



Friendship Luxe Development

Traffic Impact Study

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DRAFT

A stylized, monochromatic blue illustration of a cityscape. It features various buildings of different heights, a street with several cars, and a large tree on the right side. The scene is set against a dark blue background with a subtle pattern of light blue dots.

**RISE TO THE
CHALLENGE**

Executive Summary

The purpose of this study is to evaluate the potential traffic impacts of the proposed Friendship Luxe mixed-use development. The site is in Hall County, Georgia along the north side of SR 347/Friendship Road, and east of Reunion Way. Based on the site concept plan (see Appendix B), the proposed development will contain up to 185 single-family attached residential apartments and approximately 4-acres of commercial/retail space. The development is expected to be fully built out by year 2027. The concept plan for the development illustrates the conditions in the study area, including the proposed residential units and the driveway location. Access to the site is proposed via one driveway through the existing intersection of SR 347 at Celebration Church Driveway. The new intersection is proposed to be a restricted crossing U-turn (RCUT).

For the purposes of the traffic study, the analysis included the expected completion (build-out) of the development by year 2027. This study performed an analysis of existing traffic conditions and future traffic conditions. The future conditions analysis was performed for the year 2027 No-Build and Build Conditions. The traffic impact study network consisted of two intersections: SR 347 at Napa Ridge Road/Reunion Way and SR 347 at Celebration Church Driveaway/Proposed Driveway #1.

Capacity Results

The existing intersections are currently operating with acceptable levels of service during the PM peak hour. During the AM peak hour, intersection one (1) operates with an acceptable level of service, while intersection two (2) operates with a slightly low level of service (LOS E). It is important to note that it is common for a side-street stop-control intersection to operate with a low level of service/high delay when the side-street is intersecting a high-volume roadway. The one (1) vehicle recorded turning left from the side-street had to wait for gaps in the high eastbound and westbound traffic, causing the poor level of service E.

By the 2027 Future No-Build Conditions, the intersections are expected to continue operating with acceptable levels of service during the PM peak hour. During the AM peak hour, intersection one (1) is expected to continue operating with an acceptable level of service, while intersection two (2) is expected to continue operating with a slightly low level of service.

By the 2027 Future Build Conditions, the intersections are expected to operate at acceptable levels of service during the AM and PM peak hours. Since the proposed driveway is proposed to become a Restricted Crossing U-turn intersection, the level of service greatly improves from a LOS E to a LOS B due to the restriction of left-turn movements out of the side-street driveways.

Proposed Site Driveways

Based on estimated traffic volumes and the capacity analysis in the year 2027 Build year conditions, the following driveway geometry recommendations are provided:

- SR 347 at Celebration Church Driveway/Proposed Driveway #1
 - Construct driveway with one entry lane and one exit lane; restricted crossing U-turn intersection; with side-street yield-control
 - Construct a westbound right-turn deceleration lane along SR 347

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1. Existing Conditions

1.1 Site Conditions

The proposed development is located on undeveloped property. **Figure 1** provides a general location map. **Figure 2** is an aerial that shows the site location and the proposed site driveway (Figures included in Appendix A). Access to the property is proposed via one driveway through the existing median opening of SR 347/Friendship Road at Celebration Church Driveway. (The concept plan is included in Appendix B). Nearby land uses are either residential homes or undeveloped property.

1.2 Roadway Conditions

State Route 347 is a four-lane roadway with a 45-mph posted speed limit within the study area. SR 347 is an east-west oriented roadway with mostly residential uses nearby and grassed shoulders in the nearby vicinity. GDOT classifies SR 347 as an urban minor arterial.

Reunion Way and Napa Ridge Road are two-lane roadways with a 25-mph posted speed limit. GDOT classifies both Reunion way and Napa Ridge Road as local roads. Reunion Way and Napa Ridge Road are north-south oriented roadways, with residential uses, undeveloped land, and grass shoulders in the nearby vicinity.

Celebration Church Driveway is a two-lane roadway with a 15-mph posted speed limit. GDOT classifies Celebration Church Driveway as a local road. Celebration Church Driveway is a north-south oriented roadway, with Celebration Church, undeveloped land, and grass shoulders in the nearby vicinity.

The intersection of SR 347 at Reunion Way/Napa Ridge Road is a restricted crossing U-turn (RCUT), side-street yield-controlled, and has the following lane configuration:

- Northbound Napa Ridge Road: one right-turn lane
- Southbound Reunion Way: one right-turn lane
- Eastbound SR 347: one left-turn lane, two through lanes, and one right-turn lane
- Westbound SR 347: one left-turn lane, two through lanes, and one right-turn lane

The intersection of SR 347 at Celebration Church Driveway is a T-intersection, side-street stop-controlled, and has the following lane configuration:

- Northbound Celebration Church Driveway: one shared left-turn/through/right-turn lane
- Eastbound SR 347: one U-turn-lane, two through lanes, and one right-turn lane.
- Westbound SR 347: one shared left-turn/U-turn-lane and two through lanes

(**Figure 3** identifies existing traffic conditions and lane geometry).

1.3 Traffic Volumes

Traffic counts were performed when Hall County public schools were in session. The traffic data collected included two 4-hour turning movement count at the study intersections. Raw traffic counts are included in Appendix C.

Historical traffic volume data available from the GDOT TADA source were utilized to develop the annual growth factor. Three locations are indicated in Appendix D. The three locations are:

- GDOT Count Station #139-0491 located on SR 347, west of the development
- GDOT Count Station #139-0437 located on Spout Springs Rd, north of the development
- GDOT Count Station #139-0545 located on SR 211, east of the development

1.4 Crash Review

Crash history was performed at the intersection of SR 374 at Celebration Church Driveway, for use in the GDOT ICE Policy review, as appropriate. GDOT’s Numetric database was used to analyze historical crash data at or near proposed site driveway along SR 374 and Celebration Church Driveway. Crash records for a 5-year period (2018-2022) are summarized in **Table 1** below.

Table 1: Site Frontage 5-Year Crash History (2018-2022)				
Manner of Collision	PDO	Injury*	Fatality*	Total Crashes*
Angle	0	0	0	0
Head On	0	0	0	0
Rear End	0	1	0	1
Sideswipe – Same Direction	1	0	0	1
Sideswipe – Opposite Direction	0	0	0	0
Not a Collision with Motor Vehicle	1	0	0	0
Total	1	1	0	2

**Note: Number of crashes (not number of injured persons)*

The records indicate there were a total of 2 crashes – 1 property damage only (PDO) crash and 1 injury-related crash. The one (1) injury crash was a rear end collision.

2. Future Conditions

2.1 Future No-Build Traffic Volumes

Future No-Build traffic volumes were developed by reviewing the historical traffic volumes roadways within the vicinity of the project and historic population growth in the county. Three nearby GDOT count stations were evaluated to determine a growth rate. The annual historic compound growth rate at the GDOT count stations averaged to 1.6% per year. Hall County's population growth rate was most recently reported as 1.23% per year in 2020. The Governor's Office of Planning and Budget developed population projections which indicates an estimated growth of 1.39% per year by 2027 in Hall County.

Considering this data, a 1.6% per year growth rate to account for background traffic volume growth was used in the traffic study. For the purposes of this study the proposed development is expected to be fully built out by 2027. A 1.6% per year growth rate was applied to the 2023 existing volumes to calculate year 2027 No-Build traffic volumes. The 2027 No-Build traffic volumes are indicated in the Intersection Volume Development tables included in the Appendix E.

2.2 Future Roadway Conditions

A review of Georgia DOT and Hall County planned and programmed transportation projects was performed. There are no planned/programmed roadway projects near the development site.

3. Proposed Development Traffic

Project traffic was calculated for the proposed development. Project traffic is defined as the vehicular trips expected to be generated by the development and distributed over the roadway network.

3.1 Trip Generation

The project driveway volumes were calculated based on the Institute of Transportation Engineers' (ITE) Trip Generation Manual, Eleventh Edition. The development proposes 185 Single-Family Attached residential units and 4 acres of commercial/retail space. The most applicable ITE land use (LU) codes are LU 215 (Single-Family Attached Housing and LU 822 (Strip Retail Plaza). Due to the development's land use types, pass-by reductions were included. **Table 2** below summarizes the trips expected daily, during the AM peak hour, and during the PM peak hour for the development.

Table 2: Proposed Site Trip Generation								
Land Use (ITE Code)	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
		Two-Way Total	Enter	Exit	Total	Enter	Exit	Total
Single-Family Attached Housing (210)	185 (Dwelling Units)	1,359	28	63	91	61	46	107
Strip Retail Plaza (822)	5,000 SF	441	11	7	18	24	24	48
Gross Trips (Driveway Volumes)		1,800	39	70	109	85	70	155
Total Pass-By Reductions		0	0	0	0	-8	-8	-16
Net New Trips (Total with reductions)		1,800	39	70	109	77	62	139

Note: Trip Generation Rates based on ITE Trip Generation, 11th Edition

3.2 Trip Distribution and Assignment

An overall trip distribution and assignment of project trips was based on existing traffic patterns and a review of land uses and the street network in the area. This information was used to apply the project traffic volumes at the study intersections and development driveways.

The directional distribution for the proposed development is estimated to be:

- 55% to/from the east along SR 347
- 45% to/from the west along SR 347

Project trip distribution is further detailed in **Figure 4** (Appendix A).

3.3 Future Build Traffic Volumes

The 2027 future Build traffic volumes were calculated by adding the proposed development (Friendship Luxe development) traffic volumes to the projected year 2027 No-Build traffic volumes. **Figure 5** (Appendix A) illustrates the year 2027 Build traffic volumes.

4. Capacity Analysis

Capacity analysis was performed at the study intersections for the weekday AM and PM peak hours. Intersection Level of Service (LOS) was calculated based on the methodologies contained in the Highway Capacity Manual, 6th Edition. The Synchro Studio software, which utilizes the HCM 6th Edition methodology, was utilized to perform the analyses.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions. Level of service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorist’s perceptions. The Highway Capacity Manual defines six levels of service, LOS A through LOS F. Level of service A indicates excellent operations with little delay to motorists, while level of service F indicates extremely long delay.

Level of service for unsignalized intersections is calculated for the average control delay incurred for vehicles on the stop control approach, compared to the average control delay per vehicle for all approaches at a signalized intersection. Control delay for vehicles include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. **Table 3** below indicates the relationship between delay and LOS for signalized and unsignalized intersections, respectively. Level-of-service “E” is typically considered to be the limit of acceptable delay.

Several factors affect the controlled delay for unsignalized intersections, including the availability of gaps in the cross-street traffic, and acceptable gap time to make the movement from the stop position. For stop-control intersections, LOS E and F exist when there are insufficient gaps in traffic, resulting in long delays. Low level of service for stop-control approaches are not uncommon at major cross-streets.

Table 3: Level of Service Criteria		
Level of Service	Average Control Delay Per Vehicle (sec)	
	Signalized Intersection	Unsignalized Intersection
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

4.1 Existing Conditions Capacity Analysis

Capacity analysis was performed for the year 2023 traffic volumes and the existing roadway conditions. The existing traffic conditions are illustrated in **Figure 3**. **Table 4** summarizes the results of the capacity analysis.

Table 4: Existing Year (2023) Level of Service				
Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1. SR 347 at Napa Ridge Rd/Reunion Way	Stop-Control	NB	B (13)	C (15)
		SB	B (13)	B (13)
2. SR 347 at Celebration Church Drwy	Stop-Control	NB	E (36)	B (13)

**Average vehicle delay in seconds*

The existing intersections are currently operating with acceptable levels of service during the PM peak hour. During the AM peak hour, intersection one (1) operates with an acceptable level of service, while intersection two (2) operates with a slightly low level of service. It is important to note that it is common for a side-street stop-control intersection to operate with a low level of service/high delay when the side-street is intersecting a high-volume roadway. The one (1) vehicle recorded turning left from the side-street had to wait for gaps in the high eastbound and westbound traffic, causing the poor level of service E.

4.2 Future No-Build Conditions Capacity Analysis

Capacity analysis was performed for the year 2027 Future Conditions and includes the No-Build traffic and the existing roadway conditions. **Table 5** summarizes the results of the capacity analysis for the Future No-Build Conditions.

Table 5: Future Year (2027) Level of Service (No-Build)				
Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1. SR 347 at Napa Ridge Rd/Reunion Way	Stop-Control	NB	B (13)	C (16)
		SB	B (13)	B (14)
2. SR 347 at Celebration Church Drwy	Stop-Control	NB	E (41)	B (14)

**Average vehicle delay in seconds*

By the 2027 Future No-Build Conditions, the intersections are expected to continue operating with acceptable levels of service during the PM peak hour. During the AM peak hour, intersection one (1) is expected to continue operating with an acceptable level of service, while intersection two (2) is expected to continue operating with a slightly low level of service.

4.3 Future Build Conditions Capacity Analysis

Capacity analysis was performed for the year 2027 Future Build Conditions and includes the No-Build traffic volumes plus the Friendship Luxe development volumes. The Build traffic conditions and volumes are illustrated in **Figure 5**. **Table 6** summarizes the results of the capacity analysis.

Table 6: Future Year (2027) Level of Service (Build)				
Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1. SR 347 at Napa Ridge Rd/Reunion Way	Stop-Control	NB	B (13)	C (17)
		SB	B (14)	B (14)
2. SR 347 at Celebration Church Drwy/Proposed Drwy #1	RCUT/Yield-Control	NB	B (13)	B (13)

*Average vehicle delay in seconds

By the 2027 Future Build Conditions, the intersections are expected to operate at acceptable levels of service during the AM and PM peak hours. Since the proposed driveway is proposed to become a Restricted Crossing U-turn intersection, the level of service greatly improves from a LOS E to a LOS B due to the restriction of left-turn movements out of the side-street driveways.

5. Recommendations

Recommendations for access for the proposed Friendship Luxe development are based on existing conditions, the proposed development use, and expected traffic volumes. The appropriate traffic control at driveways was analyzed. Recommendations included reviewing Hall County and Georgia DOT requirements, knowledge of general transportation standards, and engineering judgment.

Access to the site is proposed via one driveway through the existing median opening of SR 347/Friendship Road at Celebration Church Driveway. The new intersection is proposed to be a restricted crossing U-turn (RCUT). The proposed lane configuration is expected to be sufficient to accommodate the development traffic volumes. The required intersection sight distance will need to be verified at the proposed driveway location as part of the driveway design.

5.1 Recommended Driveway Geometry

Based on estimated traffic volumes and the capacity analysis in the year 2027 Build year conditions, the following driveway geometry recommendations are provided:

- SR 347 at Celebration Church Driveway/Proposed Driveway #1
 - Construct driveway with one entry lane and one exit lane; restricted crossing U-turn intersection; with side-street yield-control
 - Construct a westbound right-turn deceleration lane along SR 347

The Georgia DOT Driveway and Encroachment Control Manual was reviewed for the proposed driveway along State Route 347. The GDOT driveway manual, Section 4I, Auxiliary Turn Lanes, provides minimum volumes requiring right-turn or left-turn deceleration lanes. The year 2027 Build traffic volumes were compared to the Georgia DOT driveway requirements for deceleration lanes along SR 347.

Right-Turn Deceleration Lane Criteria

Based on the 45-mph speed limit, two-lane roadway, and more than 10,000 ADT (Average Daily Traffic) on SR 347, Table 4-6 indicates a dedicated right-turn lane is required if there are at least 75 vehicles turning right into the site within a day. The estimated daily westbound right-turn volume entering the development is 405 vehicles per day at the proposed site driveway.

Calculation: $1,800 \text{ daily trips} / 2 = 900 \text{ entering trips} * 0.45 \text{ (percentage of vehicles turning right at Driveway)} = 405 \text{ vehicles}$

5.2 GDOT ICE Report

The GDOT Intersection Control Evaluation (ICE) policy was reviewed at the proposed site driveway along SR 347. The GDOT ICE Report is included in Appendix G and can be submitted to Georgia DOT when the driveway encroachment permit is requested from Georgia DOT.

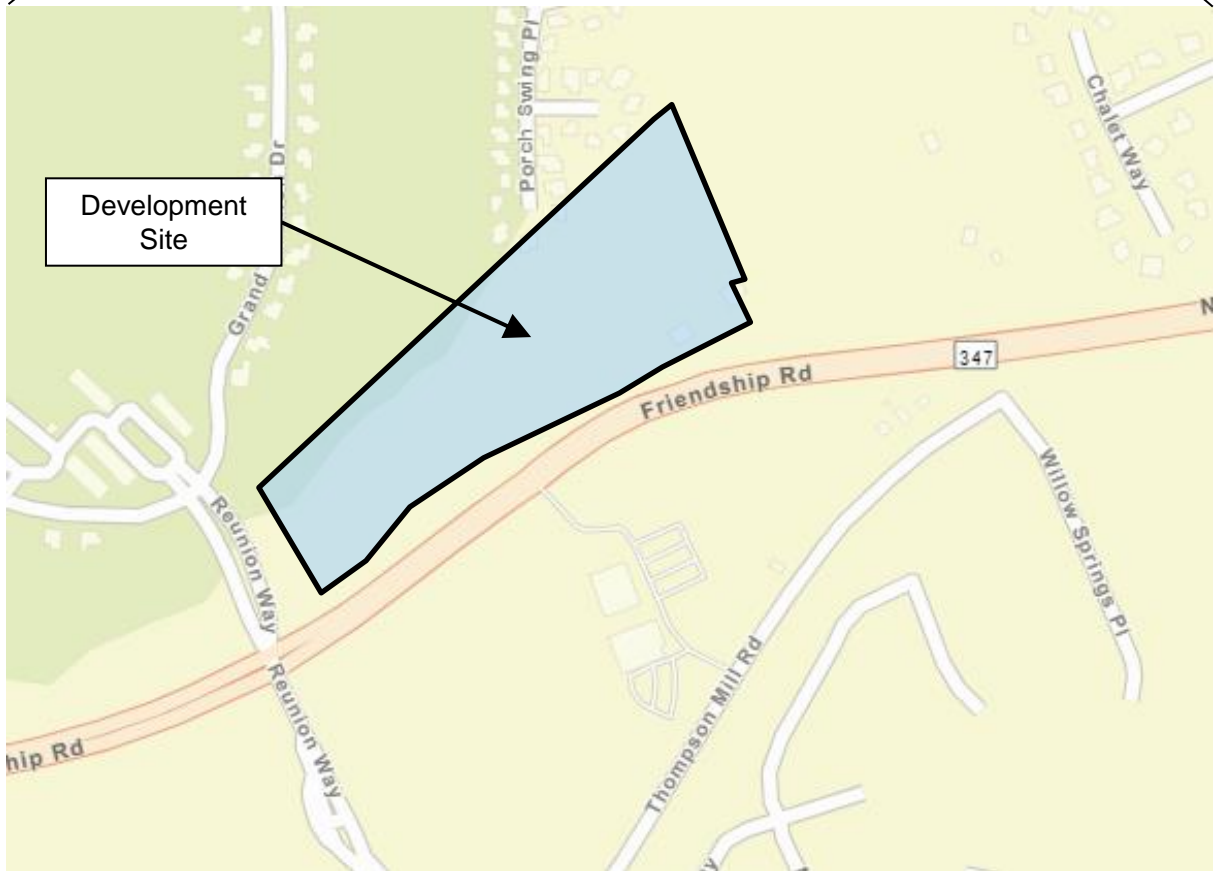
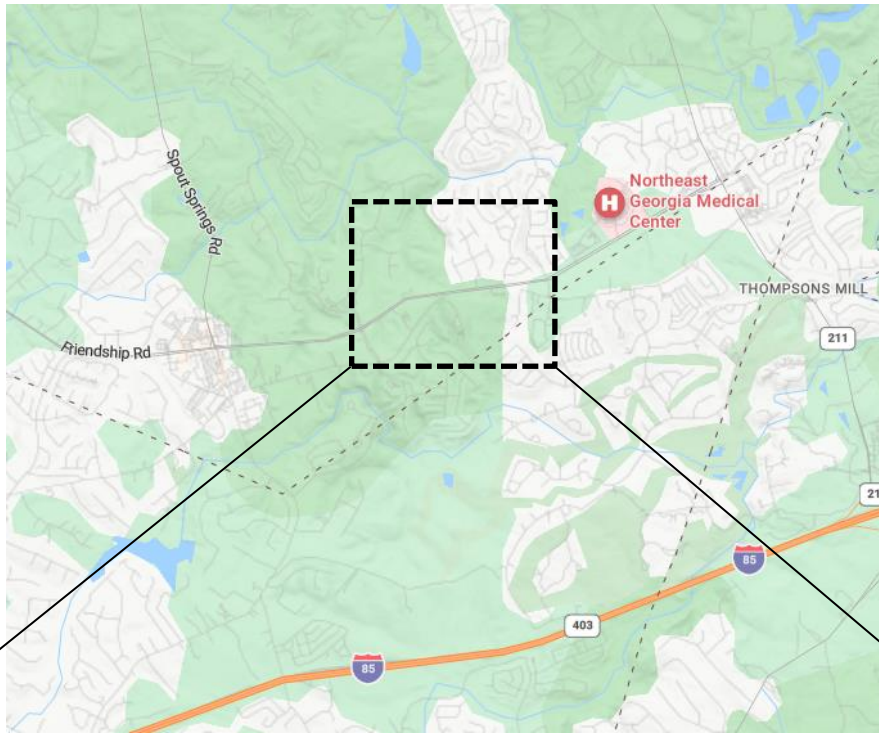
The purpose of the ICE process is to consider traffic control alternatives at intersections, analyze the options, and select the alternative that reflects the overall best value and balances the need to address operations, safety, project cost and environmental impacts. At proposed development driveways, this process included the traffic and crash history conditions and completing the Stage 1 screening form. For Proposed Driveway #1, the most appropriate traffic control is a restricted crossing U-turn (RCUT).

Appendices

- Appendix A
 - Figures
- Appendix B
 - Concept Plan
- Appendix C
 - Traffic Count Data
- Appendix D
 - GDOT Traffic Data
- Appendix E
 - Intersection Volume Development
- Appendix F
 - Capacity Analysis Reports
- Appendix G
 - GDOT ICE Report

Appendix A

Figures



Not to Scale




**Traffic Impact Study
Friendship Luxe Development
Hall County, Georgia**

**Location
Map**

**Figure
1**

Legend:

 Study Intersection



Not to Scale



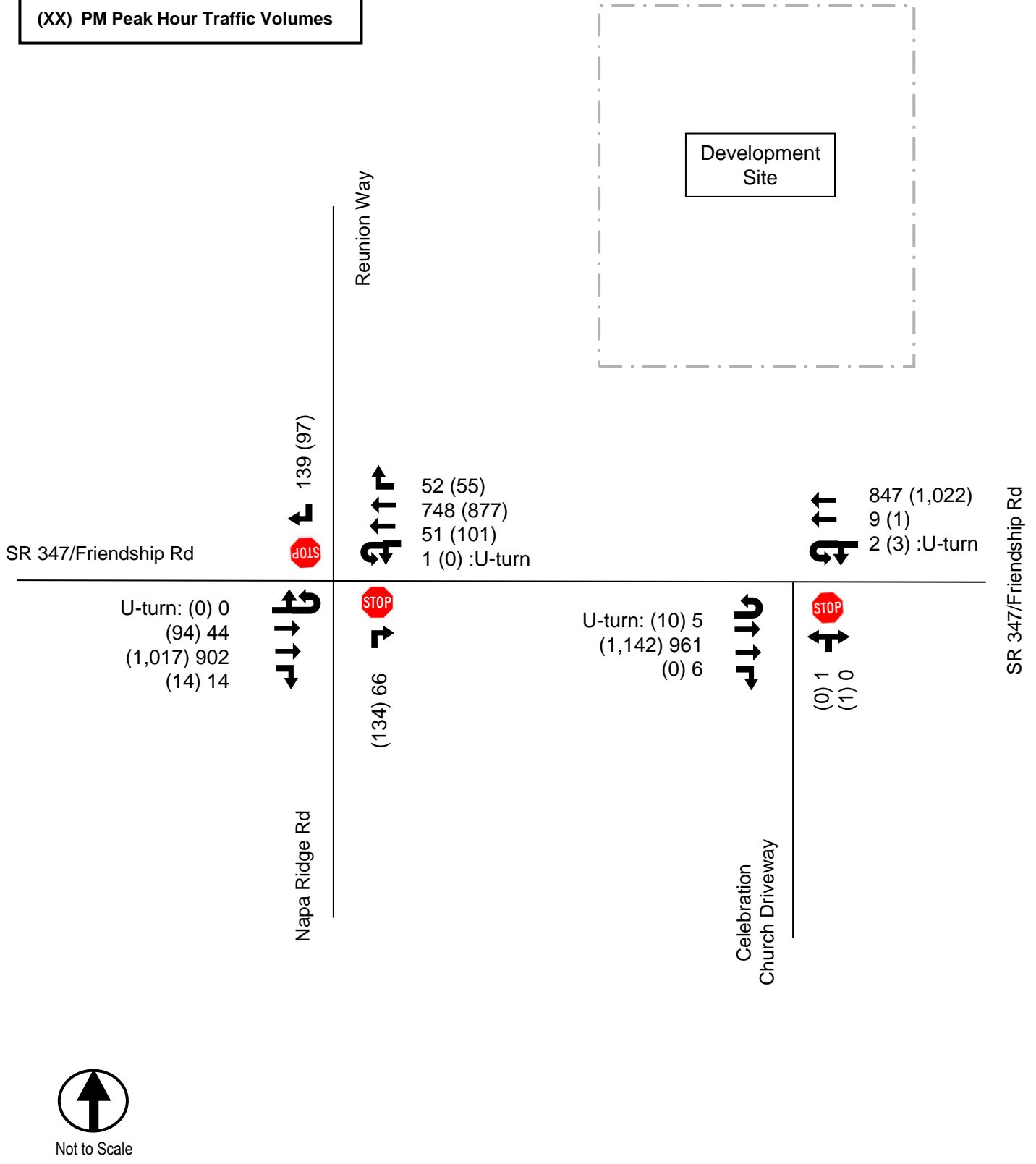
**Traffic Impact Study
Friendship Luxe Development
Hall County, Georgia**

**Aerial &
Access
Locations**

**Figure
2**

LEGEND:

- ← Existing Roadway Laneage
- XX AM Peak Hour Traffic Volumes
- (XX) PM Peak Hour Traffic Volumes



**Traffic Impact Study
Friendship Luxe Development
Hall County, Georgia**

**Existing Traffic
Conditions**

**Figure
3**

Legend:

100 Development Trip %



Not to Scale





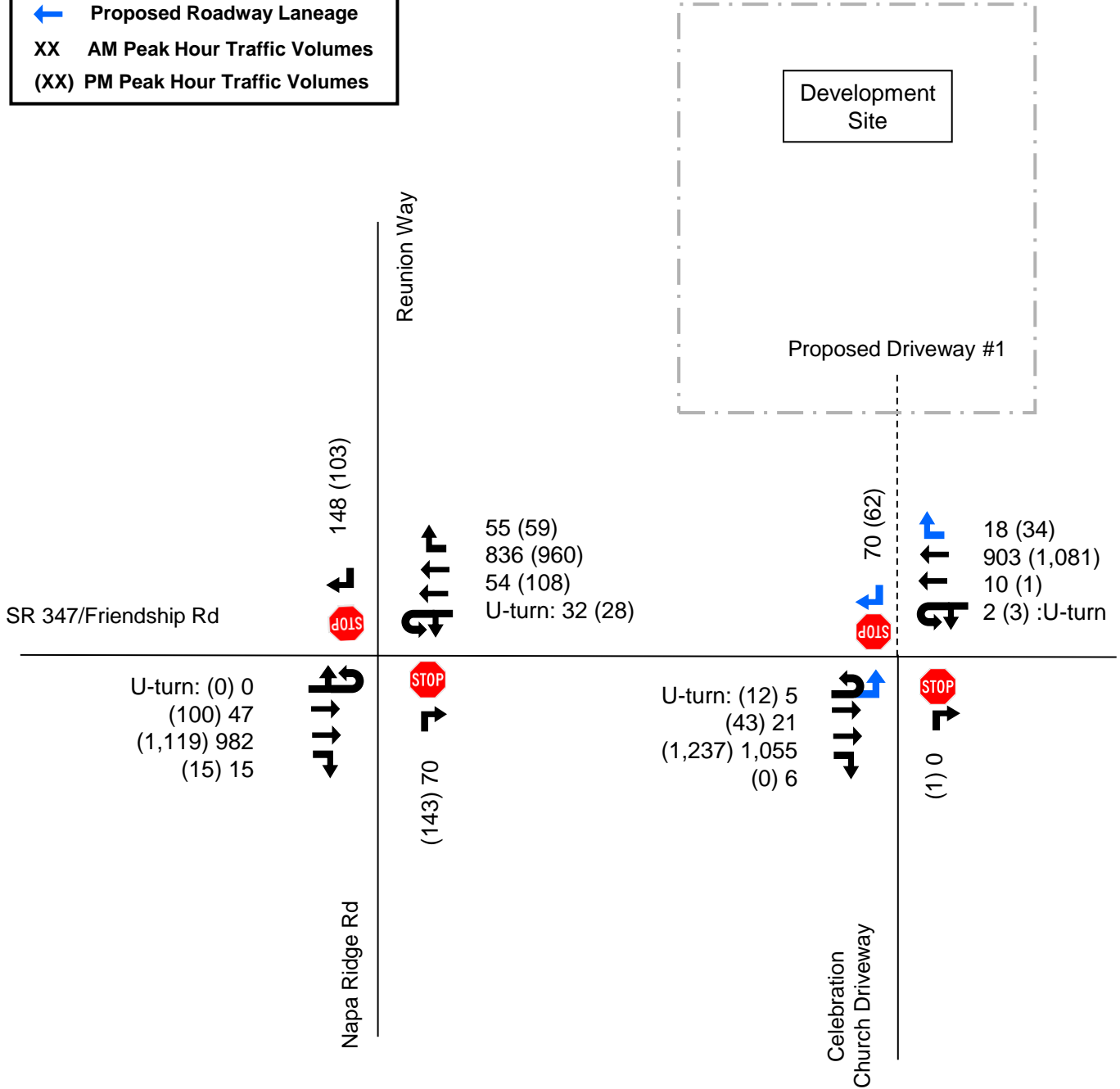
Traffic Impact Study
Friendship Luxe Development
Hall County, Georgia

Project Trip
Distribution

Figure
4

LEGEND:

-  Existing Roadway Laneage
-  Proposed Roadway Laneage
- XX** AM Peak Hour Traffic Volumes
- (XX)** PM Peak Hour Traffic Volumes



Not to Scale



**Traffic Impact Study
Friendship Luxe Development
Hall County, Georgia**

**Future Build
(Year 2027)
Conditions**

**Figure
5**

Appendix B

Concept Plan

GENERAL NOTES:

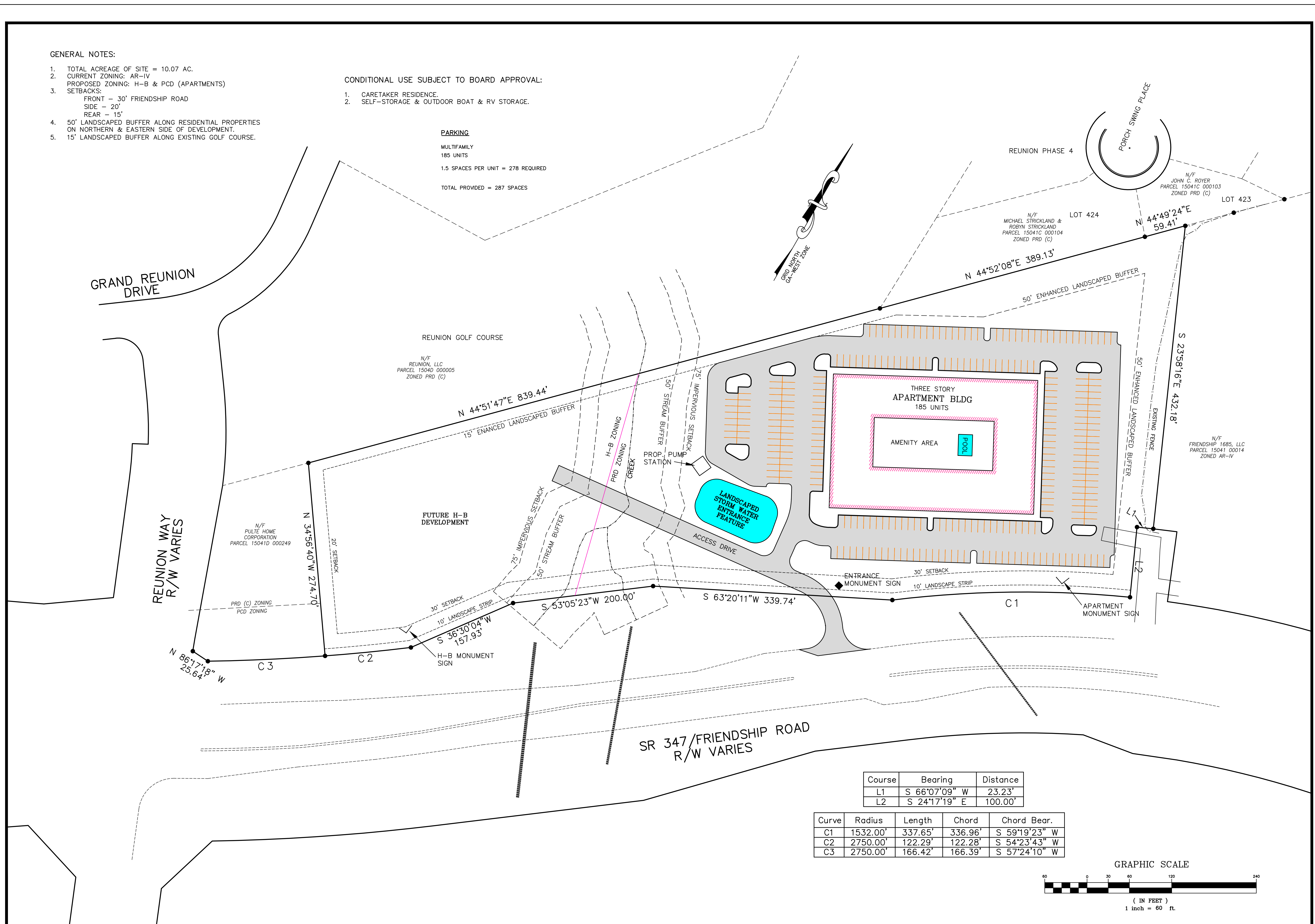
- TOTAL ACREAGE OF SITE = 10.07 AC.
- CURRENT ZONING: AR-IV
- PROPOSED ZONING: H-B & PCD (APARTMENTS)
- SETBACKS:
FRONT - 30' FRIENDSHIP ROAD
SIDE - 20'
REAR - 15'
- 50' LANDSCAPED BUFFER ALONG RESIDENTIAL PROPERTIES ON NORTHERN & EASTERN SIDE OF DEVELOPMENT.
- 15' LANDSCAPED BUFFER ALONG EXISTING GOLF COURSE.

CONDITIONAL USE SUBJECT TO BOARD APPROVAL:

- CARETAKER RESIDENCE.
- SELF-STORAGE & OUTDOOR BOAT & RV STORAGE.

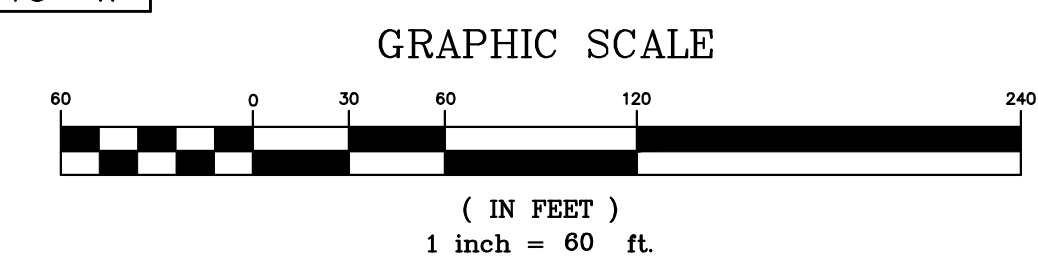
PARKING

MULTIFAMILY
185 UNITS
1.5 SPACES PER UNIT = 278 REQUIRED
TOTAL PROVIDED = 287 SPACES



Course	Bearing	Distance
L1	S 66°07'09" W	23.23'
L2	S 24°17'19" E	100.00'

Curve	Radius	Length	Chord	Chord Bear.
C1	1532.00'	337.65'	336.96'	S 59°19'23" W
C2	2750.00'	122.29'	122.28'	S 54°23'43" W
C3	2750.00'	166.42'	166.39'	S 57°24'10" W



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Seal

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Project Description
FRIENDSHIP LUXE DEVELOPMENT
HALL COUNTY, GEORGIA

DATE 7-21-23
JOB NO. 23-14
Sheet Title
REZONING PLAN

Revisions

SHEET
1

Appendix C

Traffic Count Data



[Click here for Map](#)

Peak Hour Turning Movement Count

Hall County, GA



www.marrtraffic.com



Tuesday, August 15, 2023	
Period	0700 - 0900
Peak Hour	0745 - 0845

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume





[Click here for Map](#)

Peak Hour Turning Movement Count

Hall County, GA



www.marrtraffic.com



Tuesday, August 15, 2023	
Period	1600 - 1800
Peak Hour	1645 - 1745

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



Classified Turn Movement Count || All vehicles

Hall County, GA

Site 1

Napa Ridge Rd
Reunion Way
GA-347 Friendship Rd (West)
GA-347 Friendship Rd (East)



Date

Tuesday, August 15, 2023

Weather

Mostly Cloudy
80°F

Lat/Long

34.110938°, -83.860842°

[Click here for Map](#)

0700 - 0900 (Weekday 2h Session) (08-15-2023)

All vehicles

TIME	Northbound Napa Ridge Rd			Southbound Reunion Way			Eastbound GA-347 Friendship Rd (West)					Westbound GA-347 Friendship Rd (East)					
	Right		App Total	Right		App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Int Total
	1.1			1.2			1.3	1.4	1.5	1.6		1.7	1.8	1.9	1.10		
0700 - 0715	10		10	45		45	8	144	3	0	155	14	168	3	0	185	395
0715 - 0730	11		11	26		26	8	169	2	0	179	13	164	3	0	180	396
0730 - 0745	6		6	39		39	7	201	4	0	212	8	221	3	0	232	489
0745 - 0800	10		10	33		33	18	230	1	0	249	13	197	10	0	220	512
Hourly Total	37		37	143		143	41	744	10	0	795	48	750	19	0	817	1792
0800 - 0815	15		15	37		37	9	242	4	0	255	12	181	14	0	207	514
0815 - 0830	19		19	35		35	9	210	3	0	222	9	183	17	1	210	486
0830 - 0845	22		22	34		34	8	220	6	0	234	17	187	11	0	215	505
0845 - 0900	16		16	21		21	7	197	0	1	205	15	194	11	0	220	462
Hourly Total	72		72	127		127	33	869	13	1	916	53	745	53	1	852	1967
Grand Total	109		109	270		270	74	1613	23	1	1711	101	1495	72	1	1669	3759
Approach %	100.00		-	100.00		-	4.32	94.27	1.34	0.06	-	6.05	89.57	4.31	0.06	-	-
Intersection %	2.90		2.90	7.18		7.18	1.97	42.91	0.61	0.03	45.52	2.69	39.77	1.92	0.03	44.40	-
Heavy Vehicle %	1		1	1		1	1	6	9	0	5	1	4	1	0	4	4
PHF	0.75		0.75	0.94		0.94	0.61	0.93	0.58	0.00	0.94	0.75	0.95	0.76	0.25	0.97	0.98

1600 - 1800 (Weekday 2h Session) (08-15-2023)

All vehicles

TIME	Northbound Napa Ridge Rd			Southbound Reunion Way			Eastbound GA-347 Friendship Rd (West)					Westbound GA-347 Friendship Rd (East)					
	Right		App Total	Right		App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Int Total
	1.1			1.2			1.3	1.4	1.5	1.6		1.7	1.8	1.9	1.10		
1600 - 1615	23		23	30		30	16	216	7	0	239	23	229	7	1	260	552
1615 - 1630	28		28	33		33	18	234	7	0	259	16	208	13	0	237	557
1630 - 1645	25		25	22		22	29	256	5	0	290	14	212	26	0	252	589
1645 - 1700	31		31	27		27	23	251	7	0	281	29	203	12	0	244	583
Hourly Total	107		107	112		112	86	957	26	0	1069	82	852	58	1	993	2281
1700 - 1715	44		44	23		23	17	260	5	0	282	22	217	10	0	249	598
1715 - 1730	21		21	24		24	22	251	0	0	273	27	215	16	0	258	576
1730 - 1745	38		38	23		23	32	255	2	0	289	23	242	17	0	282	632
1745 - 1800	50		50	21		21	25	199	3	0	227	25	173	13	0	211	509
Hourly Total	153		153	91		91	96	965	10	0	1071	97	847	56	0	1000	2315
Grand Total	260		260	203		203	182	1922	36	0	2140	179	1699	114	1	1993	4596
Approach %	100.00		-	100.00		-	8.50	89.81	1.68	0.00	-	8.98	85.25	5.72	0.05	-	-
Intersection %	5.66		5.66	4.42		4.42	3.96	41.82	0.78	0.00	46.56	3.89	36.97	2.48	0.02	43.36	-
Heavy Vehicle %	0		0	2		2	0	3	0	-	3	2	3	2	0	3	3
PHF	0.76		0.76	0.90		0.90	0.73	0.98	0.50	0.00	0.97	0.87	0.91	0.81	0.00	0.92	0.95



[Click here for Map](#)

Peak Hour Turning Movement Count

Hall County, GA



www.marrtraffic.com



Tuesday, August 15, 2023	
Period	0700 - 0900
Peak Hour	0745 - 0845

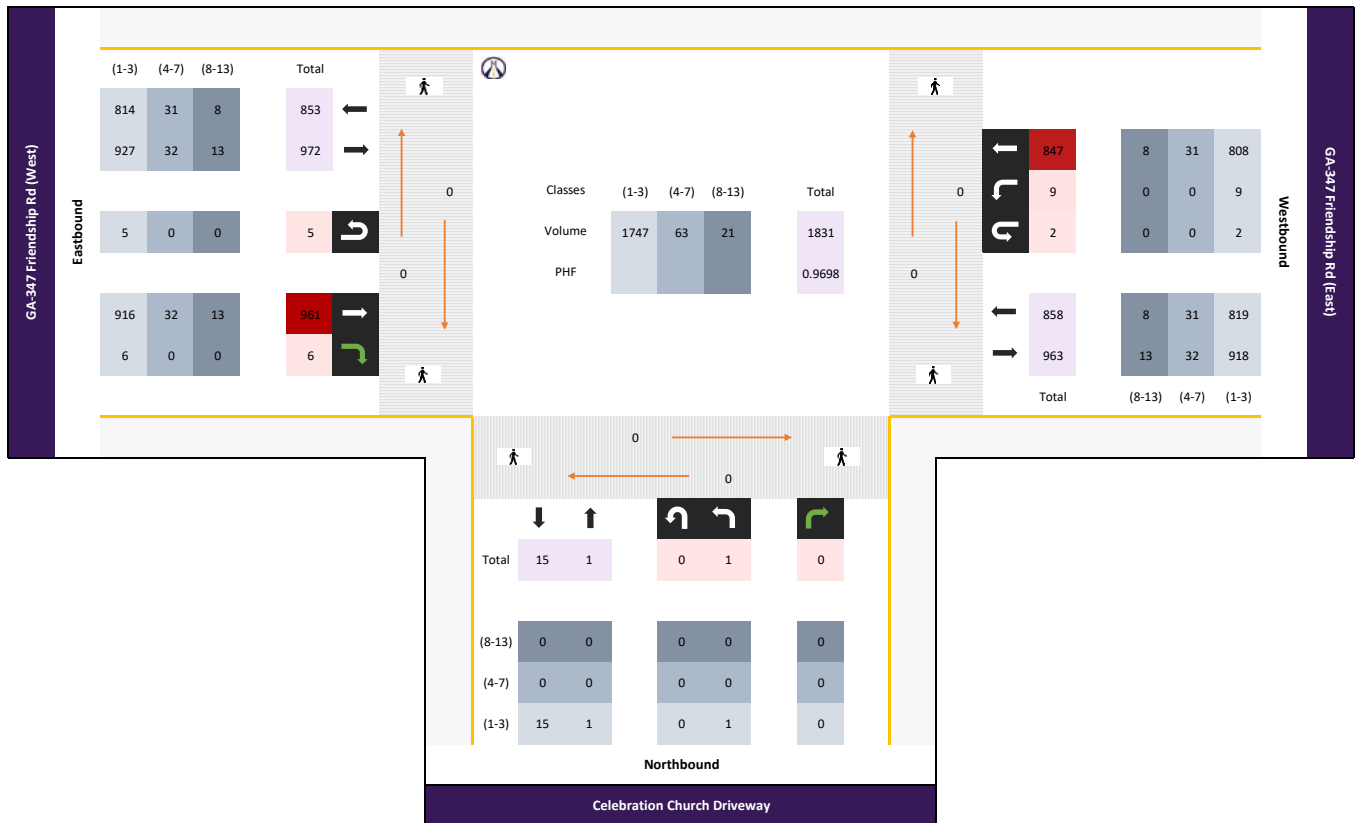
* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume





[Click here for Map](#)

Peak Hour Turning Movement Count

Hall County, GA



www.marrtraffic.com



Tuesday, August 15, 2023	
Period	1600 - 1800
Peak Hour	1645 - 1745

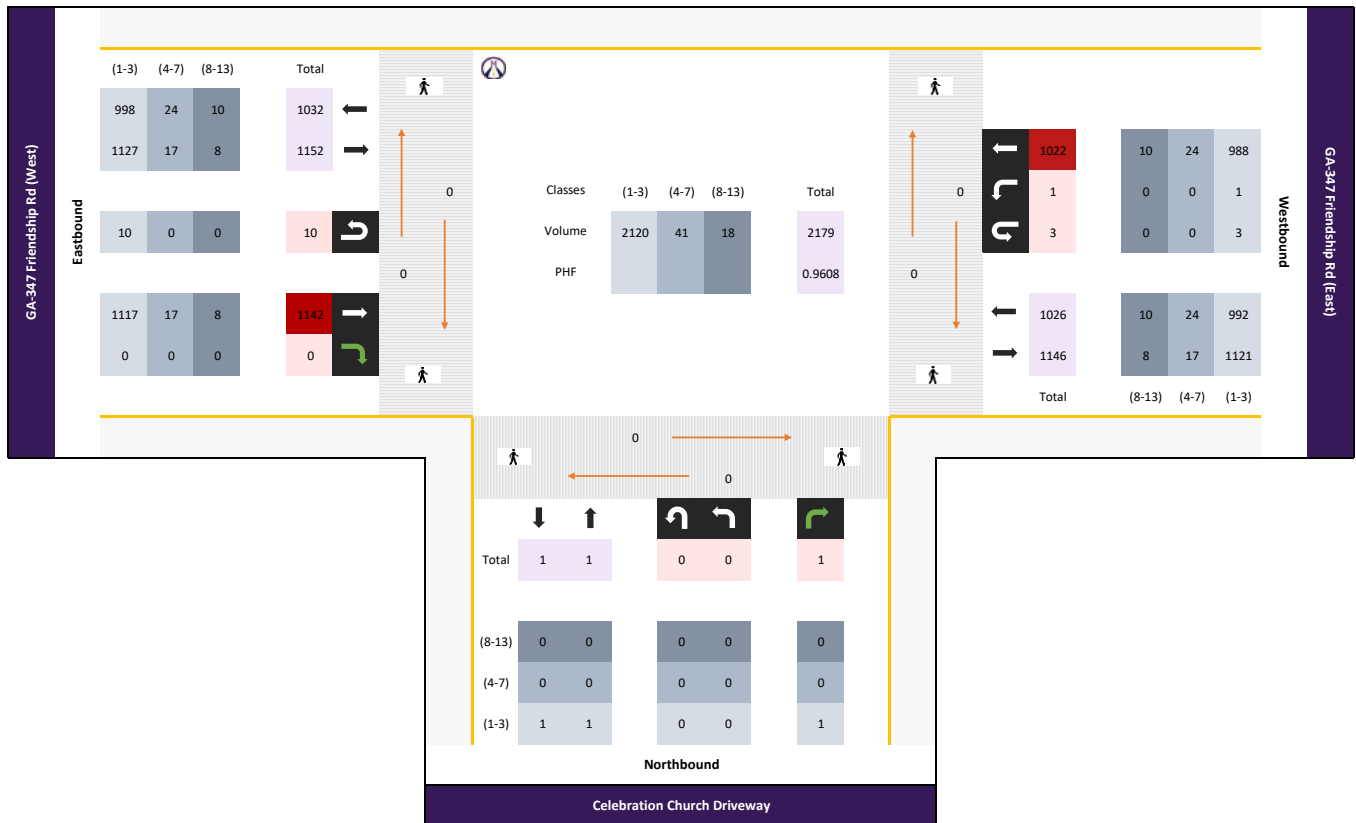
* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



Classified Turn Movement Count || All vehicles

Hall County, GA

Site 2

Celebration Church Driveway



GA-347 Friendship Rd (West)
GA-347 Friendship Rd (East)

Date

Tuesday, August 15, 2023

Weather

Mostly Cloudy
80°F

Lat/Long

34.112513°, -83.858064°

[Click here for Map](#)

0700 - 0900 (Weekday 2h Session) (08-15-2023)

All vehicles

TIME	Northbound Celebration Church Driveway			
	Left 2.1	Right 2.2	U-Turn 2.3	App Total
0700 - 0715	0	0	0	0
0715 - 0730	0	0	0	0
0730 - 0745	0	0	0	0
0745 - 0800	0	0	0	0
Hourly Total	0	0	0	0
0800 - 0815	1	0	0	1
0815 - 0830	0	0	0	0
0830 - 0845	0	0	0	0
0845 - 0900	0	0	0	0
Hourly Total	1	0	0	1
Grand Total	1	0	0	1
Approach %	100.00	0.00	0.00	-
Intersection %	0.03	0.00	0.00	0.03
Heavy Vehicle %	0	-	-	0
PHF	0.25	0.00	0.00	0.25

Eastbound GA-347 Friendship Rd (West)					Westbound GA-347 Friendship Rd (East)				
Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Int Total	Left 2.7	Thru 2.8	U-Turn 2.9	App Total	Int Total
156	0	0	156	0	0	182	1	183	339
173	0	2	175	0	188	0	188	363	
207	0	1	208	0	225	0	225	433	
243	0	1	244	0	215	1	216	460	
779	0	4	783	0	810	2	812	1595	
259	1	1	261	4	205	1	210	472	
226	1	2	229	2	208	0	210	439	
233	4	1	238	3	219	0	222	460	
206	5	3	214	6	216	0	222	436	
924	11	7	942	15	848	1	864	1807	
1703	11	11	1725	15	1658	3	1676	3402	
98.72	0.64	0.64	-	0.89	98.93	0.17	-	-	
50.06	0.32	0.32	50.71	0.44	48.74	0.09	49.27	-	
5	0	0	5	7	4	0	4	5	
0.93	0.38	0.63	0.93	0.56	0.97	0.50	0.97	0.97	

1600 - 1800 (Weekday 2h Session) (08-15-2023)

All vehicles

TIME	Northbound Celebration Church Driveway			
	Left 2.1	Right 2.2	U-Turn 2.3	App Total
1600 - 1615	0	0	0	0
1615 - 1630	0	0	0	0
1630 - 1645	1	1	0	2
1645 - 1700	0	1	0	1
Hourly Total	1	2	0	3
1700 - 1715	0	0	0	0
1715 - 1730	0	0	0	0
1730 - 1745	0	0	0	0
1745 - 1800	1	1	0	2
Hourly Total	1	1	0	2
Grand Total	2	3	0	5
Approach %	40.00	60.00	0.00	-
Intersection %	0.05	0.07	0.00	0.12
Heavy Vehicle %	0	0	-	0
PHF	0.00	0.25	0.00	0.25

Eastbound GA-347 Friendship Rd (West)					Westbound GA-347 Friendship Rd (East)				
Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Int Total	Left 2.7	Thru 2.8	U-Turn 2.9	App Total	Int Total
242	0	2	244	0	257	0	257	502	
260	0	3	263	0	237	0	237	500	
272	1	1	274	0	251	0	251	527	
288	0	1	289	0	247	2	249	539	
1062	1	7	1070	0	992	3	995	2068	
295	0	3	298	1	246	0	247	545	
274	0	4	278	0	249	1	250	528	
285	0	2	287	0	280	0	280	567	
244	1	6	251	0	203	0	203	456	
1098	1	15	1114	1	978	1	980	2096	
2160	2	22	2184	1	1970	4	1975	4164	
98.90	0.09	1.01	-	0.05	99.75	0.20	-	-	
51.87	0.05	0.53	52.45	0.02	47.31	0.10	47.43	-	
3	0	0	3	0	3	0	3	3	
0.97	0.00	0.63	0.97	0.25	0.91	0.38	0.92	0.96	

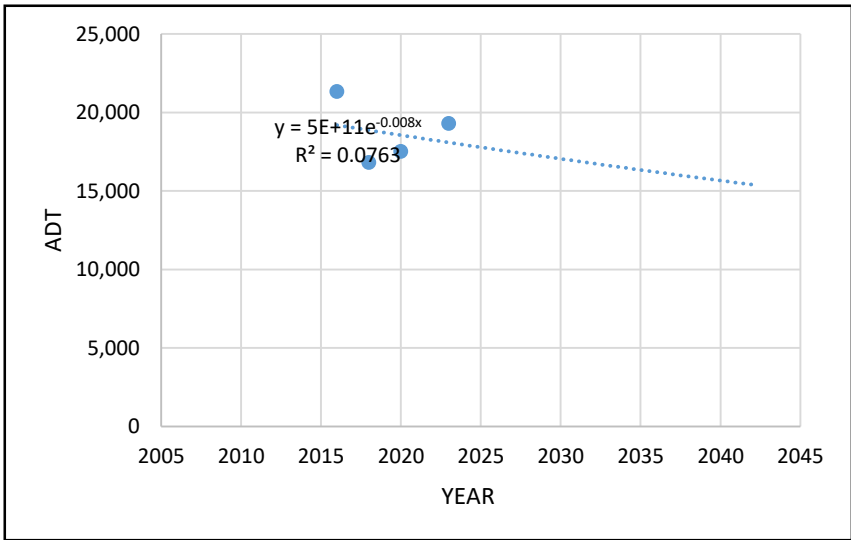
Appendix D

GDOT Traffic Data

Count Station: GDOT #139-0491
 Street: SR 347
 Location: west of the development
 Source: GDOT

YEAR	ADT	TREND
2016	21,343	19200
2017		19000
2018	16,829	18900
2019		18700
2020	17,519	18600
2021		18400
2022		18200
2023	19,309	18100
2024		17900
2025		17800
2026		17600
2027		17500
2028		17300
2029		17200
2030		17000
2031		16900
2032		16800
2033		16600
2034		16500
2035		16300
2036		16200
2037		16100
2038		15900
2039		15800
2040		15700
2041		15500
2042		15400

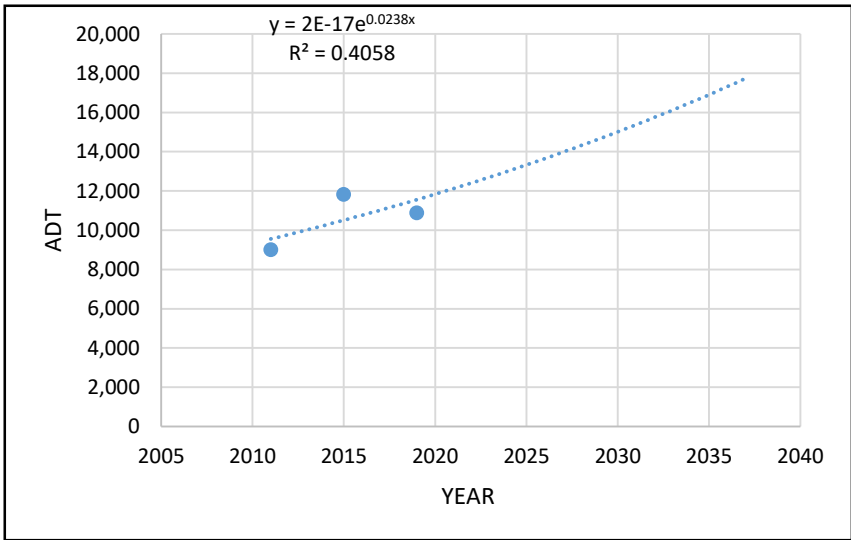
10-Years of Count Data
Trend Annual Historic Compound Growth Rate
 -0.91%



Count Station: GDOT #139-0437
 Street: Spout Springs Rd
 Location: north of the development
 Source: GDOT

YEAR	ADT	TREND
2011	9,009	9600
2012		9800
2013		10000
2014		10300
2015	11,823	10500
2016		10800
2017		11000
2018		11300
2019	10,896	11600
2020		11800
2021		12100
2022		12400
2023		12700
2024		13000
2025		13300
2026		13600
2027		14000
2028		14300
2029		14700
2030		15000
2031		15400
2032		15700
2033		16100
2034		16500
2035		16900
2036		17300
2037		17700

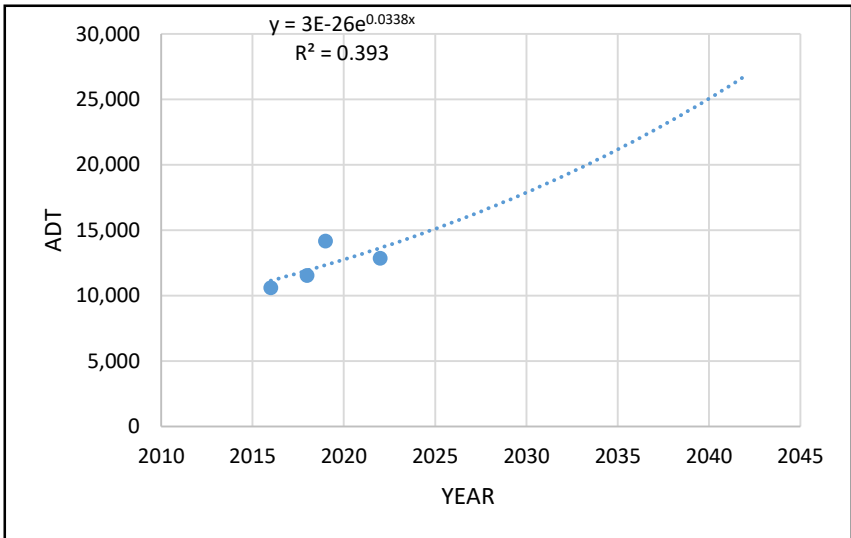
5-Years of Count Data
Trend Annual Historic Compound Growth Rate
 2.28%



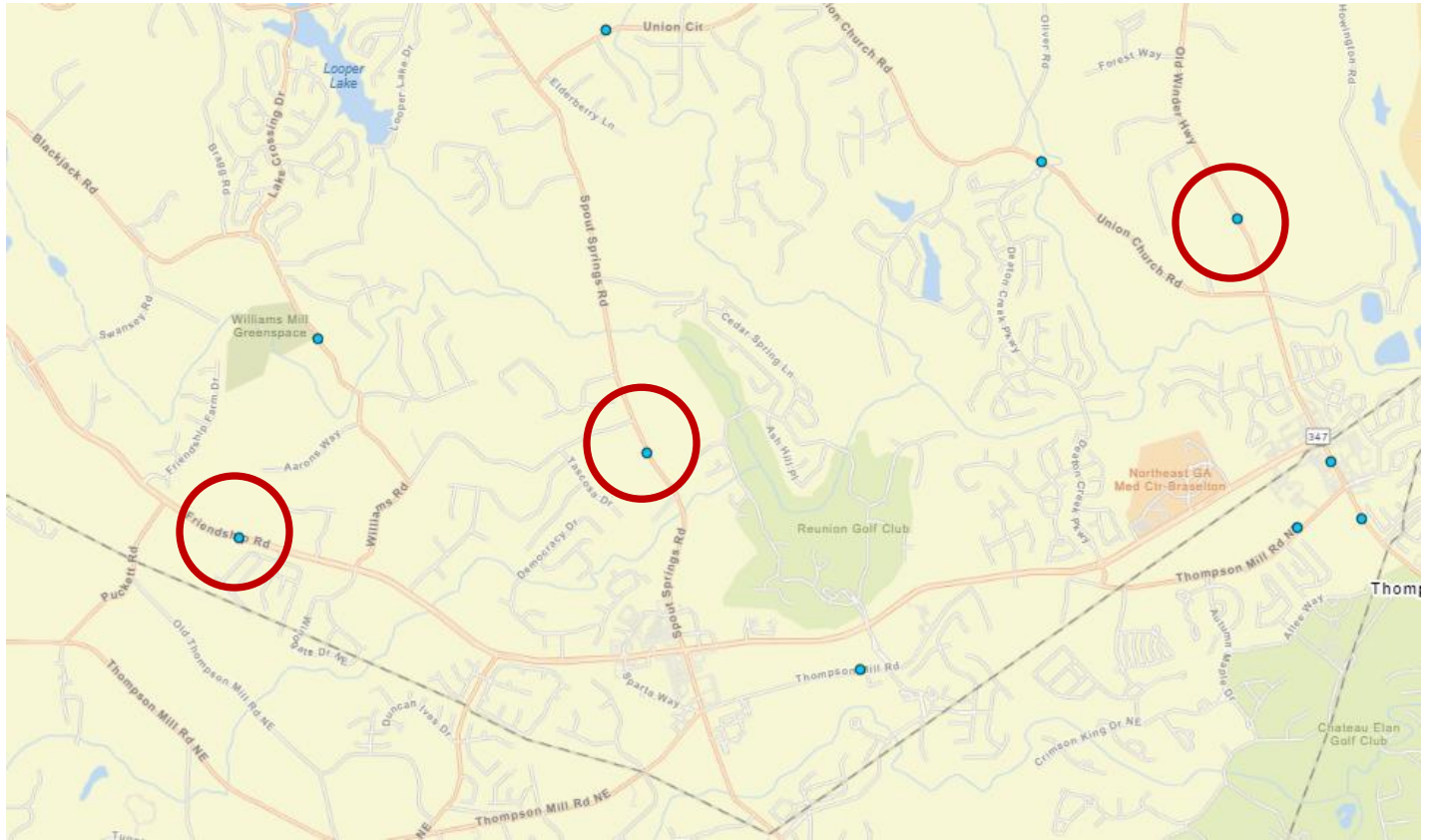
Count Station: GDOT #139-0545
 Street: SR 211
 Location: east of the development
 Source: GDOT

YEAR	ADT	TREND
2016	10,616	11100
2017		11500
2018	11,560	11900
2019	14,168	12300
2020		12800
2021		13200
2022	12,866	13600
2023		14100
2024		14600
2025		15100
2026		15600
2027		16200
2028		16700
2029		17300
2030		17900
2031		18500
2032		19100
2033		19800
2034		20500
2035		21200
2036		21900
2037		22600
2038		23400
2039		24200
2040		25100
2041		25900
2042		26800

5-Years of Count Data
Trend Annual Historic Compound Growth Rate
 3.29%



Location Map of GDOT Count Stations



0000139_0491 - 139-0491

Description: SR347/Friendship Rd W of Spout Spg Rd

County: Hall

Route number: 00000347

LRS section: 1391034700

Functional class: 4U - Minor Arterial (Urban)

Coordinates: 34.116186, -83.906852

Site Data



Count History

Year	Month	Count type	Duration	Count
2023	July	Volume	48 hours	19,309
2020	October	Volume	48 hours	17,519
2018	May	Class	48 hours	16,829
2016	August	Class	35 hours	21,343
2014	April	Volume	48 hours	8,419
2012	January	Volume	48 hours	7,404
2010	January	Class	48 hours	6,573

0000139_0437 - 139-0437

County: Hall

Route number: 00128700

LRS section: 1392128700

Functional class: 4U - Minor Arterial (Urban)

Coordinates: 34.1213073847158, -83.876837841541

Site Data



Count History

Year	Month	Count type	Duration	Count
2019	January	Class	48 hours	10,896
2015	June	Volume	48 hours	11,823
2011	September	Class	48 hours	9,009

0000139_0545 - 139-0545

Description: CRT 130000 L

County: Hall

Route number: 00021100

LRS section: 1391021100

Functional class: 4U - Minor Arterial (Urban)

Coordinates: 34.13548897, -83.83359503

Site Data



Count History

Year	Month	Count type	Duration	Count
2022	August	Class	48 hours	12,868
2019	December	Class	48 hours	14,168
2018	September	Class	48 hours	11,560
2016	July	Class	48 hours	10,616
2014	April	Volume	48 hours	8,782
2012	January	Volume	48 hours	7,314
2010	January	Class	48 hours	6,654

Appendix E

Intersection Volume Development

Traffic Impact Study
 Friendship Luxe Development
 Intersection Traffic Volumes

Intersection: #1 - SR 347/Friendship Rd at Reunion Way/Napa Ridge Rd

A.M. PEAK HOUR

Condition	Napa Ridge Rd Northbound			Reunion Way Southbound			SR 347 Friendship Rd Eastbound				SR 347 Friendship Rd Westbound			
	L	T	R	L	T	R	U-turn	L	T	R	U-turn	L	T	R
Existing Volumes (2023)	0	0	66	0	0	139	0	44	902	14	1	51	748	52
Annual Growth Rate	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
No-Build Condition (2027)	0	0	70	0	0	148	0	47	961	15	1	54	797	55
Project Trips:														
Trip Distribution IN										55%				
Trip Distribution OUT											45%		55%	
Residential Trips	0	0	0	0	0	0	0	0	15	0	28	0	35	0
Trip Distribution IN										55%				
Trip Distribution OUT											45%		55%	
Development Trips	0	0	0	0	0	0	0	0	6	0	3	0	4	0
Pass-By Trips														
Total Project Trips	0	0	0	0	0	0	0	0	21	0	31	0	39	0
Buildout Total (2027)	0	0	70	0	0	148	0	47	982	15	32	54	836	55

P.M. PEAK HOUR

Condition	Napa Ridge Rd Northbound			Reunion Way Southbound			SR 347 Friendship Rd Eastbound				SR 347 Friendship Rd Westbound			
	L	T	R	L	T	R	U-turn	L	T	R	U-turn	L	T	R
Existing Volumes (2023)	0	0	134			97	0	94	1,017	14	0	101	877	55
Annual Growth Rate	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
No-Build Condition (2027)	0	0	143	0	0	103	0	100	1,084	15	0	108	934	59
Project Trips:														
Trip Distribution IN										55%				
Trip Distribution OUT											45%		55%	
Residential Trips	0	0	0	0	0	0	0	0	34	0	21	0	25	0
Trip Distribution IN										55%				
Trip Distribution OUT											45%		55%	
Development Trips	0	0	0	0	0	0	0	0	9	0	7	0	9	0
Pass-By Trips										-8			-8	
Total Project Trips	0	0	0	0	0	0	0	0	35	0	28	0	26	0
Buildout Total (2027)	0	0	143	0	0	103	0	100	1,119	15	28	108	960	59

Traffic Impact Study
 Friendship Luxe Development
 Intersection Traffic Volumes

Intersection: #2 - SR 347/Friendship Rd at Celebration Church Drwy/Proposed Drwy #1

A.M. PEAK HOUR

Condition	Celebration Church Drwy Northbound			Proposed Drwy #1 Southbound			SR 347/Friendship Rd Eastbound				SR 347/Friendship Rd Westbound			
	L	T	R	L	T	R	U-turn	L	T	R	U-turn	L	T	R
Existing Volumes (2023)	1	0	0	0	0	0	5	0	961	6	2	9	847	0
Annual Growth Rate	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
No-Build Condition (2027)	1	0	0	0	0	0	5	0	1,024	6	2	10	903	0
Project Trips:														
Trip Distribution IN								55%						45%
Trip Distribution OUT						100%			45%					
Residential Trips	0	0	0	0	0	63	0	15	28	0	0	0	0	13
Trip Distribution IN								55%						45%
Trip Distribution OUT						100%			45%					
Development Trips	0	0	0	0	0	7	0	6	3	0	0	0	0	5
Pass-By Trips														
Total Project Trips	0	0	0	0	0	70	0	21	31	0	0	0	0	18
Buildout Total (2027)	1	0	0	0	0	70	5	21	1,055	6	2	10	903	18

P.M. PEAK HOUR

Condition	Celebration Church Drwy Northbound			Proposed Drwy #1 Southbound			SR 347/Friendship Rd Eastbound				SR 347/Friendship Rd Westbound			
	L	T	R	L	T	R	U-turn	L	T	R	U-turn	L	T	R
Existing Volumes (2023)	0	0	1	0	0	0	10	0	1,142	0	3	1	1,022	0
Annual Growth Rate	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
No-Build Condition (2027)	0	0	1	0	0	0	12	0	1,217	0	3	1	1,089	0
Project Trips:														
Trip Distribution IN								55%						45%
Trip Distribution OUT						100%			45%					
Residential Trips	0	0	0	0	0	46	0	34	21	0	0	0	0	27
Trip Distribution IN								55%						45%
Trip Distribution OUT						100%			45%					
Development Trips	0	0	0	0	0	16	0	9	7	0	0	0	0	7
Pass-By Trips									-8				-8	
Total Project Trips	0	0	0	0	0	62	0	43	20	0	0	0	-8	34
Buildout Total (2027)	0	0	1	0	0	62	12	43	1,237	0	3	1	1,081	34

Appendix F

Capacity Analysis Reports

Existing Conditions – Year 2023

HCM 6th TWSC
 1: Napa Ridge Rd/Reunion Way & SR 347/Friendship Rd

Existing 2023
 AM Peak Hour

Intersection													
Int Delay, s/veh	1.7												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↗		↔	↑↑	↗			↗			↗
Traffic Vol, veh/h	44	902	14	1	51	748	52	0	0	66	0	0	139
Future Vol, veh/h	44	902	14	1	51	748	52	0	0	66	0	0	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	-	Yield	-	-	None	-	-	None
Storage Length	530	-	-	-	415	-	285	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	45	920	14	1	52	763	53	0	0	67	0	0	142

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	763	0	0	920	920	0	0	-	-	460	-	-	382
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.22	-	-	6.52	4.22	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.26	-	-	2.56	2.26	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	820	-	-	362	713	-	-	0	0	548	0	0	616
Stage 1	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	820	-	-	696	696	-	-	-	-	548	-	-	616
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.6	12.5	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	548	820	-	-	696	-	-	616
HCM Lane V/C Ratio	0.123	0.055	-	-	0.076	-	-	0.23
HCM Control Delay (s)	12.5	9.6	-	-	10.6	-	-	12.6
HCM Lane LOS	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0.2	-	-	0.9

HCM 6th TWSC
 2: Celebration Church Drwy & SR 347/Friendship Rd

Existing 2023
 AM Peak Hour

Intersection														
Int Delay, s/veh	0.1													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↑↑	↑		↔	↑↑			↔				
Traffic Vol, veh/h	5	0	961	6	2	9	847	0	1	0	0	0	0	0
Future Vol, veh/h	5	0	961	6	2	9	847	0	1	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	300	-	180	-	384	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	6	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	5	0	991	6	2	9	873	0	1	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1				
Conflicting Flow All	873	-	0	0	991	997	0	0	1460	1896	496
Stage 1	-	-	-	-	-	-	-	-	1001	1001	-
Stage 2	-	-	-	-	-	-	-	-	459	895	-
Critical Hdwy	6.52	-	-	-	6.52	4.22	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.56	-	-	-	2.56	2.26	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	388	0	-	-	326	666	-	0	120	69	519
Stage 1	-	0	-	-	-	-	-	0	316	319	-
Stage 2	-	0	-	-	-	-	-	0	603	357	-
Platoon blocked, %			-	-			-				
Mov Cap-1 Maneuver	388	-	-	-	560	560	-	-	116	0	519
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	116	0	-
Stage 1	-	-	-	-	-	-	-	-	312	0	-
Stage 2	-	-	-	-	-	-	-	-	591	0	-

Approach	EB			WB			NB		
HCM Control Delay, s	0.1			0.1			36.3		
HCM LOS							E		

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	116	388	-	-	560	-
HCM Lane V/C Ratio	0.009	0.013	-	-	0.02	-
HCM Control Delay (s)	36.3	14.4	-	-	11.6	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

HCM 6th TWSC
 1: Napa Ridge Rd/Reunion Way & SR 347/Friendship Rd

Existing 2023
 PM Peak Hour

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↗	↔	↑↑	↗			↗			↗
Traffic Vol, veh/h	94	1017	14	101	877	55	0	0	134	0	0	97
Future Vol, veh/h	94	1017	14	101	877	55	0	0	134	0	0	97
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	530	-	-	415	-	285	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	99	1071	15	106	923	58	0	0	141	0	0	102

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	923	0	0	1071	0	0	-	-	536	-	-	462
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.22	-	-	4.22	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.26	-	-	2.26	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	711	-	-	623	-	-	0	0	489	0	0	547
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-				-	-	
Mov Cap-1 Maneuver	711	-	-	623	-	-	-	-	489	-	-	547
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.9		1.2		15.3		13.1
HCM LOS					C		B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	489	711	-	-	623	-	-	547
HCM Lane V/C Ratio	0.288	0.139	-	-	0.171	-	-	0.187
HCM Control Delay (s)	15.3	10.9	-	-	12	-	-	13.1
HCM Lane LOS	C	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	1.2	0.5	-	-	0.6	-	-	0.7

Intersection														
Int Delay, s/veh	0.2													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↑↑	↑		↔	↑↑			↔				
Traffic Vol, veh/h	10	0	1142	0	3	1	1022	0	0	0	1	0	0	0
Future Vol, veh/h	10	0	1142	0	3	1	1022	0	0	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	300	-	180	-	384	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	10	0	1190	0	3	1	1065	0	0	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1				
Conflicting Flow All	1065	-	0	0	1190	1190	0	0	1751	2283	595
Stage 1	-	-	-	-	-	-	-	-	1210	1210	-
Stage 2	-	-	-	-	-	-	-	-	541	1073	-
Critical Hdwy	6.52	-	-	-	6.52	4.22	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.56	-	-	-	2.56	2.26	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	291	0	-	-	242	560	-	0	77	39	447
Stage 1	-	0	-	-	-	-	-	0	245	254	-
Stage 2	-	0	-	-	-	-	-	0	548	295	-
Platoon blocked, %			-	-			-				
Mov Cap-1 Maneuver	291	-	-	-	281	281	-	-	73	0	447
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	73	0	-
Stage 1	-	-	-	-	-	-	-	-	237	0	-
Stage 2	-	-	-	-	-	-	-	-	540	0	-

Approach	EB			WB			NB		
HCM Control Delay, s	0.2			0.1			13.1		
HCM LOS							B		

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	447	291	-	-	281	-
HCM Lane V/C Ratio	0.002	0.036	-	-	0.015	-
HCM Control Delay (s)	13.1	17.8	-	-	18	-
HCM Lane LOS	B	C	-	-	C	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Future No-Build Conditions – Year 2027

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↗		↔	↑↑	↗			↗			↗
Traffic Vol, veh/h	47	961	15	1	54	797	55	0	0	70	0	0	148
Future Vol, veh/h	47	961	15	1	54	797	55	0	0	70	0	0	148
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	-	Yield	-	-	None	-	-	None
Storage Length	530	-	-	-	415	-	285	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	48	981	15	1	55	813	56	0	0	71	0	0	151

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	813	0	0	981	981	0	0	-	-	491	-	-	407
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.22	-	-	6.52	4.22	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.26	-	-	2.56	2.26	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	784	-	-	330	676	-	-	0	0	523	0	0	593
Stage 1	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	784	-	-	660	660	-	-	-	-	523	-	-	593
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.7	13	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	784	-	-	660	-	-	593
HCM Lane V/C Ratio	0.137	0.061	-	-	0.085	-	-	0.255
HCM Control Delay (s)	13	9.9	-	-	11	-	-	13.1
HCM Lane LOS	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0.3	-	-	1

HCM 6th TWSC
 2: Celebration Church Drwy & SR 347/Friendship Rd

No Build 2027
 AM Peak Hour

Intersection														
Int Delay, s/veh	0.2													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	⇐		⇕	⇕		⇕	⇕			⇕				
Traffic Vol, veh/h	5	0	1024	6	2	10	903	0	1	0	0	0	0	0
Future Vol, veh/h	5	0	1024	6	2	10	903	0	1	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	300	-	180	-	384	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	6	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	5	0	1056	6	2	10	931	0	1	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1				
Conflicting Flow All	931	-	0	0	1056	1062	0	0	1556	2021	528
Stage 1	-	-	-	-	-	-	-	-	1066	1066	-
Stage 2	-	-	-	-	-	-	-	-	490	955	-
Critical Hdwy	6.52	-	-	-	6.52	4.22	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.56	-	-	-	2.56	2.26	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	356	0	-	-	295	628	-	0	104	57	495
Stage 1	-	0	-	-	-	-	-	0	292	297	-
Stage 2	-	0	-	-	-	-	-	0	581	335	-
Platoon blocked, %			-	-			-				
Mov Cap-1 Maneuver	356	-	-	-	529	529	-	-	100	0	495
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	100	0	-
Stage 1	-	-	-	-	-	-	-	-	288	0	-
Stage 2	-	-	-	-	-	-	-	-	568	0	-

Approach	EB			WB			NB		
HCM Control Delay, s	0.1			0.2			41.4		
HCM LOS							E		

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	100	356	-	-	529	-
HCM Lane V/C Ratio	0.01	0.014	-	-	0.023	-
HCM Control Delay (s)	41.4	15.3	-	-	12	-
HCM Lane LOS	E	C	-	-	B	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↗	↔	↑↑	↗			↗			↗
Traffic Vol, veh/h	100	1084	15	108	934	59	0	0	143	0	0	103
Future Vol, veh/h	100	1084	15	108	934	59	0	0	143	0	0	103
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	530	-	-	415	-	285	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	105	1141	16	114	983	62	0	0	151	0	0	108

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	983	0	0	1141	0	0	-	-	571	-	-	492
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.22	-	-	4.22	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.26	-	-	2.26	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	674	-	-	586	-	-	0	0	464	0	0	522
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	674	-	-	586	-	-	-	-	464	-	-	522
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	1.2	16.4	13.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	464	674	-	-	586	-	-	522
HCM Lane V/C Ratio	0.324	0.156	-	-	0.194	-	-	0.208
HCM Control Delay (s)	16.4	11.3	-	-	12.6	-	-	13.7
HCM Lane LOS	C	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	1.4	0.6	-	-	0.7	-	-	0.8

HCM 6th TWSC
 2: Celebration Church Drwy & SR 347/Friendship Rd

No Build 2027
 PM Peak Hour

Intersection														
Int Delay, s/veh	0.2													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	⌘		↑↑	↑		⌘	↑↑			⌘				
Traffic Vol, veh/h	12	0	1217	0	3	1	1089	0	0	0	1	0	0	0
Future Vol, veh/h	12	0	1217	0	3	1	1089	0	0	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	300	-	180	-	384	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	13	0	1268	0	3	1	1134	0	0	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1				
Conflicting Flow All	1134	-	0	0	1268	1268	0	0	1869	2436	634
Stage 1	-	-	-	-	-	-	-	-	1294	1294	-
Stage 2	-	-	-	-	-	-	-	-	575	1142	-
Critical Hdwy	6.52	-	-	-	6.52	4.22	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.56	-	-	-	2.56	2.26	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	263	0	-	-	215	523	-	0	64	31	422
Stage 1	-	0	-	-	-	-	-	0	221	231	-
Stage 2	-	0	-	-	-	-	-	0	526	273	-
Platoon blocked, %			-	-			-				
Mov Cap-1 Maneuver	263	-	-	-	251	251	-	-	60	0	422
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	60	0	-
Stage 1	-	-	-	-	-	-	-	-	210	0	-
Stage 2	-	-	-	-	-	-	-	-	518	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	0.1	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	422	263	-	-	251	-
HCM Lane V/C Ratio	0.002	0.048	-	-	0.017	-
HCM Control Delay (s)	13.6	19.4	-	-	19.6	-
HCM Lane LOS	B	C	-	-	C	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-

Future Build Conditions – Year 2027

Intersection													
Int Delay, s/veh	2.1												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↗		↔	↑↑	↗			↗			↗
Traffic Vol, veh/h	47	982	15	32	54	836	55	0	0	70	0	0	148
Future Vol, veh/h	47	982	15	32	54	836	55	0	0	70	0	0	148
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	-	Yield	-	-	None	-	-	None
Storage Length	530	-	-	-	415	-	285	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	48	1002	15	33	55	853	56	0	0	71	0	0	151
Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	853	0	0	1002	1002	0	0	-	-	501	-	-	427
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.22	-	-	6.52	4.22	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.26	-	-	2.56	2.26	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	757	-	-	320	663	-	-	0	0	515	0	0	576
Stage 1	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	757	-	-	437	437	-	-	-	-	515	-	-	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB			
HCM Control Delay, s	0.5			1.3			13.1			13.5			
HCM LOS							B			B			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	515	757	-	-	437	-	-	576					
HCM Lane V/C Ratio	0.139	0.063	-	-	0.201	-	-	0.262					
HCM Control Delay (s)	13.1	10.1	-	-	15.3	-	-	13.5					
HCM Lane LOS	B	B	-	-	C	-	-	B					
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0.7	-	-	1					

Intersection														
Int Delay, s/veh	0.7													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕			↕			↕
Traffic Vol, veh/h	5	21	1055	6	2	10	903	18	0	0	1	0	0	70
Future Vol, veh/h	5	21	1055	6	2	10	903	18	0	0	1	0	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	300	-	180	-	384	-	150	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	6	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	5	22	1088	6	2	10	931	19	0	0	1	0	0	72

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	931	950	0	0	1088	1094	0	0	-	-	544	-	-	466
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.52	4.22	-	-	6.52	4.22	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.56	2.26	-	-	2.56	2.26	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	356	694	-	-	282	611	-	-	0	0	483	0	0	543
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	560	560	-	-	511	511	-	-	-	-	483	-	-	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	12.5	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	483	560	-	-	511	-	-	543
HCM Lane V/C Ratio	0.002	0.048	-	-	0.024	-	-	0.133
HCM Control Delay (s)	12.5	11.7	-	-	12.2	-	-	12.6
HCM Lane LOS	B	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-	-	0.5

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↗		↔	↑↑	↗			↗			↗
Traffic Vol, veh/h	100	1119	15	28	108	960	59	0	0	143	0	0	103
Future Vol, veh/h	100	1119	15	28	108	960	59	0	0	143	0	0	103
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	-	Yield	-	-	None	-	-	None
Storage Length	530	-	-	-	415	-	285	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	105	1178	16	29	114	1011	62	0	0	151	0	0	108

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1011	0	0	1178
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.22	-	-	6.52
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.26	-	-	2.56
Pot Cap-1 Maneuver	658	-	-	246
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	658	-	-	381
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	2.4	16.9	13.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	452	658	-	-	381	-	-	512
HCM Lane V/C Ratio	0.333	0.16	-	-	0.376	-	-	0.212
HCM Control Delay (s)	16.9	11.5	-	-	20	-	-	13.9
HCM Lane LOS	C	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	1.4	0.6	-	-	1.7	-	-	0.8

Intersection														
Int Delay, s/veh	0.7													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕			↕			↕
Traffic Vol, veh/h	12	43	1237	0	3	1	1081	34	0	0	1	0	0	62
Future Vol, veh/h	12	43	1237	0	3	1	1081	34	0	0	1	0	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	300	-	180	-	384	-	150	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	6	6	6	6	6	6	6	2	2	2	2	2	2
Mvmt Flow	13	45	1289	0	3	1	1126	35	0	0	1	0	0	65

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1126	1161	0	0	1289	1289	0	0	-	-	645	-	-	563
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.52	4.22	-	-	6.52	4.22	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.56	2.26	-	-	2.56	2.26	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	266	575	-	-	208	513	-	-	0	0	415	0	0	470
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	434	434	-	-	243	243	-	-	-	-	415	-	-	470
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	13.7	13.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	415	434	-	-	243	-	-	470
HCM Lane V/C Ratio	0.003	0.132	-	-	0.017	-	-	0.137
HCM Control Delay (s)	13.7	14.6	-	-	20.1	-	-	13.9
HCM Lane LOS	B	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0	0.5	-	-	0.1	-	-	0.5

GDOT Intersection Control Evaluation (ICE)

GDOT PI#: N/A Request By: Developer
 County: Hall GDOT District: 1 - Gainesville
 Major Road: SR 347 Road Class: Minor Arterial Speed Limit: 45 mph
 Crossing Road: Proposed Drwy 1 Road Class: Local Speed Limit: < 35 mph
 Major Rd Direction: East/West Area Type: Suburb/Transition
 Intersection Control: New Intersection or Other Project ID:
 Prepared By: KCI Technologies, Inc. Date: 8/24/2023
 Project Purpose: New driveway for development

Existing Data Year: 2023
 Project Opening Year: 2027
 Project Design Year: 2027
 Annual Growth Rate: 1.6%
 K Factor*: 0%

* K Factor = Proportion of average annual daily traffic occurring in the highest one hour of the day

LEGEND:

- 000 = AM Peak Approach Volume
- (000) = PM Peak Approach Volume
- [000] = ADT Volume (Estimate)

2027 OPENING YEAR VOLUMES

#DIV/0!															
				(0)	(0)	(0)	(0)								
				0	0	0	0								
WB SR 347															
iD/I/C#		SB Proposed Drwy 1		Peds	↖	↓	↘	↔	Peds	0	(0)	#DIV/0!			
				2027 Intersection Daily Entering Volume (est):		#DIV/0!		↖	↘	↔	↖		↘	903	(1089)
								↖	↘	↔	↖		↘	12	(4)
				EB SR 347		NB Proposed Drwy 1		↔	↖	↑	↗		↕	Peds	1
↔	↖	↑	↗					↕	Peds	(0)	(0)	(1)	(0)		
#DIV/0!															

2023 EXISTING YEAR VOLUMES

APPROACH SPLITS:
SR 347: #####
Proposed Drwy 1: #####

#DIV/0!															
				(0)	(0)	(0)	(0)								
				0	0	0	0								
WB SR 347															
iD/I/C#		SB Proposed Drwy 1		Peds	↖	↓	↘	↔	Peds	0	(0)	#DIV/0!			
				2023 Intersection Daily Entering Volume (est):		#DIV/0!		↖	↘	↔	↖		↘	847	(1022)
								↖	↘	↔	↖		↘	11	(4)
				EB SR 347		NB Proposed Drwy 1		↔	↖	↑	↗		↕	Peds	1
↔	↖	↑	↗					↕	Peds	(0)	(0)	(1)	(0)		
#DIV/0!															

PEAK HR % TRUCKS:

EB	WB	NB	SB
6%	6%	1%	1%

2027 DESIGN YEAR VOLUMES

#DIV/0!															
				(0)	(62)	(0)	(0)								
				0	70	0	0								
WB SR 347															
iD/I/C#		SB Proposed Drwy 1		Peds	↖	↓	↘	↔	Peds	0	(0)	#DIV/0!			
				2027 Intersection Daily Entering Volume (est):		#DIV/0!		↖	↘	↔	↖		↘	903	(1081)
								↖	↘	↔	↖		↘	12	(4)
				EB SR 347		NB Proposed Drwy 1		↔	↖	↑	↗		↕	Peds	1
↔	↖	↑	↗					↕	Peds	(0)	(0)	(1)	(0)		
#DIV/0!															

Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "Waiver" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1 Screening Decision Record: Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2 Alternative Selection Decision Record: Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT PI #	N/A	Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2 <div style="font-size: small; text-align: center;"> 1. Does alternative address the project need in a balanced manner and in scale with the project? 2. Does alternative improve safety performance in terms of reducing severe crashes? 3. Does alternative incorporate safety, convenience and accessibility for pedestrians and/or bicyclists? 4. Does alternative improve (or preserve) traffic operations (congestion, delay, reliability, etc.)? 5. Does alternative appear feasible given the site characteristics, constraints & location context? 6. Does alternative appear feasible with respect to other project factors? 7. Overall feasible alternative (select alternative for further evaluation in Stage 2)? </div>							
Project Location:	SR 347 @ Proposed Drwy 1								
Existing Control:	New Intersection or Other								
Prepared by:	KCI Technologies, Inc.								
Date:	8/24/2023								
Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column		Screening Decision Justification:							
Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)									
Unsignalized Intersections	Conventional (Minor Stop)	No	No	No	No	No	No	No	Existing condition
	Conventional (All-Way Stop)	No	No	No	No	No	No	No	Not appropriate for SR 347 with 45mph speed limit
	Mini Roundabout	No	No	No	No	No	No	No	Not appropriate for SR 347 with 45mph speed limit
	Single Lane Roundabout	No	No	No	No	No	No	No	High-Cost alternative
	Multilane Roundabout	No	No	No	No	No	No	No	High-Cost alternative
	RCUT (stop control)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Preferred alternative
	RIRO w/down stream U-Turn	No	No	No	No	No	No	No	Doesn't fit roadway geometry
	High-T (unsignalized)	No	No	No	No	No	No	No	Doesn't fit roadway geometry
	Offset-T Intersections	No	No	No	No	No	No	No	Doesn't fit roadway geometry
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	Not an interchange
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	Not an interchange
	No LT Lane Improvements	No	No	No	No	No	No	No	N/A
	No RT Lane Improvements	No	No	No	No	No	No	No	N/A
	Other unsignalized (provide description):	No	No	No	No	No	No	No	N/A
Signalized Intersections	Traffic Signal	No	No	No	No	No	No	No	Does not meet signal warrants; not a traffic signal
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	Does not meet signal warrants; not a traffic signal
	RCUT (signalized)	No	No	No	No	No	No	No	Does not meet signal warrants; not a traffic signal
	Displaced Left Turn (CFI)	No	No	No	No	No	No	No	Does not meet signal warrants; not a traffic signal
	Continuous Green-T	No	No	No	No	No	No	No	Does not meet signal warrants; not a traffic signal
	Jughandle	No	No	No	No	No	No	No	Does not meet signal warrants; not a traffic signal
	Quadrant Roadway	No	No	No	No	No	No	No	Does not meet signal warrants; not a traffic signal
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	Not an interchange
	Diverging Diamond	No	No	No	No	No	No	No	Not an interchange
	Single Point Interchange	No	No	No	No	No	No	No	Not an interchange
	No LT Lane Improvements	No	No	No	No	No	No	No	N/A
	No RT Lane Improvements	No	No	No	No	No	No	No	N/A
Other Signalized (provide description):	No	No	No	No	No	No	No	N/A	

= Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record

Waiver Request - Level 2 / 3

In certain circumstances where an ICE would otherwise be required, an ICE may be waived based on appropriate evidence presented with a written request. Scenarios in which an ICE waiver request may be considered include:

1. Proposed improvements do not substantially alter the character of the intersection, and are considered minor in nature, such as extending existing turn lane(s) or modifying signal phasing at an existing traffic signal
2. The intersection consists of a public roadway intersecting a divided, multilane roadway where the access will be limited to a closed median with only right-in/right-out access that will operate acceptably; or
3. The intersection is along an undivided, two-lane roadway that will not be widened and meets the following criteria:
 - Low risk in terms of exposure (total intersection entering volume less than 1,000 vehicles /day)
 - Latest 5 years of crash history is not indicative of a crash problem (no discernible crash patterns coupled with low crash frequency and severity)
 - Layout has no unusual or undesirable geometric features (such as restricted sight distance)
 - The proposed changes are not expected to adversely affect safety

If only one alternative is determined to be feasible from the ICE Stage 1, then a waiver may be submitted in lieu of completing ICE Stage 2. The waiver must clearly explain why there is no other feasible alternative. A Waiver Form should also be submitted to document an agreed upon decision to select a preferred alternative other than the highest scoring alternative in Stage 2.

ICE waiver forms with supporting documentation should be submitted for approval to the Office of Traffic Operations or District Engineer (depending on Waiver level). Questions regarding the waiver process should be routed to the State Traffic Engineer.

Project Information: Location: SR 347 @ Proposed Drwy 1
 County: Hall
 GDOT District: 1 - Gainesville
 Area Type: Suburb/Transition
 Existing Intersection Control: New Intersection or Other

GDOT PI # (or N/A): N/A
 Requested By: Developer
 Prepared By: KCI Technologies, Inc.
 Date: 8/24/2023
 Waiver Request Type: Driveway Permit

Traffic and Operations Data:^{1,2}

Intersection meets signal/AWS warrants?	None	
Traffic Analysis Type:	Intersection Delay	
Existing Major Street Avg Daily Traffic (ADT):	17,100	
Existing Minor Street Avg Daily Traffic (ADT):	100	
Analysis Period:	AM Peak	PM Peak
2027 Opening Yr Peak Hour Intersection Delay:	13.5 sec	12.6 sec
2027 Opening Yr Peak Hour Intersection V/C:	0.13	0.09
2027 Design Yr Peak Hour Intersection Delay:	13.5 sec	12.6 sec
2027 Design Yr Peak Hour Intersection V/C:	0.13	0.09

Crash Data (Required): ³						
Crash Type	Crash Severity					Years:
	K*	A*	B*	C*	O	5
Crash Data: Enter most recent 5 years of crash data						
Angle	0	0	0	0	0	0%
Head-On	0	0	0	0	0	0%
Rear End	0	0	0	1	0	50%
Sideswipe - same	0	0	0	0	1	50%
Sideswipe - opposite	0	0	0	0	0	0%
Not Collision w/Motor Veh	0	0	0	0	0	0%
TOTALS:	0	0	0	1	1	2

* Number of crashes resulting in injuries / fatalities, not number of persons

Description of Work / Justification for Waiver (Required): New proposed RCUT driveway #1 for the Friendship Luxe development; right-turn deceleration lane are proposed along SR 347; yield-control

Proposed Intersection Control: RCUT (stop control)

REQUESTED BY: Charles Bailey, PE Date: 8/24/2023

Title: Consultant Traffic Engineer

APPROVED BY: _____ Date: _____

Name: _____

District Engineer or (Approved Delegate)

¹ Analysis data input on this worksheet is for proposed control & configuration on form, not the No-Build data shown on the top of Stage 2

² ADT's required if available (from data collected or nearest GDOT count station site); Capacity data optional unless needed to justify basis of the waiver request.

³ Crash data (required for all existing intersections) must be entered here independent from Stage 2 worksheet inputs (not linked)