



Traffic Impact Analysis

Frazier Street Apartments Roswell, GA

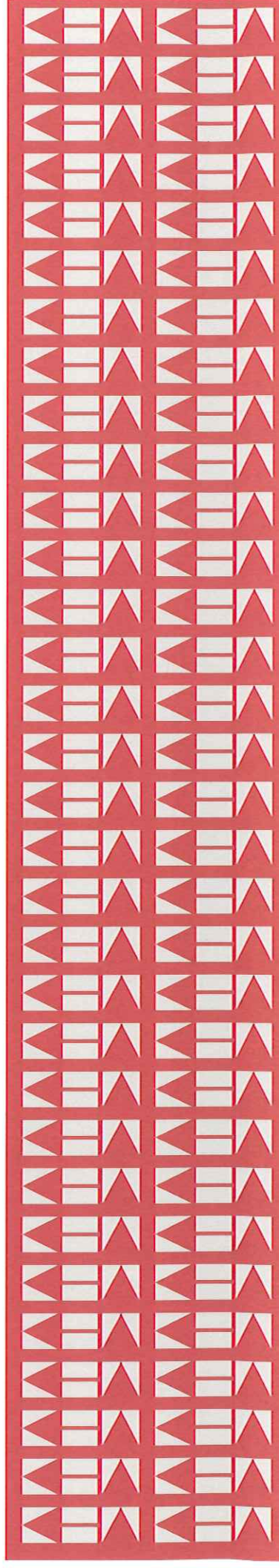
Prepared for:

Lennar Multifamily Investors, LLC

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for
Frazier Street Apartments
Roswell, Georgia**

**Prepared for:
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Atlanta, GA**

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**019986000
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1.0 Executive Summary

The Frazier Street Apartments project proposes replacing 152 existing apartments with 320 new apartment units in the northeast quadrant of the intersection of Frazier Street/Forest Street and Norcross Street in Roswell, Georgia. As currently proposed, the 320 apartment units will be accessed via two site driveways along Frazier Street as well as an additional site drive to the east that will tie into the existing intersection of Norcross Street and Myrtle Street. The build-out of the project is anticipated in 2015.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands. The traffic conditions studied include the existing (2013) traffic, projected (2015) no-build traffic, and projected (2015) build-out traffic conditions. Per the request of the City of Roswell, the projected (2025) no-build and build-out traffic conditions were also evaluated. The weekday AM and PM peak hours were studied.

The anticipated increase in traffic due to the proposed increase from 152 to 320 apartment units is relatively low, and analysis indicates that aside from some unsignalized minor street approaches all roadways in the study area are expected to operate at acceptable levels-of-service in the no-build and build scenarios for the study years 2015 and 2025. Since queuing issues are not expected at the few side-street approaches that do not operate at acceptable levels-of-service, no roadway improvements are recommended to accommodate projected site traffic based on the capacity analysis provided herein.

2.0 Introduction

The Frazier Street Apartments project proposes replacing 152 existing apartments with 320 new apartment units in the northeast quadrant of the intersection of Frazier Street/Forest Street and Norcross Street in Roswell, Georgia. As currently proposed, the 320 apartment units will be accessed via two site driveways along Frazier Street as well as an additional site drive to the east that will tie into the existing intersection of Norcross Street and Myrtle Street. The build-out of the project is anticipated in 2015.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands. The traffic conditions studied include the existing (2013) traffic, projected (2015) no-build traffic, and projected (2015) build-out traffic conditions. Per the request of the City of Roswell, the projected (2025) no-build and build-out traffic conditions were also evaluated. The weekday AM and PM peak hours were studied.

City of Roswell staff were consulted to obtain background information and to ascertain the elements to be covered in this traffic impact analysis (TIA). The approved assumptions memorandum is included in the appendix.

3.0 Inventory

3.1 Study Area

The study area for this TIA consists of the following intersection:

- SR-9 (Alpharetta Highway) at Norcross Street
- SR-9 (Alpharetta Highway) at Frazier Street
- SR-9 (Alpharetta Highway) at Woodstock Street
- Norcross Street at Frazier Street/Forest Street
- Norcross Street at Myrtle Street/Site Drive
- Frazier Street at North Site Drive
- Frazier Street at South Site Drive

This study area was determined based upon discussions with City of Roswell staff. Figure 1 shows the site location, and Figure 2 shows the site plan.

3.2 Existing Conditions

The surrounding land uses are primarily commercial and residential, including the Roswell Plaza shopping center to the west of the site. Roadways in the study area include SR-9 (Alpharetta Highway), Norcross Street, Woodstock Street, Frazier Street/Forest Street, and Myrtle Street. The existing roadway laneage is shown in Figure 3.

SR-9 (Alpharetta Highway) is a five-lane arterial with center two-way left turn lane and a posted speed limit of 40 mph. The reported 2011 average daily traffic (ADT) volume was approximately 22,550 vehicles per day (vpd).

Norcross Street is a two-lane collector road with an assumed speed limit of 35 mph. The reported 2011 ADT volume was approximately 11,410 in the vicinity of the site.

Woodstock Street is a two-lane collector road with a posted speed limit of 30 mph. The estimated 2013 ADT volume is approximately 5,000 vpd.

Frazier Street is a two-lane collector road that becomes Forest Street south of Norcross Street. The posted speed limit is 25 mph, and the estimated 2013 ADT volumes are approximately 1,500 vpd south of Norcross Street and 5,000 vpd north of Norcross Street.

Myrtle Street is a two-lane collector road with an assumed speed limit of 25 mph. The estimated 2013 ADT volume is approximately 2,000 vpd.



FRAZIER STREET APARTMENTS
ROSWELL, GA
TRAFFIC IMPACT ANALYSIS

SITE LOCATION

FIGURE
1

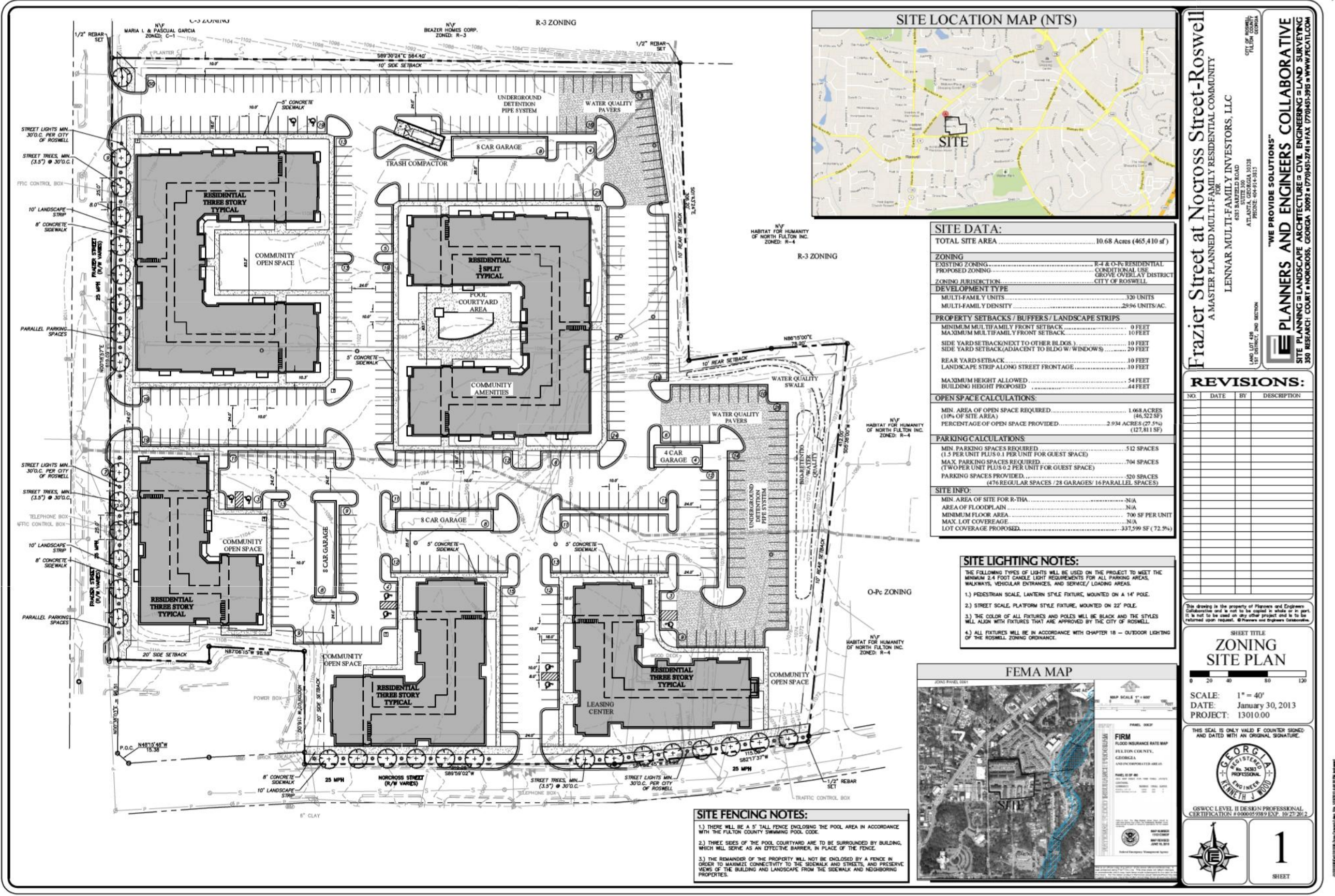


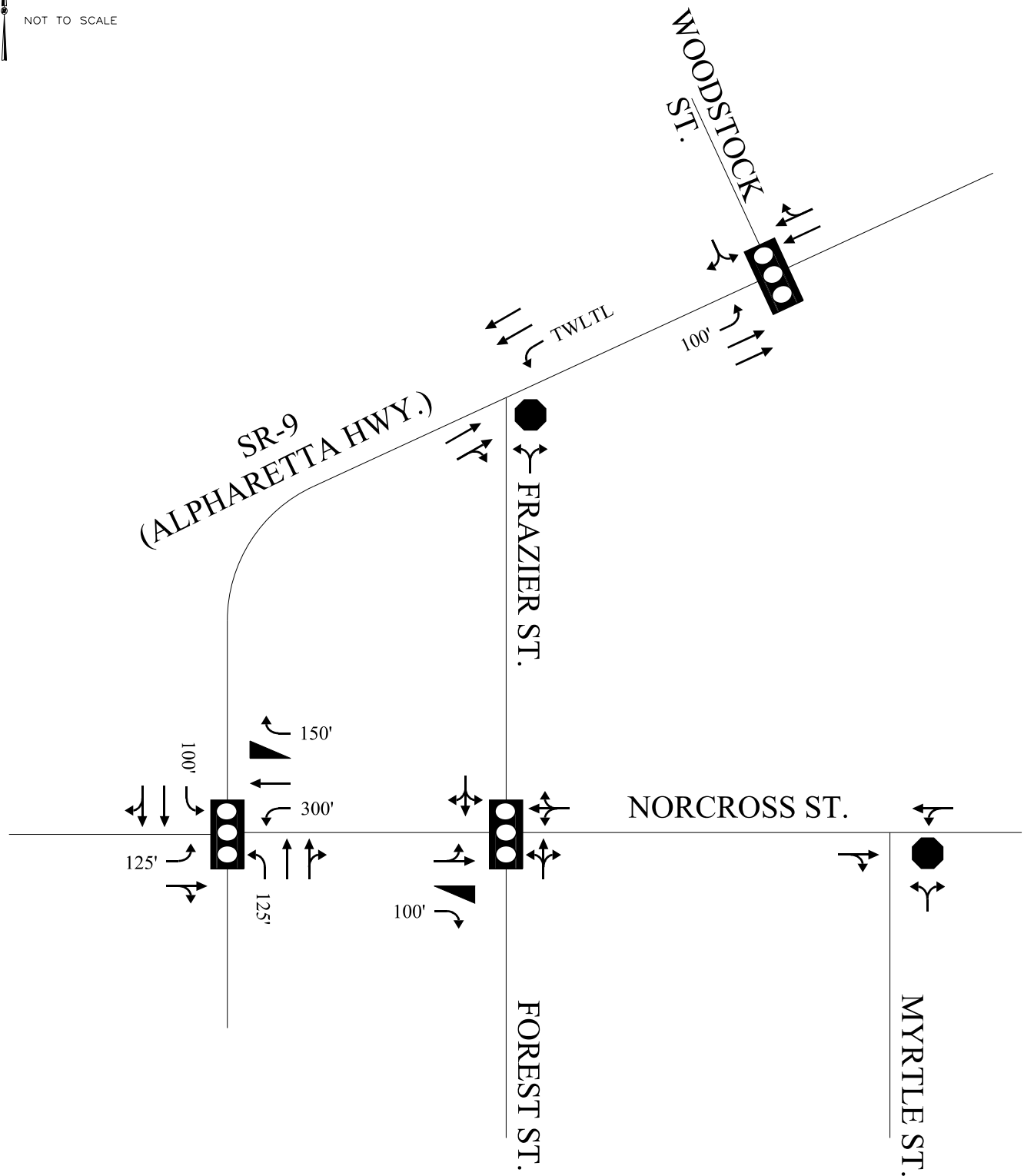
FIGURE 2

PROPOSED SITE PLAN

FRAZIER STREET APARTMENTS
ROSWELL, GA
TRAFFIC IMPACT ANALYSIS



NOT TO SCALE



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FRAZIER STREET APARTMENTS
ROSWELL, GA
TRAFFIC IMPACT ANALYSIS

EXISTING ROADWAY LANEAGE

FIGURE

3

4.0 Traffic Generation

The traffic generation potential of the proposed development was determined using the traffic generation rates published in *Trip Generation* (Institute of Transportation Engineers, 9th Edition, 2012). Since traffic from the 152 existing apartments is already on the network, only the new trips associated with the 168 additional units will be assigned to the external intersections. Table 4.1 summarizes the estimated traffic generation potential of the site during a typical weekday.

Table 4.1 ITE Traffic Generation – Weekday Trips					
Land Use Code	Land Use Density	AM Peak		PM Peak	
		Enter	Exit	Enter	Exit
Existing Land Use					
220	Apartments – 152 D.U.	16	62	66	35
Proposed Land Use					
220	Apartments – 320 D.U.	32	129	126	68
	Total Net New External Trips	16	67	60	33

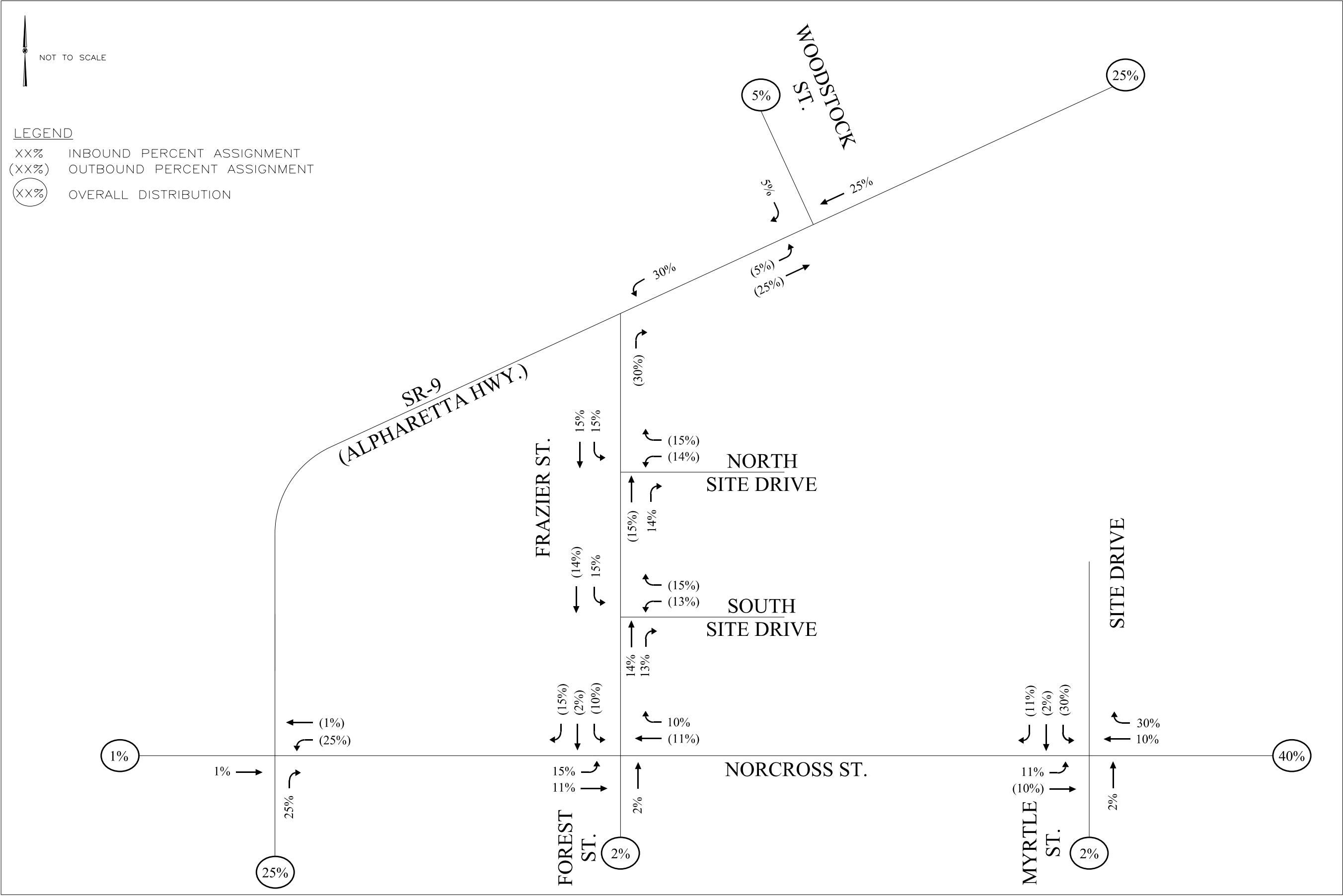
Table 4.1 shows that the proposed site, with 320 dwelling units, has the potential to generate approximately 16 new trips entering and 67 new trips exiting in the AM peak hour and 60 new trips entering and 33 new trips exiting in the PM peak hour when compared with the existing 152 dwelling units currently on the site.

5.0 Site Traffic Distribution

The proposed generated trips were assigned to the surrounding roadway network based on current and projected land uses in the area. The directional distribution is as follows:

- 40% To/From the east via Norcross Street
- 25% To/From the north via SR-9 (Alpharetta Highway)
- 25% To/From the south via SR-9 (Alpharetta Highway)
- 5% To/From the north via Woodstock Street
- 2% To/From the south via Forest Street
- 2% To/From the south via Myrtle Street
- 1% To/From the west via Norcross Street

The site traffic distribution was confirmed with City staff. The site traffic distribution and percent assignment are shown in Figure 4.



6.0 Projected Traffic Volumes

6.1 Existing Traffic

AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were performed at the following intersections:

- SR-9 (Alpharetta Highway) at Norcross Street
- SR-9 (Alpharetta Highway) at Frazier Street
- SR-9 (Alpharetta Highway) at Woodstock Street
- Norcross Street at Frazier Street/Forest Street
- Norcross Street at Myrtle Street

The existing AM and PM peak hour traffic volumes at the study intersections are shown in Figures 5, and the traffic count data are included in the Appendix. Existing peak hour factors (PHF) were used in the analysis when available. Otherwise, a PHF of 0.92 was used.

6.2 Historic Growth Traffic

Although historic ADT volumes show no or negative growth in this area, to be conservative, existing traffic volumes were grown at an annual growth rate of 1% through the 2015 horizon year.

The historic growth traffic was added to the existing traffic to obtain the 2015 no-build traffic volumes. The projected (2015) no-build AM and PM peak hour traffic volumes are shown in Figure 6.

6.3 Site Traffic

The proposed site traffic was generated and assigned to the adjacent roadway network according to the distribution discussed previously in Section 5.0. Since existing turning movement volumes were not obtained at the site driveways, the site traffic for all 320 apartments was assigned to the site driveways while only the incremental increase in traffic from the 168 additional units was assigned at the external intersections. The site traffic volumes for the AM and PM peak hours are shown in Figures 7.

6.4 Projected (2015) Build-Out Traffic

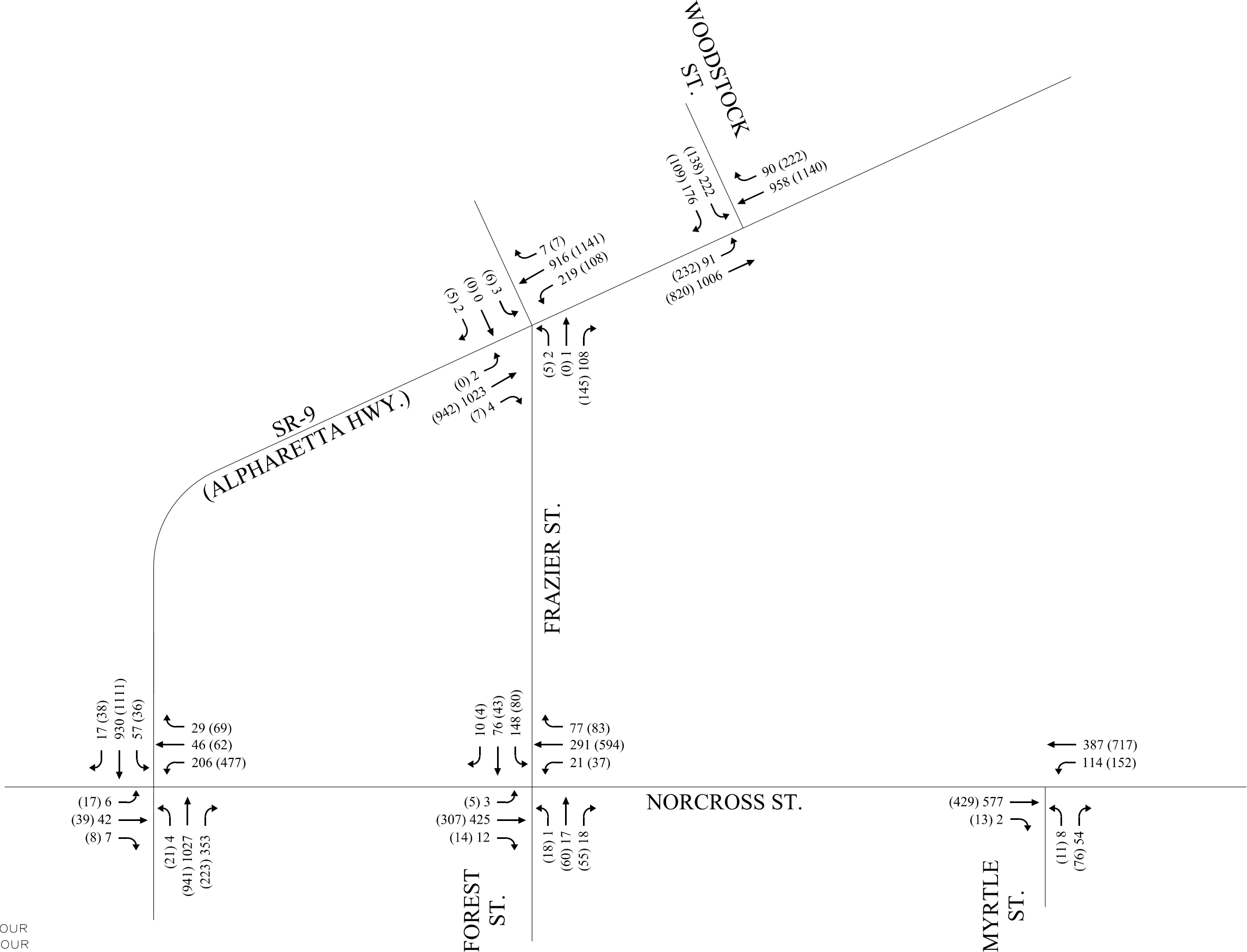
To estimate the projected future (2015) build-out peak hour traffic volumes, site-generated traffic volumes were added to the future (2015) no-build traffic volumes. Figure 8 reflects the projected build-out traffic volumes for the AM and PM peak hours.

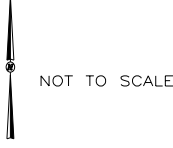
6.5 Projected (2025) Traffic

Per the request of the City, projected 2025 no-build and build-out traffic conditions were also studied. The method in determining the no-build volumes was the same as described above for the 2015 no-build condition, except in this scenario the existing through volumes were grown at a rate of 1% through the 2025 horizon year. The projected (2025) no-build AM and PM peak hour volumes are shown in Figure 9. As detailed above, site-generated traffic was added to the 2025 no-build traffic to project the 2025 build-out traffic in the AM and PM peak hours, shown in Figure 10.

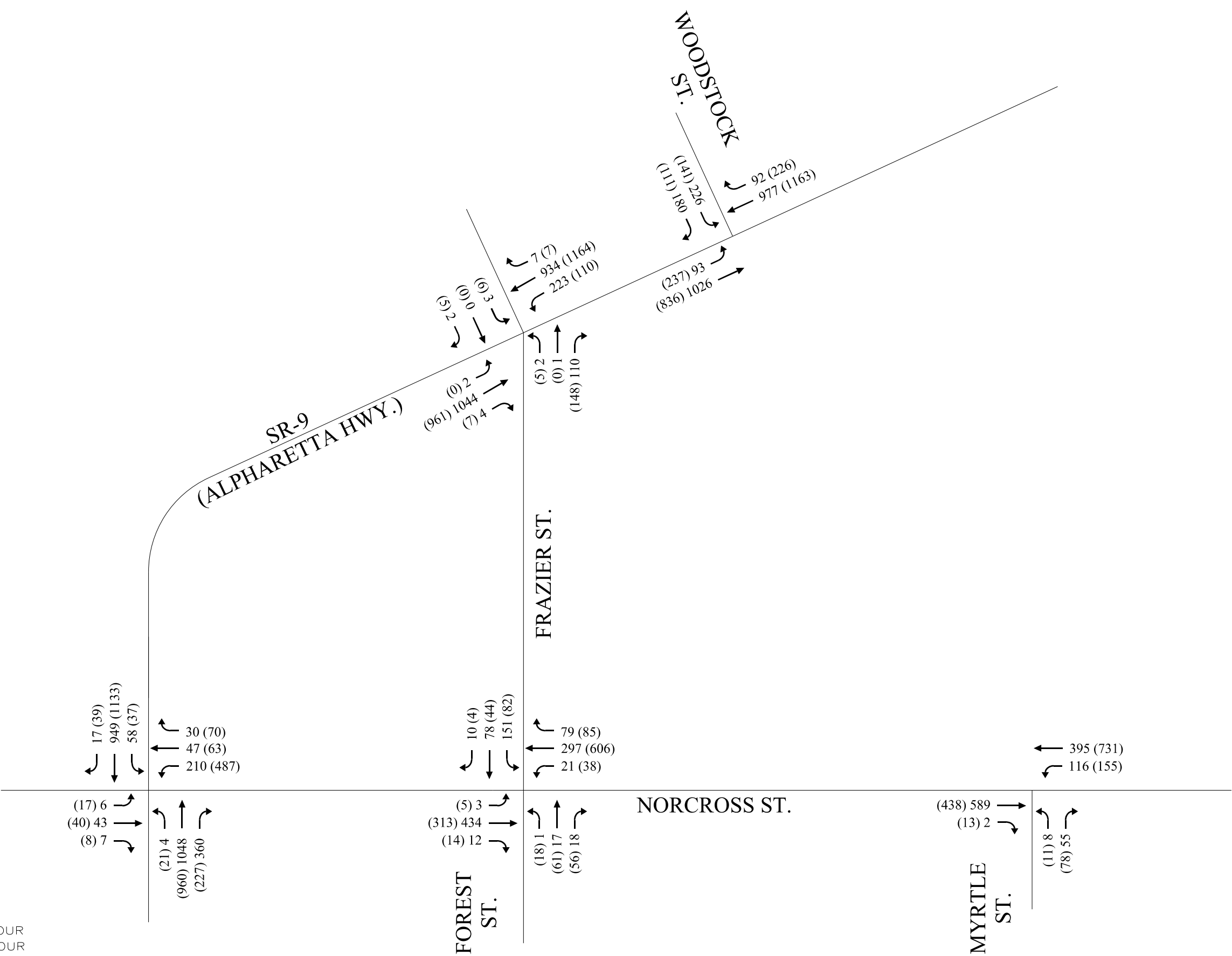


LEGEND
XX AM PEAK HOUR
(XX) PM PEAK HOUR



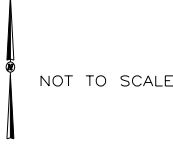


LEGEND
XX AM PEAK HOUR
(XX) PM PEAK HOUR

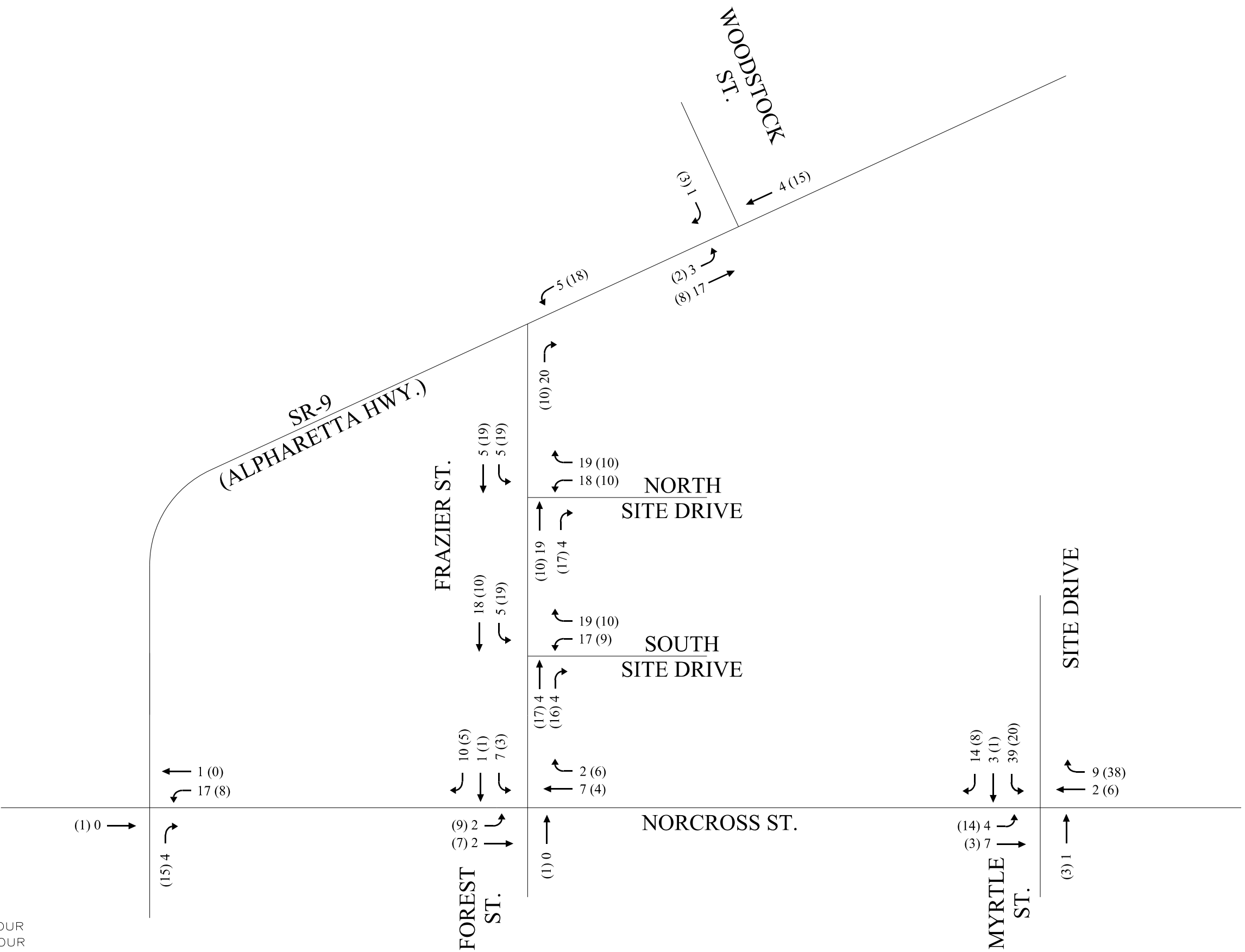


FRAZIER STREET APARTMENTS
ROSWELL, GA
TRAFFIC IMPACT ANALYSIS

PROJECTED (2015) NO-BUILD
AM & PM PEAK HOUR
TRAFFIC VOLUMES

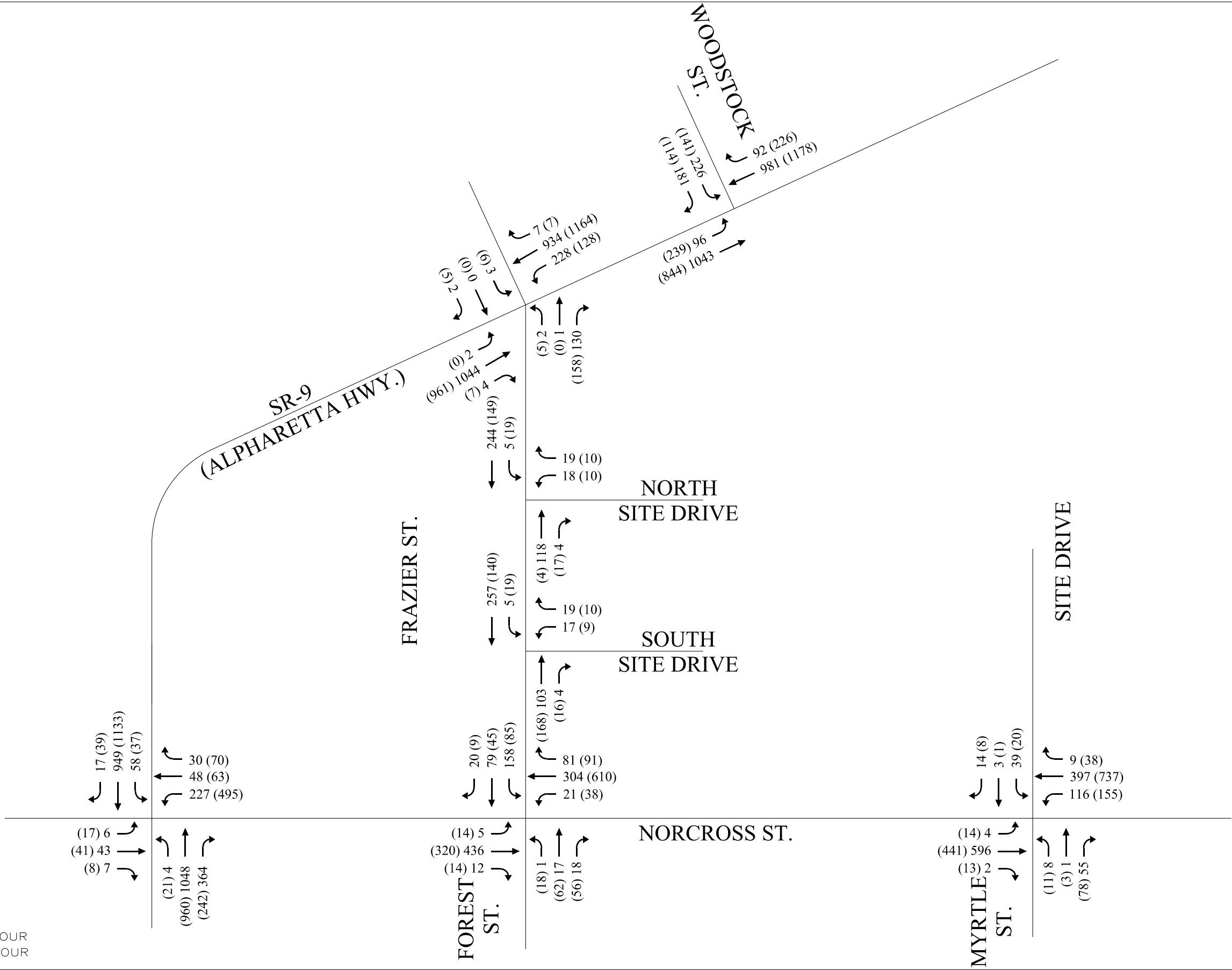


LEGEND
XX AM PEAK HOUR
(XX) PM PEAK HOUR





LEGEND
XX AM PEAK HOUR
(XX) PM PEAK HOUR





LEGEND
XX AM PEAK HOUR
(XX) PM PEAK HOUR

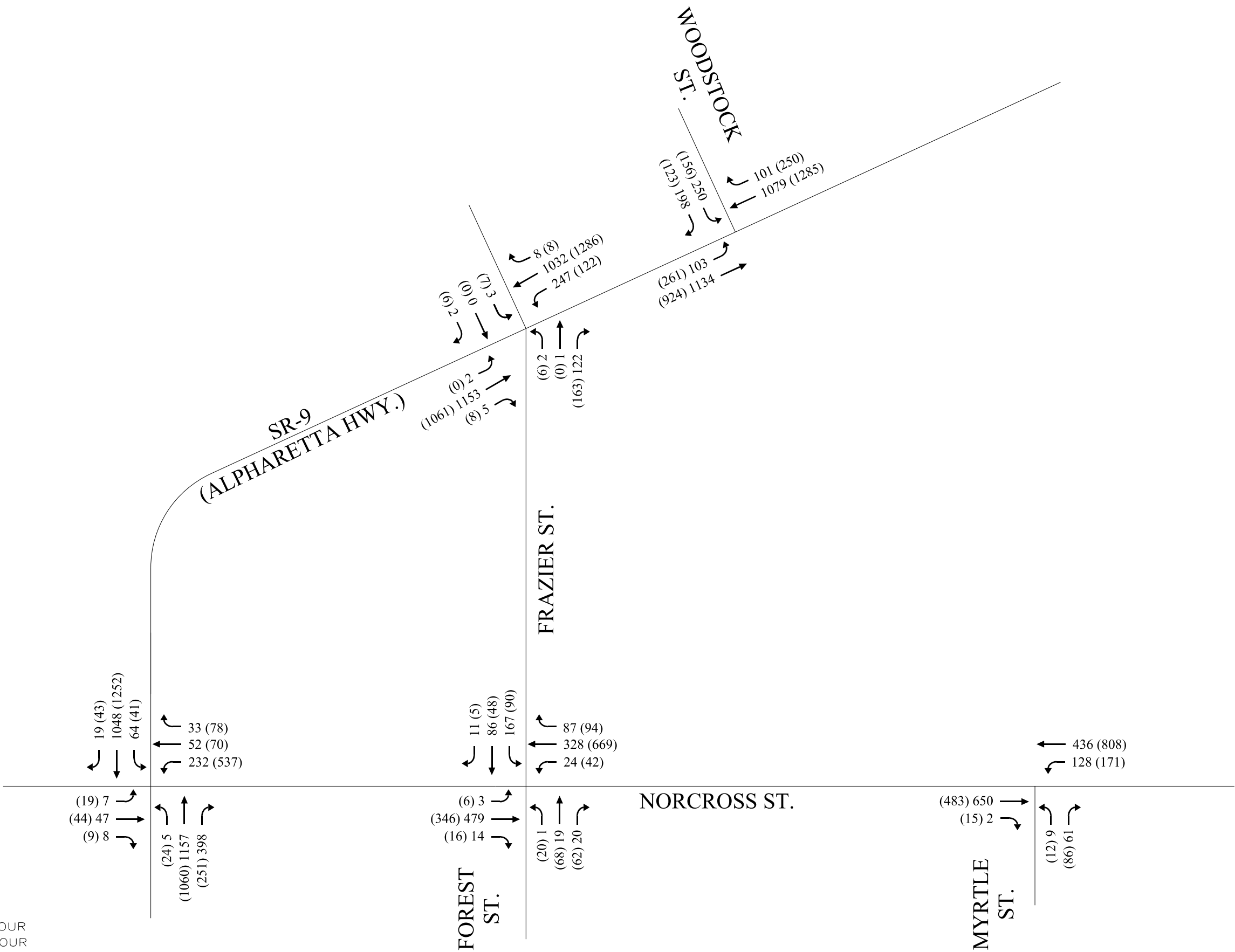


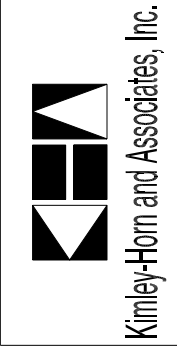
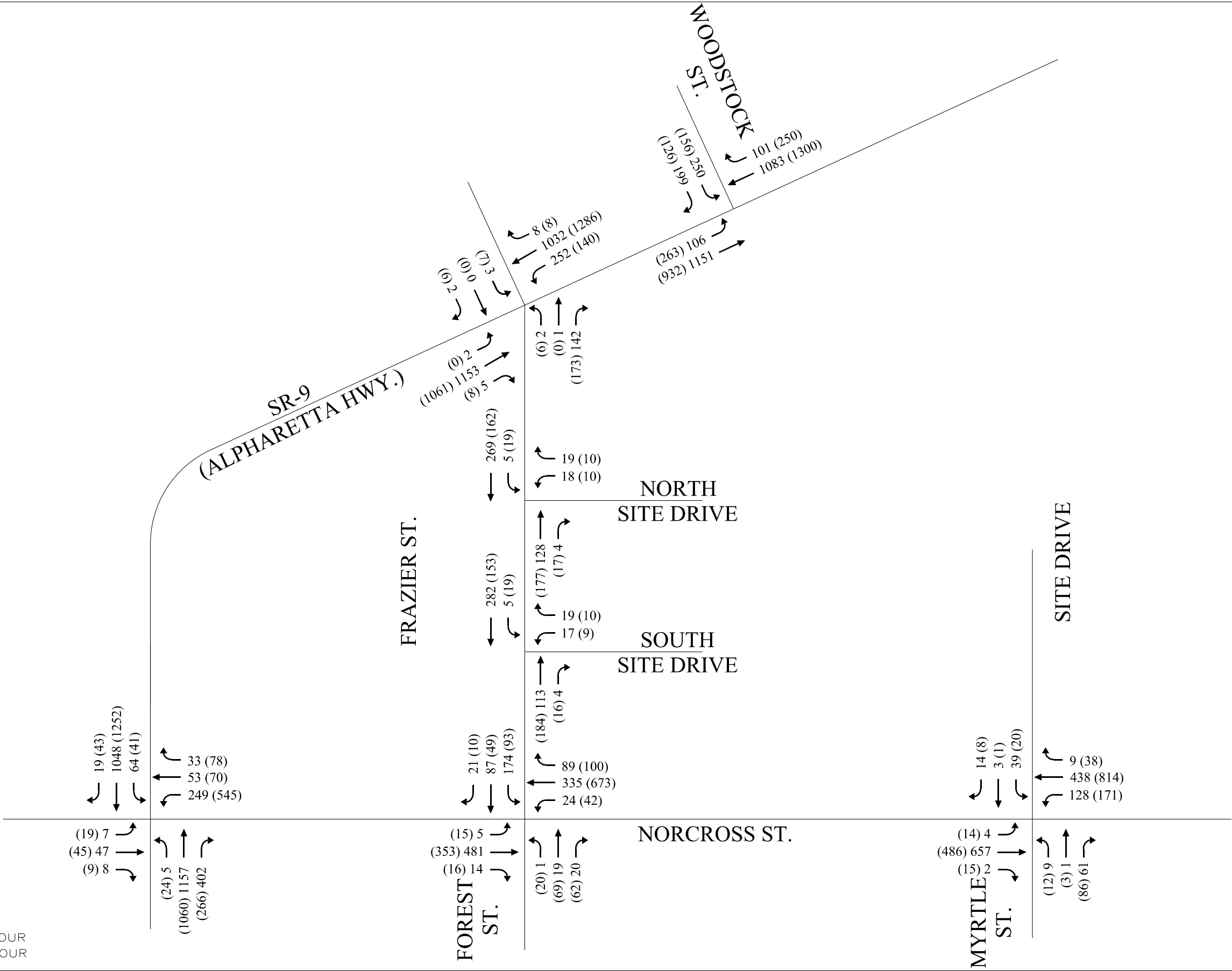
FIGURE
9

PROJECTED (2025) NO-BUILD
AM & PM PEAK HOUR
TRAFFIC VOLUMES

FRAZIER STREET APARTMENTS
ROSWELL, GA
TRAFFIC IMPACT ANALYSIS



LEGEND
XX AM PEAK HOUR
(XX) PM PEAK HOUR



FRAZIER STREET APARTMENTS
ROSWELL, GA
TRAFFIC IMPACT ANALYSIS

PROJECTED (2025) BUILD-OUT
AM & PM PEAK HOUR
TRAFFIC VOLUMES

FIGURE
10

7.0 Capacity Analysis

Capacity analyses (see Appendix) were performed for the weekday AM and PM peak hours for the existing (2013) traffic, projected (2015) no-build traffic, projected (2015) build-out traffic, projected (2025) no-build traffic, and projected (2025) build-out traffic conditions using Synchro Version 7 software to determine the operating characteristics of the surrounding road network and the impacts of the proposed project.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within an established time duration. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by Synchro Version 7 or computable using methodology published in the *Highway Capacity Manual*. Accordingly, minor street approach delays are reported herein for unsignalized conditions. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay.

Table 7.0-A lists the LOS control delay thresholds published in the *Highway Capacity Manual* for signalized and unsignalized intersections.

Table 7.0-A Level-of-Service Control Delay Thresholds		
Level-of-Service	Signalized Intersections – Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections – Average Control Delay [sec/veh]
A	≤ 10	≤ 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

Capacity analyses were performed for the existing (2013) traffic, projected (2015) no-build traffic, projected (2015) build-out traffic, projected (2025) no-build traffic, and projected (2025) build-out traffic conditions, where appropriate, for the following intersections:

- SR-9 (Alpharetta Highway) at Norcross Street
- SR-9 (Alpharetta Highway) at Frazier Street
- SR-9 (Alpharetta Highway) at Woodstock Street
- Norcross Street at Frazier Street/Forest Street
- Norcross Street at Myrtle Street/Site Drive
- Frazier Street at North Site Drive
- Frazier Street at South Site Drive

Table 7.0-B summarizes the operation for the study intersections for the AM and PM peak hour traffic conditions listed above. All capacity analyses are included in the Appendix and are briefly summarized in the following sub-sections.

Table 7.0-B Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
SR-9 (Alpharetta Hwy) at Norcross Street (Signalized)		
Existing (2013) Traffic	B (19.5)	C (30.1)
Projected (2015) No-Build Traffic	C (20.0)	C (30.7)
Projected (2015) Build-out Traffic	C (20.7)	C (31.2)
Projected (2025) No-Build Traffic	C (22.8)	C (34.8)
Projected (2025) Build-out Traffic	C (23.7)	D (35.3)
SR-9 (Alpharetta Hwy) at Frazier Street (Unsignalized)		
Existing (2013) Traffic	EB – E (42.8) WB – C (15.8)	EB – C (22.8) WB – C (15.6)
Projected (2015) No-Build Traffic	EB – E (49.6) WB – C (16.2)	EB – C (23.7) WB – C (15.9)
Projected (2015) Build-out Traffic	EB – F (94.7) WB – C (16.8)	EB – D (26.7) WB – C (16.2)
Projected (2025) No-Build Traffic	EB – F (400.3) WB – C (18.3)	EB – D (31.3) WB – C (18.2)
Projected (2025) Build-out Traffic	EB – F (492.5) WB – C (19.3)	EB – E (39.0) WB – C (18.7)
SR-9 (Alpharetta Hwy) at Woodstock Street (Signalized)		
Existing (2013) Traffic	C (24.6)	C (22.4)
Projected (2015) No-Build Traffic	C (25.3)	C (23.2)
Projected (2015) Build-out Traffic	C (25.3)	C (23.7)
Projected (2025) No-Build Traffic	C (28.6)	C (27.5)
Projected (2025) Build-out Traffic	C (28.4)	C (28.2)
Norcross Street at Forest Street/Frazier Street (Signalized)		
Existing (2013) Traffic	B 12.6)	B (10.5)
Projected (2015) No-Build Traffic	B (12.7)	B (10.7)
Projected (2015) Build-out Traffic	B (13.5)	B (11.1)
Projected (2025) No-Build Traffic	B (13.8)	B (12.4)
Projected (2025) Build-out Traffic	B (14.5)	B (12.9)

Table 7.0-B (cont.) Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Norcross Street at Myrtle Street/Site Drive (Unsignalized)		
Existing (2013) Traffic	NB - C (15.8)	NB - C (17.2)
Projected (2015) No-Build Traffic	NB - C (16.1)	NB - C (17.6)
Projected (2015) Build-out Traffic	NB - C (18.5) SB - F (64.3)	NB - C (24.7) SB - F (96.7)
Projected (2025) No-Build Traffic	NB - C (18.8)	NB - C (21.5)
Projected (2025) Build-out Traffic	NB - C (22.7) SB - F (115.6)	NB - D (34.8) SB - F (174.2)
Frazier Street at North Site Drive (Unsignalized)		
Projected (2015) No-Build Traffic	WB - B (10.3)	WB - B (10.2)
Projected (2025) Build-out Traffic	WB - B (10.4)	WB - B (10.4)
Frazier Street at South Site Drive (Unsignalized)		
Projected (2015) No-Build Traffic	WB - B (10.1)	WB - B (10.2)
Projected (2025) Build-out Traffic	WB - B (10.3)	WB - B (10.4)

7.1 SR-9 (Alpharetta Highway) at Norcross Street

Analysis indicates that this signalized intersection currently operates at LOS B in the AM peak hour and at LOS C in the PM peak hour. In the year 2015, the intersection is expected to operate at LOS C in the AM and PM peak hours with or without the proposed project in place. In the year 2025, the intersection is expected to continue to operate at LOS C in the AM and PM peak hours for the No-Build condition and at LOS C in the AM peak hour and at LOS D in the PM peak hour for the Build-out traffic condition. No roadway improvements are recommended at this intersection to accommodate projected site traffic.

Table 7.1 summarizes the level-of-service and delay at this intersection for the existing (2013) traffic, projected (2015) no-build traffic, projected (2015) build-out traffic, projected (2025) no-build traffic, and projected (2025) build-out traffic conditions.

Table 7.1 Level-of-Service SR-9 (Alpharetta Highway) at Norcross Street (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2013) Traffic	B (19.5)	C (30.1)
Projected (2015) No-Build Traffic	C (20.0)	C (30.7)
Projected (2015) Build-out Traffic	C (20.7)	C (31.2)
Projected (2025) No-Build Traffic	C (22.8)	C (34.8)
Projected (2025) Build-out Traffic	C (23.7)	D (35.3)

7.2 SR-9 (Alpharetta Highway) at Frazier Street

Analysis indicates that this unsignalized intersection currently operates at LOS E and C in the AM peak hour for the eastbound (Private Drive) and westbound (Frazier Street) side-street approaches, respectively and at LOS C for both side-street approaches in the PM peak hour. Although the EB approach is expected to operate at LOS E or F in future scenarios, no queuing issues are anticipated at this intersection. Furthermore, the analysis is unable to accurately account for gaps in traffic created by the adjacent signalized intersection, which will make left turns from the side streets easier. No roadway improvements are recommended based on the capacity analysis presented herein.

Table 7.2 summarizes the level-of-service and delay at this intersection for the existing (2013) traffic, projected (2015) no-build traffic, projected (2015) build-out traffic, projected (2025) no-build traffic, and projected (2025) build-out traffic conditions.

Table 7.2 Level-of-Service SR-9 (Alpharetta Highway) at Frazier Street (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2013) Traffic	EB – E (42.8) WB – C (15.8)	EB – C (22.8) WB – C (15.6)
Projected (2015) No-Build Traffic	EB – E (49.6) WB – C (16.2)	EB – C (23.7) WB – C (15.9)
Projected (2015) Build-out Traffic	EB – F (94.7) WB – C (16.8)	EB – D (26.7) WB – C (16.2)
Projected (2025) No-Build Traffic	EB – F (400.3) WB – C (18.3)	EB – D (31.3) WB – C (18.2)
Projected (2025) Build-out Traffic	EB – F (492.5) WB – C (19.3)	EB – E (39.0) WB – C (18.7)

7.3 SR-9 (Alpharetta Highway) at Woodstock Street

Analysis indicates that this signalized intersection currently operates at LOS C in both the AM and PM peak hours. This same level-of-service is expected to be maintained in all other studied traffic conditions, and no roadway improvements are recommended based on the capacity analysis presented herein.

Table 7.3 summarizes the level-of-service and delay at this intersection for the existing (2013) traffic, projected (2015) no-build traffic, projected (2015) build-out traffic, projected (2025) no-build traffic, and projected (2025) build-out traffic conditions.

Table 7.3 Level-of-Service SR-9 (Alpharetta Highway) at Woodstock Street (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2013) Traffic	C (24.6)	C (22.4)
Projected (2015) No-Build Traffic	C (25.3)	C (23.2)
Projected (2015) Build-out Traffic	C (25.3)	C (23.7)
Projected (2025) No-Build Traffic	C (28.6)	C (27.5)
Projected (2025) Build-out Traffic	C (28.4)	C (28.2)

7.4 Norcross Street at Frazier Street/Forest Street

Analysis indicates that this signalized intersection currently operates at LOS B in both the AM and PM peak hours. This same level-of-service is expected to be maintained in all other studied traffic conditions, and no roadway improvements are recommended based on the capacity analysis presented herein.

Table 7.4 summarizes the level-of-service and delay at this intersection for the existing (2013) traffic, projected (2015) no-build traffic, projected (2015) build-out traffic, projected (2025) no-build traffic, and projected (2025) build-out traffic conditions.

Table 7.4 Level-of-Service Norcross Street at Frazier Street/Forest Street (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2013) Traffic	B (12.6)	B (10.5)
Projected (2015) No-Build Traffic	B (12.7)	B (10.7)
Projected (2015) Build-out Traffic	B (13.5)	B (11.1)
Projected (2025) No-Build Traffic	B (13.8)	B (12.4)
Projected (2025) Build-out Traffic	B (14.5)	B (12.9)

7.5 Norcross Street at Myrtle Street/Site Drive

Analysis indicates that the unsignalized intersection of Norcross Street at Myrtle Street currently operates at LOS C for the northbound side-street approach (Myrtle Street) in both the AM and PM peak hours. This same level-of-service is expected to be maintained in all studied traffic conditions for the AM and PM peak hours with the exception of the 2025 build-out scenario in the PM peak hour, in which the delay increases by approximately 10 seconds and the LOS changes from C to D. A site driveway is proposed to align with Myrtle Street as the fourth leg to this intersection. This proposed site drive is expected to operate at LOS F in both peak hours in both 2015 and 2025; however, no queuing issues are anticipated at this intersection. No roadway improvements are recommended at this intersection based on the capacity analysis presented herein. Based on a preliminary field review, there appears to be adequate sight distance at the proposed site driveway.

Table 7.5 summarizes the level-of-service and delay at this intersection for the existing (2013) traffic, projected (2015) no-build traffic, projected (2015) build-out traffic, projected (2025) no-build traffic, and projected (2025) build-out traffic conditions.

Table 7.5 Level-of-Service Norcross Street at Myrtle Street/Site Drive (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2013) Traffic	NB - C (15.8)	NB - C (17.2)
Projected (2015) No-Build Traffic	NB - C (16.1)	NB - C (17.6)
Projected (2015) Build-out Traffic	NB - C (18.5) SB - F (64.3)	NB - C (24.7) SB - F (96.7)
Projected (2025) No-Build Traffic	NB - C (18.8)	NB - C (21.5)
Projected (2025) Build-out Traffic	NB - C (22.7) SB - F (115.6)	NB - D (34.8) SB - F (174.2)

7.6 Frazier Street at North Site Drive

A site driveway is proposed on Frazier Street approximately 700 feet north of Norcross Street. Analysis indicates that this unsignalized intersection is expected to operate at LOS B for the westbound side-street approach (Site Drive) in both the AM and PM peak hours for the 2015 and 2025 traffic conditions. No queuing issues are expected, and no roadway improvements are recommended based on the capacity analysis presented herein. Based on a preliminary field review, there appears to be adequate sight distance at the proposed site driveway.

Table 7.6 summarizes the level-of-service and delay at this intersection for the projected (2015) build-out traffic and projected (2025) build-out traffic conditions.

Table 7.6 Level-of-Service Frazier Street at North Site Drive (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Projected (2015) Build-out Traffic	WB - B (10.3)	WB - B (10.2)
Projected (2025) Build-out Traffic	WB - B (10.4)	WB - B (10.4)

7.7 Frazier Street at South Site Drive

A site driveway is proposed on Frazier Street approximately 380 feet north of Norcross Street. Analysis indicates that this unsignalized intersection is expected to operate at LOS B for the westbound side-street approach (Site Drive) in both the AM and PM peak hours for the 2015 and 2025 traffic conditions. No queuing issues are expected, and no roadway improvements are recommended based on the capacity analysis presented herein. Based on a preliminary field review, there appears to be adequate sight distance at the proposed site driveway.

Table 7.7 summarizes the level-of-service and delay at this intersection for the projected (2015) build-out traffic and projected (2025) build-out traffic conditions.

Table 7.7 Level-of-Service Frazier Street at South Site Drive (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Projected (2015) Build-out Traffic	WB - B (10.1)	WB - B (10.2)
Projected (2025) Build-out Traffic	WB - B (10.3)	WB - B (10.4)

8.0 Conclusions and Recommendations

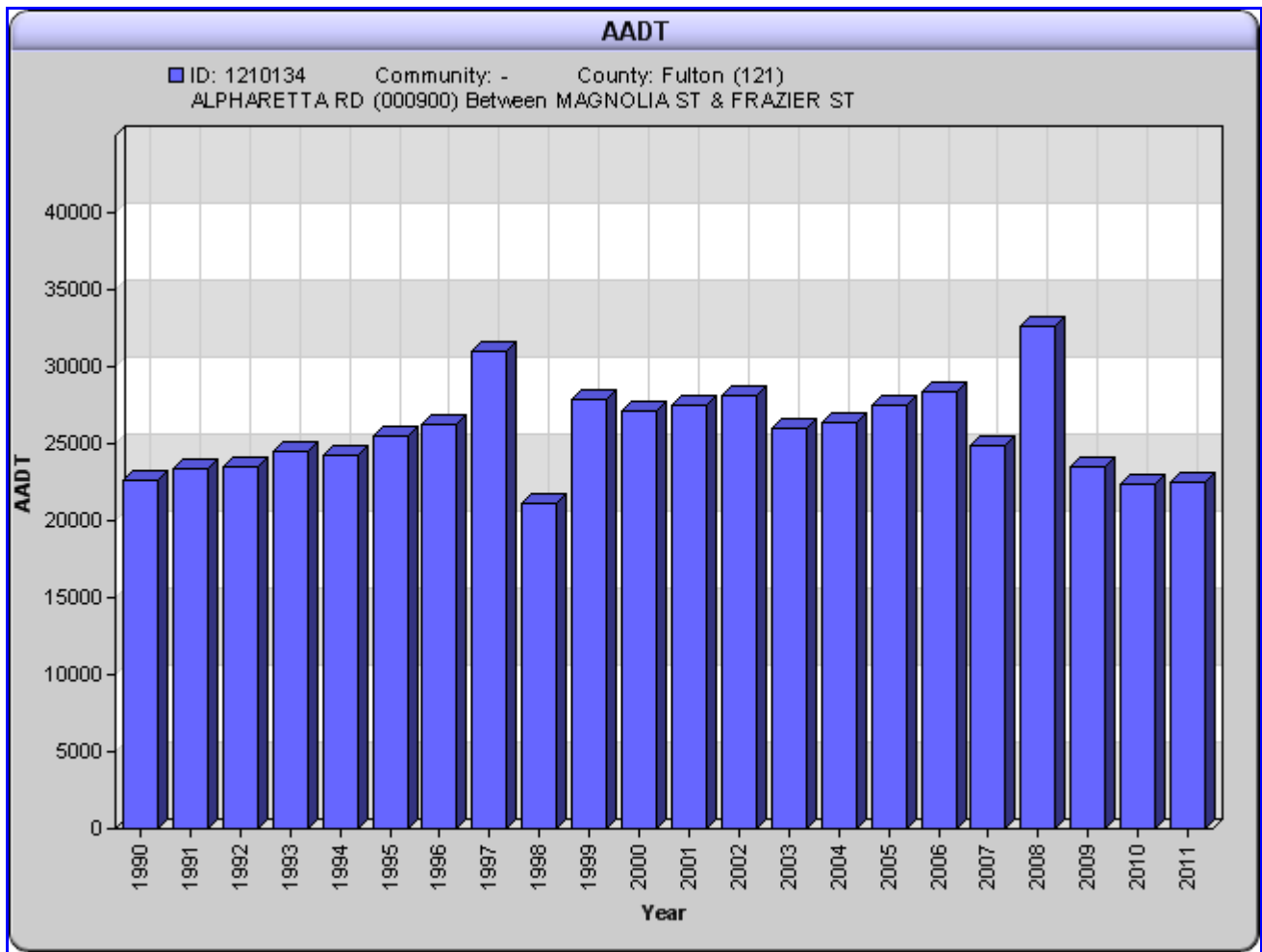
The anticipated increase in traffic due to the proposed increase from 152 to 320 apartment units is relatively low, and analysis indicates that aside from some unsignalized minor street approaches all roadways in the study area are expected to operate at acceptable levels-of-service in the no-build and build scenarios for the study years 2015 and 2025. Since queuing issues are not expected at the few side-street approaches that do not operate at acceptable levels-of-service, no roadway improvements are recommended to accommodate projected site traffic based on the capacity analysis provided herein.

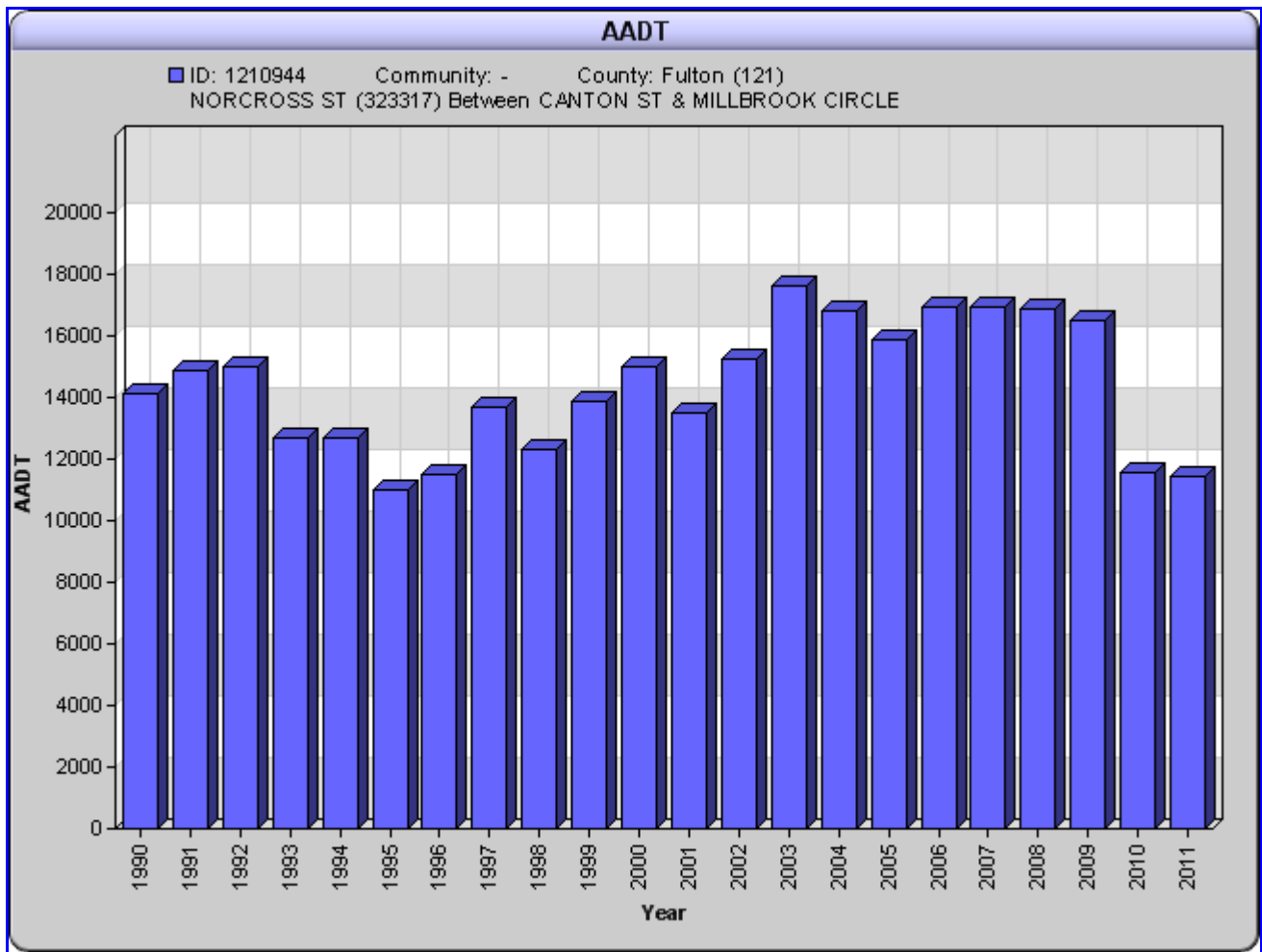
Appendix

Memorandum of Understanding

Frazier Street Apartments - Final Summary and Traffic Study Assumptions

- 1.) Proposed Project:
 - 320 dwelling units (Apartments)
 - Replacing 152 dwelling units
- 2.) Study Area:
 - SR 9 & Norcross Street
 - SR 9 & Frazier Street
 - SR 9 & Woodstock Street
 - Norcross Street & Frazier Street/Forrest Street
 - Norcross Street & Myrtle Street
 - Project Driveways
- 3.) Data Collection:
 - Counts performed Wednesday 2/20/13 between 7:00-9:00 AM and 4:30-6:30 PM
- 4.) Build-out Year 2015
- 5.) Growth rate – 1%, negative trends on both SR 9 and Norcross Street (see attached graphs)
- 6.) Analysis Scenarios (assumes 1% per year background growth rate):
 - AM Peak Hour and PM Peak Hour
 - Existing Year 2013
 - Year 2015 - Build-Out (Completion) Year
 - i. No-Build
 - ii. Build
 - Year 2025 (10 years beyond build-out) – per City's request
 - i. No-Build
 - ii. Build
- 7.) Distribution of project traffic
 - To / from the north – 25%
 - To / from the south – 30%
 - To / from the east – 40%
 - To / from the west – 5%





Traffic Count Data

Project ID: CA13_9024_003
 Location: Alpharetta Hwy & Norcross St
 City: City of Roswell

Day: Wednesday
 Date: 2/20/2013

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:30 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

Start Time	Alpharetta Hwy Northbound					Alpharetta Hwy Southbound					Norcross St Eastbound					Norcross St Westbound					Int. Total
	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	
7:00 AM	0	185	64	0	249	6	185	2	0	193	0	5	1	0	6	24	2	2	0	28	476
7:15 AM	0	255	83	0	338	9	232	2	0	243	0	4	1	0	5	49	8	6	0	63	649
7:30 AM	0	273	90	0	363	8	254	2	0	264	3	11	3	0	17	49	6	5	0	60	704
7:45 AM	1	265	90	0	356	22	235	7	0	264	1	8	1	0	10	51	12	8	0	71	701
Total	1	978	327	0	1306	45	906	13	0	964	4	28	6	0	38	173	28	21	0	222	2530
8:00 AM	1	238	85	0	324	20	206	1	0	227	0	10	1	1	11	46	12	6	0	64	626
8:15 AM	2	251	88	0	341	7	235	7	0	249	2	13	2	0	17	60	16	10	0	86	693
8:30 AM	0	246	101	0	347	9	186	1	0	196	1	13	0	0	14	41	12	11	0	64	621
8:45 AM	0	251	94	1	345	7	211	3	0	221	2	10	1	0	13	49	13	13	0	75	654
Total	3	986	368	1	1357	43	838	12	0	893	5	46	4	1	55	196	53	40	0	289	2594

BREAK

4:30 PM	2	226	61	0	289	6	262	4	0	272	6	6	2	0	14	120	15	16	0	151	726
4:45 PM	4	212	51	0	267	9	206	8	0	223	8	13	2	0	23	135	21	20	0	176	689
5:00 PM	5	216	56	0	277	16	280	8	0	304	3	9	2	0	14	118	11	17	0	146	741
5:15 PM	3	245	49	0	297	10	291	14	0	315	3	8	1	0	12	136	16	17	0	169	793
Total	14	899	217	0	1130	41	1039	34	0	1114	20	36	7	0	63	509	63	70	0	642	2949
5:30 PM	9	228	56	0	293	7	274	8	0	289	10	13	3	0	26	98	19	18	0	135	743
5:45 PM	4	252	62	0	318	3	266	8	0	277	1	9	2	0	12	125	16	17	0	158	765
6:00 PM	11	204	57	0	272	14	234	5	0	253	4	7	3	0	14	148	15	18	0	181	720
6:15 PM	5	266	75	0	346	7	294	6	0	307	2	11	2	0	15	113	11	15	0	139	807
Total	29	950	250	0	1229	31	1068	27	0	1126	17	40	10	0	67	484	61	68	0	613	3035

Grand Total	47	3813	1162	1	5022	160	3851	86	0	4097	46	150	27	1	223	1362	205	199	0	1766	11108
Apprch %	0.9	75.9	23.1	0.0		3.9	94.0	2.1	0.0		20.6	67.3	12.1	0.4		77.1	11.6	11.3	0.0		
Total %	0.4	34.3	10.5	0.0	45.2	1.4	34.7	0.8	0.0	36.9	0.4	1.4	0.2	0.0	2.0	12.3	1.8	1.8	0.0	15.9	
Cars, PU, Vans	47	3805	1162	1	5014	160	3838	85	0	4083	46	150	27	1	223	1361	204	198	0	1763	11083
% Cars, PU, Vans	###	99.8	###	100.0	99.8	###	99.7	98.8	0.0	99.7	###	100.0	###	###	100.0	99.9	99.5	99.5	0.0	99.8	99.8
Heavy Trucks	0	8	0		8	0	13	1		14	0	0	0		0	1	1	1		3	25
%Heavy Trucks	0.0	0.2	0.0	0.0	0.2	0.0	0.3	1.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5	0.0	0.2	0.2

Project ID: CA13_9024_003
 Location: Alpharetta Hwy & Norcr
 City: City of Roswell

PEAK HOURS

Day: WEDNESDAY
 Date: 02/20/2013

AM

	Alpharetta Hwy Northbound				Alpharetta Hwy Southbound				Norcross St Eastbound				Norcross St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
7:30 AM	0	273	90	363	8	254	2	264	3	11	3	17	49	6	5	60	704
7:45 AM	1	265	90	356	22	235	7	264	1	8	1	10	51	12	8	71	701
8:00 AM	1	238	85	324	20	206	1	227	0	10	1	11	46	12	6	64	626
8:15 AM	2	251	88	341	7	235	7	249	2	13	2	17	60	16	10	86	693
Total Volume	4	1027	353	1384	57	930	17	1004	6	42	7	55	206	46	29	281	2724
% App. Total	0.3	74.2	25.5	100	5.7	92.6	1.7	100	10.9	76.4	12.7	100	73.3	16.4	10.3	100	
PHF	0.953				0.951				0.809				0.817				0.967
Cars, PU, Vans	4	1024	353	1381	57	922	17	996	6	42	7	55	205	45	29	279	2711
% Cars, PU, Vans	####	99.7	####	99.8	100.0	99.1	####	99.2	####	100.0	####	100.0	99.5	97.8	100.0	99.3	99.5
Heavy Trucks	0	3	0	3	0	8	0	8	0	0	0	0	1	1	0	2	13
%Heavy Trucks	0.0	0.3	0.0	0.2	0.0	0.9	0.0	0.8	0.0	0.0	0.0	0.0	0.5	2.2	0.0	0.7	0.5

PM

	Alpharetta Hwy Northbound				Alpharetta Hwy Southbound				Norcross St Eastbound				Norcross St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:30 PM to 06:30 PM																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
5:00 PM	5	216	56	277	16	280	8	304	3	9	2	14	118	11	17	146	741
5:15 PM	3	245	49	297	10	291	14	315	3	8	1	12	136	16	17	169	793
5:30 PM	9	228	56	293	7	274	8	289	10	13	3	26	98	19	18	135	743
5:45 PM	4	252	62	318	3	266	8	277	1	9	2	12	125	16	17	158	765
Total Volume	21	941	223	1185	36	1111	38	1185	17	39	8	64	477	62	69	608	3042
% App. Total	1.8	79.4	18.8	100	3.0	93.8	3.2	100	26.6	60.9	12.5	100	78.5	10.2	11.3	100	
PHF	0.932				0.940				0.615				0.899				0.959
Cars, PU, Vans	21	940	223	1184	36	1111	38	1185	17	39	8	64	477	62	69	608	3041
% Cars, PU, Vans	###	99.9	###	99.9	100.0	###	###	100.0	###	100.0	###	100.0	###	###	100.0	100.0	100.0
Heavy Trucks	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Heavy Trucks	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Day: Wednesday
Date: 2/20/2013

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:30 PM

	Alpharetta Northbound					Alpharetta Southbound					Driveway Eastbound					Driveway Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	1	180	0	1	181	44	169	1	0	214	0	0	1	2	1	1	0	21	2	22	418
7:15 AM	0	248	0	0	248	36	233	1	0	270	1	0	0	0	1	0	0	25	0	25	544
7:30 AM	1	276	2	0	279	45	242	1	0	288	1	0	0	0	1	0	0	21	0	21	589
7:45 AM	1	275	0	0	276	60	245	4	0	309	0	0	1	3	1	1	0	28	1	29	615
Total	3	979	2	1	984	185	889	7	0	1081	2	0	2	5	4	2	0	95	3	97	2166
8:00 AM	0	233	2	0	235	58	193	1	0	252	0	0	1	0	1	1	0	28	1	29	517
8:15 AM	0	239	0	0	239	56	236	1	1	293	2	0	0	0	2	0	1	31	0	32	566
8:30 AM	0	246	0	0	246	46	185	0	0	231	0	0	0	0	0	0	0	16	1	16	493
8:45 AM	0	252	1	0	253	34	205	1	0	240	0	1	0	1	1	0	0	14	0	14	508
Total	0	970	3	0	973	194	819	3	1	1016	2	1	1	1	4	1	1	89	2	91	2084

BREAK

4:30 PM	0	227	2	0	229	29	298	0	0	327	0	0	0	0	0	0	0	30	0	30	586
4:45 PM	2	226	2	0	230	25	209	2	0	236	0	0	0	0	0	0	0	30	0	30	496
5:00 PM	0	212	2	0	214	25	296	2	0	323	1	0	2	0	3	1	0	36	0	37	577
5:15 PM	0	262	2	0	264	24	284	1	0	309	3	0	1	0	4	4	0	42	0	46	623
Total	2	927	8	0	937	103	1087	5	0	1195	4	0	3	0	7	5	0	138	0	143	2282
5:30 PM	0	228	2	0	230	35	264	3	0	302	1	0	2	0	3	0	0	34	0	34	569
5:45 PM	0	240	1	0	241	24	297	1	0	322	1	0	0	0	1	0	0	33	0	33	597
6:00 PM	2	213	1	0	216	27	231	0	0	258	2	0	1	0	3	0	0	35	0	35	512
6:15 PM	0	253	1	0	254	18	323	1	0	342	1	0	0	0	1	0	0	20	0	20	617
Total	2	934	5	0	941	104	1115	5	0	1224	5	0	3	0	8	0	0	122	0	122	2295

Grand Total	7	3810	18	2	3835	586	3910	20	1	4516	13	1	9	11	23	8	1	444	8	453	8827
Apprch %	0.2	99.3	0.5	0.1		13.0	86.6	0.4	0.0		56.5	4.3	39.1	47.8		1.8	0.2	98.0	1.8		
Total %	0.1	43.2	0.2	0.0	43.4	6.6	44.3	0.2	0.0	51.2	0.1	0.0	0.1	0.1	0.3	0.1	0.0	5.0	0.1	5.1	
Cars, PU, Vans	6	3800	18	2	3824	584	3897	20	1	4501	13	1	8	11	22	8	1	444	8	453	
% Cars, PU, Vans	85.7	99.7	###	100.0	99.7	99.7	99.7	100.0	####	99.7	###	100.0	88.9	####	95.7	100.0	100.0	####	####	100.0	
Heavy Trucks	1	10	0		11	2	13	0	15	0	0	0	1		1	0	0	0	0	0	
% Heavy Trucks	14.3	0.3	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.3	0.0	0.0	11.1	0.0	4.3	0.0	0.0	0.0	0.0	0.3	

PEAK HOURS

Day: WEDNESDAY
Date: 02/20/2013

AM

	Fraiser St Northbound				Fraiser St Southbound				Alpharetta Hwy Eastbound				Alpharetta Hwy Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total

Peak Hour Analysis from 07:00 AM to 09:00 AM

Peak Hour for Entire Intersection Begins at 07:30 AM

[illegible]

PM

	Fraiser St Northbound				Fraiser St Southbound				Alpharetta Hwy Eastbound				Alpharetta Hwy Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total

Peak Hour Analysis from 04:30 PM to 06:30 PM

Peak Hour for Entire Intersection Begins at 05:00 PM

[illegible]

Project ID: CA13_9024_001
 Location: Alpharetta Hwy & Woodstock St
 City: City of Roswell

Day: Wednesday
 Date: 2/20/2013

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:30 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

Start Time	Alpharetta Hwy Northbound					Alpharetta Hwy Southbound					Woodstock St Eastbound					Woodstock St Westbound					Int. Total
	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	
7:00 AM	7	190	0	0	197	0	183	25	1	208	48	0	29	0	77	0	0	0	0	0	482
7:15 AM	27	242	0	0	269	0	220	22	0	242	47	0	36	0	83	0	0	0	0	0	594
7:30 AM	16	261	0	1	277	0	254	18	0	272	63	0	43	1	106	0	0	0	0	0	655
7:45 AM	28	268	0	0	296	0	244	22	0	266	60	0	61	2	121	0	0	0	0	0	683
Total	78	961	0	1	1039	0	901	87	1	988	218	0	169	3	387	0	0	0	0	0	2414
8:00 AM	20	235	0	1	255	0	240	28	0	268	52	0	36	1	88	0	0	0	0	0	611
8:15 AM	25	228	0	0	253	0	212	22	0	234	59	0	46	0	105	0	0	0	0	0	592
8:30 AM	15	231	0	1	246	0	193	32	0	225	38	0	38	1	76	0	0	0	0	0	547
8:45 AM	17	249	0	0	266	0	198	19	0	217	50	0	34	0	84	0	0	0	0	0	567
Total	77	943	0	2	1020	0	843	101	0	944	199	0	154	2	353	0	0	0	0	0	2317

BREAK

4:30 PM	38	205	0	0	243	0	287	59	0	346	40	0	18	0	58	0	0	0	0	0	647
4:45 PM	40	195	0	0	235	0	210	41	0	251	45	0	23	0	68	0	0	0	0	0	554
5:00 PM	55	189	0	0	244	0	303	61	0	364	33	0	27	0	60	0	0	0	0	0	668
5:15 PM	71	214	0	0	285	0	264	50	0	314	32	0	30	0	62	0	0	0	0	0	661
Total	204	803	0	0	1007	0	1064	211	0	1275	150	0	98	0	248	0	0	0	0	0	2530
5:30 PM	56	210	0	0	266	0	292	62	0	354	37	0	31	0	68	0	0	0	0	0	688
5:45 PM	50	207	0	0	257	0	281	49	0	330	36	0	21	0	57	0	0	0	0	0	644
6:00 PM	51	209	0	0	260	0	258	48	0	306	36	0	21	0	57	0	0	0	0	0	623
6:15 PM	50	223	0	0	273	0	318	40	0	358	21	0	15	0	36	0	0	0	0	0	667
Total	207	849	0	0	1056	0	1149	199	0	1348	130	0	88	0	218	0	0	0	0	0	2622
Grand Total	566	3556	0	4	4122	0	3957	598	2	4555	697	0	509	8	1206	0	0	0	0	0	9883
Apprch %	13.7	86.3	0.0	0.1		0.0	86.9	13.1	0.0		57.8	0.0	42.2	0.7		0.0	0.0	0.0	0.0		
Total %	5.7	36.0	0.0	0.0	41.7	0.0	40.0	6.1	0.0	46.1	7.1	0.0	5.2	0.1	12.2	0.0	0.0	0.0	0.0	0.0	
Cars, PU, Vans	566	3546	0	4	4112	0	3942	598	2	4540	697	0	509	8	1206	0	0	0	0	0	9858
% Cars, PU, Vans	###	99.7	0.0	100.0	99.8	0.0	99.6	100.0	###	99.7	###	0.0	###	###	100.0	0.0	0.0	0.0	0.0	0.0	99.7
Heavy Trucks	0	10	0		10	0	15	0		15	0	0	0		0	0	0	0		0	25
%Heavy Trucks	0.0	0.3	0.0	0.0	0.2	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Project ID: CA13_9024_001
 Location: Alpharetta Hwy & Wood
 City: City of Roswell

PEAK HOURS

Day: WEDNESDAY
 Date: 02/20/2013

AM

	Alpharetta Hwy Northbound				Alpharetta Hwy Southbound				Woodstock St Eastbound				Woodstock St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
7:15 AM	27	242	0	269	0	220	22	242	47	0	36	83	0	0	0	0	594
7:30 AM	16	261	0	277	0	254	18	272	63	0	43	106	0	0	0	0	655
7:45 AM	28	268	0	296	0	244	22	266	60	0	61	121	0	0	0	0	683
8:00 AM	20	235	0	255	0	240	28	268	52	0	36	88	0	0	0	0	611
Total Volume	91	1006	0	1097	0	958	90	1048	222	0	176	398	0	0	0	0	2543
% App. Total	8.3	91.7	0.0	100	0.0	91.4	8.6	100	55.8	0.0	44.2	100	0.0	0.0	0.0	0.0	
PHF	0.927				0.963				0.822				0.000				0.931
Cars, PU, Vans	91	1000	0	1091	0	952	90	1042	222	0	176	398	0	0	0	0	2531
% Cars, PU, Vans	####	99.4	0.0	99.5	0.0	99.4	####	99.4	####	0.0	####	100.0	0.0	0.0	0.0	0.0	99.5
Heavy Trucks	0	6	0	6	0	6	0	6	0	0	0	0	0	0	0	0	12
%Heavy Trucks	0.0	0.6	0.0	0.5	0.0	0.6	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5

PM

	Alpharetta Hwy Northbound				Alpharetta Hwy Southbound				Woodstock St Eastbound				Woodstock St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:30 PM to 06:30 PM																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
5:00 PM	55	189	0	244	0	303	61	364	33	0	27	60	0	0	0	0	668
5:15 PM	71	214	0	285	0	264	50	314	32	0	30	62	0	0	0	0	661
5:30 PM	56	210	0	266	0	292	62	354	37	0	31	68	0	0	0	0	688
5:45 PM	50	207	0	257	0	281	49	330	36	0	21	57	0	0	0	0	644
Total Volume	232	820	0	1052	0	1140	222	1362	138	0	109	247	0	0	0	0	2661
% App. Total	22.1	77.9	0.0	100	0.0	83.7	16.3	100	55.9	0.0	44.1	100	0.0	0.0	0.0	0	
PHF	0.923				0.935				0.908				0.000				0.967
Cars, PU, Vans	232	819	0	1051	0	1140	222	1362	138	0	109	247	0	0	0	0	2660
% Cars, PU, Vans	####	99.9	0.0	99.9	0.0	####	####	100.0	####	0.0	####	100.0	0.0	0.0	0.0	0.0	100.0
Heavy Trucks	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Heavy Trucks	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Project ID: CA13_9024_004
Location: Fraiser St & Norcross St
City: City of Roswell

Day: Wednesday
Date: 2/20/2013

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:30 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

Start Time	Fraiser St Northbound					Fraiser St Southbound					Norcross St Eastbound					Norcross St Westbound					Int. Total
	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	
7:00 AM	0	10	2	0	12	25	12	2	0	39	0	66	0	0	66	4	38	11	0	53	170
7:15 AM	0	3	5	1	8	28	12	2	1	42	0	86	2	0	88	5	53	21	0	79	217
7:30 AM	0	2	3	0	5	35	11	2	0	48	0	100	0	1	100	6	64	19	1	89	242
7:45 AM	0	4	4	0	8	33	24	3	0	60	0	107	6	0	113	9	75	18	1	102	283
Total	0	19	14	1	33	121	59	9	1	189	0	359	8	1	367	24	230	69	2	323	912
8:00 AM	0	6	5	0	11	37	22	3	1	62	0	102	4	1	106	3	68	21	0	92	271
8:15 AM	0	5	6	0	11	32	22	2	0	56	2	98	1	0	101	5	81	29	0	115	283
8:30 AM	1	2	3	0	6	46	8	2	0	56	1	118	1	0	120	4	67	9	0	80	262
8:45 AM	1	2	5	0	8	21	11	3	0	35	1	102	4	1	107	6	79	10	0	95	245
Total	2	15	19	0	36	136	63	10	1	209	4	420	10	2	434	18	295	69	0	382	1061

BREAK

4:30 PM	3	16	14	0	33	20	17	1	0	38	1	74	2	0	77	13	145	19	0	177	325
4:45 PM	4	12	8	0	24	21	13	2	0	36	1	74	6	0	81	11	156	14	0	181	322
5:00 PM	6	18	20	0	44	19	6	1	0	26	2	88	5	0	95	8	140	18	0	166	331
5:15 PM	5	14	13	0	32	20	7	0	0	27	1	71	1	0	73	5	153	32	0	190	322
Total	18	60	55	0	133	80	43	4	0	127	5	307	14	0	326	37	594	83	0	714	1300
5:30 PM	6	7	12	0	25	22	8	0	0	30	0	78	2	0	80	5	138	31	0	174	309
5:45 PM	3	16	10	0	29	25	14	1	0	40	4	70	0	0	74	8	163	11	0	182	325
6:00 PM	2	9	13	0	24	19	7	1	0	27	2	80	1	0	83	10	165	17	0	192	326
6:15 PM	4	7	7	0	18	18	3	2	0	23	5	83	3	0	91	7	148	14	0	169	301
Total	15	39	42	0	96	84	32	4	0	120	11	311	6	0	328	30	614	73	0	717	1261

Grand Total	35	133	130	2	298	421	197	27	3	645	20	1397	38	4	1455	109	1733	294	4	2136	4534
Apprch %	11.7	44.6	43.6	0.7		65.3	30.5	4.2	0.5		1.4	96.0	2.6	0.3		5.1	81.1	13.8	0.2		
Total %	0.8	2.9	2.9	0.0	6.6	9.3	4.3	0.6	0.1	14.2	0.4	30.8	0.8	0.1	32.1	2.4	38.2	6.5	0.1	47.1	
Cars, PU, Vans	35	133	130	2	298	419	196	27	3	642	20	1396	38	4	1454	109	1730	293	4	2132	4526
% Cars, PU, Vans	#####	#####	#####	100.0	100.0	99.5	99.5	100.0	#####	99.5	#####	99.9	#####	#####	99.9	100.0	99.8	99.7	#####	99.8	99.8
Heavy Trucks	0	0	0	0	0	2	1	0	0	3	0	1	0	0	1	0	3	1	0	4	8
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.3	0.0	0.2	0.2

Project ID: CA13_9024_004
Location: Fraiser St & Norcross St
City: City of Roswell

PEAK HOURS

Day: WEDNESDAY
Date: 02/20/2013

AM

	Fraiser St Northbound				Fraiser St Southbound				Norcross St Eastbound				Norcross St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
7:45 AM	0	4	4	8	33	24	3	60	0	107	6	113	9	75	18	102	283
8:00 AM	0	6	5	11	37	22	3	62	0	102	4	106	3	68	21	92	271
8:15 AM	0	5	6	11	32	22	2	56	2	98	1	101	5	81	29	115	283
8:30 AM	1	2	3	6	46	8	2	56	1	118	1	120	4	67	9	80	262
Total Volume	1	17	18	36	148	76	10	234	3	425	12	440	21	291	77	389	1099
% App. Total	2.8	47.2	50.0	100	63.2	32.5	4.3	100	0.7	96.6	2.7	100	5.4	74.8	19.8	100	
PHF	0.818				0.944				0.917				0.846				0.971
Cars, PU, Vans	1	17	18	36	147	76	10	233	3	425	12	440	21	290	77	388	1097
% Cars, PU, Vans	####	####	####	100.0	99.3	####	####	99.6	####	100.0	####	100.0	####	99.7	100.0	99.7	99.8
Heavy Trucks	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
% Heavy Trucks	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.2

PM

	Fraiser St Northbound				Fraiser St Southbound				Norcross St Eastbound				Norcross St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:30 PM to 06:30 PM																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
4:30 PM	3	16	14	33	20	17	1	38	1	74	2	77	13	145	19	177	325
4:45 PM	4	12	8	24	21	13	2	36	1	74	6	81	11	156	14	181	322
5:00 PM	6	18	20	44	19	6	1	26	2	88	5	95	8	140	18	166	331
5:15 PM	5	14	13	32	20	7	0	27	1	71	1	73	5	153	32	190	322
Total Volume	18	60	55	133	80	43	4	127	5	307	14	326	37	594	83	714	1300
% App. Total	13.5	45.1	41.4	100	63.0	33.9	3.1	100	1.5	94.2	4.3	100	5.2	83.2	11.6	100	
PHF	0.756				0.836				0.858				0.939				0.982
Cars, PU, Vans	18	60	55	133	80	43	4	127	5	307	14	326	37	594	83	714	1300
% Cars, PU, Vans	#####	#####	#####	100.0	100.0	#####	#####	100.0	#####	100.0	#####	100.0	#####	#####	100.0	100.0	100.0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Project ID: CA13_9024_005
Location: Myrtle St & Norcross St
City: City of Roswell

Day: Wednesday
Date: 2/20/2013

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:30 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

Start Time	Myrtle St Northbound					Myrtle St Southbound					Norcross St Eastbound					Norcross St Westbound					Int. Total
	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	
7:00 AM	1	0	8	1	9	0	0	0	0	0	0	96	1	0	97	16	51	0	0	67	173
7:15 AM	0	0	6	0	6	0	0	0	0	0	0	118	2	0	120	11	80	0	0	91	217
7:30 AM	3	0	8	0	11	0	0	0	0	0	0	136	2	0	138	17	83	0	0	100	249
7:45 AM	0	0	8	0	8	0	0	0	0	0	0	141	0	0	141	31	100	0	0	131	280
Total	4	0	30	1	34	0	0	0	0	0	0	491	5	0	496	75	314	0	0	389	919
8:00 AM	4	0	19	0	23	0	0	0	0	0	0	140	0	1	140	36	90	0	0	126	289
8:15 AM	4	0	12	0	16	0	0	0	0	0	0	133	0	0	133	14	112	0	0	126	275
8:30 AM	0	0	15	0	15	0	0	0	0	0	0	163	2	0	165	33	85	0	0	118	298
8:45 AM	7	0	5	0	12	0	0	0	0	0	0	122	1	0	123	22	84	0	0	106	241
Total	15	0	51	0	66	0	0	0	0	0	0	558	3	1	561	105	371	0	0	476	1103

BREAK

4:30 PM	0	0	15	0	15	0	0	0	0	0	0	103	2	0	105	27	182	0	0	209	329
4:45 PM	1	0	13	0	14	0	0	0	0	0	0	98	4	0	102	35	165	0	0	200	316
5:00 PM	2	0	30	0	32	0	0	0	0	0	0	126	2	0	128	34	170	0	0	204	364
5:15 PM	1	0	20	0	21	0	0	0	0	0	0	99	2	0	101	44	184	0	0	228	350
Total	4	0	78	0	82	0	0	0	0	0	0	426	10	0	436	140	701	0	0	841	1359
5:30 PM	6	0	14	0	20	0	0	0	0	0	0	104	4	0	108	35	174	0	0	209	337
5:45 PM	2	0	12	0	14	0	0	0	0	0	0	100	5	0	105	39	189	0	0	228	347
6:00 PM	5	0	20	0	25	0	0	0	0	0	0	98	4	0	102	32	178	0	0	210	337
6:15 PM	0	0	21	0	21	0	0	0	0	0	0	100	4	0	104	28	163	0	0	191	316
Total	13	0	67	0	80	0	0	0	0	0	0	402	17	0	419	134	704	0	0	838	1337

Grand Total	36	0	226	2	262	0	0	0	0	0	0	1877	35	1	1912	454	2090	0	0	2544	4718
Apprch %	13.7	0.0	86.3	0.8		0.0	0.0	0.0	0.0		0.0	98.2	1.8	0.1		17.8	82.2	0.0	0.0		
Total %	0.8	0.0	4.8	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	39.8	0.7	0.0	40.5	9.6	44.3	0.0	0.0	53.9	
Cars, PU, Vans	36	0	225	2	261	0	0	0	0	0	0	1875	34	1	1909	454	2086	0	0	2540	4710
% Cars, PU, Vans	###	0.0	99.6	100.0	99.6	0.0	0.0	0.0	0.0	0.0	0.0	99.9	97.1	###	99.8	100.0	99.8	0.0	0.0	99.8	99.8
Heavy Trucks	0	0	1	0	1	0	0	0	0	0	0	2	1	0	3	0	4	0	0	4	8
%Heavy Trucks	0.0	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.9	0.0	0.2	0.0	0.2	0.0	0.0	0.2	0.2

Project ID: CA13_9024_005
Location: Myrtle St & Norcross St
City: City of Roswell

PEAK HOURS

Day: WEDNESDAY
Date: 02/20/2013

AM

	Myrtle St Northbound				Myrtle St Southbound				Norcross St Eastbound				Norcross St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
7:45 AM	0	0	8	8	0	0	0	0	0	141	0	141	31	100	0	131	280
8:00 AM	4	0	19	23	0	0	0	0	0	140	0	140	36	90	0	126	289
8:15 AM	4	0	12	16	0	0	0	0	0	133	0	133	14	112	0	126	275
8:30 AM	0	0	15	15	0	0	0	0	0	163	2	165	33	85	0	118	298
Total Volume	8	0	54	62	0	0	0	0	0	577	2	579	114	387	0	501	1142
% App. Total	12.9	0.0	87.1	100	0.0	0.0	0.0	0	0.0	99.7	0.3	100	22.8	77.2	0.0	100	
PHF	0.674				0.000				0.877				0.956				0.958
Cars, PU, Vans	8	0	53	61	0	0	0	0	0	576	2	578	114	386	0	500	1139
% Cars, PU, Vans	####	0.0	98.1	98.4	0.0	0.0	0.0	0.0	0.0	99.8	####	99.8	####	99.7	0.0	99.8	99.7
Heavy Trucks	0	0	1	1	0	0	0	0	0	1	0	1	0	1	0	1	3
% Heavy Trucks	0.0	0.0	1.9	1.6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.3	0.0	0.2	0.3

PM

Start Time	Myrtle St Northbound				Myrtle St Southbound				Norcross St Eastbound				Norcross St Westbound				Int. Total
	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	
Peak Hour Analysis from 04:30 PM to 06:30 PM																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
5:00 PM	2	0	30	32	0	0	0	0	0	126	2	128	34	170	0	204	364
5:15 PM	1	0	20	21	0	0	0	0	0	99	2	101	44	184	0	228	350
5:30 PM	6	0	14	20	0	0	0	0	0	104	4	108	35	174	0	209	337
5:45 PM	2	0	12	14	0	0	0	0	0	100	5	105	39	189	0	228	347
Total Volume	11	0	76	87	0	0	0	0	0	429	13	442	152	717	0	869	1398
% App. Total	12.6	0.0	87.4	100	0.0	0.0	0.0	0	0.0	97.1	2.9	100	17.5	82.5	0.0	100	
PHF	0.680				0.000				0.863				0.953				0.960
Cars, PU, Vans	11	0	76	87	0	0	0	0	0	429	13	442	152	717	0	869	1398
% Cars, PU, Vans	####	0.0	####	100.0	0.0	0.0	0.0	0.0	0.0	100.0	####	100.0	####	####	0.0	100.0	100.0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Trip Generation

Frazier Street Apartments

Table 1 - Trip Generation

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
Existing Land Use										
220 Apartment	152 d.u.	1,046	523	523	78	16	62	101	66	35
Proposed Land Use										
220 Apartment	320 d.u.	2,064	1,032	1,032	161	32	129	194	126	68
Total Net New External Trips		1,018	509	509	83	16	67	93	60	33

Intersection Spreadsheets

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2015 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **SR-9 (Alpharetta Hwy)**
 E/W Street: **Norcorss St**

Annual Growth Rate:	1.0%	Existing Year:	2013
Growth Factor:	0.0201	Buildout Year:	2015

AM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Norcorss St <u>Eastbound</u>			Norcorss St <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	4	1027	353	57	930	17	6	42	7	206	46	29
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	21	7	1	19	0	0	1	0	4	1	1
2015 Background Traffic	4	1048	360	58	949	17	6	43	7	210	47	30
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	4	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	1.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	17	1	0
Total External Site Traffic	0	0	4	0	0	0	0	0	0	17	1	0
Total Project Traffic	0	0	4	0	0	0	0	0	0	17	1	0
2015 Buildout Total	4	1048	364	58	949	17	6	43	7	227	48	30

PM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Norcorss St <u>Eastbound</u>			Norcorss St <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	21	941	223	36	1111	38	17	39	8	477	62	69
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	19	4	1	22	1	0	1	0	10	1	1
2015 Background Traffic	21	960	227	37	1133	39	17	40	8	487	63	70
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	15	0	0	0	0	1	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	1.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	8	0	0
Total External Site Traffic	0	0	15	0	0	0	0	1	0	8	0	0
Total Project Traffic	0	0	15	0	0	0	0	1	0	8	0	0
2015 Buildout Total	21	960	242	37	1133	39	17	41	8	495	63	70

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2015 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **SR-9 (Alpharetta Hwy)**
 E/W Street: **Frazier Street/Driveway**

Annual Growth Rate:	1.0%	Existing Year:	2013
Growth Factor:	0.0201	Buildout Year:	2015

AM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Driveway <u>Eastbound</u>			Frazier Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	2	1023	4	219	916	7	3	0	2	2	1	108
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	21	0	4	18	0	0	0	0	0	0	2
2015 Background Traffic	2	1044	4	223	934	7	3	0	2	2	1	110
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	5	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	20
Total External Site Traffic	0	0	0	5	0	0	0	0	0	0	0	20
Total Project Traffic	0	0	0	5	0	0	0	0	0	0	0	20
2015 Buildout Total	2	1044	4	228	934	7	3	0	2	2	1	130

PM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Driveway <u>Eastbound</u>			Frazier Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	0	942	7	108	1141	7	6	0	5	5	0	145
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	19	0	2	23	0	0	0	0	0	0	3
2015 Background Traffic	0	961	7	110	1164	7	6	0	5	5	0	148
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	18	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	10
Total External Site Traffic	0	0	0	18	0	0	0	0	0	0	0	10
Total Project Traffic	0	0	0	18	0	0	0	0	0	0	0	10
2015 Buildout Total	0	961	7	128	1164	7	6	0	5	5	0	158

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2015 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **SR-9 (Alpharetta Hwy)**
 E/W Street: **Woodstock Street**

Annual Growth Rate:	1.0%	Existing Year:	2013
Growth Factor:	0.0201	Buildout Year:	2015

AM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Woodstock Street <u>Eastbound</u>			<u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	91	1006	0	0	958	90	222	0	176	0	0	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	2	20	0	0	19	2	4	0	4	0	0	0
2015 Background Traffic	93	1026	0	0	977	92	226	0	180	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	4	0	0	0	1	0	0	0
Percent Assignment Outbound	5.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	3	17	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	3	17	0	0	4	0	0	0	1	0	0	0
Total Project Traffic	3	17	0	0	4	0	0	0	1	0	0	0
2015 Buildout Total	96	1043	0	0	981	92	226	0	181	0	0	0

PM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Woodstock Street <u>Eastbound</u>			<u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	232	820	0	0	1140	222	138	0	109	0	0	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	5	16	0	0	23	4	3	0	2	0	0	0
2015 Background Traffic	237	836	0	0	1163	226	141	0	111	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	15	0	0	0	3	0	0	0
Percent Assignment Outbound	5.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	2	8	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	2	8	0	0	15	0	0	0	3	0	0	0
Total Project Traffic	2	8	0	0	15	0	0	0	3	0	0	0
2015 Buildout Total	239	844	0	0	1178	226	141	0	114	0	0	0

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2015 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **Frazier Street/Forest Street**
 E/W Street: **Norcross Street**

Annual Growth Rate:	1.0%	Existing Year:	2013
Growth Factor:	0.0201	Buildout Year:	2015

AM PEAK HOUR

Description	Forest Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	1	17	18	148	76	10	3	425	12	21	291	77
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	0	0	3	2	0	0	9	0	0	6	2
2015 Background Traffic	1	17	18	151	78	10	3	434	12	21	297	79
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	15.00%	11.00%	0.00%	0.00%	0.00%	10.00%
Inbound Project Traffic	0	0	0	0	0	0	2	2	0	0	0	2
Percent Assignment Outbound	0.00%	0.00%	0.00%	10.00%	2.00%	15.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%
Outbound Project Traffic	0	0	0	7	1	10	0	0	0	0	7	0
Total External Site Traffic	0	0	0	7	1	10	2	2	0	0	7	2
Total Project Traffic	0	0	0	7	1	10	2	2	0	0	7	2
2015 Buildout Total	1	17	18	158	79	20	5	436	12	21	304	81

PM PEAK HOUR

Description	Forest Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	18	60	55	80	43	4	5	307	14	37	594	83
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	1	1	2	1	0	0	6	0	1	12	2
2015 Background Traffic	18	61	56	82	44	4	5	313	14	38	606	85
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	15.00%	11.00%	0.00%	0.00%	0.00%	10.00%
Inbound Project Traffic	0	1	0	0	0	0	9	7	0	0	0	6
Percent Assignment Outbound	0.00%	0.00%	0.00%	10.00%	2.00%	15.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%
Outbound Project Traffic	0	0	0	3	1	5	0	0	0	0	4	0
Total External Site Traffic	0	1	0	3	1	5	9	7	0	0	4	6
Total Project Traffic	0	1	0	3	1	5	9	7	0	0	4	6
2015 Buildout Total	18	62	56	85	45	9	14	320	14	38	610	91

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2015 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **Myrtle Street/Site Drive**
 E/W Street: **Norcross Street**

Annual Growth Rate:	1.0%	Existing Year:	2013
Growth Factor:	0.0201	Buildout Year:	2015

AM PEAK HOUR

Description	Myrtle Street <u>Northbound</u>			Site Drive <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	8	0	54	0	0	0	0	577	2	114	387	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	0	1	0	0	0	0	12	0	2	8	0
2015 Background Traffic	8	0	55	0	0	0	0	589	2	116	395	0
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%	0.00%	0.00%	10.00%	30.00%
Inbound Project Traffic	0	1	0	0	0	0	4	0	0	0	2	9
Percent Assignment Outbound	0.00%	0.00%	0.00%	30.00%	2.00%	11.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	39	3	14	0	7	0	0	0	0
Total External Site Traffic	0	1	0	39	3	14	4	7	0	0	2	9
Total Project Traffic	0	1	0	39	3	14	4	7	0	0	2	9
2015 Buildout Total	8	1	55	39	3	14	4	596	2	116	397	9

PM PEAK HOUR

Description	Myrtle Street <u>Northbound</u>			Site Drive <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	11	0	76	0	0	0	0	429	13	152	717	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	0	2	0	0	0	0	9	0	3	14	0
2015 Background Traffic	11	0	78	0	0	0	0	438	13	155	731	0
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%	0.00%	0.00%	10.00%	30.00%
Inbound Project Traffic	0	3	0	0	0	0	14	0	0	0	6	38
Percent Assignment Outbound	0.00%	0.00%	0.00%	30.00%	2.00%	11.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	20	1	8	0	3	0	0	0	0
Total External Site Traffic	0	3	0	20	1	8	14	3	0	0	6	38
Total Project Traffic	0	3	0	20	1	8	14	3	0	0	6	38
2015 Buildout Total	11	3	78	20	1	8	14	441	13	155	737	38

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2015 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	32	129	126	68
Pass-By Trips:	0	0	0	0

N/S Street: **Frazier Street**
 E/W Street: **North Site Drive**

Annual Growth Rate:	1.0%	Existing Year:	2013
Growth Factor:	0.0201	Buildout Year:	2015

AM PEAK HOUR

Description	Frazier Street Northbound			Frazier Street Southbound			Eastbound			North Site Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	97	0	0	234	0	0	0	0	0	0	0
2013 Existing Traffic	0	97	0	0	234	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	2	0	0	5	0	0	0	0	0	0	0
2015 Background Traffic	0	99	0	0	239	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	14.00%	15.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	4	5	5	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	15.00%
Outbound Project Traffic	0	19	0	0	0	0	0	0	0	18	0	19
Total External Site Traffic	0	19	4	5	5	0	0	0	0	18	0	19
Total Project Traffic	0	19	4	5	5	0	0	0	0	18	0	19
2015 Buildout Total	0	118	4	5	244	0	0	0	0	18	0	19

PM PEAK HOUR

Description	Frazier Street Northbound			Frazier Street Southbound			Eastbound			North Site Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	148	0	0	127	0	0	0	0	0	0	0
2013 Existing Traffic	0	148	0	0	127	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	3	0	0	3	0	0	0	0	0	0	0
2015 Background Traffic	0	151	0	0	130	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	14.00%	15.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	17	19	19	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	15.00%
Outbound Project Traffic	0	10	0	0	0	0	0	0	0	10	0	10
Total External Site Traffic	0	10	17	19	19	0	0	0	0	10	0	10
Total Project Traffic	0	10	17	19	19	0	0	0	0	10	0	10
2015 Buildout Total	0	161	17	19	149	0	0	0	0	10	0	10

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2015 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	32	129	126	68
Pass-By Trips:	0	0	0	0

N/S Street: **Frazier Street**
 E/W Street: **South Site Drive**

Annual Growth Rate:	1.0%	Existing Year:	2013
Growth Factor:	0.0201	Buildout Year:	2015

AM PEAK HOUR

Description	Frazier Street Northbound			Frazier Street Southbound			Eastbound			South Site Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	97	0	0	234	0	0	0	0	0	0	0
2013 Existing Traffic	0	97	0	0	234	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	2	0	0	5	0	0	0	0	0	0	0
2015 Background Traffic	0	99	0	0	239	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	14.00%	13.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	4	4	5	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	0.00%	0.00%	0.00%	13.00%	0.00%	15.00%
Outbound Project Traffic	0	0	0	0	18	0	0	0	0	17	0	19
Total External Site Traffic	0	4	4	5	18	0	0	0	0	17	0	19
Total Project Traffic	0	4	4	5	18	0	0	0	0	17	0	19
2015 Buildout Total	0	103	4	5	257	0	0	0	0	17	0	19

PM PEAK HOUR

Description	Frazier Street Northbound			Frazier Street Southbound			Eastbound			South Site Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	148	0	0	127	0	0	0	0	0	0	0
2013 Existing Traffic	0	148	0	0	127	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2015 Background Growth	0	3	0	0	3	0	0	0	0	0	0	0
2015 Background Traffic	0	151	0	0	130	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	14.00%	13.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	17	16	19	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	0.00%	0.00%	0.00%	13.00%	0.00%	15.00%
Outbound Project Traffic	0	0	0	0	10	0	0	0	0	9	0	10
Total External Site Traffic	0	17	16	19	10	0	0	0	0	9	0	10
Total Project Traffic	0	17	16	19	10	0	0	0	0	9	0	10
2015 Buildout Total	0	168	16	19	140	0	0	0	0	9	0	10

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2025 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **SR-9 (Alpharetta Hwy)**
 E/W Street: **Norcorss St**

Annual Growth Rate: **1.0%**
 Growth Factor: **0.126825**
 Existing Year: **2013**
 Buildout Year: **2025**

AM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Norcorss St <u>Eastbound</u>			Norcorss St <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	4	1027	353	57	930	17	6	42	7	206	46	29
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	1	130	45	7	118	2	1	5	1	26	6	4
2025 Background Traffic	5	1157	398	64	1048	19	7	47	8	232	52	33
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	4	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	1.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	17	1	0
Total External Site Traffic	0	0	4	0	0	0	0	0	0	17	1	0
Total Project Traffic	0	0	4	0	0	0	0	0	0	17	1	0
2025 Buildout Total	5	1157	402	64	1048	19	7	47	8	249	53	33

PM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Norcorss St <u>Eastbound</u>			Norcorss St <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	21	941	223	36	1111	38	17	39	8	477	62	69
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	3	119	28	5	141	5	2	5	1	60	8	9
2025 Background Traffic	24	1060	251	41	1252	43	19	44	9	537	70	78
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	15	0	0	0	0	1	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	1.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	8	0	0
Total External Site Traffic	0	0	15	0	0	0	0	1	0	8	0	0
Total Project Traffic	0	0	15	0	0	0	0	1	0	8	0	0
2025 Buildout Total	24	1060	266	41	1252	43	19	45	9	545	70	78

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2025 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **SR-9 (Alpharetta Hwy)**
 E/W Street: **Frazier Street/Driveway**

Annual Growth Rate: **1.0%**
 Growth Factor: **0.126825**
 Existing Year: **2013**
 Buildout Year: **2025**

AM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Driveway <u>Eastbound</u>			Frazier Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	2	1023	4	219	916	7	3	0	2	2	1	108
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	0	130	1	28	116	1	0	0	0	0	0	14
2025 Background Traffic	2	1153	5	247	1032	8	3	0	2	2	1	122
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	5	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	20
Total External Site Traffic	0	0	0	5	0	0	0	0	0	0	0	20
Total Project Traffic	0	0	0	5	0	0	0	0	0	0	0	20
2025 Buildout Total	2	1153	5	252	1032	8	3	0	2	2	1	142

PM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Driveway <u>Eastbound</u>			Frazier Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	0	942	7	108	1141	7	6	0	5	5	0	145
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	0	119	1	14	145	1	1	0	1	1	0	18
2025 Background Traffic	0	1061	8	122	1286	8	7	0	6	6	0	163
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	18	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	10
Total External Site Traffic	0	0	0	18	0	0	0	0	0	0	0	10
Total Project Traffic	0	0	0	18	0	0	0	0	0	0	0	10
2025 Buildout Total	0	1061	8	140	1286	8	7	0	6	6	0	173

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2025 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **SR-9 (Alpharetta Hwy)**
 E/W Street: **Woodstock Street**

Annual Growth Rate: **1.0%**
 Growth Factor: **0.126825**
 Existing Year: **2013**
 Buildout Year: **2025**

AM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Woodstock Street <u>Eastbound</u>			<u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	91	1006	0	0	958	90	222	0	176	0	0	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	12	128	0	0	121	11	28	0	22	0	0	0
2025 Background Traffic	103	1134	0	0	1079	101	250	0	198	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	4	0	0	0	1	0	0	0
Percent Assignment Outbound	5.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	3	17	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	3	17	0	0	4	0	0	0	1	0	0	0
Total Project Traffic	3	17	0	0	4	0	0	0	1	0	0	0
2025 Buildout Total	106	1151	0	0	1083	101	250	0	199	0	0	0

PM PEAK HOUR

Description	SR-9 (Alpharetta Hwy) <u>Northbound</u>			SR-9 (Alpharetta Hwy) <u>Southbound</u>			Woodstock Street <u>Eastbound</u>			<u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	232	820	0	0	1140	222	138	0	109	0	0	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	29	104	0	0	145	28	18	0	14	0	0	0
2025 Background Traffic	261	924	0	0	1285	250	156	0	123	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	15	0	0	0	3	0	0	0
Percent Assignment Outbound	5.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	2	8	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	2	8	0	0	15	0	0	0	3	0	0	0
Total Project Traffic	2	8	0	0	15	0	0	0	3	0	0	0
2025 Buildout Total	263	932	0	0	1300	250	156	0	126	0	0	0

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2025 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **Frazier Street/Forest Street**
 E/W Street: **Norcross Street**

Annual Growth Rate: **1.0%**
 Growth Factor: **0.126825**
 Existing Year: **2013**
 Buildout Year: **2025**

AM PEAK HOUR

Description	Forest Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	1	17	18	148	76	10	3	425	12	21	291	77
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	0	2	2	19	10	1	0	54	2	3	37	10
2025 Background Traffic	1	19	20	167	86	11	3	479	14	24	328	87
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	15.00%	11.00%	0.00%	0.00%	0.00%	10.00%
Inbound Project Traffic	0	0	0	0	0	0	2	2	0	0	0	2
Percent Assignment Outbound	0.00%	0.00%	0.00%	10.00%	2.00%	15.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%
Outbound Project Traffic	0	0	0	7	1	10	0	0	0	0	7	0
Total External Site Traffic	0	0	0	7	1	10	2	2	0	0	7	2
Total Project Traffic	0	0	0	7	1	10	2	2	0	0	7	2
2025 Buildout Total	1	19	20	174	87	21	5	481	14	24	335	89

PM PEAK HOUR

Description	Forest Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	18	60	55	80	43	4	5	307	14	37	594	83
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	2	8	7	10	5	1	1	39	2	5	75	11
2025 Background Traffic	20	68	62	90	48	5	6	346	16	42	669	94
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	15.00%	11.00%	0.00%	0.00%	0.00%	10.00%
Inbound Project Traffic	0	1	0	0	0	0	9	7	0	0	0	6
Percent Assignment Outbound	0.00%	0.00%	0.00%	10.00%	2.00%	15.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%
Outbound Project Traffic	0	0	0	3	1	5	0	0	0	0	4	0
Total External Site Traffic	0	1	0	3	1	5	9	7	0	0	4	6
Total Project Traffic	0	1	0	3	1	5	9	7	0	0	4	6
2025 Buildout Total	20	69	62	93	49	10	15	353	16	42	673	100

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2025 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	16	67	60	33
Pass-By Trips:	0	0	0	0

N/S Street: **Myrtle Street/Site Drive**
 E/W Street: **Norcross Street**

Annual Growth Rate: **1.0%** Existing Year: **2013**
 Growth Factor: **0.126825** Buildout Year: **2025**

AM PEAK HOUR

Description	Myrtle Street <u>Northbound</u>			Site Drive <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	8	0	54	0	0	0	0	577	2	114	387	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	1	0	7	0	0	0	0	73	0	14	49	0
2025 Background Traffic	9	0	61	0	0	0	0	650	2	128	436	0
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%	0.00%	0.00%	10.00%	30.00%
Inbound Project Traffic	0	1	0	0	0	0	4	0	0	0	2	9
Percent Assignment Outbound	0.00%	0.00%	0.00%	30.00%	2.00%	11.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	39	3	14	0	7	0	0	0	0
Total External Site Traffic	0	1	0	39	3	14	4	7	0	0	2	9
Total Project Traffic	0	1	0	39	3	14	4	7	0	0	2	9
2025 Buildout Total	9	1	61	39	3	14	4	657	2	128	438	9

PM PEAK HOUR

Description	Myrtle Street <u>Northbound</u>			Site Drive <u>Southbound</u>			Norcross Street <u>Eastbound</u>			Norcross Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Existing Traffic	11	0	76	0	0	0	0	429	13	152	717	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	1	0	10	0	0	0	0	54	2	19	91	0
2025 Background Traffic	12	0	86	0	0	0	0	483	15	171	808	0
Project Traffic												
Percent Assignment Inbound	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%	0.00%	0.00%	10.00%	30.00%
Inbound Project Traffic	0	3	0	0	0	0	14	0	0	0	6	38
Percent Assignment Outbound	0.00%	0.00%	0.00%	30.00%	2.00%	11.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	20	1	8	0	3	0	0	0	0
Total External Site Traffic	0	3	0	20	1	8	14	3	0	0	6	38
Total Project Traffic	0	3	0	20	1	8	14	3	0	0	6	38
2025 Buildout Total	12	3	86	20	1	8	14	486	15	171	814	38

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2025 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	32	129	126	68
Pass-By Trips:	0	0	0	0

N/S Street: **Frazier Street**
 E/W Street: **North Site Drive**

Annual Growth Rate: **1.0%**
 Growth Factor: **0.126825**
 Existing Year: **2013**
 Buildout Year: **2025**

AM PEAK HOUR

Description	Frazier Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			<u>Eastbound</u>			North Site Drive <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	97	0	0	234	0	0	0	0	0	0	0
2013 Existing Traffic	0	97	0	0	234	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	0	12	0	0	30	0	0	0	0	0	0	0
2025 Background Traffic	0	109	0	0	264	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	14.00%	15.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	4	5	5	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	15.00%
Outbound Project Traffic	0	19	0	0	0	0	0	0	0	18	0	19
Total External Site Traffic	0	19	4	5	5	0	0	0	0	18	0	19
Total Project Traffic	0	19	4	5	5	0	0	0	0	18	0	19
2025 Buildout Total	0	128	4	5	269	0	0	0	0	18	0	19

PM PEAK HOUR

Description	Frazier Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			<u>Eastbound</u>			North Site Drive <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	148	0	0	127	0	0	0	0	0	0	0
2013 Existing Traffic	0	148	0	0	127	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	0	19	0	0	16	0	0	0	0	0	0	0
2025 Background Traffic	0	167	0	0	143	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	14.00%	15.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	17	19	19	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	15.00%
Outbound Project Traffic	0	10	0	0	0	0	0	0	0	10	0	10
Total External Site Traffic	0	10	17	19	19	0	0	0	0	10	0	10
Total Project Traffic	0	10	17	19	19	0	0	0	0	10	0	10
2025 Buildout Total	0	177	17	19	162	0	0	0	0	10	0	10

INTERSECTION ANALYSIS SHEET

Project: **Frazier Street Apartments**
 Location: **Roswell, GA**
 Scenario: **2025 Build-out**

	AM In	AM Out	PM In	PM Out
Net New Trips:	32	129	126	68
Pass-By Trips:	0	0	0	0

N/S Street: **Frazier Street**
 E/W Street: **South Site Drive**

Annual Growth Rate: **1.0%**
 Growth Factor: **0.126825**
 Existing Year: **2013**
 Buildout Year: **2025**

AM PEAK HOUR

Description	Frazier Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			<u>Eastbound</u>			South Site Drive <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	97	0	0	234	0	0	0	0	0	0	0
2013 Existing Traffic	0	97	0	0	234	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	0	12	0	0	30	0	0	0	0	0	0	0
2025 Background Traffic	0	109	0	0	264	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	14.00%	13.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	4	4	5	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	0.00%	0.00%	0.00%	13.00%	0.00%	15.00%
Outbound Project Traffic	0	0	0	0	18	0	0	0	0	17	0	19
Total External Site Traffic	0	4	4	5	18	0	0	0	0	17	0	19
Total Project Traffic	0	4	4	5	18	0	0	0	0	17	0	19
2025 Buildout Total	0	113	4	5	282	0	0	0	0	17	0	19

PM PEAK HOUR

Description	Frazier Street <u>Northbound</u>			Frazier Street <u>Southbound</u>			<u>Eastbound</u>			South Site Drive <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2013 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	148	0	0	127	0	0	0	0	0	0	0
2013 Existing Traffic	0	148	0	0	127	0	0	0	0	0	0	0
Growth Factor (0.01 per year)	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
2025 Background Growth	0	19	0	0	16	0	0	0	0	0	0	0
2025 Background Traffic	0	167	0	0	143	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	14.00%	13.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	17	16	19	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	14.00%	0.00%	0.00%	0.00%	0.00%	13.00%	0.00%	15.00%
Outbound Project Traffic	0	0	0	0	10	0	0	0	0	9	0	10
Total External Site Traffic	0	17	16	19	10	0	0	0	0	9	0	10
Total Project Traffic	0	17	16	19	10	0	0	0	0	9	0	10
2025 Buildout Total	0	184	16	19	153	0	0	0	0	9	0	10

Synchro Output:
Existing (2013)

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

Existing AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	42	7	206	46	29	4	1027	353	57	930	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1824	0	1681	1715	1583	1770	3405	0	1770	3529	0
Flt Permitted	0.950			0.950	0.969		0.293			0.108		
Satd. Flow (perm)	1770	1824	0	1681	1715	1583	546	3405	0	201	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				30		58			3	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				39%								
Lane Group Flow (vph)	6	50	0	129	130	30	4	1423	0	59	977	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	21.0	66.0	66.0	0.0	12.0	78.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	17.5%	17.5%	17.5%	55.0%	55.0%	0.0%	10.0%	65.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)	8.7	8.7		13.5	13.5	13.5	75.3	75.3		85.2	85.2	
Actuated g/C Ratio	0.07	0.07		0.11	0.11	0.11	0.63	0.63		0.71	0.71	
v/c Ratio	0.05	0.36		0.68	0.67	0.15	0.01	0.66		0.25	0.39	
Control Delay	51.2	54.8		69.1	68.2	23.3	12.5	17.9		11.1	7.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	51.2	54.8		69.1	68.2	23.3	12.5	17.9		11.1	7.3	
LOS	D	D		E	E	C	B	B		B	A	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

Existing AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.4			63.9			17.9			7.6	
Approach LOS		D			E			B			A	
Queue Length 50th (ft)	4	33		84	84	1	1	373		9	98	
Queue Length 95th (ft)	18	73		166	168	m33	7	519		m28	200	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		224	229	237	343	2158		239	2508	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.20		0.58	0.57	0.13	0.01	0.66		0.25	0.39	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 69.3%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

 ø1	 ø2	 ø3	 ø4
12 s	66 s	21 s	21 s
 ø6			
78 s			

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

Existing AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	2	2	1	108	2	1023	4	219	916	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Flt Permitted		0.971			0.999		0.950			0.950		
Satd. Flow (perm)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			1156			1515			330	
Travel Time (s)		4.0			31.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	119	0	2	1104	0	235	993	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	57.4%						ICU Level of Service B					
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

Existing AM
3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	2	2	1	108	2	1023	4	219	916	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	3	0	2	2	1	116	2	1100	4	235	985	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.79	0.79	0.79	0.79	0.79		0.79					
vC, conflicting volume	2131	2568	496	2072	2570	552	992			1104		
vC1, stage 1 conf vol	1460	1460		1106	1106							
vC2, stage 2 conf vol	671	1109		966	1463							
vCu, unblocked vol	1904	2456	0	1830	2458	552	468			1104		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	100	99	99	76	100			63		
cM capacity (veh/h)	63	45	860	169	125	477	864			628		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	5	119	2	733	371	235	657	336				
Volume Left	3	2	2	0	0	235	0	0				
Volume Right	2	116	0	0	4	0	0	8				
cSH	101	451	864	1700	1700	628	1700	1700				
Volume to Capacity	0.05	0.26	0.00	0.43	0.22	0.37	0.39	0.20				
Queue Length 95th (ft)	4	26	0	0	0	43	0	0				
Control Delay (s)	42.8	15.8	9.2	0.0	0.0	14.1	0.0	0.0				
Lane LOS	E	C	A			B						
Approach Delay (s)	42.8	15.8	0.0			2.7						
Approach LOS	E	C										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			57.4%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

Existing AM
3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	222	176	91	1006	958	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3493	0
Flt Permitted	0.973		0.150			
Satd. Flow (perm)	1704	0	279	3539	3493	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	37				11	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	428	0	98	1082	1127	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	48.0	0.0	14.0	72.0	58.0	0.0
Total Split (%)	40.0%	0.0%	11.7%	60.0%	48.3%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effct Green (s)	33.5		76.5	76.5	63.4	
Actuated g/C Ratio	0.28		0.64	0.64	0.53	
v/c Ratio	0.85		0.35	0.48	0.61	
Control Delay	52.9		18.2	16.0	22.7	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	52.9		18.2	16.0	22.7	
LOS	D		B	B	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

Existing AM
3/13/2013

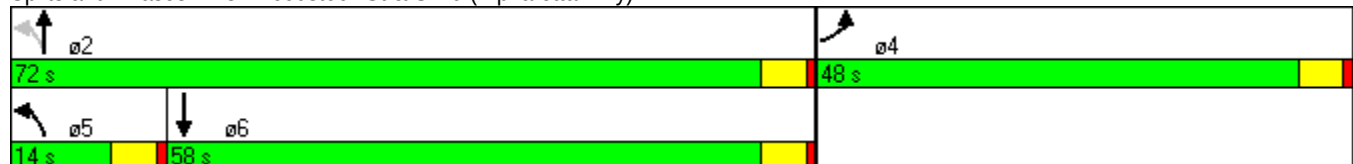


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	52.9			16.2	22.7	
Approach LOS	D			B	C	
Queue Length 50th (ft)	288		30	180	306	
Queue Length 95th (ft)	375		m71	317	450	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	634		290	2255	1851	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.68		0.34	0.48	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 70.8% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

Existing AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	425	12	21	291	77	1	17	18	148	76	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	0	1807	0	0	1734	0	0	1794	0
Flt Permitted		0.998			0.969			0.992			0.785	
Satd. Flow (perm)	0	1859	1583	0	1756	0	0	1722	0	0	1453	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			12		28			19			4	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			1156	
Travel Time (s)		18.3			8.6			5.6			31.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	441	12	0	401	0	0	38	0	0	241	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	34.0	34.0	34.0	34.0	34.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	0.0%	43.3%	43.3%	0.0%	43.3%	43.3%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		35.1	35.1		35.1			14.9			14.9	
Actuated g/C Ratio		0.58	0.58		0.58			0.25			0.25	
v/c Ratio		0.41	0.01		0.39			0.09			0.66	
Control Delay		10.0	4.8		8.7			10.1			24.9	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		10.0	4.8		8.7			10.1			24.9	
LOS		A	A		A			B			C	

Frazier St Apartments
4: Norcross St & Frazier St

Existing AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		9.8			8.7			10.1			24.9	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		140	1		63			5			74	
Queue Length 95th (ft)		295	m4		145			21			159	
Internal Link Dist (ft)		861			360			127			1076	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1086	930		1038			615			511	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.41	0.01		0.39			0.06			0.47	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 65.4%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Myrtle St

Existing AM
3/13/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	577	2	114	387	8	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1863	0	0	1842	1633	0
Flt Permitted				0.989	0.994	
Satd. Flow (perm)	1863	0	0	1842	1633	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	440			497	325	
Travel Time (s)	8.6			9.7	8.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	603	0	0	522	64	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	70.9%			ICU Level of Service C		
Analysis Period (min)	15					

Frazier St Apartments
5: Norcross St & Myrtle St

Existing AM
3/13/2013

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	577	2	114	387	8	54
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	601	2	119	403	8	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	440					
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			603		1243	602
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			474		1206	473
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		95	89
cM capacity (veh/h)			951		155	517
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	603	522	65			
Volume Left	0	119	8			
Volume Right	2	0	56			
cSH	1700	951	397			
Volume to Capacity	0.35	0.12	0.16			
Queue Length 95th (ft)	0	11	14			
Control Delay (s)	0.0	3.3	15.8			
Lane LOS		A	C			
Approach Delay (s)	0.0	3.3	15.8			
Approach LOS			C			
Intersection Summary						
Average Delay		2.3				
Intersection Capacity Utilization		70.9%		ICU Level of Service		C
Analysis Period (min)		15				

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

Existing PM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	39	8	477	62	69	21	941	223	36	1111	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1818	0	1681	1704	1583	1770	3437	0	1770	3522	0
Flt Permitted	0.950			0.950	0.963		0.198			0.131		
Satd. Flow (perm)	1770	1818	0	1681	1704	1583	369	3437	0	244	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				72		29			4	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	18	49	0	278	284	72	22	1212	0	38	1197	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	32.0	32.0	32.0	55.0	55.0	0.0	12.0	67.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	26.7%	26.7%	26.7%	45.8%	45.8%	0.0%	10.0%	55.8%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	8.6	8.6		23.8	23.8	23.8	67.6	67.6		75.0	75.0	
Actuated g/C Ratio	0.07	0.07		0.20	0.20	0.20	0.56	0.56		0.62	0.62	
v/c Ratio	0.14	0.36		0.83	0.84	0.19	0.11	0.62		0.16	0.54	
Control Delay	53.8	53.7		69.3	69.7	16.0	19.8	22.0		18.8	20.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.8	53.7		69.3	69.7	16.0	19.8	22.0		18.8	20.0	
LOS	D	D		E	E	B	B	C		B	C	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

Existing PM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		53.7			63.4			22.0			20.0	
Approach LOS		D			E			C			B	
Queue Length 50th (ft)	13	32		206	210	6	9	363		13	251	
Queue Length 95th (ft)	37	71		#320	#327	m50	29	492		m29	415	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		378	383	412	208	1950		244	2204	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.20		0.74	0.74	0.17	0.11	0.62		0.16	0.54	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 30.1

Intersection LOS: C

Intersection Capacity Utilization 63.0%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

							
12 s		55 s		32 s		21 s	
67 s							

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

Existing PM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	0	5	5	0	145	0	942	7	108	1141	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1702	0	0	1615	0	1863	3536	0	1770	3536	0
Flt Permitted		0.973			0.998					0.950		
Satd. Flow (perm)	0	1702	0	0	1615	0	1863	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			1156			1515			330	
Travel Time (s)		4.0			31.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	158	0	0	999	0	114	1208	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	54.3%				ICU Level of Service A							
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

Existing PM
3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	0	5	5	0	145	0	942	7	108	1141	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	6	0	5	5	0	153	0	992	7	114	1201	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72					
vC, conflicting volume	2081	2431	604	1828	2431	499	1208			999		
vC1, stage 1 conf vol	1432	1432		995	995							
vC2, stage 2 conf vol	648	999		833	1436							
vCu, unblocked vol	1729	2214	0	1381	2214	499	524			999		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	99	98	100	70	100			83		
cM capacity (veh/h)	133	150	785	239	180	517	752			689		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	12	158	0	661	338	114	801	408				
Volume Left	6	5	0	0	0	114	0	0				
Volume Right	5	153	0	0	7	0	0	7				
cSH	214	497	1700	1700	1700	689	1700	1700				
Volume to Capacity	0.05	0.32	0.00	0.39	0.20	0.17	0.47	0.24				
Queue Length 95th (ft)	4	34	0	0	0	15	0	0				
Control Delay (s)	22.8	15.6	0.0	0.0	0.0	11.3	0.0	0.0				
Lane LOS	C	C				B						
Approach Delay (s)	22.8	15.6	0.0			1.0						
Approach LOS	C	C										
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			54.3%		ICU Level of Service			A				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

Existing PM
3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	138	109	232	820	1140	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3454	0
Flt Permitted	0.973		0.100			
Satd. Flow (perm)	1704	0	186	3539	3454	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30				26	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	254	0	239	845	1404	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	30.0	0.0	26.0	90.0	64.0	0.0
Total Split (%)	25.0%	0.0%	21.7%	75.0%	53.3%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effect Green (s)	20.4		89.6	89.6	69.1	
Actuated g/C Ratio	0.17		0.75	0.75	0.58	
v/c Ratio	0.81		0.69	0.32	0.70	
Control Delay	61.3		39.0	6.5	22.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	61.3		39.0	6.5	22.0	
LOS	E		D	A	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

Existing PM
3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	61.3			13.7	22.0	
Approach LOS	E			B	C	
Queue Length 50th (ft)	168		132	76	393	
Queue Length 95th (ft)	255		220	166	566	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	379		416	2643	2000	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.67		0.57	0.32	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 22.4
Intersection LOS: C
Intersection Capacity Utilization 78.3%
ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

Existing PM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	307	14	37	594	83	18	60	55	80	43	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1861	1583	0	1827	0	0	1746	0	0	1798	0
Flt Permitted		0.992			0.973			0.952			0.761	
Satd. Flow (perm)	0	1848	1583	0	1783	0	0	1674	0	0	1412	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			14		18			56			3	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			1156	
Travel Time (s)		18.3			8.6			5.6			31.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	318	14	0	729	0	0	135	0	0	130	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	39.0	39.0	39.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	0.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		42.7	42.7		42.7			10.7			10.7	
Actuated g/C Ratio		0.71	0.71		0.71			0.18			0.18	
v/c Ratio		0.24	0.01		0.57			0.39			0.51	
Control Delay		6.0	3.7		8.6			16.3			26.4	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		6.0	3.7		8.6			16.3			26.4	
LOS		A	A		A			B			C	

Frazier St Apartments
4: Norcross St & Frazier St

Existing PM
3/13/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.9			8.6			16.3			26.4	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		60	1		120			25			56	
Queue Length 95th (ft)		164	m5		270			61			m100	
Internal Link Dist (ft)		861			360			127			1076	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1316	1131		1275			487			379	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.24	0.01		0.57			0.28			0.34	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 10.5

Intersection LOS: B

Intersection Capacity Utilization 80.9%

ICU Level of Service D

Analysis Period (min) 15

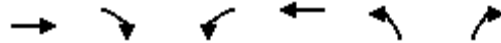
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Myrtle St

Existing PM
3/13/2013



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	429	13	152	717	11	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1855	0	0	1846	1633	0
Flt Permitted				0.991	0.994	
Satd. Flow (perm)	1855	0	0	1846	1633	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	440			497	325	
Travel Time (s)	8.6			9.7	8.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	461	0	0	905	90	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 84.8% ICU Level of Service E
Analysis Period (min) 15

Frazier St Apartments
5: Norcross St & Myrtle St

Existing PM
3/13/2013

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	429	13	152	717	11	76
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	447	14	158	747	11	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	440					
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			460		1517	454
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			420		1518	413
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			86		89	87
cM capacity (veh/h)			1096		108	615
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	460	905	91			
Volume Left	0	158	11			
Volume Right	14	0	79			
cSH	1700	1096	386			
Volume to Capacity	0.27	0.14	0.23			
Queue Length 95th (ft)	0	13	22			
Control Delay (s)	0.0	3.4	17.2			
Lane LOS		A	C			
Approach Delay (s)	0.0	3.4	17.2			
Approach LOS			C			
Intersection Summary						
Average Delay		3.2				
Intersection Capacity Utilization		84.8%		ICU Level of Service	E	
Analysis Period (min)		15				

Synchro Output:
No-Build (2015)

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 No-Build - AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	43	7	210	47	30	4	1048	360	58	949	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1824	0	1681	1715	1583	1770	3405	0	1770	3529	0
Flt Permitted	0.950			0.950	0.969		0.288			0.102		
Satd. Flow (perm)	1770	1824	0	1681	1715	1583	536	3405	0	190	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				31		58			3	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				39%								
Lane Group Flow (vph)	6	51	0	132	132	31	4	1451	0	60	996	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	21.0	66.0	66.0	0.0	12.0	78.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	17.5%	17.5%	17.5%	55.0%	55.0%	0.0%	10.0%	65.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	8.7	8.7		13.6	13.6	13.6	75.1	75.1		85.0	85.0	
Actuated g/C Ratio	0.07	0.07		0.11	0.11	0.11	0.63	0.63		0.71	0.71	
v/c Ratio	0.05	0.37		0.69	0.68	0.15	0.01	0.67		0.26	0.40	
Control Delay	51.2	54.7		70.5	69.1	23.9	12.8	18.4		11.8	7.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	51.2	54.7		70.5	69.1	23.9	12.8	18.4		11.8	7.6	
LOS	D	D		E	E	C	B	B		B	A	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.3			65.0			18.4			7.9	
Approach LOS		D			E			B			A	
Queue Length 50th (ft)	4	34		86	86	1	1	389		10	101	
Queue Length 95th (ft)	18	74		170	170	m34	7	540		m30	208	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		224	229	238	335	2152		232	2502	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.21		0.59	0.58	0.13	0.01	0.67		0.26	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 20.0

Intersection LOS: C

Intersection Capacity Utilization 70.3%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

			
ø1	ø2	ø3	ø4
12 s	66 s	21 s	21 s
			
ø6			
78 s			

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	2	2	1	110	2	1044	4	223	934	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Flt Permitted		0.971			0.999		0.950			0.950		
Satd. Flow (perm)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			1156			1515			330	
Travel Time (s)		4.0			31.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	121	0	2	1127	0	240	1012	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	58.3%						ICU Level of Service B					
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 No-Build - AM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	2	2	1	110	2	1044	4	223	934	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	3	0	2	2	1	118	2	1123	4	240	1004	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	2172	2619	506	2113	2620	563	1012			1127		
vC1, stage 1 conf vol	1488	1488		1129	1129							
vC2, stage 2 conf vol	684	1131		984	1491							
vCu, unblocked vol	1944	2514	0	1868	2516	563	463			1127		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	100	99	99	75	100			61		
cM capacity (veh/h)	54	35	850	164	119	469	858			616		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	5	122	2	748	378	240	670	342				
Volume Left	3	2	2	0	0	240	0	0				
Volume Right	2	118	0	0	4	0	0	8				
cSH	86	443	858	1700	1700	616	1700	1700				
Volume to Capacity	0.06	0.27	0.00	0.44	0.22	0.39	0.39	0.20				
Queue Length 95th (ft)	5	28	0	0	0	46	0	0				
Control Delay (s)	49.6	16.2	9.2	0.0	0.0	14.5	0.0	0.0				
Lane LOS	E	C	A			B						
Approach Delay (s)	49.6	16.2	0.0			2.8						
Approach LOS	E	C										
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			58.3%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 No-Build - AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	226	180	93	1026	977	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3493	0
Flt Permitted	0.973		0.142			
Satd. Flow (perm)	1704	0	265	3539	3493	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	37				11	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	437	0	100	1103	1150	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	48.0	0.0	14.0	72.0	58.0	0.0
Total Split (%)	40.0%	0.0%	11.7%	60.0%	48.3%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effect Green (s)	34.0		76.0	76.0	62.9	
Actuated g/C Ratio	0.28		0.63	0.63	0.52	
v/c Ratio	0.86		0.37	0.49	0.63	
Control Delay	53.3		19.3	16.7	23.4	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	53.3		19.3	16.7	23.4	
LOS	D		B	B	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 No-Build - AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	53.3			16.9	23.4	
Approach LOS	D			B	C	
Queue Length 50th (ft)	295		32	192	320	
Queue Length 95th (ft)	385		m74	329	463	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	634		282	2241	1836	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.69		0.35	0.49	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.3

Intersection LOS: C

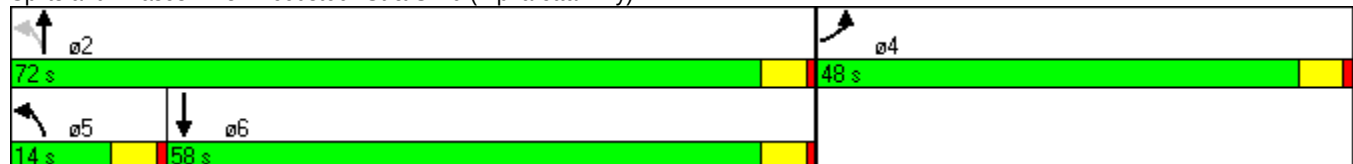
Intersection Capacity Utilization 71.8%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

2015 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	434	12	21	297	79	1	17	18	151	78	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	0	1807	0	0	1734	0	0	1796	0
Flt Permitted		0.998			0.969			0.992			0.785	
Satd. Flow (perm)	0	1859	1583	0	1756	0	0	1722	0	0	1455	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			12		30			19			4	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			1156	
Travel Time (s)		18.3			8.6			5.6			31.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	450	12	0	409	0	0	38	0	0	246	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%	41.7%	41.7%	0.0%	41.7%	41.7%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		35.1	35.1		35.1			14.9			14.9	
Actuated g/C Ratio		0.58	0.58		0.58			0.25			0.25	
v/c Ratio		0.41	0.01		0.39			0.09			0.68	
Control Delay		10.0	4.6		8.6			10.3			25.5	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		10.0	4.6		8.6			10.3			25.5	
LOS		A	A		A			B			C	

Frazier St Apartments
4: Norcross St & Frazier St

2015 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		9.8			8.6			10.3			25.5	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		146	1		64			5			76	
Queue Length 95th (ft)		296	m4		142			21			163	
Internal Link Dist (ft)		861			360			127			1076	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1088	932		1040			587			488	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.41	0.01		0.39			0.06			0.50	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 12.7

Intersection LOS: B

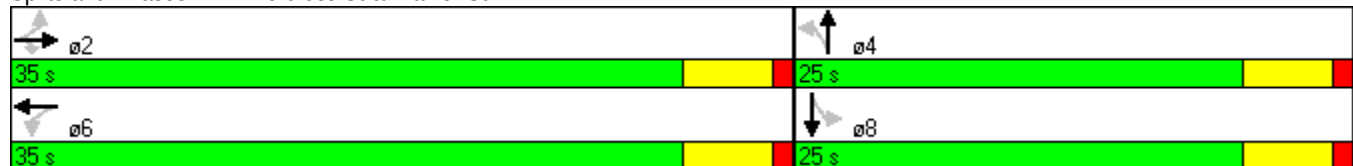
Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

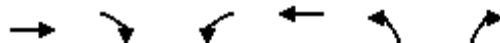
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Myrtle St

2015 No-Build - AM
3/13/2013



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	589	2	116	395	8	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1863	0	0	1842	1633	0
Flt Permitted				0.989	0.994	
Satd. Flow (perm)	1863	0	0	1842	1633	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	440			497	325	
Travel Time (s)	8.6			9.7	8.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	616	0	0	532	65	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 72.2% ICU Level of Service C

Analysis Period (min) 15

Frazier St Apartments
5: Norcross St & Myrtle St

2015 No-Build - AM

3/13/2013

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	589	2	116	395	8	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	614	2	121	411	8	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	440					
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			616		1268	615
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			483		1233	481
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		94	89
cM capacity (veh/h)			939		148	508
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	616	532	66			
Volume Left	0	121	8			
Volume Right	2	0	57			
cSH	1700	939	388			
Volume to Capacity	0.36	0.13	0.17			
Queue Length 95th (ft)	0	11	15			
Control Delay (s)	0.0	3.4	16.1			
Lane LOS		A	C			
Approach Delay (s)	0.0	3.4	16.1			
Approach LOS			C			
Intersection Summary						
Average Delay		2.4				
Intersection Capacity Utilization		72.2%		ICU Level of Service		C
Analysis Period (min)		15				

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	40	8	487	63	70	21	960	227	37	1133	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1818	0	1681	1704	1583	1770	3437	0	1770	3522	0
Flt Permitted	0.950			0.950	0.963		0.190			0.123		
Satd. Flow (perm)	1770	1818	0	1681	1704	1583	354	3437	0	229	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				73		29			4	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	18	50	0	284	289	73	22	1236	0	39	1221	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	32.0	32.0	32.0	55.0	55.0	0.0	12.0	67.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	26.7%	26.7%	26.7%	45.8%	45.8%	0.0%	10.0%	55.8%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	8.6	8.6		24.0	24.0	24.0	67.3	67.3		74.8	74.8	
Actuated g/C Ratio	0.07	0.07		0.20	0.20	0.20	0.56	0.56		0.62	0.62	
v/c Ratio	0.14	0.36		0.85	0.85	0.19	0.11	0.64		0.17	0.56	
Control Delay	53.7	53.9		69.9	70.0	16.0	20.1	22.6		19.3	20.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.7	53.9		69.9	70.0	16.0	20.1	22.6		19.3	20.8	
LOS	D	D		E	E	B	C	C		B	C	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		53.9			63.9			22.5			20.8	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	13	32		210	213	6	9	378		14	271	
Queue Length 95th (ft)	37	72		#335	#342	m49	29	510		m30	426	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		378	383	413	199	1940		236	2196	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.20		0.75	0.75	0.18	0.11	0.64		0.17	0.56	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 30.7

Intersection LOS: C

Intersection Capacity Utilization 63.9%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

			
ø1	ø2	ø3	ø4
12 s	55 s	32 s	21 s
			
ø6			
67 s			

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	0	5	5	0	148	0	961	7	110	1164	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1702	0	0	1615	0	1863	3536	0	1770	3536	0
Flt Permitted		0.973			0.998					0.950		
Satd. Flow (perm)	0	1702	0	0	1615	0	1863	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			1156			1515			330	
Travel Time (s)		4.0			31.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	161	0	0	1019	0	116	1232	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	55.1%					ICU Level of Service B						
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 No-Build - PM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	0	5	5	0	148	0	961	7	110	1164	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	6	0	5	5	0	156	0	1012	7	116	1225	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.71	0.71	0.71	0.71	0.71		0.71					
vC, conflicting volume	2122	2479	616	1865	2479	509	1233			1019		
vC1, stage 1 conf vol	1461	1461		1015	1015							
vC2, stage 2 conf vol	662	1019		849	1464							
vCu, unblocked vol	1762	2266	0	1400	2266	509	509			1019		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	99	98	100	69	100			83		
cM capacity (veh/h)	127	144	769	232	176	509	747			677		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	12	161	0	674	345	116	817	416				
Volume Left	6	5	0	0	0	116	0	0				
Volume Right	5	156	0	0	7	0	0	7				
cSH	204	490	1700	1700	1700	677	1700	1700				
Volume to Capacity	0.06	0.33	0.00	0.40	0.20	0.17	0.48	0.24				
Queue Length 95th (ft)	4	36	0	0	0	15	0	0				
Control Delay (s)	23.7	15.9	0.0	0.0	0.0	11.4	0.0	0.0				
Lane LOS	C	C				B						
Approach Delay (s)	23.7	15.9	0.0			1.0						
Approach LOS	C	C										
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			55.1%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 No-Build - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	141	111	237	836	1163	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1706	0	1770	3539	3454	0
Flt Permitted	0.973		0.092			
Satd. Flow (perm)	1706	0	171	3539	3454	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30				26	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	259	0	244	862	1432	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	30.0	0.0	26.0	90.0	64.0	0.0
Total Split (%)	25.0%	0.0%	21.7%	75.0%	53.3%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effct Green (s)	20.6		89.4	89.4	68.4	
Actuated g/C Ratio	0.17		0.74	0.74	0.57	
v/c Ratio	0.81		0.72	0.33	0.72	
Control Delay	61.8		41.6	6.8	23.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	61.8		41.6	6.8	23.0	
LOS	E		D	A	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 No-Build - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	61.8			14.5	23.0	
Approach LOS	E			B	C	
Queue Length 50th (ft)	172		140	77	414	
Queue Length 95th (ft)	261		229	176	585	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	379		407	2636	1980	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.68		0.60	0.33	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 79.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

2015 No-Build - PM

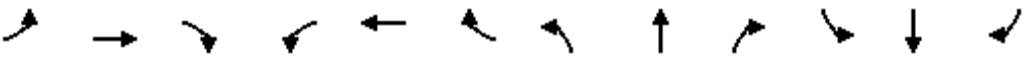
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	313	14	38	606	85	18	61	56	82	44	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1861	1583	0	1827	0	0	1746	0	0	1798	0
Flt Permitted		0.992			0.972			0.953			0.757	
Satd. Flow (perm)	0	1848	1583	0	1782	0	0	1676	0	0	1404	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			14		18			57			3	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			1156	
Travel Time (s)		18.3			8.6			5.6			31.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	14	0	744	0	0	137	0	0	133	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	39.0	39.0	39.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	0.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		42.6	42.6		42.6			10.8			10.8	
Actuated g/C Ratio		0.71	0.71		0.71			0.18			0.18	
v/c Ratio		0.25	0.01		0.59			0.39			0.52	
Control Delay		6.2	3.7		8.9			16.1			26.8	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		6.2	3.7		8.9			16.1			26.8	
LOS		A	A		A			B			C	

Frazier St Apartments
4: Norcross St & Frazier St

2015 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.1			8.9			16.1			26.8	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		66	1		125			25			59	
Queue Length 95th (ft)		172	m5		285			62			m100	
Internal Link Dist (ft)		861			360			127			1076	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1313	1129		1271			489			377	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.25	0.01		0.59			0.28			0.35	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 10.7

Intersection LOS: B

Intersection Capacity Utilization 82.2%

ICU Level of Service E

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Myrtle St

2015 No-Build - PM

3/13/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	438	13	155	731	11	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1855	0	0	1846	1631	0
Flt Permitted				0.991	0.994	
Satd. Flow (perm)	1855	0	0	1846	1631	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	440			497	325	
Travel Time (s)	8.6			9.7	8.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	470	0	0	922	92	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	86.3%			ICU Level of Service E		
Analysis Period (min)	15					

Frazier St Apartments
5: Norcross St & Myrtle St

2015 No-Build - PM

3/13/2013

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	438	13	155	731	11	78
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	456	14	161	761	11	81
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	440					
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			470		1547	463
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			426		1549	419
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		89	87
cM capacity (veh/h)			1087		102	608
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	470	923	93			
Volume Left	0	161	11			
Volume Right	14	0	81			
cSH	1700	1087	378			
Volume to Capacity	0.28	0.15	0.25			
Queue Length 95th (ft)	0	13	24			
Control Delay (s)	0.0	3.5	17.6			
Lane LOS		A	C			
Approach Delay (s)	0.0	3.5	17.6			
Approach LOS			C			
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization		86.3%		ICU Level of Service		E
Analysis Period (min)		15				

**Synchro Output:
Build-out (2015)**

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 Build-out AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	43	7	227	48	30	4	1048	364	58	949	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1824	0	1681	1713	1583	1770	3401	0	1770	3529	0
Flt Permitted	0.950			0.950	0.968		0.288			0.100		
Satd. Flow (perm)	1770	1824	0	1681	1713	1583	536	3401	0	186	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				31		59			3	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				40%								
Lane Group Flow (vph)	6	51	0	140	143	31	4	1455	0	60	996	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	21.0	66.0	66.0	0.0	12.0	78.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	17.5%	17.5%	17.5%	55.0%	55.0%	0.0%	10.0%	65.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)	8.7	8.7		13.9	13.9	13.9	74.8	74.8		84.7	84.7	
Actuated g/C Ratio	0.07	0.07		0.12	0.12	0.12	0.62	0.62		0.71	0.71	
v/c Ratio	0.05	0.37		0.72	0.72	0.15	0.01	0.68		0.26	0.40	
Control Delay	51.2	54.7		72.0	71.9	23.9	12.8	18.6		12.2	7.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	51.2	54.7		72.0	71.9	23.9	12.8	18.6		12.2	7.7	
LOS	D	D		E	E	C	B	B		B	A	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.3			67.2			18.6			8.0	
Approach LOS		D			E			B			A	
Queue Length 50th (ft)	4	34		92	94	1	1	395		10	102	
Queue Length 95th (ft)	18	74		178	182	m33	7	542		m31	210	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		224	228	238	334	2142		229	2493	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.21		0.63	0.63	0.13	0.01	0.68		0.26	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 70.7%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

			
ø1	ø2	ø3	ø4
12 s	66 s	21 s	21 s
			
ø6			
78 s			

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	2	2	1	130	2	1044	4	228	934	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Flt Permitted		0.971			0.999		0.950			0.950		
Satd. Flow (perm)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			457			1515			330	
Travel Time (s)		4.0			12.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	143	0	2	1127	0	245	1012	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	59.8%						ICU Level of Service B					
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 Build-out AM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	2	2	1	130	2	1044	4	228	934	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	3	0	2	2	1	140	2	1123	4	245	1004	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage veh								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	2204	2630	506	2124	2631	563	1012			1127		
vC1, stage 1 conf vol	1498	1498		1129	1129							
vC2, stage 2 conf vol	706	1131		995	1502							
vCu, unblocked vol	1983	2527	0	1880	2529	563	459			1127		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	100	100	99	99	70	100			60		
cM capacity (veh/h)	28	30	848	162	116	469	859			616		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	5	143	2	748	378	245	670	342				
Volume Left	3	2	2	0	0	245	0	0				
Volume Right	2	140	0	0	4	0	0	8				
cSH	45	446	859	1700	1700	616	1700	1700				
Volume to Capacity	0.12	0.32	0.00	0.44	0.22	0.40	0.39	0.20				
Queue Length 95th (ft)	9	34	0	0	0	48	0	0				
Control Delay (s)	94.7	16.8	9.2	0.0	0.0	14.7	0.0	0.0				
Lane LOS	F	C	A			B						
Approach Delay (s)	94.7	16.8	0.0			2.9						
Approach LOS	F	C										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			59.8%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 Build-out AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	226	181	96	1043	981	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3493	0
Flt Permitted	0.973		0.140			
Satd. Flow (perm)	1704	0	261	3539	3493	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	38				10	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	438	0	103	1122	1154	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	48.0	0.0	14.0	72.0	58.0	0.0
Total Split (%)	40.0%	0.0%	11.7%	60.0%	48.3%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effect Green (s)	34.0		76.0	76.0	62.8	
Actuated g/C Ratio	0.28		0.63	0.63	0.52	
v/c Ratio	0.86		0.38	0.50	0.63	
Control Delay	53.2		19.7	16.8	23.5	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	53.2		19.7	16.8	23.5	
LOS	D		B	B	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 Build-out AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	53.2			17.1	23.5	
Approach LOS	D			B	C	
Queue Length 50th (ft)	295		34	202	322	
Queue Length 95th (ft)	386		m77	335	465	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	635		279	2241	1833	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.69		0.37	0.50	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.3

Intersection LOS: C

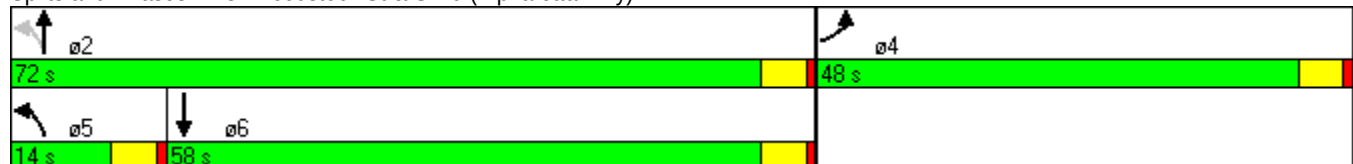
Intersection Capacity Utilization 72.0%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

2015 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	436	12	21	304	81	1	17	18	158	79	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1861	1583	0	1807	0	0	1734	0	0	1787	0
Flt Permitted		0.996			0.970			0.992			0.790	
Satd. Flow (perm)	0	1855	1583	0	1758	0	0	1722	0	0	1455	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			12		30			19			8	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			379	
Travel Time (s)		18.3			8.6			5.6			10.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	454	12	0	419	0	0	38	0	0	265	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%	41.7%	41.7%	0.0%	41.7%	41.7%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		34.7	34.7		34.7			15.3			15.3	
Actuated g/C Ratio		0.58	0.58		0.58			0.26			0.26	
v/c Ratio		0.42	0.01		0.41			0.08			0.70	
Control Delay		10.3	4.6		8.9			10.1			27.0	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		10.3	4.6		8.9			10.1			27.0	
LOS		B	A		A			B			C	

Frazier St Apartments
4: Norcross St & Frazier St

2015 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		10.2			8.9			10.1			27.0	
Approach LOS		B			A			B			C	
Queue Length 50th (ft)		155	1		69			5			80	
Queue Length 95th (ft)		299	m4		147			21			164	
Internal Link Dist (ft)		861			360			127			299	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1073	921		1029			587			490	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.42	0.01		0.41			0.06			0.54	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 13.5

Intersection LOS: B

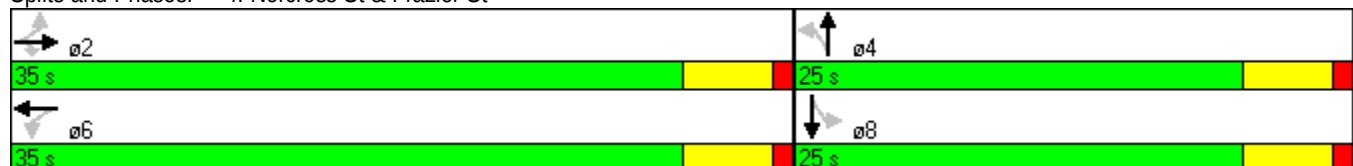
Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Site Drive

2015 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	596	2	116	397	9	8	1	55	39	3	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	50		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	100		25
Satd. Flow (prot)	0	1863	0	0	1839	0	0	1635	0	0	1738	0
Flt Permitted					0.989			0.994			0.966	
Satd. Flow (perm)	0	1863	0	0	1839	0	0	1635	0	0	1738	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		440			497			325			284	
Travel Time (s)		8.6			9.7			8.9			7.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	627	0	0	545	0	0	66	0	0	60	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	79.4%											
Analysis Period (min)	15											
	ICU Level of Service D											

Frazier St Apartments
5: Norcross St & Site Drive

2015 Build-out AM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	596	2	116	397	9	8	1	55	39	3	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	4	621	2	121	414	10	8	1	57	42	3	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		440										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	423			623			1308	1296	622	1349	1292	418
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	423			486			1277	1264	485	1325	1259	418
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			92	99	89	53	97	98
cM capacity (veh/h)	1136			932			106	127	504	91	128	635
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	627	544	67	61								
Volume Left	4	121	8	42								
Volume Right	2	10	57	15								
cSH	1136	932	333	118								
Volume to Capacity	0.00	0.13	0.20	0.52								
Queue Length 95th (ft)	0	11	18	60								
Control Delay (s)	0.1	3.4	18.5	64.3								
Lane LOS	A	A	C	F								
Approach Delay (s)	0.1	3.4	18.5	64.3								
Approach LOS			C	F								
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			79.4%		ICU Level of Service				D			
Analysis Period (min)			15									

Frazier St Apartments
6: North Site Drive & Frazier St

2015 Build-out AM

3/13/2013



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	18	19	118	4	5	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1693	0	1855	0	0	1861
Flt Permitted	0.976					0.999
Satd. Flow (perm)	1693	0	1855	0	0	1861
Link Speed (mph)	25		25			25
Link Distance (ft)	289		320			457
Travel Time (s)	7.9		8.7			12.5
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	135	0	0	277
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.9% ICU Level of Service A

Analysis Period (min) 15

Frazier St Apartments
6: North Site Drive & Frazier St

2015 Build-out AM

3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	18	19	118	4	5	244
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	21	131	4	6	271
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			699			
pX, platoon unblocked						
vC, conflicting volume	416	133			136	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	416	133			136	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			100	
cM capacity (veh/h)	591	916			1449	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	41	136	277			
Volume Left	20	0	6			
Volume Right	21	4	0			
cSH	723	1700	1449			
Volume to Capacity	0.06	0.08	0.00			
Queue Length 95th (ft)	5	0	0			
Control Delay (s)	10.3	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.3	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		26.9%		ICU Level of Service		A
Analysis Period (min)		15				

Frazier St Apartments
7: South Site Drive & Frazier St

2015 Build-out AM

3/13/2013



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	17	19	103	4	5	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1687	0	1853	0	0	1861
Flt Permitted	0.977					0.999
Satd. Flow (perm)	1687	0	1853	0	0	1861
Link Speed (mph)	25		25			25
Link Distance (ft)	303		379			320
Travel Time (s)	8.3		10.3			8.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	0	116	0	0	284
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 27.5% ICU Level of Service A

Analysis Period (min) 15

Frazier St Apartments
7: South Site Drive & Frazier St

2015 Build-out AM

3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	17	19	103	4	5	257
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	21	112	4	5	279
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			379			
pX, platoon unblocked						
vC, conflicting volume	404	114			116	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	114			116	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			100	
cM capacity (veh/h)	600	938			1472	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	39	116	285			
Volume Left	18	0	5			
Volume Right	21	4	0			
cSH	741	1700	1472			
Volume to Capacity	0.05	0.07	0.00			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	10.1	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.1	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		27.5%		ICU Level of Service		A
Analysis Period (min)		15				

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	41	8	495	63	70	21	960	242	37	1133	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1818	0	1681	1704	1583	1770	3433	0	1770	3522	0
Flt Permitted	0.950			0.950	0.963		0.189			0.118		
Satd. Flow (perm)	1770	1818	0	1681	1704	1583	352	3433	0	220	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				73		32			4	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	18	51	0	289	293	73	22	1252	0	39	1221	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	32.0	32.0	32.0	55.0	55.0	0.0	12.0	67.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	26.7%	26.7%	26.7%	45.8%	45.8%	0.0%	10.0%	55.8%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	8.7	8.7		24.2	24.2	24.2	67.0	67.0		74.4	74.4	
Actuated g/C Ratio	0.07	0.07		0.20	0.20	0.20	0.56	0.56		0.62	0.62	
v/c Ratio	0.14	0.37		0.85	0.85	0.19	0.11	0.65		0.17	0.56	
Control Delay	53.5	54.8		70.3	70.1	16.0	20.3	23.0		19.5	21.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.5	54.8		70.3	70.1	16.0	20.3	23.0		19.5	21.2	
LOS	D	D		E	E	B	C	C		B	C	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2015 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.4			64.1			22.9			21.1	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	13	34		214	216	6	9	389		14	279	
Queue Length 95th (ft)	37	74		#347	#351	m46	29	520		m29	428	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		378	383	413	196	1930		230	2186	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.21		0.76	0.77	0.18	0.11	0.65		0.17	0.56	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 31.2

Intersection LOS: C

Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

			
ø1	ø2	ø3	ø4
12 s	55 s	32 s	21 s
			
ø6			
67 s			

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	0	5	5	0	158	0	961	7	128	1164	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1702	0	0	1617	0	1863	3536	0	1770	3536	0
Flt Permitted		0.973			0.999					0.950		
Satd. Flow (perm)	0	1702	0	0	1617	0	1863	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			456			1515			330	
Travel Time (s)		4.0			12.4			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	171	0	0	1019	0	135	1232	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	55.8%					ICU Level of Service B						
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2015 Build-out - PM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	0	5	5	0	158	0	961	7	128	1164	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	6	0	5	5	0	166	0	1012	7	135	1225	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.70	0.70	0.70	0.70	0.70		0.70					
vC, conflicting volume	2171	2517	616	1903	2517	509	1233			1019		
vC1, stage 1 conf vol	1498	1498		1015	1015							
vC2, stage 2 conf vol	672	1019		887	1502							
vCu, unblocked vol	1820	2314	0	1439	2314	509	486			1019		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	99	98	100	67	100			80		
cM capacity (veh/h)	108	131	762	230	166	509	754			677		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	12	172	0	674	345	135	817	416				
Volume Left	6	5	0	0	0	135	0	0				
Volume Right	5	166	0	0	7	0	0	7				
cSH	178	491	1700	1700	1700	677	1700	1700				
Volume to Capacity	0.07	0.35	0.00	0.40	0.20	0.20	0.48	0.24				
Queue Length 95th (ft)	5	39	0	0	0	18	0	0				
Control Delay (s)	26.7	16.2	0.0	0.0	0.0	11.6	0.0	0.0				
Lane LOS	D	C				B						
Approach Delay (s)	26.7	16.2	0.0			1.1						
Approach LOS	D	C										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			55.8%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 Build-out - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	141	114	239	844	1178	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1702	0	1770	3539	3454	0
Flt Permitted	0.973		0.088			
Satd. Flow (perm)	1702	0	164	3539	3454	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	31				26	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	263	0	246	870	1447	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	30.0	0.0	26.0	90.0	64.0	0.0
Total Split (%)	25.0%	0.0%	21.7%	75.0%	53.3%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effct Green (s)	20.8		89.2	89.2	68.1	
Actuated g/C Ratio	0.17		0.74	0.74	0.57	
v/c Ratio	0.82		0.73	0.33	0.73	
Control Delay	61.9		42.8	7.0	23.5	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	61.9		42.8	7.0	23.5	
LOS	E		D	A	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2015 Build-out - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	61.9			14.9	23.5	
Approach LOS	E			B	C	
Queue Length 50th (ft)	174		144	78	426	
Queue Length 95th (ft)	264		232	180	596	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	379		403	2630	1971	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.69		0.61	0.33	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 80.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

2015 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	320	14	38	610	91	18	62	56	85	45	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1859	1583	0	1826	0	0	1748	0	0	1791	0
Flt Permitted		0.969			0.971			0.953			0.761	
Satd. Flow (perm)	0	1805	1583	0	1778	0	0	1676	0	0	1405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			14		19			57			6	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			380	
Travel Time (s)		18.3			8.6			5.6			10.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	341	14	0	754	0	0	138	0	0	142	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	39.0	39.0	39.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	0.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		42.4	42.4		42.4			11.0			11.0	
Actuated g/C Ratio		0.71	0.71		0.71			0.18			0.18	
v/c Ratio		0.27	0.01		0.60			0.39			0.54	
Control Delay		6.6	3.9		9.4			15.9			27.2	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		6.6	3.9		9.4			15.9			27.2	
LOS		A	A		A			B			C	

Frazier St Apartments
4: Norcross St & Frazier St

2015 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.4			9.4			15.9			27.2	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		76	1		131			26			58	
Queue Length 95th (ft)		188	m5		299			62			m96	
Internal Link Dist (ft)		861			360			127			300	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1274	1122		1261			489			379	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.27	0.01		0.60			0.28			0.37	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Site Drive

2015 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	441	13	155	737	38	11	3	78	20	1	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1852	0	0	1837	0	0	1639	0	0	1733	0
Flt Permitted		0.998			0.992			0.994			0.967	
Satd. Flow (perm)	0	1852	0	0	1837	0	0	1639	0	0	1733	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		440			497			325			243	
Travel Time (s)		8.6			9.7			8.9			6.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	488	0	0	970	0	0	95	0	0	32	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	90.8%											
Analysis Period (min)	15											
	ICU Level of Service E											

Frazier St Apartments
5: Norcross St & Site Drive

2015 Build-out - PM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	441	13	155	737	38	11	3	78	20	1	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	15	459	14	161	768	41	11	3	81	22	1	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		440										
pX, platoon unblocked				0.96			0.96	0.96	0.96	0.96	0.96	
vC, conflicting volume	809			473			1617	1629	466	1691	1615	788
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	809			425			1623	1635	418	1700	1620	788
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			85			83	96	87	57	99	98
cM capacity (veh/h)	817			1084			67	81	607	51	82	391
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	488	970	96	32								
Volume Left	15	161	11	22								
Volume Right	14	41	81	9								
cSH	817	1084	277	68								
Volume to Capacity	0.02	0.15	0.35	0.46								
Queue Length 95th (ft)	1	13	37	46								
Control Delay (s)	0.5	3.6	24.7	96.7								
Lane LOS	A	A	C	F								
Approach Delay (s)	0.5	3.6	24.7	96.7								
Approach LOS			C	F								
Intersection Summary												
Average Delay			5.8									
Intersection Capacity Utilization			90.8%	ICU Level of Service					E			
Analysis Period (min)			15									

Frazier St Apartments
6: North Site Drive & Frazier St

2015 Build-out - PM

3/13/2013

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	10	10	161	17	19	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1694	0	1839	0	0	1852
Flt Permitted	0.976					0.994
Satd. Flow (perm)	1694	0	1839	0	0	1852
Link Speed (mph)	25		25			25
Link Distance (ft)	364		320			456
Travel Time (s)	9.9		8.7			12.4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	193	0	0	183
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.7%			ICU Level of Service A		
Analysis Period (min)	15					

Frazier St Apartments
6: North Site Drive & Frazier St

2015 Build-out - PM

3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	10	10	161	17	19	149
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	11	175	18	21	162
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			700			
pX, platoon unblocked						
vC, conflicting volume	388	184			193	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388	184			193	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			99	
cM capacity (veh/h)	607	858			1380	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	22	193	183			
Volume Left	11	0	21			
Volume Right	11	18	0			
cSH	711	1700	1380			
Volume to Capacity	0.03	0.11	0.01			
Queue Length 95th (ft)	2	0	1			
Control Delay (s)	10.2	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			31.7%	ICU Level of Service		A
Analysis Period (min)			15			

Frazier St Apartments
7: South Site Drive & Frazier St

2015 Build-out - PM

3/13/2013

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	10	168	16	19	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1691	0	1842	0	0	1852
Flt Permitted	0.977					0.994
Satd. Flow (perm)	1691	0	1842	0	0	1852
Link Speed (mph)	25		25			25
Link Distance (ft)	317		380			320
Travel Time (s)	8.6		10.4			8.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	200	0	0	173
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.6%			ICU Level of Service A		
Analysis Period (min)	15					

Frazier St Apartments
7: South Site Drive & Frazier St

2015 Build-out - PM

3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	10	168	16	19	140
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	11	183	17	21	152
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			380			
pX, platoon unblocked						
vC, conflicting volume	385	191			200	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	385	191			200	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			98	
cM capacity (veh/h)	609	850			1372	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	21	200	173			
Volume Left	10	0	21			
Volume Right	11	17	0			
cSH	716	1700	1372			
Volume to Capacity	0.03	0.12	0.02			
Queue Length 95th (ft)	2	0	1			
Control Delay (s)	10.2	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			31.6%	ICU Level of Service		A
Analysis Period (min)			15			

Synchro Output:
No-Build (2025)

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	47	8	232	52	33	5	1157	398	64	1048	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1824	0	1681	1715	1583	1770	3405	0	1770	3529	0
Flt Permitted	0.950			0.950	0.969		0.255			0.071		
Satd. Flow (perm)	1770	1824	0	1681	1715	1583	475	3405	0	132	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				34		58			3	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				39%								
Lane Group Flow (vph)	7	56	0	146	147	34	5	1603	0	66	1100	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	21.0	66.0	66.0	0.0	12.0	78.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	17.5%	17.5%	17.5%	55.0%	55.0%	0.0%	10.0%	65.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	9.0	9.0		14.2	14.2	14.2	74.1	74.1		84.2	84.2	
Actuated g/C Ratio	0.08	0.08		0.12	0.12	0.12	0.62	0.62		0.70	0.70	
v/c Ratio	0.05	0.39		0.74	0.73	0.16	0.02	0.75		0.34	0.44	
Control Delay	50.9	55.1		73.4	72.3	24.5	13.4	21.6		20.5	9.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	50.9	55.1		73.4	72.3	24.5	13.4	21.6		20.5	9.7	
LOS	D	E		E	E	C	B	C		C	A	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.6			67.8			21.6			10.3	
Approach LOS		D			E			C			B	
Queue Length 50th (ft)	5	38		94	95	2	2	482		16	117	
Queue Length 95th (ft)	20	79		#191	#187	m35	9	662		m40	255	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		224	229	241	293	2124		196	2477	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.23		0.65	0.64	0.14	0.02	0.75		0.34	0.44	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 22.8

Intersection LOS: C

Intersection Capacity Utilization 76.0%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

			
ø1	ø2	ø3	ø4
12 s	66 s	21 s	21 s
			
ø6			
78 s			

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	2	2	1	122	2	1153	5	247	1032	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Flt Permitted		0.971			0.999		0.950			0.950		
Satd. Flow (perm)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			1156			1515			330	
Travel Time (s)		4.0			31.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	134	0	2	1245	0	266	1119	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	63.4%						ICU Level of Service B					
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 No-Build - AM
3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	2	2	1	122	2	1153	5	247	1032	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	3	0	2	2	1	131	2	1240	5	266	1110	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage veh								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.73	0.73	0.73	0.73	0.73		0.73					
vC, conflicting volume	2401	2895	559	2335	2896	623	1118			1245		
vC1, stage 1 conf vol	1645	1645		1247	1247							
vC2, stage 2 conf vol	756	1249		1088	1649							
vCu, unblocked vol	2184	2856	0	2094	2859	623	436			1245		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	60	100	100	98	99	69	100			52		
cM capacity (veh/h)	8	6	796	136	89	429	822			555		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	5	134	2	827	419	266	740	378				
Volume Left	3	2	2	0	0	266	0	0				
Volume Right	2	131	0	0	5	0	0	9				
cSH	13	403	822	1700	1700	555	1700	1700				
Volume to Capacity	0.40	0.33	0.00	0.49	0.25	0.48	0.44	0.22				
Queue Length 95th (ft)	25	36	0	0	0	64	0	0				
Control Delay (s)	400.3	18.3	9.4	0.0	0.0	17.3	0.0	0.0				
Lane LOS	F	C	A			C						
Approach Delay (s)	400.3	18.3	0.0			3.3						
Approach LOS	F	C										
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			63.4%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 No-Build - AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	250	198	103	1134	1079	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3493	0
Flt Permitted	0.973		0.102			
Satd. Flow (perm)	1704	0	190	3539	3493	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	37				11	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	482	0	111	1219	1269	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	48.0	0.0	13.0	72.0	59.0	0.0
Total Split (%)	40.0%	0.0%	10.8%	60.0%	49.2%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effct Green (s)	36.4		73.6	73.6	60.5	
Actuated g/C Ratio	0.30		0.61	0.61	0.50	
v/c Ratio	0.89		0.50	0.56	0.72	
Control Delay	55.3		28.9	19.5	27.1	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	55.3		28.9	19.5	27.1	
LOS	E		C	B	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 No-Build - AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	55.3			20.3	27.1	
Approach LOS	E			C	C	
Queue Length 50th (ft)	327		47	250	398	
Queue Length 95th (ft)	440		m89	375	527	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	634		227	2170	1765	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.76		0.49	0.56	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 28.6

Intersection LOS: C

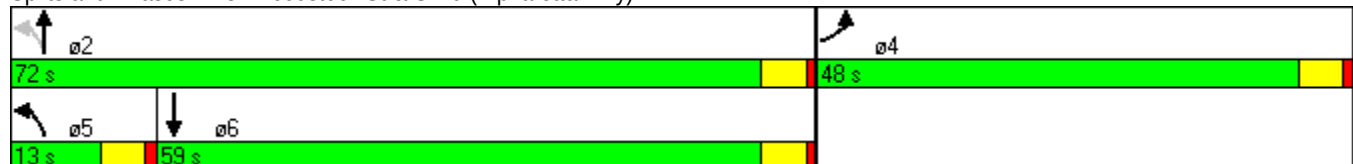
Intersection Capacity Utilization 77.4%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

2025 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	479	14	24	328	87	1	19	20	167	86	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	0	1807	0	0	1734	0	0	1796	0
Flt Permitted		0.998			0.964			0.993			0.783	
Satd. Flow (perm)	0	1859	1583	0	1747	0	0	1724	0	0	1451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			14		29			21			4	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			1156	
Travel Time (s)		18.3			8.6			5.6			31.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	497	14	0	453	0	0	42	0	0	272	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	34.0	34.0	34.0	34.0	34.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	0.0%	43.3%	43.3%	0.0%	43.3%	43.3%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		34.1	34.1		34.1			15.9			15.9	
Actuated g/C Ratio		0.57	0.57		0.57			0.26			0.26	
v/c Ratio		0.47	0.02		0.45			0.09			0.70	
Control Delay		10.9	4.3		9.9			9.6			26.7	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		10.9	4.3		9.9			9.6			26.7	
LOS		B	A		A			A			C	

Frazier St Apartments
4: Norcross St & Frazier St

2025 No-Build - AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		10.7			9.9			9.6			26.7	
Approach LOS		B			A			A			C	
Queue Length 50th (ft)		191	1		79			6			116	
Queue Length 95th (ft)		343	m4		171			22			m184	
Internal Link Dist (ft)		861			360			127			1076	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1057	906		1006			617			510	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.47	0.02		0.45			0.07			0.53	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 13.8

Intersection LOS: B

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Myrtle St

2025 No-Build - AM

3/13/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	650	2	128	436	9	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1863	0	0	1842	1633	0
Flt Permitted				0.989	0.994	
Satd. Flow (perm)	1863	0	0	1842	1633	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	440			497	325	
Travel Time (s)	8.6			9.7	8.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	679	0	0	587	73	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	78.6%			ICU Level of Service D		
Analysis Period (min)	15					

Frazier St Apartments
5: Norcross St & Myrtle St

2025 No-Build - AM

3/13/2013

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	650	2	128	436	9	61
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	677	2	133	454	9	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	440					
pX, platoon unblocked			0.84		0.84	0.84
vC, conflicting volume			679		1399	678
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			521		1380	520
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		92	86
cM capacity (veh/h)			876		113	466
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	679	588	73			
Volume Left	0	133	9			
Volume Right	2	0	64			
cSH	1700	876	333			
Volume to Capacity	0.40	0.15	0.22			
Queue Length 95th (ft)	0	13	21			
Control Delay (s)	0.0	3.8	18.8			
Lane LOS		A	C			
Approach Delay (s)	0.0	3.8	18.8			
Approach LOS			C			
Intersection Summary						
Average Delay		2.7				
Intersection Capacity Utilization		78.6%		ICU Level of Service		D
Analysis Period (min)		15				

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	44	9	537	70	78	24	1060	251	41	1252	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1816	0	1681	1704	1583	1770	3437	0	1770	3522	0
Flt Permitted	0.950			0.950	0.963		0.153			0.083		
Satd. Flow (perm)	1770	1816	0	1681	1704	1583	285	3437	0	155	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				81		30			4	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	20	55	0	313	319	81	25	1365	0	43	1349	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	31.0	31.0	31.0	56.0	56.0	0.0	12.0	68.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	25.8%	25.8%	25.8%	46.7%	46.7%	0.0%	10.0%	56.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	8.9	8.9		24.9	24.9	24.9	63.7	63.7		73.6	73.6	
Actuated g/C Ratio	0.07	0.07		0.21	0.21	0.21	0.53	0.53		0.61	0.61	
v/c Ratio	0.15	0.39		0.90	0.90	0.21	0.17	0.74		0.22	0.62	
Control Delay	53.5	54.3		74.4	74.9	16.1	22.7	27.0		20.7	24.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.5	54.3		74.4	74.9	16.1	22.7	27.0		20.7	24.8	
LOS	D	D		E	E	B	C	C		C	C	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.1			68.0			26.9			24.6	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	15	36		233	237	8	11	448		20	392	
Queue Length 95th (ft)	40	77		#407	#414	m43	34	592		m28	472	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		364	369	406	151	1838		194	2162	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.22		0.86	0.86	0.20	0.17	0.74		0.22	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 34.8

Intersection LOS: C

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

					
ø1	ø2		ø3	ø4	
12 s	56 s		31 s	21 s	
					
ø6					
68 s					

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	0	6	6	0	163	0	1061	8	122	1286	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1702	0	0	1617	0	1863	3536	0	1770	3536	0
Flt Permitted		0.974			0.998					0.950		
Satd. Flow (perm)	0	1702	0	0	1617	0	1863	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			1156			1515			330	
Travel Time (s)		4.0			31.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	178	0	0	1125	0	128	1362	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	59.5%						ICU Level of Service B					
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 No-Build - PM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	0	6	6	0	163	0	1061	8	122	1286	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	6	6	0	172	0	1117	8	128	1354	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.64	0.64	0.64	0.64	0.64		0.64					
vC, conflicting volume	2345	2740	681	2061	2740	563	1362			1125		
vC1, stage 1 conf vol	1615	1615		1121	1121							
vC2, stage 2 conf vol	730	1125		940	1619							
vCu, unblocked vol	1974	2593	0	1530	2593	563	435			1125		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	99	97	100	63	100			79		
cM capacity (veh/h)	90	113	692	198	150	470	716			617		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	14	178	0	745	381	128	902	460				
Volume Left	7	6	0	0	0	128	0	0				
Volume Right	6	172	0	0	8	0	0	8				
cSH	151	448	1700	1700	1700	617	1700	1700				
Volume to Capacity	0.09	0.40	0.00	0.44	0.22	0.21	0.53	0.27				
Queue Length 95th (ft)	7	47	0	0	0	19	0	0				
Control Delay (s)	31.3	18.2	0.0	0.0	0.0	12.4	0.0	0.0				
Lane LOS	D	C				B						
Approach Delay (s)	31.3	18.2	0.0			1.1						
Approach LOS	D	C										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			59.5%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 No-Build - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	156	123	261	924	1285	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3454	0
Flt Permitted	0.973		0.058			
Satd. Flow (perm)	1704	0	108	3539	3454	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29				28	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	288	0	269	953	1583	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	28.0	0.0	24.0	92.0	68.0	0.0
Total Split (%)	23.3%	0.0%	20.0%	76.7%	56.7%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effect Green (s)	21.3		88.7	88.7	66.9	
Actuated g/C Ratio	0.18		0.74	0.74	0.56	
v/c Ratio	0.88		0.86	0.36	0.82	
Control Delay	70.6		60.4	6.6	26.6	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	70.6		60.4	6.6	26.6	
LOS	E		E	A	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 No-Build - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	70.6			18.5	26.6	
Approach LOS	E			B	C	
Queue Length 50th (ft)	196		175	81	534	
Queue Length 95th (ft)	#340		m#270	178	647	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	350		343	2616	1937	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.82		0.78	0.36	0.82	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 86.6%

ICU Level of Service E

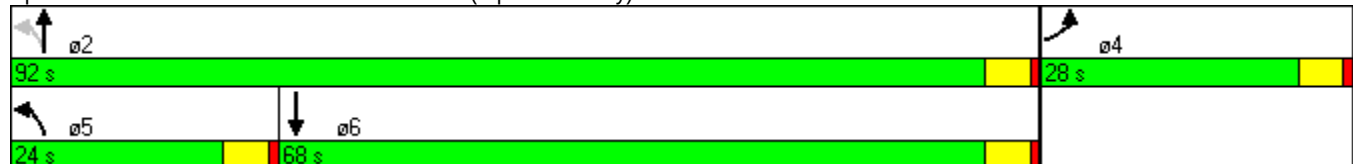
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

2025 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	346	16	42	669	94	20	68	62	90	48	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1861	1583	0	1827	0	0	1746	0	0	1796	0
Flt Permitted		0.989			0.969			0.952			0.726	
Satd. Flow (perm)	0	1842	1583	0	1776	0	0	1674	0	0	1346	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			16		18			58			3	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			1156	
Travel Time (s)		18.3			8.6			5.6			31.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	359	16	0	822	0	0	152	0	0	146	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	39.0	39.0	39.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	0.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		42.0	42.0		42.0			11.4			11.4	
Actuated g/C Ratio		0.70	0.70		0.70			0.19			0.19	
v/c Ratio		0.28	0.01		0.66			0.42			0.57	
Control Delay		6.9	3.8		11.6			16.4			27.8	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		6.9	3.8		11.6			16.4			27.8	
LOS		A	A		B			B			C	

Frazier St Apartments
4: Norcross St & Frazier St

2025 No-Build - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.8			11.6			16.4			27.8	
Approach LOS		A			B			B			C	
Queue Length 50th (ft)		91	1		158			30			81	
Queue Length 95th (ft)		202	m5		#435			67			m97	
Internal Link Dist (ft)		861			360			127			1076	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1290	1113		1249			489			361	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.28	0.01		0.66			0.31			0.40	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.4

Intersection LOS: B

Intersection Capacity Utilization 94.7%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St

Frazier St Apartments
5: Norcross St & Myrtle St

2025 No-Build - PM

3/13/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	483	15	171	808	12	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1855	0	0	1846	1631	0
Flt Permitted				0.991	0.994	
Satd. Flow (perm)	1855	0	0	1846	1631	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	440			497	325	
Travel Time (s)	8.6			9.7	8.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	519	0	0	1020	102	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	94.3%			ICU Level of Service F		
Analysis Period (min)	15					

Frazier St Apartments
5: Norcross St & Myrtle St

2025 No-Build - PM

3/13/2013

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	483	15	171	808	12	86
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	503	16	178	842	12	90
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	440					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			519		1709	511
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			457		1722	449
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		84	84
cM capacity (veh/h)			1039		76	574
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	519	1020	102			
Volume Left	0	178	12			
Volume Right	16	0	90			
cSH	1700	1039	319			
Volume to Capacity	0.31	0.17	0.32			
Queue Length 95th (ft)	0	15	34			
Control Delay (s)	0.0	4.2	21.5			
Lane LOS		A	C			
Approach Delay (s)	0.0	4.2	21.5			
Approach LOS			C			
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			94.3%	ICU Level of Service		F
Analysis Period (min)			15			

**Synchro Output:
Build-out (2025)**

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 Build-out AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	47	8	249	53	33	5	1157	402	64	1048	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1824	0	1681	1713	1583	1770	3401	0	1770	3529	0
Flt Permitted	0.950			0.950	0.968		0.254			0.069		
Satd. Flow (perm)	1770	1824	0	1681	1713	1583	473	3401	0	129	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				34		58			3	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				40%								
Lane Group Flow (vph)	7	56	0	154	158	34	5	1607	0	66	1100	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	21.0	66.0	66.0	0.0	12.0	78.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	17.5%	17.5%	17.5%	55.0%	55.0%	0.0%	10.0%	65.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	9.0	9.0		14.5	14.5	14.5	73.7	73.7		83.8	83.8	
Actuated g/C Ratio	0.08	0.08		0.12	0.12	0.12	0.61	0.61		0.70	0.70	
v/c Ratio	0.05	0.39		0.75	0.76	0.15	0.02	0.76		0.34	0.45	
Control Delay	50.9	55.1		75.4	75.6	24.8	13.4	21.9		21.0	10.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	50.9	55.1		75.4	75.6	24.8	13.4	21.9		21.0	10.0	
LOS	D	E		E	E	C	B	C		C	A	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 Build-out AM
3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.6			70.5			21.9			10.6	
Approach LOS		D			E			C			B	
Queue Length 50th (ft)	5	38		106	109	2	2	488		17	130	
Queue Length 95th (ft)	20	79		#207	#213	m32	9	666		m40	255	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		224	228	241	290	2111		193	2466	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.23		0.69	0.69	0.14	0.02	0.76		0.34	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 76.5%

ICU Level of Service D

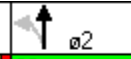
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

							
12 s		66 s		21 s		21 s	
78 s							

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	2	2	1	142	2	1153	5	252	1032	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Flt Permitted		0.971			0.999		0.950			0.950		
Satd. Flow (perm)	0	1711	0	0	1615	0	1770	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			457			1515			330	
Travel Time (s)		4.0			12.5			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	156	0	2	1245	0	271	1119	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	64.9%						ICU Level of Service C					
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 Build-out AM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	2	2	1	142	2	1153	5	252	1032	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	3	0	2	2	1	153	2	1240	5	271	1110	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.73	0.73	0.73	0.73	0.73		0.73					
vC, conflicting volume	2433	2905	559	2346	2907	623	1118			1245		
vC1, stage 1 conf vol	1656	1656		1247	1247							
vC2, stage 2 conf vol	777	1249		1099	1660							
vCu, unblocked vol	2227	2871	0	2108	2873	623	434			1245		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	53	100	100	98	99	64	100			51		
cM capacity (veh/h)	7	6	795	134	86	429	823			555		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	5	156	2	827	419	271	740	378				
Volume Left	3	2	2	0	0	271	0	0				
Volume Right	2	153	0	0	5	0	0	9				
cSH	11	406	823	1700	1700	555	1700	1700				
Volume to Capacity	0.48	0.38	0.00	0.49	0.25	0.49	0.44	0.22				
Queue Length 95th (ft)	27	44	0	0	0	67	0	0				
Control Delay (s)	492.5	19.3	9.4	0.0	0.0	17.5	0.0	0.0				
Lane LOS	F	C	A			C						
Approach Delay (s)	492.5	19.3	0.0			3.4						
Approach LOS	F	C										
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			64.9%			ICU Level of Service				C		
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 Build-out AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	250	199	106	1151	1083	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3493	0
Flt Permitted	0.973		0.101			
Satd. Flow (perm)	1704	0	188	3539	3493	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	37				11	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	483	0	114	1238	1274	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	47.0	0.0	13.0	73.0	60.0	0.0
Total Split (%)	39.2%	0.0%	10.8%	60.8%	50.0%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effct Green (s)	36.4		73.6	73.6	60.7	
Actuated g/C Ratio	0.30		0.61	0.61	0.51	
v/c Ratio	0.89		0.52	0.57	0.72	
Control Delay	55.9		29.8	19.1	26.9	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	55.9		29.8	19.1	26.9	
LOS	E		C	B	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 Build-out AM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	55.9			20.0	26.9	
Approach LOS	E			C	C	
Queue Length 50th (ft)	328		48	249	402	
Queue Length 95th (ft)	448		m89	371	522	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	620		224	2172	1772	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.78		0.51	0.57	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 28.4

Intersection LOS: C

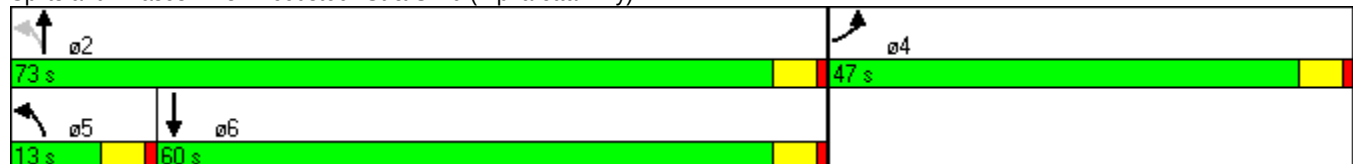
Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



Frazier St Apartments
4: Norcross St & Frazier St

2025 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	481	14	24	335	89	1	19	20	174	87	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	0	1807	0	0	1734	0	0	1789	0
Flt Permitted		0.996			0.965			0.992			0.788	
Satd. Flow (perm)	0	1855	1583	0	1749	0	0	1722	0	0	1453	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			14		30			21			7	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			379	
Travel Time (s)		18.3			8.6			5.6			10.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	501	14	0	462	0	0	42	0	0	291	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%	41.7%	41.7%	0.0%	41.7%	41.7%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		33.9	33.9		33.9			16.1			16.1	
Actuated g/C Ratio		0.56	0.56		0.56			0.27			0.27	
v/c Ratio		0.48	0.02		0.46			0.09			0.74	
Control Delay		11.1	4.3		10.0			9.8			28.8	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		11.1	4.3		10.0			9.8			28.8	
LOS		B	A		A			A			C	

Frazier St Apartments
4: Norcross St & Frazier St

2025 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		10.9			10.0			9.8			28.8	
Approach LOS		B			A			A			C	
Queue Length 50th (ft)		195	1		84			6			118	
Queue Length 95th (ft)		339	m4		168			23			m185	
Internal Link Dist (ft)		861			360			127			299	
Turn Bay Length (ft)			100									
Base Capacity (vph)		1048	901		1001			588			489	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.48	0.02		0.46			0.07			0.60	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 14.5

Intersection LOS: B

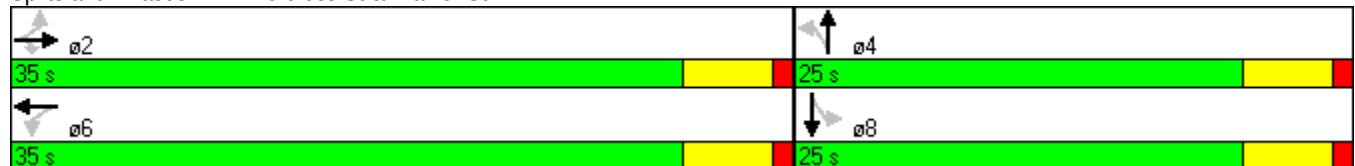
Intersection Capacity Utilization 73.7%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Norcross St & Frazier St



Frazier St Apartments
5: Norcross St & Site Drive

2025 Build-out AM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	657	2	128	438	9	9	1	61	39	3	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	50		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	100		25
Satd. Flow (prot)	0	1863	0	0	1839	0	0	1635	0	0	1738	0
Flt Permitted					0.989			0.994			0.966	
Satd. Flow (perm)	0	1863	0	0	1839	0	0	1635	0	0	1738	0
Link Speed (mph)		35			35			25			30	
Link Distance (ft)		440			497			325			284	
Travel Time (s)		8.6			9.7			8.9			6.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	690	0	0	599	0	0	74	0	0	60	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	85.4%											
Analysis Period (min)	15											
	ICU Level of Service E											

Frazier St Apartments
5: Norcross St & Site Drive

2025 Build-out AM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	657	2	128	438	9	9	1	61	39	3	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	4	684	2	133	456	10	9	1	64	42	3	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		440										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	466			686			1439	1427	685	1486	1423	461
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	466			526			1427	1412	525	1483	1408	461
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			85			88	99	86	35	97	97
cM capacity (veh/h)	1095			869			79	97	462	65	98	600
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	691	599	74	61								
Volume Left	4	133	9	42								
Volume Right	2	10	64	15								
cSH	1095	869	276	85								
Volume to Capacity	0.00	0.15	0.27	0.71								
Queue Length 95th (ft)	0	14	26	87								
Control Delay (s)	0.1	3.8	22.7	115.6								
Lane LOS	A	A	C	F								
Approach Delay (s)	0.1	3.8	22.7	115.6								
Approach LOS			C	F								
Intersection Summary												
Average Delay			7.8									
Intersection Capacity Utilization			85.4%		ICU Level of Service				E			
Analysis Period (min)			15									

Frazier St Apartments
6: North Site Drive & Frazier St

2025 Build-out AM

3/13/2013



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	18	19	128	4	5	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1693	0	1855	0	0	1861
Flt Permitted	0.976					0.999
Satd. Flow (perm)	1693	0	1855	0	0	1861
Link Speed (mph)	30		25			25
Link Distance (ft)	289		320			457
Travel Time (s)	6.6		8.7			12.5
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	143	0	0	297
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 28.2% ICU Level of Service A

Analysis Period (min) 15

Frazier St Apartments
6: North Site Drive & Frazier St

2025 Build-out AM

3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	18	19	128	4	5	269
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	21	139	4	5	292
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			699			
pX, platoon unblocked						
vC, conflicting volume	445	141			143	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445	141			143	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			100	
cM capacity (veh/h)	569	907			1439	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	40	143	298			
Volume Left	20	0	5			
Volume Right	21	4	0			
cSH	703	1700	1439			
Volume to Capacity	0.06	0.08	0.00			
Queue Length 95th (ft)	5	0	0			
Control Delay (s)	10.4	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.4	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		28.2%		ICU Level of Service		A
Analysis Period (min)		15				

Frazier St Apartments
7: South Site Drive & Frazier St

2025 Build-out AM

3/13/2013



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	17	19	113	4	5	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1687	0	1855	0	0	1861
Flt Permitted	0.977					0.999
Satd. Flow (perm)	1687	0	1855	0	0	1861
Link Speed (mph)	30		25			25
Link Distance (ft)	303		379			320
Travel Time (s)	6.9		10.3			8.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	0	127	0	0	312
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 28.8% ICU Level of Service A

Analysis Period (min) 15

Frazier St Apartments
7: South Site Drive & Frazier St

2025 Build-out AM
3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	17	19	113	4	5	282
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	21	123	4	5	307
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			379			
pX, platoon unblocked						
vC, conflicting volume	442	125			127	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	125			127	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			100	
cM capacity (veh/h)	571	926			1459	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	39	127	312			
Volume Left	18	0	5			
Volume Right	21	4	0			
cSH	715	1700	1459			
Volume to Capacity	0.05	0.07	0.00			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	10.3	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.3	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		28.8%		ICU Level of Service		A
Analysis Period (min)		15				

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	45	9	545	70	78	24	1060	266	41	1252	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	300		200	115		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50		25	50		100	50		25	50		25
Satd. Flow (prot)	1770	1818	0	1681	1704	1583	1770	3433	0	1770	3522	0
Flt Permitted	0.950			0.950	0.963		0.152			0.079		
Satd. Flow (perm)	1770	1818	0	1681	1704	1583	283	3433	0	147	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				81		32			4	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		323			941			538			1515	
Travel Time (s)		6.3			18.3			9.2			25.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	20	56	0	318	323	81	25	1381	0	43	1349	0
Turn Type	Split			Split		Perm	Perm			pm+pt		
Protected Phases	4	4		3	3			2		1	6	
Permitted Phases						3	2			6		
Detector Phase	4	4		3	3	3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		7.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		12.0	21.0	
Total Split (s)	21.0	21.0	0.0	31.0	31.0	31.0	56.0	56.0	0.0	12.0	68.0	0.0
Total Split (%)	17.5%	17.5%	0.0%	25.8%	25.8%	25.8%	46.7%	46.7%	0.0%	10.0%	56.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	9.0	9.0		25.0	25.0	25.0	63.5	63.5		73.4	73.4	
Actuated g/C Ratio	0.08	0.08		0.21	0.21	0.21	0.53	0.53		0.61	0.61	
v/c Ratio	0.15	0.39		0.91	0.91	0.21	0.17	0.75		0.23	0.63	
Control Delay	53.4	54.4		75.4	75.4	16.2	22.8	27.5		21.3	24.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.4	54.4		75.4	75.4	16.2	22.8	27.5		21.3	24.9	
LOS	D	D		E	E	B	C	C		C	C	

Frazier St Apartments
1: Norcross St & SR 9 (Alpharetta Hwy)

2025 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.1			68.8			27.4			24.8	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	15	37		238	243	8	11	457		20	394	
Queue Length 95th (ft)	39	78		#416	#424	m41	34	605		m28	469	
Internal Link Dist (ft)		243			861			458			1435	
Turn Bay Length (ft)	100			300		200	115			100		
Base Capacity (vph)	236	248		364	369	406	150	1831		189	2156	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.23		0.87	0.88	0.20	0.17	0.75		0.23	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 35.3

Intersection LOS: D

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Norcross St & SR 9 (Alpharetta Hwy)

			
ø1	ø2	ø3	ø4
12 s	56 s	31 s	21 s
			
ø6			
68 s			

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	0	6	6	0	173	0	1061	8	140	1286	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	50		25	50		25
Satd. Flow (prot)	0	1702	0	0	1615	0	1863	3536	0	1770	3536	0
Flt Permitted		0.974			0.998					0.950		
Satd. Flow (perm)	0	1702	0	0	1615	0	1863	3536	0	1770	3536	0
Link Speed (mph)		30			25			40			40	
Link Distance (ft)		174			456			1515			330	
Travel Time (s)		4.0			12.4			25.8			5.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	188	0	0	1125	0	147	1362	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	60.1%						ICU Level of Service B					
Analysis Period (min)	15											

Frazier St Apartments
2: Frazier St & SR 9 (Alpharetta Hwy)

2025 Build-out - PM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	0	6	6	0	173	0	1061	8	140	1286	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	6	6	0	182	0	1117	8	147	1354	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											330	
pX, platoon unblocked	0.63	0.63	0.63	0.63	0.63		0.63					
vC, conflicting volume	2393	2778	681	2099	2778	563	1362			1125		
vC1, stage 1 conf vol	1653	1653		1121	1121							
vC2, stage 2 conf vol	741	1125		978	1657							
vCu, unblocked vol	2034	2646	0	1565	2646	563	391			1125		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	100	99	97	100	61	100			76		
cM capacity (veh/h)	70	101	681	196	142	470	731			617		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	14	188	0	745	381	147	902	460				
Volume Left	7	6	0	0	0	147	0	0				
Volume Right	6	182	0	0	8	0	0	8				
cSH	119	449	1700	1700	1700	617	1700	1700				
Volume to Capacity	0.11	0.42	0.00	0.44	0.22	0.24	0.53	0.27				
Queue Length 95th (ft)	9	51	0	0	0	23	0	0				
Control Delay (s)	39.0	18.7	0.0	0.0	0.0	12.7	0.0	0.0				
Lane LOS	E	C				B						
Approach Delay (s)	39.0	18.7	0.0			1.2						
Approach LOS	E	C										
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			60.1%		ICU Level of Service			B				
Analysis Period (min)			15									

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 Build-out - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	156	126	263	932	1300	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25	25	50			25
Satd. Flow (prot)	1704	0	1770	3539	3454	0
Flt Permitted	0.973		0.056			
Satd. Flow (perm)	1704	0	104	3539	3454	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30				27	
Link Speed (mph)	30			40	40	
Link Distance (ft)	1695			330	672	
Travel Time (s)	38.5			5.6	11.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	291	0	271	961	1598	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	21.0		12.0	21.0	21.0	
Total Split (s)	29.0	0.0	24.0	91.0	67.0	0.0
Total Split (%)	24.2%	0.0%	20.0%	75.8%	55.8%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	C-Max	
Act Effct Green (s)	21.9		88.1	88.1	66.2	
Actuated g/C Ratio	0.18		0.73	0.73	0.55	
v/c Ratio	0.87		0.87	0.37	0.83	
Control Delay	67.5		62.1	7.3	27.9	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	67.5		62.1	7.3	27.9	
LOS	E		E	A	C	

Frazier St Apartments
3: Woodstock St & SR 9 (Alpharetta Hwy)

2025 Build-out - PM

3/13/2013



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	67.5			19.4	27.9	
Approach LOS	E			B	C	
Queue Length 50th (ft)	195		179	93	554	
Queue Length 95th (ft)	#333		m#275	187	672	
Internal Link Dist (ft)	1615			250	592	
Turn Bay Length (ft)			100			
Base Capacity (vph)	365		340	2599	1919	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.80		0.80	0.37	0.83	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 28.2

Intersection LOS: C

Intersection Capacity Utilization 87.3%

ICU Level of Service E

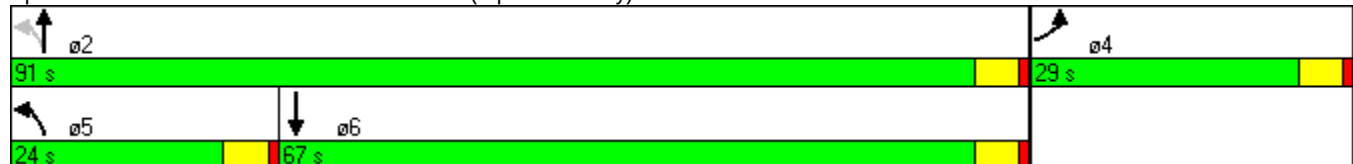
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Woodstock St & SR 9 (Alpharetta Hwy)



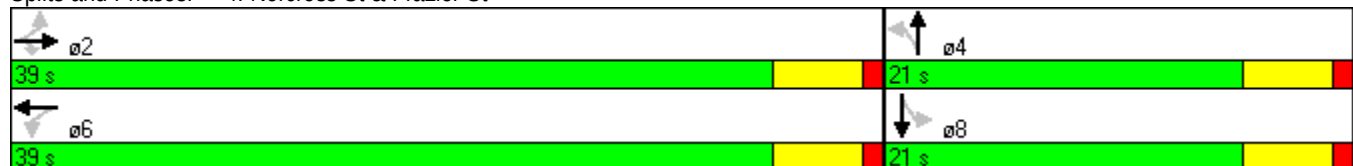
Frazier St Apartments
4: Norcross St & Frazier St

2025 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	353	16	42	673	100	20	69	62	93	49	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		100	25		25	25		25	25		25
Satd. Flow (prot)	0	1859	1583	0	1826	0	0	1748	0	0	1791	0
Flt Permitted		0.966			0.968			0.952			0.731	
Satd. Flow (perm)	0	1799	1583	0	1772	0	0	1674	0	0	1349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			16		19			57			6	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		941			440			207			380	
Travel Time (s)		18.3			8.6			5.6			10.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	375	16	0	832	0	0	153	0	0	155	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	39.0	39.0	39.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	0.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	None		None	None		None	None	
Act Effect Green (s)		41.8	41.8		41.8			11.6			11.6	
Actuated g/C Ratio		0.70	0.70		0.70			0.19			0.19	
v/c Ratio		0.30	0.01		0.67			0.41			0.58	
Control Delay		7.3	3.8		12.0			16.4			28.7	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		7.3	3.8		12.0			16.4			28.7	
LOS		A	A		B			B			C	

3/13/2013



Frazier St Apartments
5: Norcross St & Site Drive

2025 Build-out - PM

3/13/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	486	15	171	814	38	12	3	86	20	1	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1853	0	0	1839	0	0	1637	0	0	1733	0
Flt Permitted		0.999			0.992			0.994			0.967	
Satd. Flow (perm)	0	1853	0	0	1839	0	0	1637	0	0	1733	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		440			497			325			243	
Travel Time (s)		8.6			9.7			8.9			6.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	537	0	0	1067	0	0	105	0	0	32	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	98.3%											
Analysis Period (min)	15											
	ICU Level of Service F											

Frazier St Apartments
5: Norcross St & Site Drive

2025 Build-out - PM

3/13/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	486	15	171	814	38	12	3	86	20	1	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	15	506	16	178	848	41	12	3	90	22	1	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		440										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	889			522			1779	1790	514	1861	1777	869
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	889			456			1797	1810	447	1885	1796	869
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			83			74	95	84	38	98	98
cM capacity (veh/h)	762			1035			48	60	572	35	61	352
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	537	1067	105	32								
Volume Left	15	178	12	22								
Volume Right	16	41	90	9								
cSH	762	1035	223	47								
Volume to Capacity	0.02	0.17	0.47	0.67								
Queue Length 95th (ft)	2	16	58	65								
Control Delay (s)	0.6	4.3	34.8	174.2								
Lane LOS	A	A	D	F								
Approach Delay (s)	0.6	4.3	34.8	174.2								
Approach LOS			D	F								
Intersection Summary												
Average Delay			8.1									
Intersection Capacity Utilization			98.3%		ICU Level of Service				F			
Analysis Period (min)			15									

Frazier St Apartments
6: North Site Drive & Frazier St

2025 Build-out - PM

3/13/2013

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	10	10	177	17	19	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1694	0	1840	0	0	1853
Flt Permitted	0.976					0.995
Satd. Flow (perm)	1694	0	1840	0	0	1853
Link Speed (mph)	25		25			25
Link Distance (ft)	364		320			456
Travel Time (s)	9.9		8.7			12.4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	210	0	0	197
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.3%			ICU Level of Service A		
Analysis Period (min)	15					

Frazier St Apartments
6: North Site Drive & Frazier St

2025 Build-out - PM

3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	10	10	177	17	19	162
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	11	192	18	21	176
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			700			
pX, platoon unblocked						
vC, conflicting volume	419	202			211	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	419	202			211	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			98	
cM capacity (veh/h)	582	839			1360	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	22	211	197			
Volume Left	11	0	21			
Volume Right	11	18	0			
cSH	687	1700	1360			
Volume to Capacity	0.03	0.12	0.02			
Queue Length 95th (ft)	2	0	1			
Control Delay (s)	10.4	0.0	0.9			
Lane LOS	B		A			
Approach Delay (s)	10.4	0.0	0.9			
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		33.3%		ICU Level of Service	A	
Analysis Period (min)		15				

Frazier St Apartments
7: South Site Drive & Frazier St

2025 Build-out - PM

3/13/2013



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	10	184	16	19	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25	25		25	25	
Satd. Flow (prot)	1691	0	1842	0	0	1852
Flt Permitted	0.977					0.994
Satd. Flow (perm)	1691	0	1842	0	0	1852
Link Speed (mph)	25		25			25
Link Distance (ft)	317		380			320
Travel Time (s)	8.6		10.4			8.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	217	0	0	187
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.1% ICU Level of Service A

Analysis Period (min) 15

Frazier St Apartments
7: South Site Drive & Frazier St

2025 Build-out - PM

3/13/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	10	184	16	19	153
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	11	200	17	21	166
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			380			
pX, platoon unblocked						
vC, conflicting volume	416	209			217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	416	209			217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			98	
cM capacity (veh/h)	584	832			1352	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	21	217	187			
Volume Left	10	0	21			
Volume Right	11	17	0			
cSH	692	1700	1352			
Volume to Capacity	0.03	0.13	0.02			
Queue Length 95th (ft)	2	0	1			
Control Delay (s)	10.4	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	10.4	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		33.1%		ICU Level of Service		A
Analysis Period (min)		15				