.20%

5 Year Growth Rate	**2.04%**
Avg. 1 Year Growth Rate	**2.15%**
Most Recent Actual Count Growth Rate	**0.20%**



Source:	TDOT
Location:	Church St
	e/o 11th Ave
Route #:	
Route Type:	Minor Arterial
Station:	19000174

Count Type	Count Year	Volume	Growth Rate
ACT	2014	15,684	
ACT	2015	15,952	1.71%
EST	2016	15,710	-1.52%
EST	2017	16,298	3.74%
ACT	2018	22,618	38.78%
ACT	2019	19,364	-14.39%

5 Year Growth Rate	**4.31%**
Avg. 1 Year Growth Rate	**5.67%**