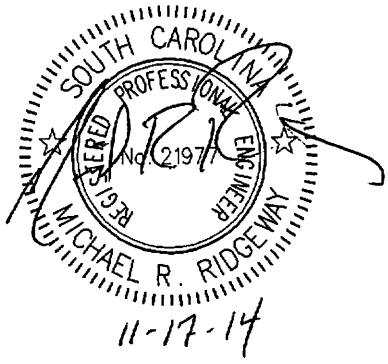
TRAFFIC IMPACT AND ACCESS STUDY

PROPOSED STUDENT HOUSING COMPLEX
GERVAIS STREET AT HARDEN STREET
COLUMBIA, SOUTH CAROLINA

Prepared for:

PEAK CAMPUS DEVELOPMENT, LLC
Atlanta, GA

Submitted
November 2014



Prepared by:

SRS Engineering, Inc.
801 Mohawk Drive
West Columbia, SC 29169

SRS Engineering, LLC
801 Mohawk Drive
West Columbia, SC 29169

November 17, 2014

Mr. Jeff Githens, Vice-President
Peak Campus Development, LLC
2970 Clairmont Road, Suite 310
Atlanta, GA 30329

RE: Traffic Impact and Access Study
Harden at Lady Street Student Apartments
Columbia, SC

Dear Mr. Githens:

As requested, SRS Engineering, LLC (SRS) has completed an assessment of the traffic impacts associated with the development of a new student housing apartment complex to be located along Harden Street, Lady Street and Gervais Street in downtown Columbia, South Carolina. The following provides a summary of this study's findings.

PROJECT DESCRIPTION

The project site is generally located on the old Greyhound bus terminal site located in the city block bounded by Lady Street to the north, Gervais Street to the south, Harden Street to the east, and Laurens Street to the west. **Figure 1** (Figures follow this report) depicts the site location in relation the local roadway network. The project proposal is to construct an apartment complex orientated towards student housing for the University of South Carolina. The apartment count is 218 units which will contain a mix of single up to four bedroom units. Over-all, the new complex will have a total of 660-bedrooms which will be rented to college students on an individual bedroom by bedroom basis.

As planned, access to/from the complex will be provided to/from Lady Street and Laurens Street. No direct access will be provided to either Harden Street or Gervais Street. A copy of the most recent site plan is provided as **Figure 2**. As scheduled, the site is projected to be constructed and fully-occupied by Year 2016.

EXISTING CONDITIONS

A comprehensive field inventory of the project study area was conducted in October 2014 when schools were in session. The field inventory included a collection of geometric data, traffic volumes and traffic control within the study area. The following sections detail the current traffic conditions and include a description of intersections serving the site and traffic flow in close proximity to the project.

Study Area Intersections

As identified by City and SCDOT staff, the following intersections have been required to be analyzed in order to determine project impact on the surrounding roadway network.

1. Harden Street at Gervais Street;
2. Harden Street at Lady Street (North and South off-set);
3. Gervais Street at Laurens Street;
4. Laurens Street at Lady Street; and
5. Lady Street at Richland County Complex Parking Lot Access.

Figure 3 illustrates the existing geometrics and traffic control for the study area intersections and surrounding roadways.

Traffic Volumes

In order to determine the existing traffic volume flow patterns within the study area, weekday morning (7:00-9:00 AM) and evening (4:00-6:00 PM) peak period turning movement specific count data was collected for the above referenced intersections which represent the project study area.

Summarized count sheets for the study area intersections are included in the Appendix of this report. **Figures 4** & **5** graphically depict the representative 2014 Existing AM and PM peak-hour traffic volumes at the study area intersections.

FUTURE CONDITIONS

Traffic analyses for future conditions have been conducted for two separate scenarios: first, 2016 No-Build conditions, which include an annual normal growth in traffic, all pertinent background development traffic, and any pertinent planned roadway/intersection improvements; and secondly, 2016 Build conditions, which account for all No-Build conditions PLUS traffic generated by the proposed development.

No-Build Traffic Conditions

Background Development

Based on discussions with City staff, at this time there are no approved development projects in the immediate area of the project which will affect traffic volumes.

Annual Growth Rate

Based on the projection year of 2016, a 1.5-percent annual growth rate has been utilized to project future conditions. The anticipated 2016 No-Build AM and PM peak-hour traffic volumes, which reflect the annual 1.5-percent growth rate, are shown in **Figures 6** & **7**.

Planned Roadway Improvements

No planned roadway improvement projects are currently planned for the project study area.

Site-Generated Traffic

Traffic volumes expected to be generated by the proposed project were forecasted using the Eighth Edition of the ITE *Trip Generation* manual, as published by the Institute of Transportation Engineers. Land-Use Code #220 (Apartments, variable Persons) was used to estimate the specific site-generated traffic. **Table 1** depicts the anticipated site-generated traffic.

Table 1
PROJECT TRIP GENERATION[1]
Harden at Gervais Apartment Complex

Time Period	660 Beds /Persons (a)	25% Reduction (b)	Total Trips (a-b)
Weekday Daily	2,230	550	1,680
AM Peak-Hour			
Enter	37	9	28
Exit	148	37	111
Total	185	46	139
PM Peak-Hour			
Enter	172	43	129
Exit	92	23	69
Total	264	66	198

1. ITE Trip Generation manual, Ninth Edition, LUC 220 (Apartment, Persons variable).

As shown (column a), the apartment project can be expected to generate a total of 2,230 two-way vehicular trips on a weekday daily basis, of which a total of 185 trips (37 entering, 148 exiting) can be expected during the AM peak-hour. During the PM peak-hour, 264 trips (172 entering, 92 exiting) can be expected.

Column "b" indicates a 25-percent reduction in traffic generated by the complex due to two alternative modes of transportation; pedestrian and shuttle service. The location of the site is within walking distance to the USC campus and the project is anticipated to provide a shuttle service which will allow students access to and from campus without the use of their private auto. With the anticipated 25-percent reduction, the project can be expected to generate 1,680 two-way trips on a daily basis with a total of 139 trips during the AM peak-hour (28 entering and 111 exiting) and a total of 198 trips during the PM peak-hour (129 entering and 69 exiting).

Distribution Pattern

The directional distribution of site-generated traffic on the study area roadways has been based on an evaluation of existing and projected travel patterns within the study area and is shown in **Table 2**.

Table 2
TRIP DISTRIBUTION PATTERN
Harden at Gervais Apartment Complex

Roadways	Direction To/From	Percent Enter / Exit
Harden Street	North	15
	South	35
Gervais Street	East	10
	West	35
Lady Street	East	5
	Total	**100**

Note: Based on the existing traffic patterns.

This distribution pattern has been applied to the site-generated traffic volumes from Table 1 to develop the site-generated specific volumes for the study area intersections illustrated in **Figures 8** & **9**.

Build Traffic Conditions

The site-generated traffic, as depicted in Figures 8 & 9, has been added to the respective No-Build traffic volumes shown in Figures 6 & 7. This process results in the peak-hour Build traffic volumes, which are graphically depicted in **Figures 10** & **11**. These volumes were used as the basis to determine potential improvement measures necessary to mitigate traffic impacts caused by the project.

TRAFFIC OPERATIONS

Analysis Methodology

A primary result of capacity analysis is the assignment of Level-of-Service (LOS) to traffic facilities under various traffic flow conditions. The concept of Level-of-Service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A Level-of-Service designation provides an index to the quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels-of-Service are defined for each type of facility (signalized and unsignalized intersections). They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst.

Since the Level-of-Service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of Levels-of-Service depending on the time of day, day of week, or period of a year.

Analysis Results

As part of this traffic study, capacity analyses have been performed at study area intersections under both Existing and Future (No-Build & Build) conditions. The results of these analyses are summarized in **Table 3**.

Table 3
LEVEL-OF-SERVICE SUMMARY
Harden at Gervais Apartment Complex

Signalized Intersection	Time Period	2014 EXISTING V/C[a]	2014 EXISTING Delay[b]	2014 EXISTING LOS[c]	2016 NO-BUILD V/C	2016 NO-BUILD Delay	2016 NO-BUILD LOS	2016 BUILD V/C	2016 BUILD Delay	2016 BUILD LOS
Harden Street at Gervais Street	AM	0.79	31.3	C	0.82	32.0	C	0.83	32.5	C
	PM	0.90	47.3	D	1.00	54.8	D	**1.01**	**58.7**	**E**
Unsignalized Intersections										
Gervais Street at Laurens Street	AM	-	**35.9**	**E**	**-**	**41.2**	**E**	**-**	**41.2**	**E**
	PM	-	15.8	C	-	16.2	C	-	16.2	C
Harden Street at Lady Street (N)	AM	-	13.6	B	-	14.0	B	-	13.9	B
	PM	-	10.1	B	-	10.2	B	-	10.1	B
Harden Street at Lady Street (S)	AM	-	20.0	C	-	20.9	C	-	20.9	C
	PM	-	20.8	C	-	22.1	C	-	30.4	D
Lady Street at Laurens Street	AM	-	8.7	A	-	8.7	A	-	9.0	A
	PM	-	9.0	A	-	9.0	A	-	9.5	A
Lady Street at County Complex Access	AM	-	9.6	A	-	9.6	A	-	10.6	B
	PM	-	9.3	A	-	9.3	A	-	10.4	B
Laurens Street at Site Access	AM	To be Developed			To be Developed			-	8.7	A
	PM							-	9.1	A

a. Volume-to-Capacity ratio.
b. Delay in seconds-per-vehicle.
c. LOS = Level-of-Service.

GENERAL NOTES:

1. For signalized intersections, Delay is representative of overall intersection.
2. For unsignalized intersections, Delay is representative of critical movement/lane group/approach.

As shown in Table 3, under 2014 Existing traffic volume conditions, the signalized study area intersection of Gervais Street at Harden Street indicates over-all acceptable conditions however, individual approaches/lane groups indicate some operational issues along the northbound and southbound approaches of Harden Street. Each of the unsignalized intersections operate at acceptable service levels during both peak hours with exception of the Gervais at Laurens Street intersection which operates poorly (LOS E) during the AM peak-hour. This intersection has no separate turning lanes within Gervais Street and therefore the eastbound left-turn movement from Gervais Street to Laurens Street queues in the inside through lane which was observed to cause some operational constraints.

For No-Build conditions are similar to that of the Existing conditions, the signalized intersection of Gervais Street at Harden operates at over-all acceptable service levels but with some approaches operating at a LOS E or F. The unsignalized intersections within the study area each continue to operate acceptably during both the AM and PM peak hours with exception of the Gervais at Laurens Street intersection which continues at a LOS E during the AM peak-hour.

Under Build conditions, operations are similar to both Existing and No-Build conditions with a slight delay increase at the Gervais Street at Harden Street intersection which results in a LOS E during the PM peak-hour. The unsignalized intersection of Gervais Street at Laurens Street continues to operate at a LOS E during the AM peak-hour.

MITIGATION

The final phase of the analysis process is to identify mitigating measures which may either minimize the impact of the project on the transportation system or tend to alleviate poor service levels not caused by the project. Measures considered necessary to mitigate roadway system deficiencies are discussed below as they relate to the impacts of the proposed project.

Proposed Site Access

Access for the project is proposed via two drives. The first will be located to/from Lady Street opposite the Richland County Complex drive. The second access along Laurens Street between Lady Street and Gervais Street will serve approximately 30 visitor parking spaces as well as provide access to the supply of residence spaces. The following geometries and traffic control are suggested in order to support the anticipated site-generated traffic:

Lady Street Access

- Align opposite the Richland County Complex access and construct driveway to provide one lane entering the parking garage and one lane exiting designated as a shared left/through lane;
- Provide a westbound left-turn within Lady Street to accommodate vehicles entering the parking garage. This lane can likely be accomplished by removing the on-street metered parking along the northern curb-face of Lady Street and striping a 100-foot left-turn lane and taper. It should be noted that by default, an eastbound left-turn lane entering the County Complex access will also be provided in order to provide proper alignment of the intersection;
- Place the new northbound approach under STOP sign control where vehicles exiting the parking garage must stop prior to entering the intersection;
- Based on anticipated operations of the parking gate control, it is suggested that storage/stacking for a minimum of three vehicles be provided for entering maneuvers so that Lady Street is not impacted by vehicles waiting to enter the garage;
- Between the exit control gate and Lady Street, stacking for a minimum of three vehicles should be provided which will provide a stacking area for queued vehicles as well as enhance operations for both vehicle entering Lady Street.

It should be noted that the removal of the on-street parking along the northern curb face of Lady Street will likely result in nine spaces being removed between Harden Street and the site access and three spaces between the site access and Laurens Street (12 total spaces). With this, the section of Lady Street between Harden Street and Laurens Street can be striped as a three-lane section which will benefit the site access as well as the county complex for traffic entering each of the respective facilities as well as provide a separate left-turn for the approach of Lady Street to Harden Street.

Laurens Street Access

- Construct driveway to provide one lane entering the parking garage and one lane exiting designated as a shared left/through lane;
- Place intersection under STOP sign control where vehicles exiting the parking garage must stop prior to the intersection;

Internal Security/Access Gate

The location of the two internal gate controls will require sufficient stacking for both entering and exiting vehicles so as to not impact operations along Lady Street and Laurens Street. The location of the access control along the Laurens Street intersection is located internal of the garage sufficiently; the only issue will be to review the “hard turn” associated with entering the secured part of the garage at this point. The access control along Lady Street should be relocated further internal of the garage to provide at a minimum three vehicle lengths between Lady Street and the gate control.

Sight Distance Considerations

The previously-cited access drive intersections should be designed/constructed to meet current applicable City/SCDOT standards and/or guidelines in terms of sight distance. It is assumed that this will be the responsibility of the project's civil engineer and will be depicted by the site plan/submittal information.

Off-Site Intersections

The project has a slight impact at the Gervais Street at Harden Street intersection resulting in a LOS E during the PM peak-hour. Currently, multiple approaches operate at a LOS E or LOS F at this intersection which cause queue issues as well as operational issues. While a change in overall service levels does occur at this intersection, this change in delay is minimal.

The Gervais Street at Laurens Street intersection currently operates poorly during the AM peak-hour due to minor street left-turn movements as well as major street left-turn movement from eastbound Gervais Street to Laurens Street. It is suggested that the median cross-over at this intersection with Gervais Street be closed for two reasons; first for operations and secondly for safety reasons due to the lack of a separate left-turn lane within Gervais Street in which left-turn vehicles could safely store without impacting the through movement. Closure of this cross-over would result in this intersection operating as a right-in/right-out (RIRO) intersection and improve operations to acceptable service levels during both peak hours. It should be noted that the relocated minor volume of left-turn movements can be accommodated at adjacent intersections due to the roadway grid network.

The intersection of Harden Street at Lady Street will be provided a separate left-turn lane approaching Harden Street due to the proposed center turn lane which would be possible by removing the 12 on-site metered parking spaces. This separate turn lane will provide the ability for right-turning vehicles to not be impeded by a left-turn vehicle waiting to find a gap in Harden Street traffic.

Potential Shuttle Stop

The project developer has indicated the willingness to work with the campus to provide a shuttle stop in the proximity of the planned development.

The development will remove all access drives along Harden Street on the western curb face between Lady Street and Gervais Street. Currently the outside lane (southbound direction) is a separate right-turn lane along this entire curb-face (approximately 425-feet). Given the southbound right-turn demand at the adjacent signalized intersection of Gervais Street at Harden Street (less than 130 during either peak-hour under Build conditions); it may be possible to provide an a shuttle stop just to the south of Lady Street where it intersects Harden Street. Sufficient storage for the adjacent signalized right-turn would continue to be provided and a shuttle stop could be signed and striped safely and efficiently for both traffic along Harden Street as well as shuttle maneuvers.

SUMMARY

SRS Engineering, LLC (SRS) has completed an assessment of the traffic impacts associated with a proposed student apartment complex of 660 beds which will be located in the northwest quadrant of the Gervais Street at Harden Street intersection in Columbia, South Carolina. The project has an anticipated completion date in 2016.

Access to/from the proposed development will be provided via two drives which will access the planned parking structure to be developed as part of the project. These access points will be located along Lady Street opposite the county complex access drive and along Laurens Street.

Operations of intersections within the defined study area are generally favorable with exception of the unsignalized intersection of Gervais Street at Laurens Street (AM peak-hour) and the signalized intersection of Gervais Street at Harden Street.

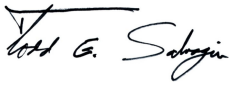
Recommendations have been made for the site access drives and access control for the planned apartment complex which include turning lanes as well as queuing/stacking recommendations. Improvements along Lady Street along the site frontage have been made which will aid not only traffic volumes generated by the site; but also traffic entering and exiting the county complex parking area on the opposite side of Lady Street. Additionally, the Gervais Street at Laurens Street intersection is suggested to be restricted to RIRO movements which will serve two purposes, improve operations by removing the minor street left-turn movement which must cross at a minimum 3-lanes (without a center reservoir lane) and secondly by removing the major street left-turn movement which is not provide a storage lane (queued vehicles block the inside #1 through lane).

Discussions are on-going regarding the possibility of local campus shuttle to pick up and drop off at this new planned residential development. In preparation of such, a potential location has been suggested along Harden Street just south of the Lady Street intersection. This “far-side” shuttle stop can be operationally added at this location by closing the existing curb cuts along the site’s frontage of Harden Street and reducing the length of the separate right-turn lane (southbound right turn lane for the Gervais Street at Harden Street intersection).

If you have any questions or comments regarding any information contained within this report, please contact me at (803) 361 3265.

Regards,

SRS ENGINEERING, LLC



Todd E. Salvagin
Principal

Attachments

N

NOT TO SCALE

Figure 1

SITE LOCATION MAP

Harden St at Lady St Student Apartments : Columbia, SC

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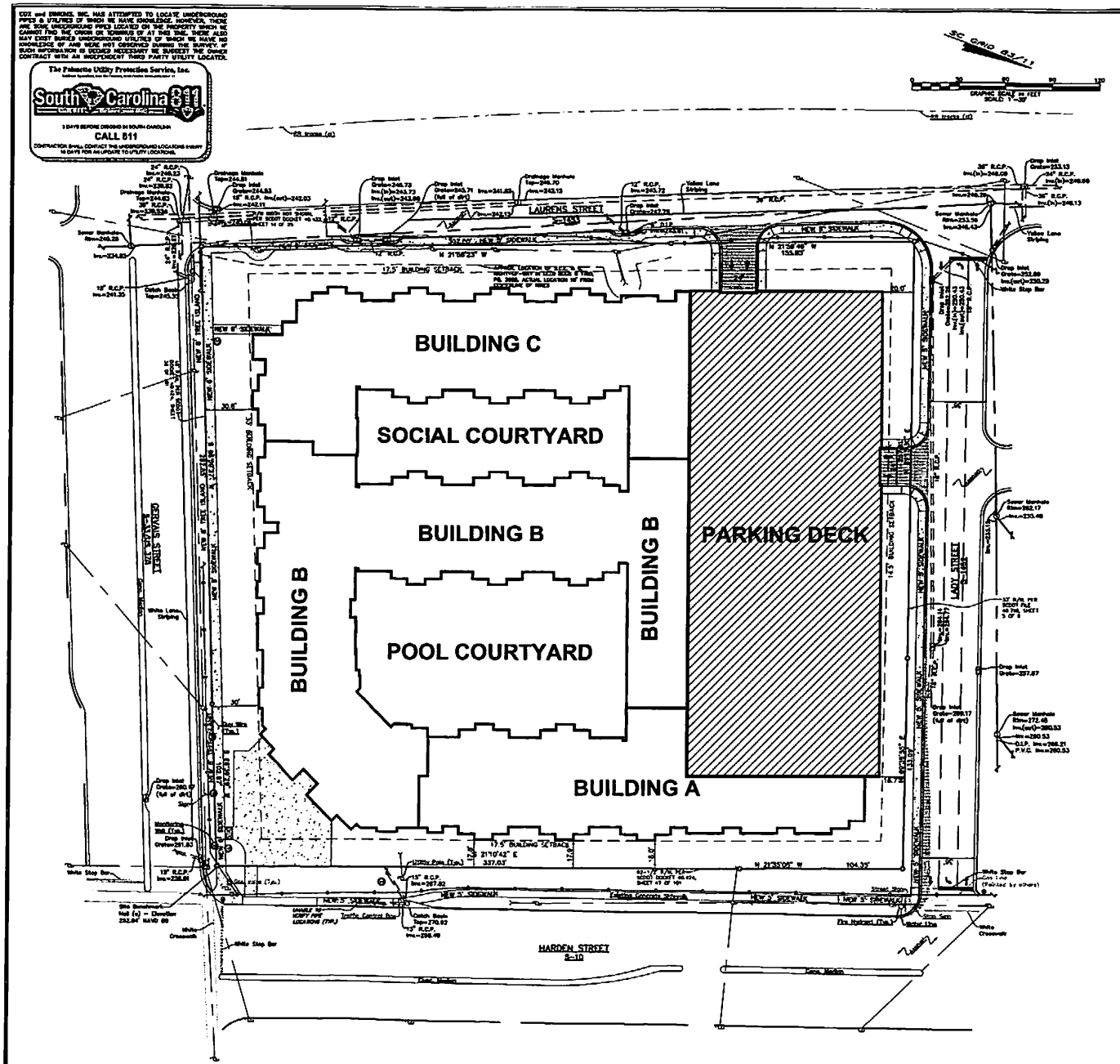
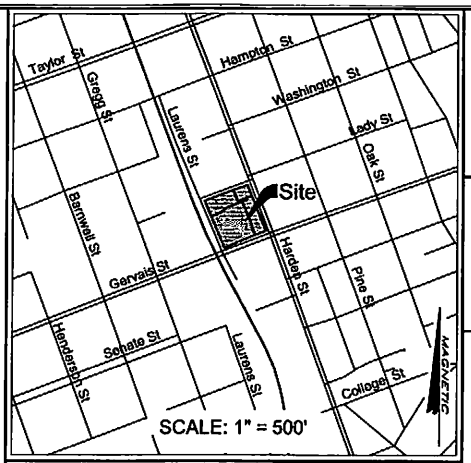
Traffic, Transportation, & Parking Consultants





LOCATION MAP

GENERAL NOTES

1) THE PROJECT SITE CONSISTS OF TAX PARCELS 11409-13-01, -02, -03 & -04.
2) THE AREA OF THE PROJECT SITE IS APPROXIMATELY 4 ± ACRES, SUBJECT TO SURVEY.
3) THE SUBJECT PROPERTY IS CURRENTLY ZONED C-3 (GENERAL COMMERCIAL) AND DOES NOT APPEAR TO BE SUBJECT TO OVERLAY DISTRICT REGULATIONS.
4) THE PROJECT SITE IS CURRENTLY DEVELOPED AND USED FOR VARIOUS COMMERCIAL PURPOSES (BUS TERMINAL; PAINT AND BODY). BUILDINGS HAVE BEEN REMOVED FROM PORTIONS OF THE SITE BUT SURFACE PAVEMENTS REMAIN IN SOME AREAS.
5) THE PROPOSED USE IS A PRIVATE DORMITORY.
6) TOPOGRAPHIC DATUM FOR THIS SITE IS NAD1983 AND IS BASED ON SOUTH CAROLINA GEODETIC MARKER "SOUTH CAROLINA POPULATION CENTER" LOCATED ON THE SOUTH CAROLINA STATEHOUSE GROUNDS. THE CONTOUR INTERVAL FOR THE TOPOGRAPHIC SURVEY IS ONE (1) FOOT.
8) ALL DIMENSIONS REFERENCED TO CURB INCLUDING RADII ARE TO THE FACE OF CURB (FOC) (PARKING LOT SIDE) UNLESS NOTED AS BACK OF CURB (BOC)

REFERENCES

1) A PLAT OF PROPERTY SURVEYED FOR RICHARD H. BURNSIDE, BY B.P. BARBER & ASSOCIATES, INC., DATED JANUARY 22, 1963
2) A PLAT OF PROPERTY SURVEYED FOR ALMETA GILBERT TILLEY, BY BARBER, KELLS & ASSOCS., DATED JANUARY 8, 1974
3) LOT SURVEY PREPARED FOR TRINITY PROPERTIES, LLC, BY COLUMBIA SURVEYING, INC., DATED SEPTEMBER 23, 1998, AND RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR RICHLAND COUNTY IN BOOK 304, PAGE 336
4) ALTA/ACSM LAND TITLE SURVEY PREPARED FOR PEAK CAMPUS DEVELOPMENT, LLC, BY COX AND DINKINS, INC. (SURVEY PRESENTLY IN PROGRESS).

PAVEMENT LEGEND

NEW ASPHALT PAVEMENT

NEW CONCRETE PAVEMENTS & HARDSCAPE

BUILDING & PARKING SUMMARY

BUILDING SUMMARY:

ONE (1) BEDROOM UNITS	=	28 UNITS (28 BEDS)
TWO (2) BEDROOM UNITS	=	50 UNITS (100 BEDS)
THREE (3) BEDROOM UNITS	=	23 UNITS (84 BEDS)
FOUR (4) BEDROOM UNITS	=	117 UNITS (448 BEDS)
TOTAL NUMBER OF BEDS	=	218 UNITS (880 BEDS)

PARKING REQUIREMENTS:
0.75 SPACES PER BED X 880 BEDS = 495 SPACES
HANDICAP PARKING @ 5% X 495 = 25 SPACES

PARKING PROVIDED (ON SITE VIA STRUCTURE):
RESIDENT SPACES = 529 SPACES
VISITOR SPACES = 29 SPACES
TOTAL SPACES = 557 SPACES

RATIO OF ON SITE PARKING SPACES PER BED = 557 / 880 = 0.64 PARKING SPACES PER BED

ON STREET PARKING SUMMARY:
LADY STREET PARKING TO BE REMOVED AT THE DIRECTION OF SCDOT

BICYCLE PARKING SUMMARY (ON SITE VIA STRUCTURE):
0.25 SPACES PER BED X 880 BEDS = 165 BICYCLE SPACES

COX AND DINKINS
ENGINEERS – SURVEYORS
COX AND DINKINS, INC.
724 BELTLINE BLVD.
COLUMBIA, SC 29205
803-254-0016
Fax: 803-765-0860
E-mail: cdinc@coxanddinkins.com

LICENSED PROFESSIONAL ENGINEER
NO. 12542
11/5/14

COX AND DINKINS, INC.
No. C00254
CERTIFICATE OF AUTHORIZATION

CERTIFICATE OF AUTHORIZATION SEAL

No.	DATE	REVISIONS DESCRIPTION

PREPARED FOR:
PEAK CAMPUS DEVELOPMENT, LLC
2970 CLAIRMONT ROAD
SUITE 310
ATLANTA, GA 30329
Tel: (404) 820-6301
Fax: (404) 920-5461

PROJECT:
PROJECT PEAK
GERVAIS @ HARDEN @ LADY @ LAURENS
RICHLAND COUNTY, COLUMBIA, S.C.

PLANNING COMMISSION SITE PLAN

TMS 11409-13-01, -02, -03 & -04
BOOK 914 - 30
PAGE 382 70
PROJECT NO. 1798
SHEET NO. PC1
DATE 11/05/2014

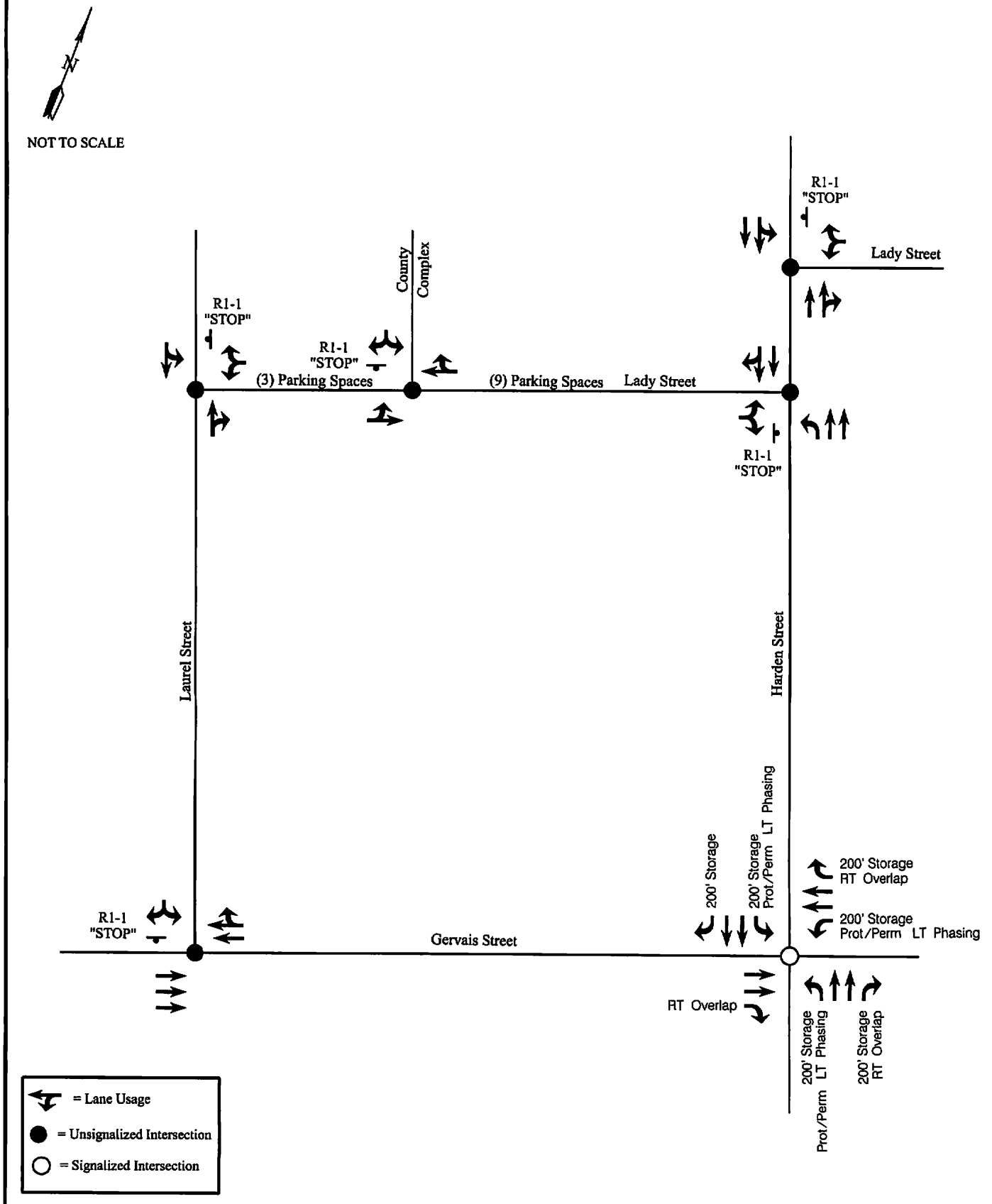


Figure 3

EXISTING GEOMETRICS & TRAFFIC CONTROL

Harden St at Lady St Student Housing : Columbia, SC

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Traffic, Transportation, & Parking Consultants

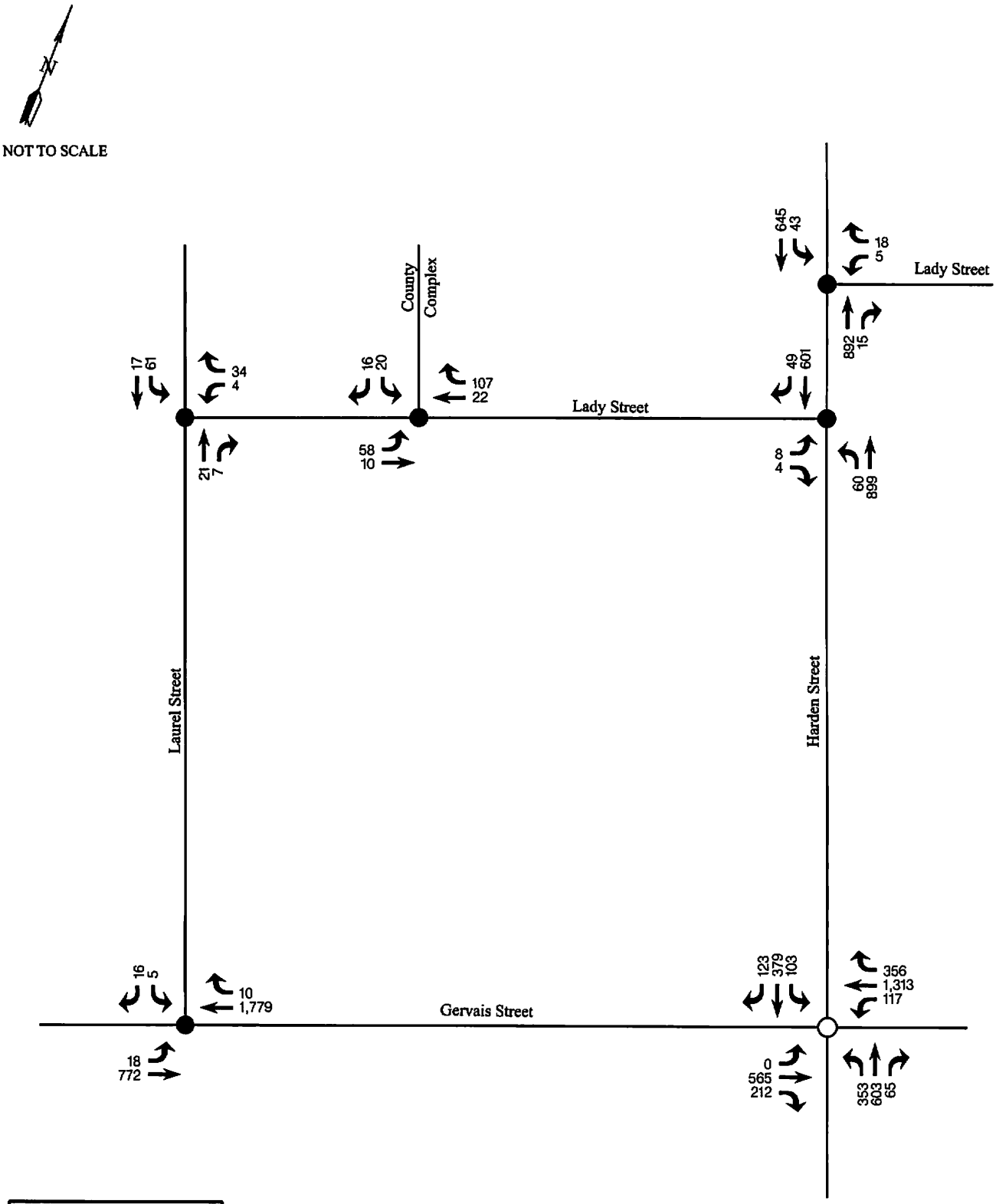

Figure 4

2014 EXISTING TRAFFIC VOLUMES AM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

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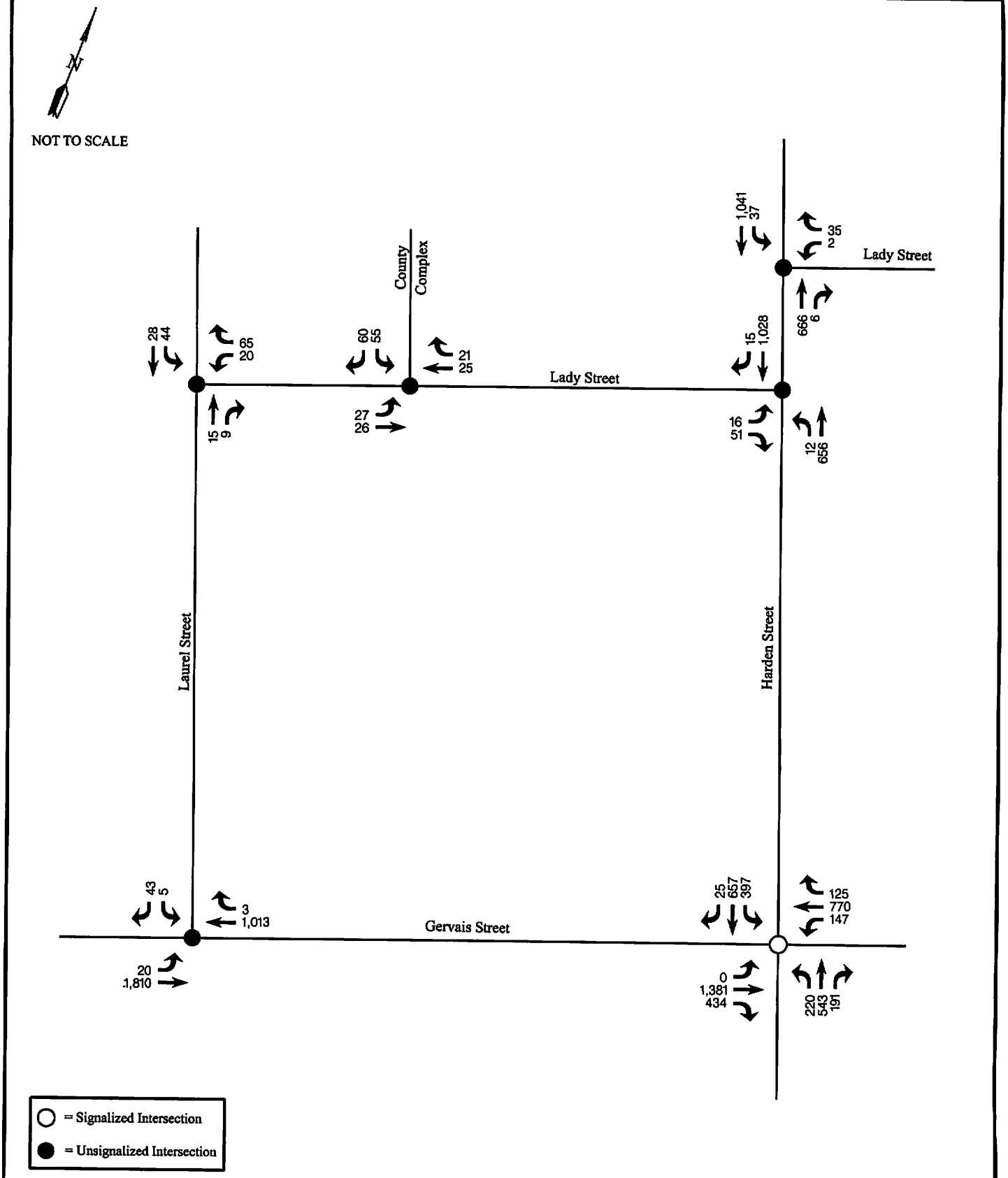

Figure 5

2014 EXISTING TRAFFIC VOLUMES PM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

SRS ENGINEERING
Traffic, Transportation, & Parking Consultants

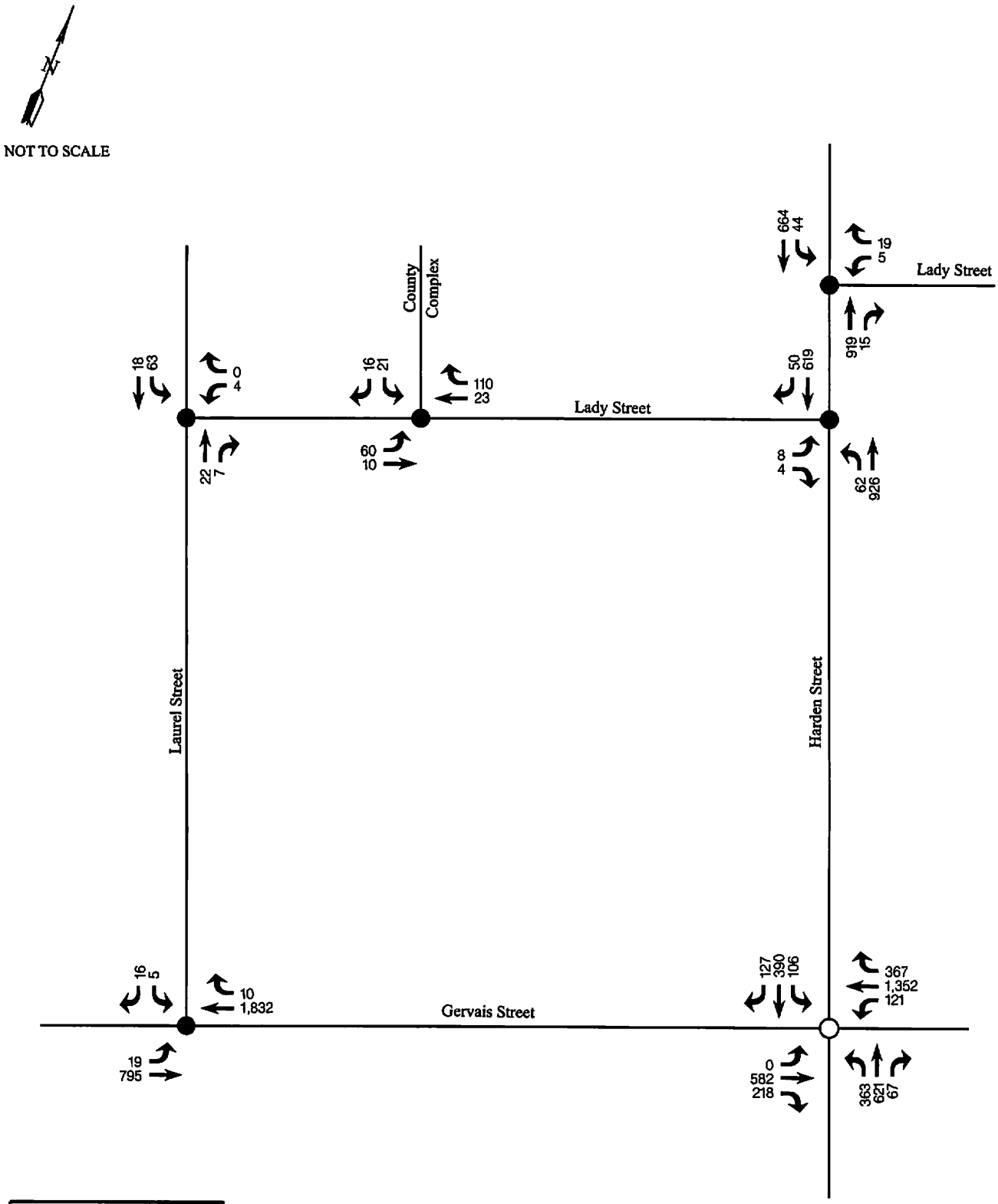

Figure 6

2016 NO-BUILD TRAFFIC VOLUMES AM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

SRS ENGINEERING
Traffic, Transportation, & Parking Consultants

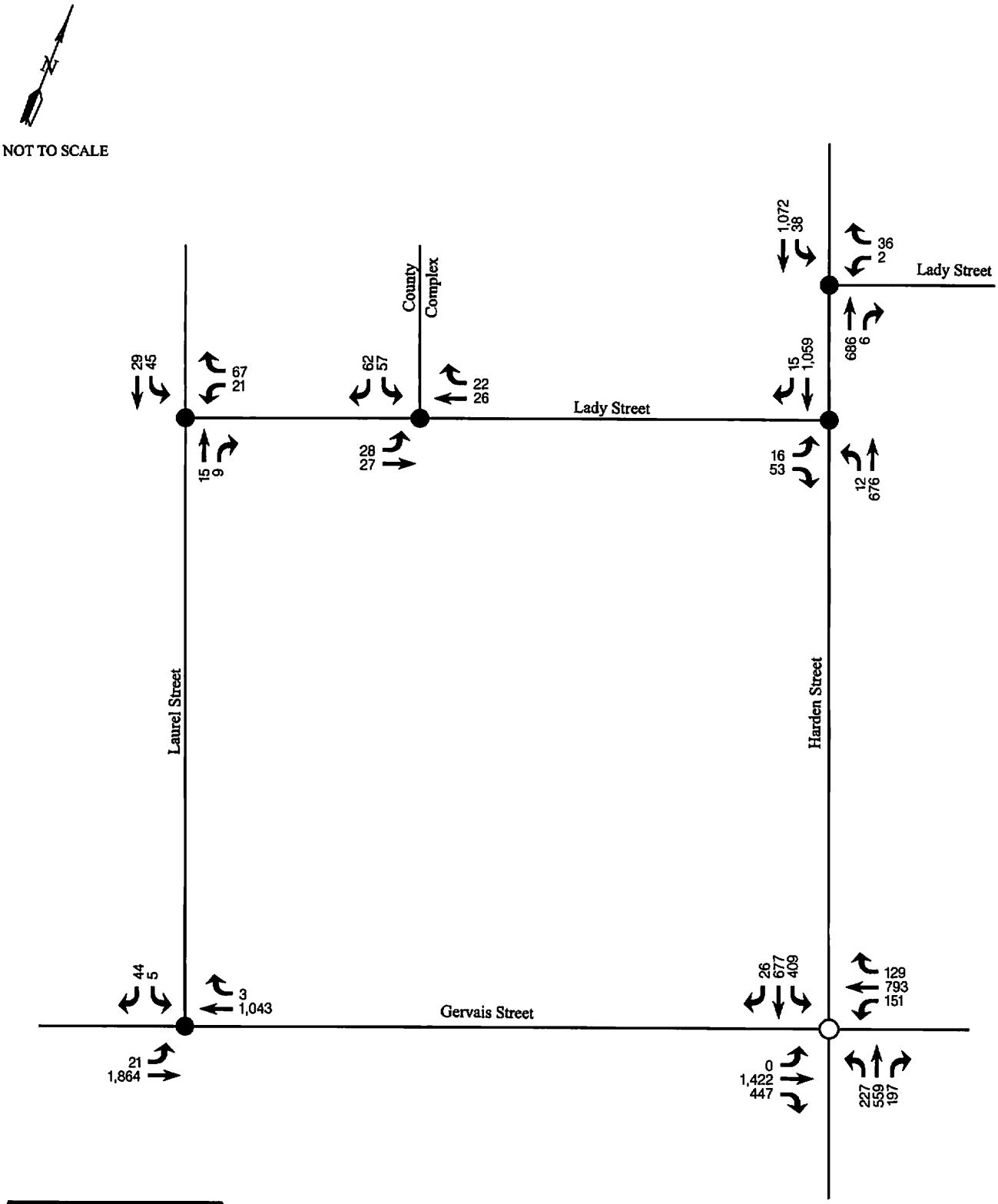

Figure 7

2016 NO-BUILD TRAFFIC VOLUMES PM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

SRS ENGINEERING
Traffic, Transportation, & Parking Consultants

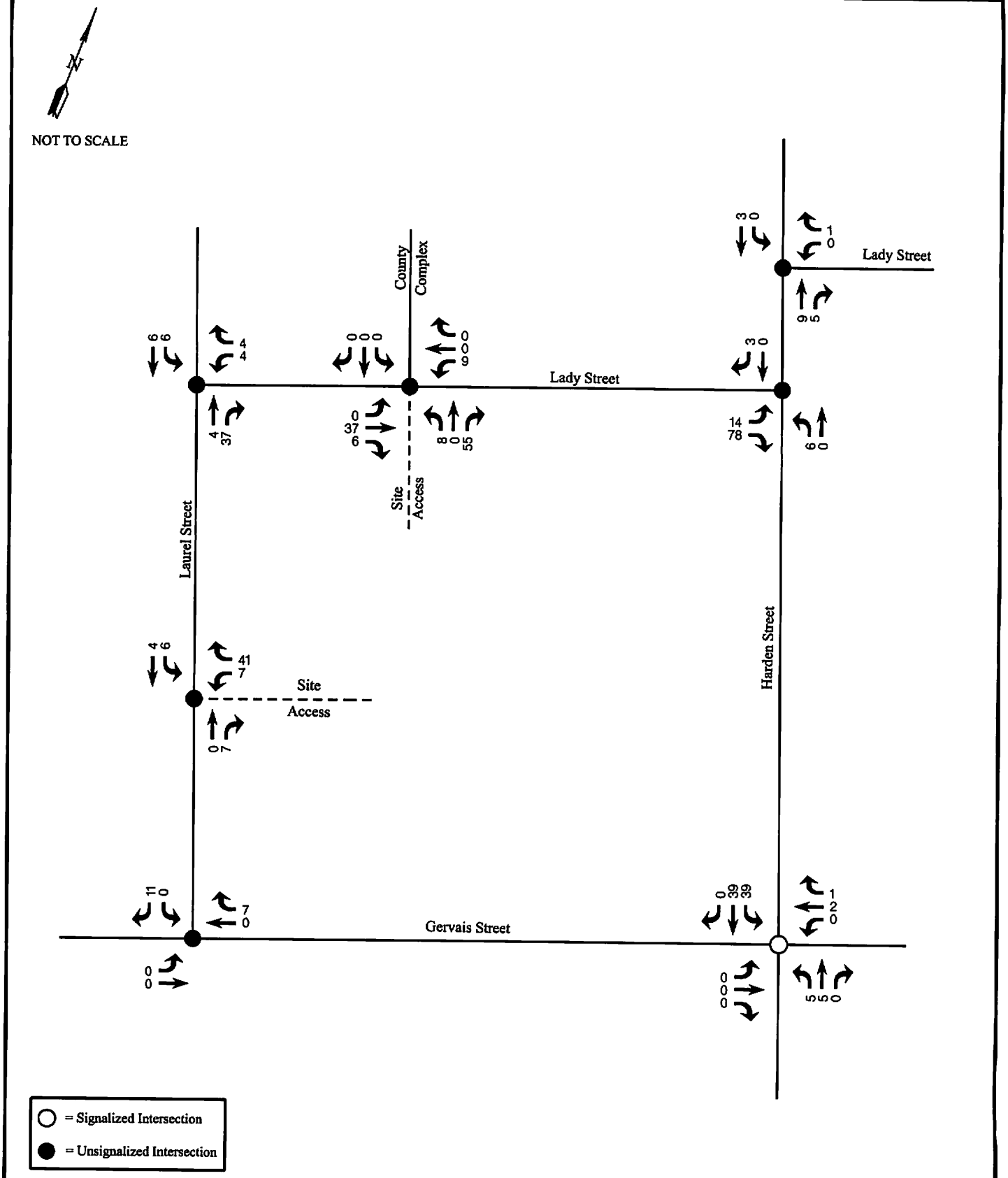

Figure 8

SITE-GENERATED TRAFFIC VOLUMES AM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

SRS ENGINEERING
Traffic, Transportation, & Parking Consultants

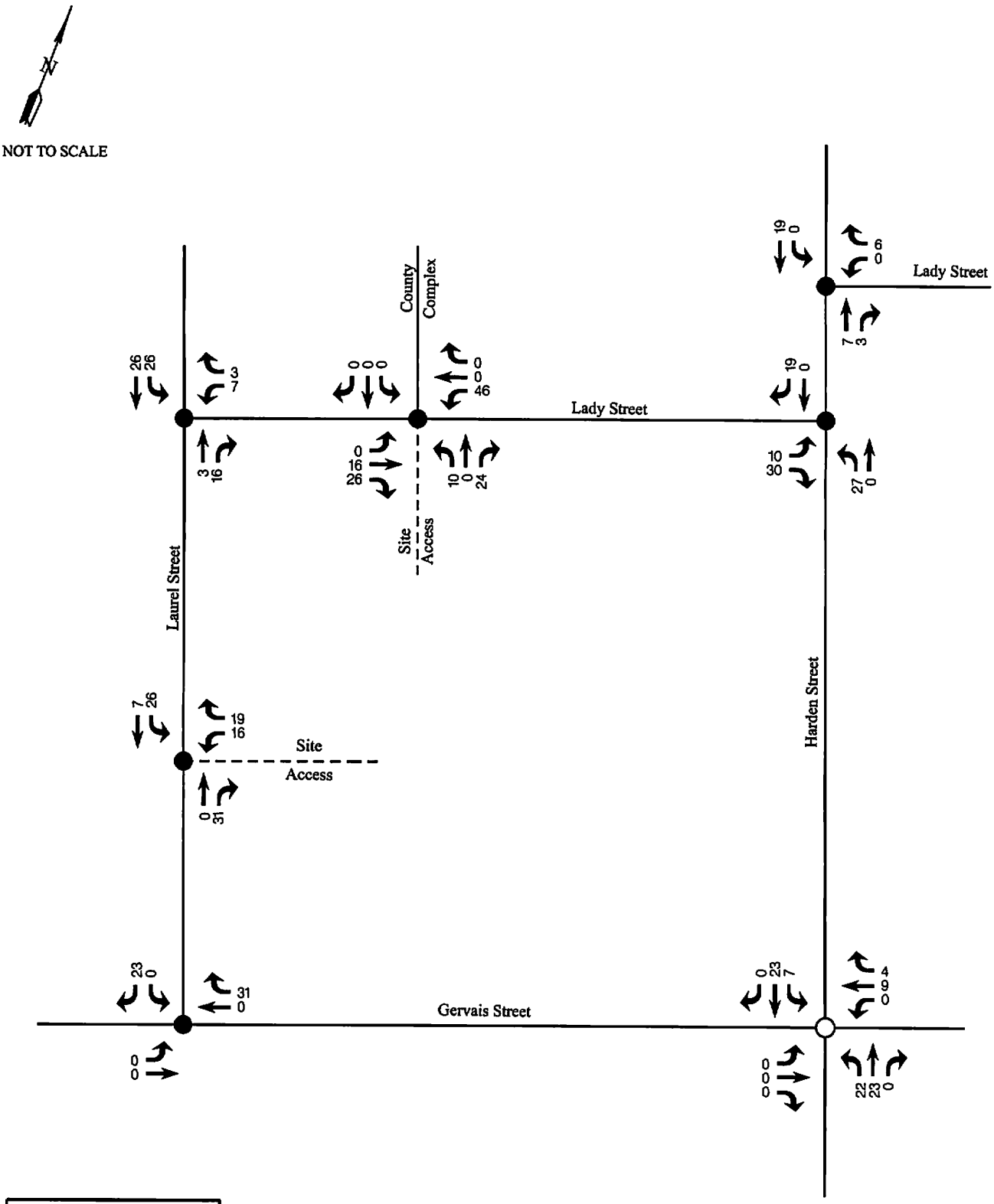

Figure 9

SITE-GENERATED TRAFFIC VOLUMES PM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

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Traffic, Transportation, & Parking Consultants

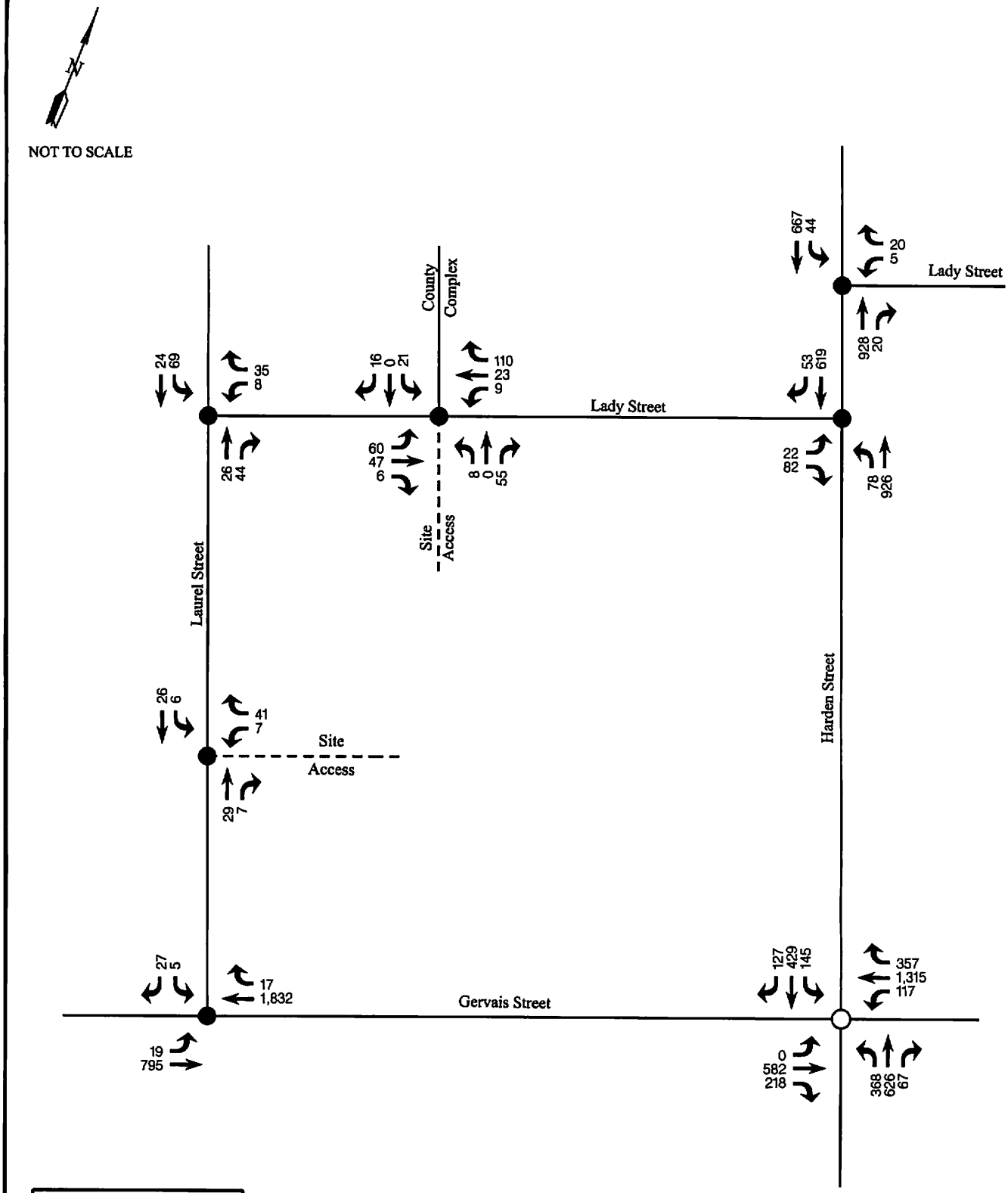


Figure 10

2016 BUILD TRAFFIC VOLUMES AM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

SRS ENGINEERING
Traffic, Transportation, & Parking Consultants

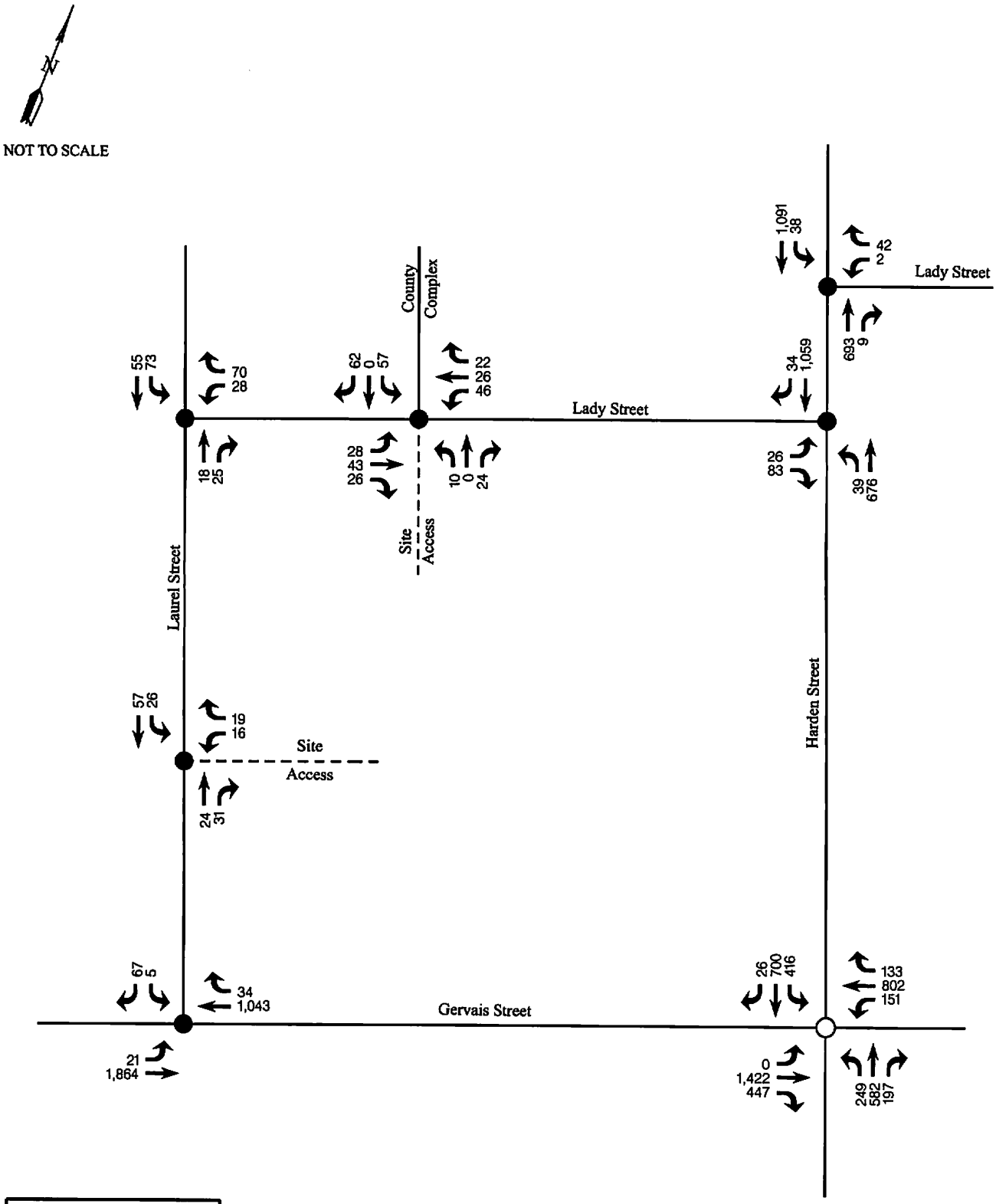


Figure 11

2016 BUILD TRAFFIC VOLUMES PM PEAK-HOUR

Harden St at Lady St Student Housing : Columbia, SC

SRS ENGINEERING
Traffic, Transportation, & Parking Consultants

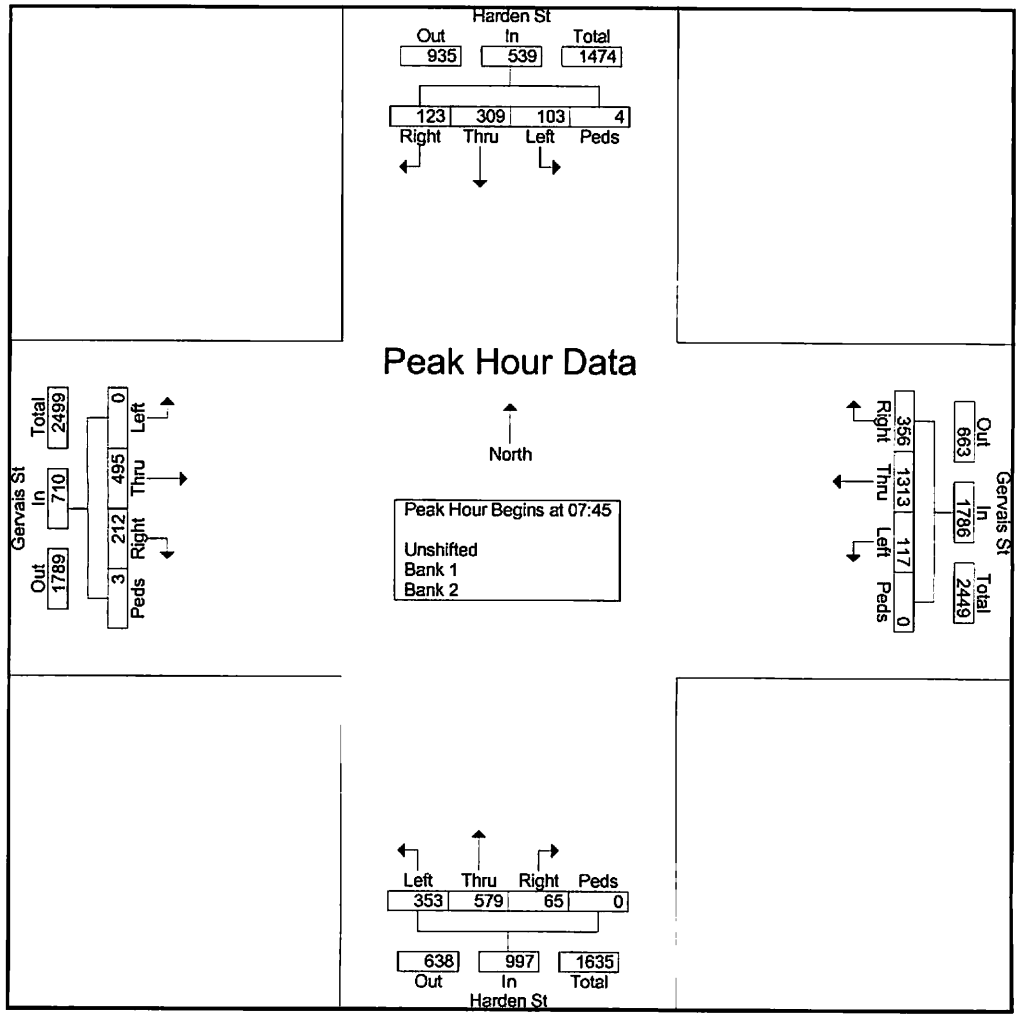
COUNT DATA

Short Counts

735 Maryland St.
Columbia, SC 29201
You Can Count On Us!

File Name : Gevais at Harden - AM
Site Code : 00000000
Start Date : 10/29/2014
Page No : 3

	Harden St Southbound					Gervais St Westbound					Harden St Northbound					Gervais St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	**30**	**95**	30	0	**155**	**36**	328	94	0	458	67	**156**	16	0	239	0	116	47	**2**	165	1017
08:00	26	55	**32**	0	113	27	336	70	0	433	95	125	13	0	233	0	116	55	1	172	951
08:15	17	88	30	0	135	28	**358**	**100**	0	**486**	**105**	155	**16**	0	**276**	0	111	52	0	163	**1060**
08:30	30	71	31	4	136	26	291	92	0	409	86	143	**20**	0	249	0	**152**	**58**	0	**210**	1004
Total Volume	103	309	123	4	539	117	1313	356	0	1786	353	579	65	0	997	0	495	212	3	710	4032
% App. Total	19.1	57.3	22.8	0.7		6.6	73.5	19.9	0		35.4	58.1	6.5	0		0	69.7	29.9	0.4		
PHF	.858	.813	.961	.250	.869	.813	.917	.890	.000	.919	.840	.928	.813	.000	.903	.000	.814	.914	.375	.845	.951

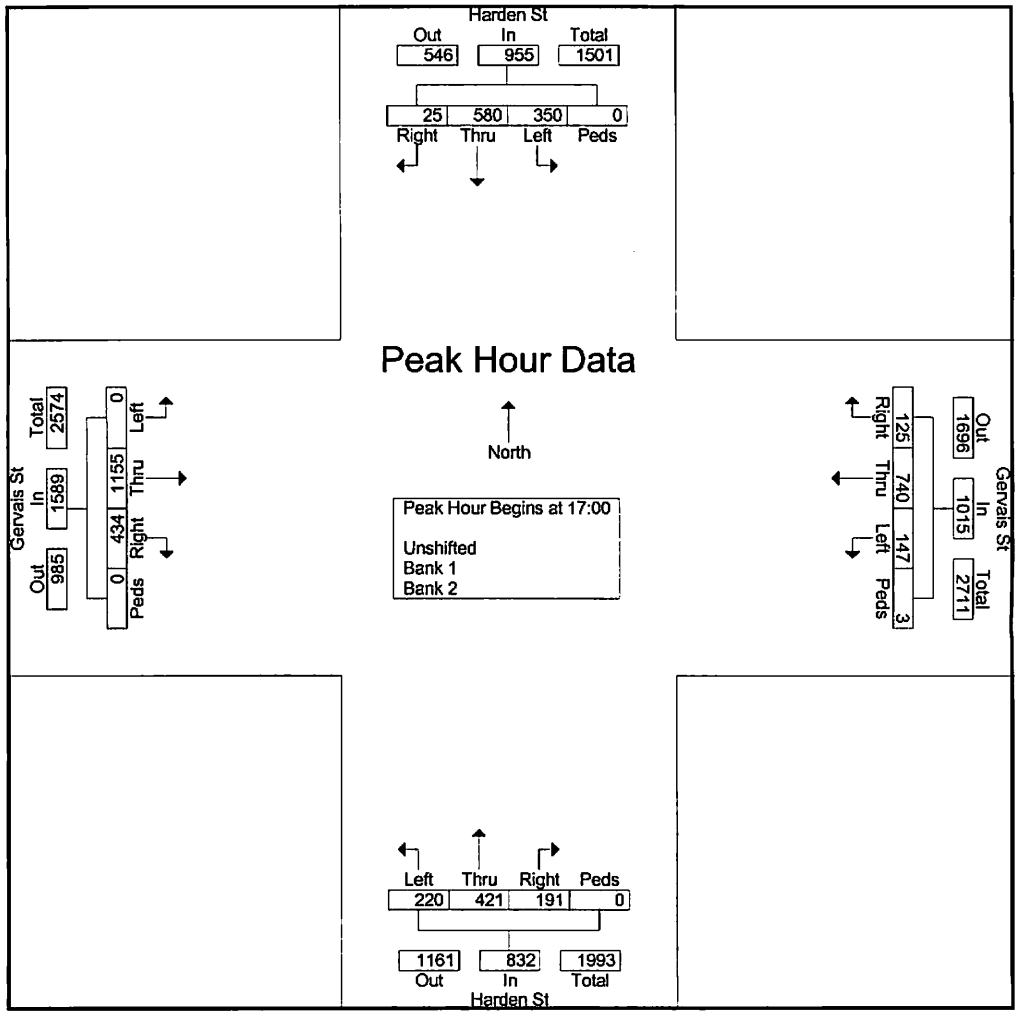


Short Counts

735 Maryland St.
Columbia, SC 29201
You Can Count On Us!

File Name : Gervais at Harden - PM
Site Code : 00000000
Start Date : 10/28/2014
Page No : 3

	Harden St Southbound					Gervais St Westbound					Harden St Northbound					Gervais St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	85	153	4	0	242	28	152	36	0	216	53	104	47	0	204	0	247	104	0	351	1013
17:15	93	**161**	**10**	0	**264**	**44**	166	**50**	**2**	262	51	**130**	**59**	0	**240**	0	**318**	86	0	404	**1170**
17:30	**98**	149	8	0	255	42	209	18	1	**270**	50	94	51	0	195	0	298	107	0	405	1125
17:45	74	117	3	0	194	33	**213**	21	0	267	**66**	93	34	0	193	0	292	**137**	0	**429**	1083
Total Volume	350	580	25	0	955	147	740	125	3	1015	220	421	191	0	832	0	1155	434	0	1589	4391
% App. Total	36.6	60.7	2.6	0		14.5	72.9	12.3	0.3		26.4	50.6	23	0		0	72.7	27.3	0		
PHF	.893	.901	.625	.000	.904	.835	.869	.625	.375	.940	.833	.810	.809	.000	.867	.000	.908	.792	.000	.926	.938



Short Counts

735 Maryland St.
Columbia, SC 29201
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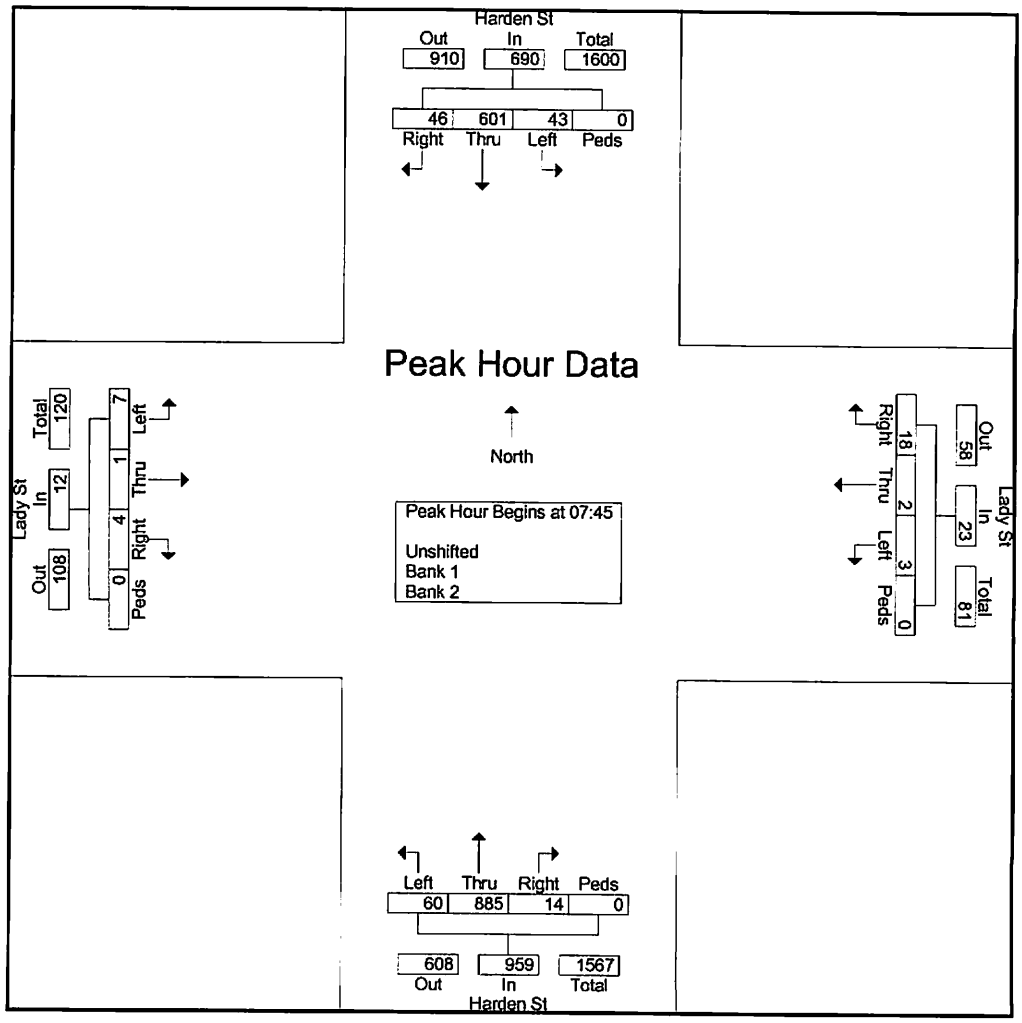
File Name : Harden at Lady - AM
Site Code : 00000000
Start Date : 10/30/2014
Page No : 3

	Harden St Southbound					Lady St Westbound					Harden St Northbound					Lady St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	4	148	3	0	155	**2**	0	3	0	5	9	211	**5**	0	225	2	**1**	**3**	0	**6**	391
08:00	11	136	10	0	157	0	**1**	**6**	0	**7**	5	202	3	0	210	0	0	0	0	0	374
08:15	**15**	151	15	0	181	0	1	6	0	7	**31**	**255**	3	0	**289**	1	0	0	0	1	**478**
08:30	13	**166**	**18**	0	**197**	1	0	3	0	4	15	217	3	0	235	**4**	0	1	0	5	441
Total Volume	43	601	46	0	690	3	2	18	0	23	60	885	14	0	959	7	1	4	0	12	1684
% App. Total	6.2	87.1	6.7	0		13	8.7	78.3	0		6.3	92.3	1.5	0		58.3	8.3	33.3	0		
PHF	.717	.905	.639	.000	.876	.375	.500	.750	.000	.821	.484	.868	.700	.000	.830	.438	.250	.333	.000	.500	.881



Short Counts

735 Maryland St.
Columbia, SC 29201
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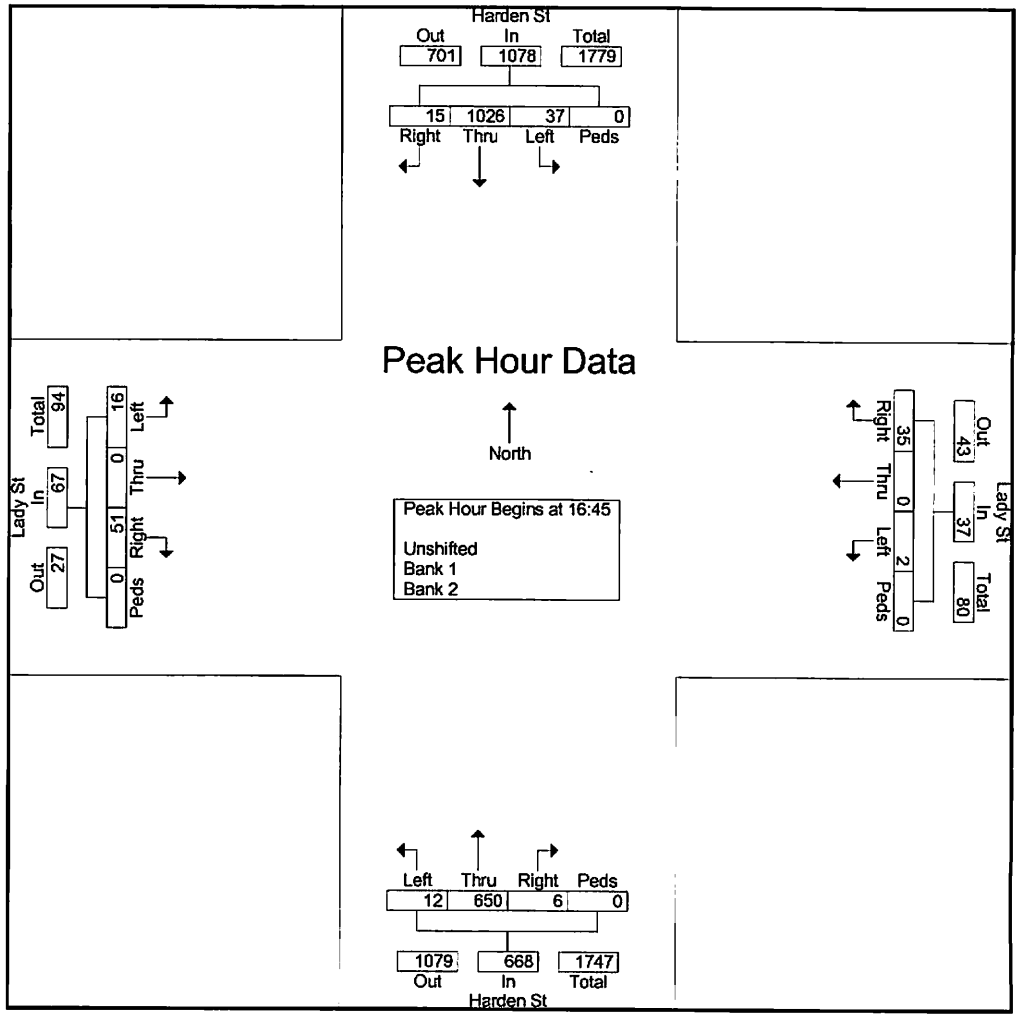
File Name : Harden at Lady - PM
Site Code : 00000000
Start Date : 10/29/2014
Page No : 3

	Harden St Southbound					Lady St Westbound					Harden St Northbound					Lady St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	8	245	7	0	260	0	0	**13**	0	**13**	4	167	0	0	171	4	0	14	0	18	462
17:00	7	253	3	0	263	1	0	10	0	11	**5**	169	2	0	176	3	0	9	0	12	462
17:15	**13**	261	3	0	277	1	0	8	0	9	1	**178**	1	0	**180**	**6**	0	**21**	0	**27**	**493**
17:30	9	**267**	2	0	**278**	0	0	4	0	4	2	136	**3**	0	141	3	0	7	0	10	433
Total Volume	37	1026	15	0	1078	2	0	35	0	37	12	650	6	0	668	16	0	51	0	67	1850
% App. Total	3.4	95.2	1.4	0		5.4	0	94.6	0		1.8	97.3	0.9	0		23.9	0	76.1	0		
PHF	.712	.961	.536	.000	.969	.500	.000	.673	.000	.712	.600	.913	.500	.000	.928	.667	.000	.607	.000	.620	.938



Short Counts

735 Maryland St.
Columbia, SC 29201
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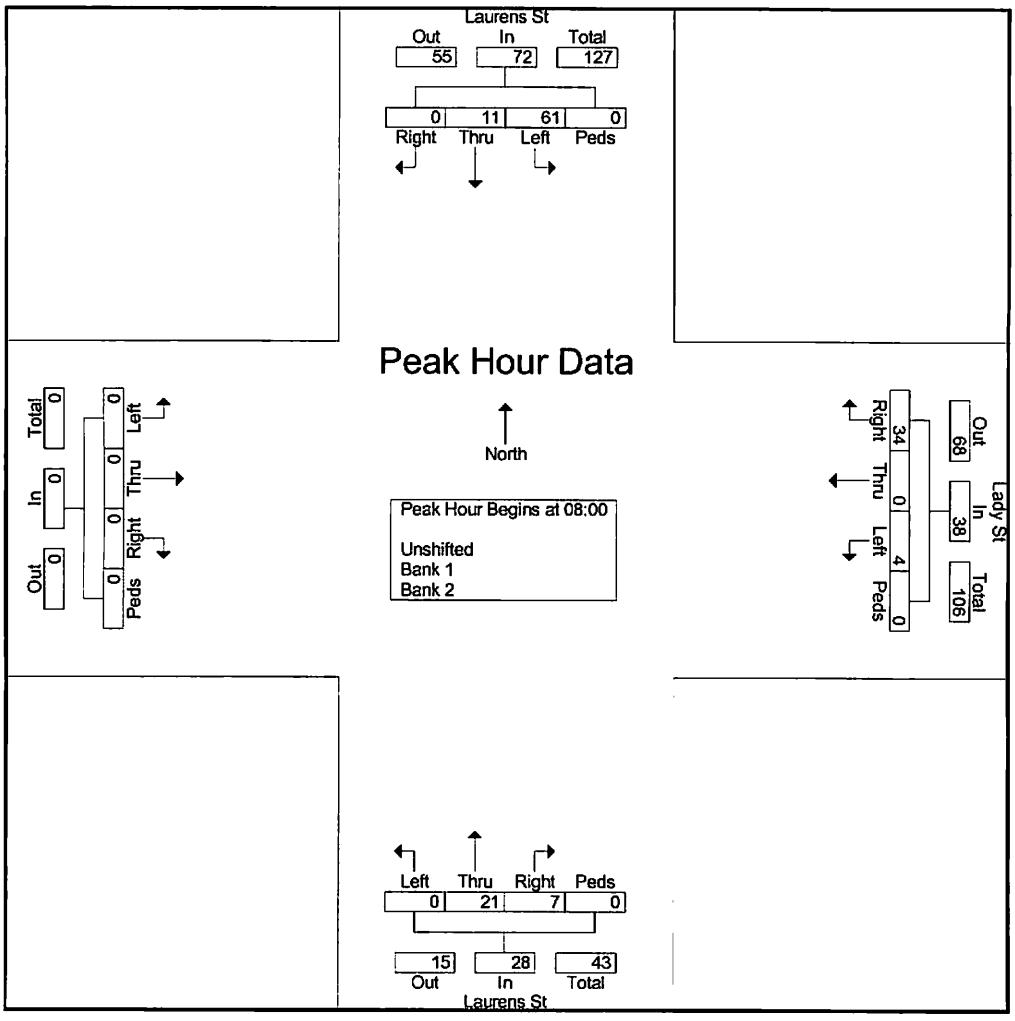
File Name : Not Named 2
Site Code : 00000000
Start Date : 10/31/2014
Page No : 3

	Laurens St Southbound					Lady St Westbound					Laurens St Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	7	1	0	0	8	1	0	4	0	5	0	5	**2**	0	**7**	0	0	0	0	0	20
08:15	16	3	0	0	19	0	0	3	0	3	0	5	2	0	7	0	0	0	0	0	29
08:30	18	4	0	0	22	1	0	10	0	11	0	**6**	1	0	7	0	0	0	0	0	40
08:45	**20**	3	0	0	**23**	**2**	0	**17**	0	**19**	0	5	2	0	7	0	0	0	0	0	**49**
Total Volume	61	11	0	0	72	4	0	34	0	38	0	21	7	0	28	0	0	0	0	0	138
% App. Total	84.7	15.3	0	0		10.5	0	89.5	0		0	75	25	0		0	0	0	0		
PHF	.763	.688	.000	.000	.783	.500	.000	.500	.000	.500	.000	.875	.875	.000	1.000	.000	.000	.000	.000	.000	.704



Short Counts

735 Maryland St.
Columbia, SC 29201
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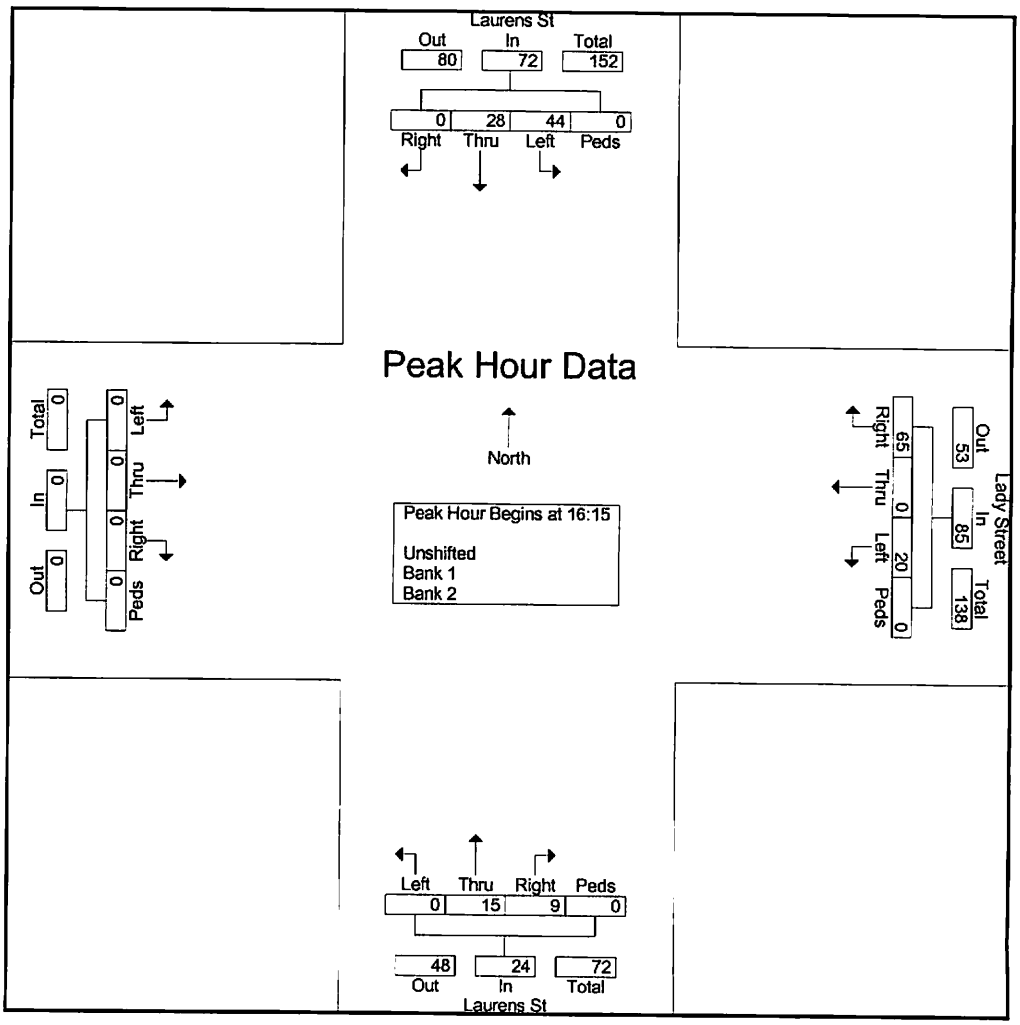
File Name : Not Named 1
Site Code : 00000000
Start Date : 10/30/2014
Page No : 3

	Laurens St Southbound					Lady Street Westbound					Laurens St Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	12	8	0	0	20	1	0	**25**	0	26	0	4	0	0	4	0	0	0	0	0	50
16:30	**16**	6	0	0	**22**	6	0	11	0	17	0	4	3	0	7	0	0	0	0	0	46
16:45	6	5	0	0	11	3	0	11	0	14	0	2	0	0	2	0	0	0	0	0	27
17:00	10	**9**	0	0	19	**10**	0	18	0	**28**	0	**5**	**6**	0	**11**	0	0	0	0	0	**58**
Total Volume	44	28	0	0	72	20	0	65	0	85	0	15	9	0	24	0	0	0	0	0	181
% App. Total	61.1	38.9	0	0		23.5	0	76.5	0		0	62.5	37.5	0		0	0	0	0		
PHF	.688	.778	.000	.000	.818	.500	.000	.650	.000	.759	.000	.750	.375	.000	.545	.000	.000	.000	.000	.000	.780

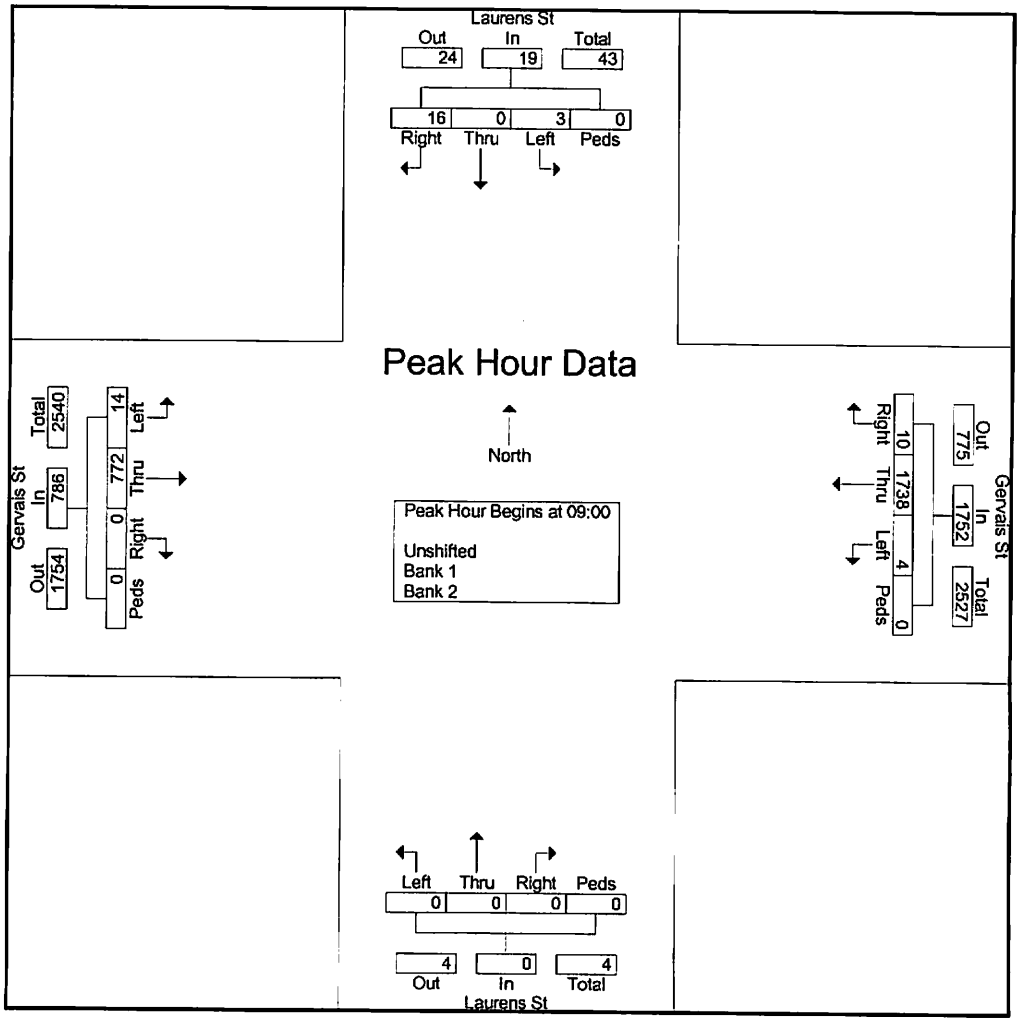


Short Counts

735 Maryland St.
Columbia, SC 29201
You Can Count On Us!

File Name : Not Named 4
Site Code : 00000000
Start Date : 11/4/2014
Page No : 3

	Laurens St Southbound					Gervais St Westbound					Laurens St Northbound					Gervais St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 08:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 09:00																					
09:00	1	0	5	0	6	1	446	1	0	448	0	0	0	0	0	4	189	0	0	193	647
09:15	0	0	2	0	2	0	**484**	4	0	**488**	0	0	0	0	0	**5**	165	0	0	170	**660**
09:30	1	0	2	0	3	1	397	3	0	401	0	0	0	0	0	1	**223**	0	0	**224**	628
09:45	1	0	**7**	0	**8**	**2**	411	2	0	415	0	0	0	0	0	4	195	0	0	199	622
Total Volume	3	0	16	0	19	4	1738	10	0	1752	0	0	0	0	0	14	772	0	0	786	2557
% App. Total	15.8	0	84.2	0		0.2	99.2	0.6	0		0	0	0	0		1.8	98.2	0	0		
PHF	.750	.000	.571	.000	.594	.500	.898	.625	.000	.898	.000	.000	.000	.000	.000	.700	.865	.000	.000	.877	.969

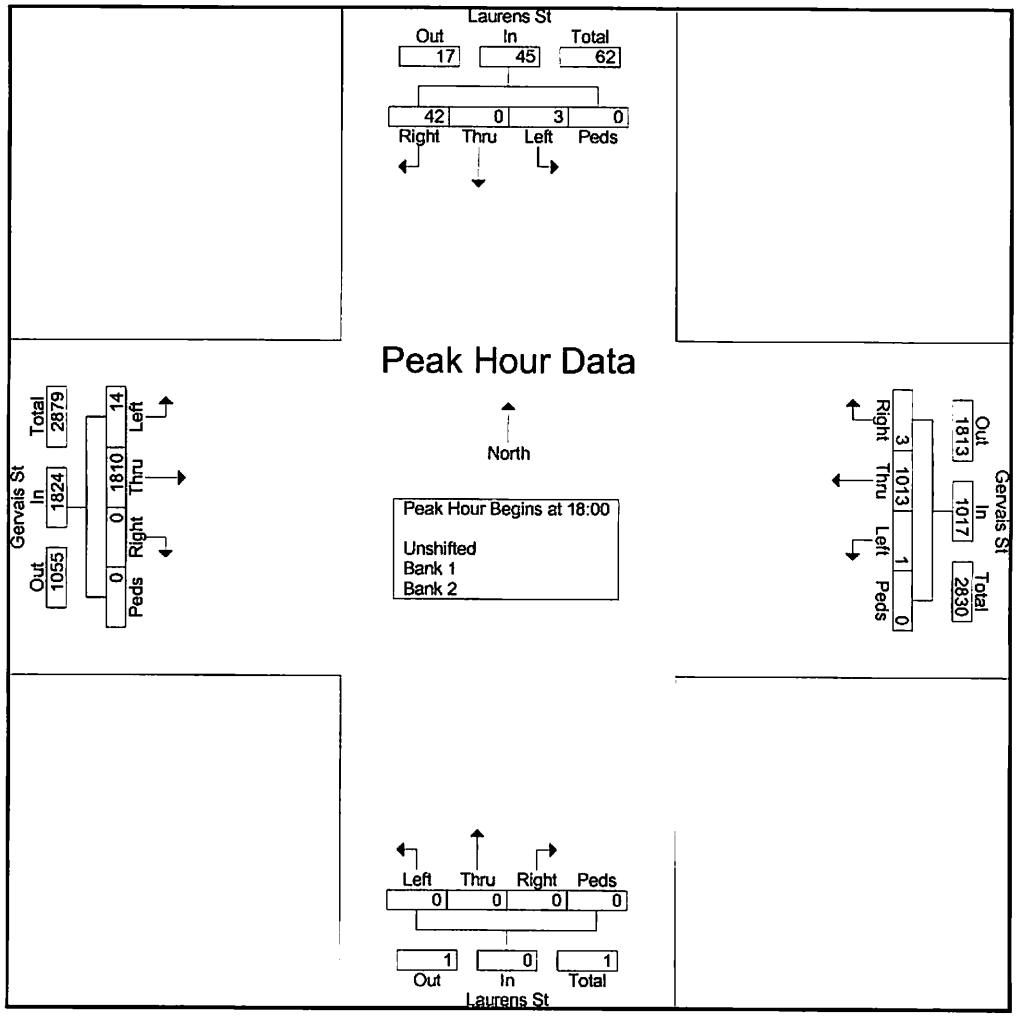


Short Counts

735 Maryland St.
Columbia, SC 29201
You Can Count On Us!

File Name : Not Named 3
Site Code : 00000000
Start Date : 11/3/2014
Page No : 3

	Laurens St Southbound					Gervais St Westbound					Laurens St Northbound					Gervais St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 17:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 18:00																					
18:00	**2**	0	7	0	9	0	**291**	1	0	**292**	0	0	0	0	0	**6**	442	0	0	448	**749**
18:15	1	0	**21**	0	**22**	1	243	1	0	245	0	0	0	0	0	1	437	0	0	438	705
18:30	0	0	6	0	6	0	245	1	0	246	0	0	0	0	0	5	**470**	0	0	**475**	727
18:45	0	0	8	0	8	0	234	0	0	234	0	0	0	0	0	2	461	0	0	463	705
Total Volume	3	0	42	0	45	1	1013	3	0	1017	0	0	0	0	0	14	1810	0	0	1824	2886
% App. Total	6.7	0	93.3	0		0.1	99.6	0.3	0		0	0	0	0		0.8	99.2	0	0		
PHF	.375	.000	.500	.000	.511	.250	.870	.750	.000	.871	.000	.000	.000	.000	.000	.583	.963	.000	.000	.960	.963



TURNING MOVEMENT COUNT FORM

CITY Columbia SC

LOCATION Lady St @ County Complex

DATE Oct 30 2014

DAY OF WEEK

COUNTED BY SW

INTERSECTION NUMBER

COMMENTS

Show North

INTERSECTION DIAGRAM

TIME PERIOD		NORTHBOUND ON			SOUTHBOUND ON County Complex			EASTBOUND ON Lady St			WESTBOUND ON Lady St				
FROM	TO	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL	PEAK TOTAL
Morning AM Peak Period															
7:00	7:15				3		1	2					1	7	53
7:15	7:30				1		1	3					3	8	81
7:30	7:45				0		0	3					11	14	126
7:45	8:00				1		1	7					15	24	172
8:00	8:15				4		2	9					20	35	201
8:15	8:30				3		0	16					34	53	
8:30	8:45				2		4	16					38	60	
8:45	9:00				11		10	17					15	53	
PK HR TOTALS		0	0	0	20	0	16	58	0	0	0	0	107	201	
PHF														0.84	
TOTAL		0	0	0	25	0	19	73	0	0	0	0	137	254	
Evening Pm Peak Period															
4:00	4:15				10		11	9					8	38	149
4:15	4:30				17		12	7					10	46	163
4:30	4:45				8		11	10					5	34	144
4:45	5:00				12		10	6					3	31	139
5:00	5:15				18		27	4					3	52	126
5:15	5:30				7		15	3					2	27	
5:30	5:45				8		14	5					2	29	
5:45	6:00				4		2	7					5	18	
PK HR TOTALS		0	0	0	55	0	60	27	0	0	0	0	21	163	
PHF														0.78	
TOTAL		0	0	0	84	0	102	51	0	0	0	0	38	275	

CAPACITY ANALYSES

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	0	565	212	117	1313	356	353	603	65	176	379	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		1.00	1.00	0.29	1.00	1.00	0.27	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)		3539	1583	545	3539	1583	504	3539	1583	372	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	614	230	127	1427	387	384	655	71	191	412	134
RTOR Reduction (vph)	0	0	93	0	0	19	0	0	45	0	0	51
Lane Group Flow (vph)	0	614	137	127	1427	368	384	655	26	191	412	83
Turn Type			pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm
Protected Phases		2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2	6		6	8		8	4		4
Actuated Green, G (s)		49.9	71.6	66.3	66.3	81.7	51.7	30.3	40.7	39.4	24.0	24.0
Effective Green, g (s)		52.9	77.6	69.3	69.3	87.7	54.7	33.3	46.7	45.4	27.0	27.0
Actuated g/C Ratio		0.41	0.60	0.53	0.53	0.67	0.42	0.26	0.36	0.35	0.21	0.21
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1440	981	417	1887	1104	453	907	605	328	735	329
v/s Ratio Prot		0.17	0.03	0.03	c0.40	0.05	c0.16	0.19	0.00	0.08	0.12	
v/s Ratio Perm			0.06	0.13		0.19	c0.20		0.01	0.12		0.05
v/c Ratio		0.43	0.14	0.30	0.76	0.33	0.85	0.72	0.04	0.58	0.56	0.25
Uniform Delay, d1		27.7	11.5	16.6	23.7	8.9	29.1	44.1	27.1	31.8	46.2	43.1
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.9	0.1	0.4	2.9	0.2	13.7	2.9	0.0	2.6	1.0	0.4
Delay (s)		28.6	11.6	17.0	26.6	9.1	42.8	47.0	27.1	34.4	47.2	43.5
Level of Service		C	B	B	C	A	D	D	C	C	D	D
Approach Delay (s)		24.0			22.5			44.3			43.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	31.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	0	1155	434	147	740	125	220	543	191	397	657	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		1.00	1.00	0.07	1.00	1.00	0.18	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)		3539	1583	128	3539	1583	339	3539	1583	298	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1255	472	160	804	136	239	590	208	432	714	27
RTOR Reduction (vph)	0	0	41	0	0	2	0	0	27	0	0	18
Lane Group Flow (vph)	0	1255	431	160	804	134	239	590	181	432	714	9
Turn Type			pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm
Protected Phases		2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2	6		6	8		8	4		4
Actuated Green, G (s)		54.7	70.0	71.0	71.0	93.0	34.3	19.0	29.3	47.0	25.7	25.7
Effective Green, g (s)		57.7	76.0	74.0	74.0	99.0	40.3	22.0	35.3	50.0	28.7	28.7
Actuated g/C Ratio		0.44	0.58	0.57	0.57	0.76	0.31	0.17	0.27	0.38	0.22	0.22
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1571	962	241	2015	1242	307	599	466	398	781	349
v/s Ratio Prot		c0.35	0.06	c0.07	0.23	0.02	0.11	0.17	0.04	c0.21	0.20	
v/s Ratio Perm			0.21	0.31		0.06	0.13		0.07	c0.21		0.01
v/c Ratio		0.80	0.45	0.66	0.40	0.11	0.78	0.98	0.39	1.09	0.91	0.03
Uniform Delay, d1		31.1	15.2	29.7	15.6	4.0	37.1	53.8	38.6	38.9	49.4	39.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		4.3	0.3	6.7	0.6	0.0	11.8	33.3	0.5	70.0	17.0	0.1
Delay (s)		35.5	15.5	36.4	16.2	4.1	48.9	87.1	39.1	108.9	66.5	39.8
Level of Service		D	B	D	B	A	D	F	D	F	E	D
Approach Delay (s)		30.0			17.6			68.7			81.5	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM Average Control Delay	47.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑↑	↑↑↱		Y	
Volume (veh/h)	18	772	1779	10	5	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	839	1934	11	5	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			466			
pX, platoon unblocked	0.67				0.67	0.67
vC, conflicting volume	1945				2258	972
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1425				1892	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				86	98
cM capacity (veh/h)	317				39	726

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	187	336	336	1289	655	23
Volume Left	20	0	0	0	0	5
Volume Right	0	0	0	0	11	17
cSH	317	1700	1700	1700	1700	139
Volume to Capacity	0.06	0.20	0.20	0.76	0.39	0.16
Queue Length 95th (ft)	5	0	0	0	0	14
Control Delay (s)	2.8	0.0	0.0	0.0	0.0	35.9
Lane LOS	A					E
Approach Delay (s)	0.6			0.0		35.9
Approach LOS						E

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑↑	↑↑↱		Y	
Volume (veh/h)	20	1810	1013	3	5	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1967	1101	3	5	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			461			
pX, platoon unblocked	0.87				0.87	0.87
vC, conflicting volume	1104				1802	552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	832				1630	200
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				93	93
cM capacity (veh/h)	696				78	706

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	415	787	787	734	370	52
Volume Left	22	0	0	0	0	5
Volume Right	0	0	0	0	3	47
cSH	696	1700	1700	1700	1700	385
Volume to Capacity	0.03	0.46	0.46	0.43	0.22	0.14
Queue Length 95th (ft)	2	0	0	0	0	12
Control Delay (s)	0.9	0.0	0.0	0.0	0.0	15.8
Lane LOS	A					C
Approach Delay (s)	0.2			0.0		15.8
Approach LOS						C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	18	892	15	43	645
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)	5	20	970	16	47	701
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			573			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1422	493			986	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1120	13			601	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			94	
cM capacity (veh/h)	159	892			816	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	25	646	339	280	467
Volume Left	5	0	0	47	0
Volume Right	20	0	16	0	0
cSH	445	1700	1700	816	1700
Volume to Capacity	0.06	0.38	0.20	0.06	0.27
Queue Length 95th (ft)	4	0	0	5	0
Control Delay (s)	13.6	0.0	0.0	2.1	0.0
Lane LOS	B			A	
Approach Delay (s)	13.6	0.0		0.8	
Approach LOS	B				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	35	666	6	37	1041
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)	2	38	724	7	40	1132
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			564			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1373	365			730	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1071	0			308	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			96	
cM capacity (veh/h)	175	914			1053	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	40	483	248	417	754
Volume Left	2	0	0	40	0
Volume Right	38	0	7	0	0
cSH	744	1700	1700	1053	1700
Volume to Capacity	0.05	0.28	0.15	0.04	0.44
Queue Length 95th (ft)	4	0	0	3	0
Control Delay (s)	10.1	0.0	0.0	1.2	0.0
Lane LOS	B			A	
Approach Delay (s)	10.1	0.0		0.4	
Approach LOS	B				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	8	4	60	899	601	49
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)	9	4	65	977	653	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				505		
pX, platoon unblocked	0.84					
vC, conflicting volume	1299	353	707			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	971	353	707			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	93			
cM capacity (veh/h)	194	643	888			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	13	65	489	489	436	271
Volume Left	9	65	0	0	0	0
Volume Right	4	0	0	0	0	53
cSH	253	888	1700	1700	1700	1700
Volume to Capacity	0.05	0.07	0.29	0.29	0.26	0.16
Queue Length 95th (ft)	4	6	0	0	0	0
Control Delay (s)	20.0	9.4	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	20.0	0.6			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	16	51	12	656	1028	15
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)	17	55	13	713	1117	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				507		
pX, platoon unblocked	0.84					
vC, conflicting volume	1508	567	1134			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1229	567	1134			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	88	98			
cM capacity (veh/h)	140	467	612			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	73	13	357	357	745	389
Volume Left	17	13	0	0	0	0
Volume Right	55	0	0	0	0	16
cSH	300	612	1700	1700	1700	1700
Volume to Capacity	0.24	0.02	0.21	0.21	0.44	0.23
Queue Length 95th (ft)	23	2	0	0	0	0
Control Delay (s)	20.8	11.0	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	20.8	0.2			0.0	
Approach LOS	C					

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	39.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	34	21	7	61	17
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)	4	37	23	8	66	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	178	27			30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	178	27			30	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			96	
cM capacity (veh/h)	778	1049			1582	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	41	30	85
Volume Left	4	0	66
Volume Right	37	8	0
cSH	1012	1700	1582
Volume to Capacity	0.04	0.02	0.04
Queue Length 95th (ft)	3	0	3
Control Delay (s)	8.7	0.0	5.8
Lane LOS	A		A
Approach Delay (s)	8.7	0.0	5.8
Approach LOS	A		

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	65	15	9	44	28
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)	22	71	16	10	48	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	147	21			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147	21			26	
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	93			97	
cM capacity (veh/h)	819	1056			1588	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	92	26	78
Volume Left	22	0	48
Volume Right	71	10	0
cSH	989	1700	1588
Volume to Capacity	0.09	0.02	0.03
Queue Length 95th (ft)	8	0	2
Control Delay (s)	9.0	0.0	4.6
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	4.6
Approach LOS	A		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	58	10	22	107	20	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	11	24	116	22	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	140				219	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140				219	82
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				97	98
cM capacity (veh/h)	1443				736	978

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	74	140	39
Volume Left	63	0	22
Volume Right	0	116	17
cSH	1443	1700	827
Volume to Capacity	0.04	0.08	0.05
Queue Length 95th (ft)	3	0	4
Control Delay (s)	6.5	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	6.5	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	26	5	21	55	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	28	5	23	60	65
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	28				104	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	28				104	17
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				93	94
cM capacity (veh/h)	1585				878	1062

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	58	28	125
Volume Left	29	0	60
Volume Right	0	23	65
cSH	1585	1700	965
Volume to Capacity	0.02	0.02	0.13
Queue Length 95th (ft)	1	0	11
Control Delay (s)	3.8	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.8	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	0	495	212	117	1313	356	353	603	65	176	379	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		1.00	1.00	0.32	1.00	1.00	0.27	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)		3539	1583	602	3539	1583	498	3539	1583	348	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%
Adj. Flow (vph)	0	554	237	131	1470	399	395	675	73	197	424	138
RTOR Reduction (vph)	0	0	97	0	0	18	0	0	47	0	0	47
Lane Group Flow (vph)	0	554	140	131	1470	381	395	675	26	197	424	91
Turn Type			pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm
Protected Phases		2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2	6		6	8		8	4		4
Actuated Green, G (s)		49.1	70.9	65.4	65.4	81.2	52.6	30.8	41.1	40.6	24.8	24.8
Effective Green, g (s)		52.1	76.9	68.4	68.4	87.2	55.6	33.8	47.1	46.6	27.8	27.8
Actuated g/C Ratio		0.40	0.59	0.53	0.53	0.67	0.43	0.26	0.36	0.36	0.21	0.21
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1418	973	436	1862	1098	456	920	610	330	757	339
v/s Ratio Prot		0.16	0.03	0.03	c0.42	0.05	c0.17	0.19	0.00	0.09	0.12	
v/s Ratio Perm			0.06	0.13		0.19	c0.21		0.01	0.13		0.06
v/c Ratio		0.39	0.14	0.30	0.79	0.35	0.87	0.73	0.04	0.60	0.56	0.27
Uniform Delay, d1		27.7	11.9	16.8	25.0	9.2	28.8	44.0	26.9	31.2	45.6	42.6
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.8	0.1	0.4	3.5	0.2	15.7	3.1	0.0	2.9	1.0	0.4
Delay (s)		28.5	11.9	17.2	28.5	9.4	44.5	47.0	26.9	34.1	46.6	43.0
Level of Service		C	B	B	C	A	D	D	C	C	D	D
Approach Delay (s)		23.5			23.9			44.9			42.7	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM Average Control Delay	32.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	0	1422	434	147	793	125	220	543	191	397	657	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		1.00	1.00	0.07	1.00	1.00	0.18	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)		3539	1583	123	3539	1583	339	3539	1583	298	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	103%	100%	103%	103%	100%	103%	103%	103%	103%	103%	103%	103%
Adj. Flow (vph)	0	1546	486	165	862	140	246	608	214	444	736	28
RTOR Reduction (vph)	0	0	38	0	0	2	0	0	18	0	0	18
Lane Group Flow (vph)	0	1546	448	165	862	138	246	608	196	444	736	10
Turn Type			pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm
Protected Phases		2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2	6		6	8		8	4		4
Actuated Green, G (s)		54.6	70.0	71.0	71.0	93.0	34.4	19.0	29.4	47.0	25.6	25.6
Effective Green, g (s)		57.6	76.0	74.0	74.0	99.0	40.4	22.0	35.4	50.0	28.6	28.6
Actuated g/C Ratio		0.44	0.58	0.57	0.57	0.76	0.31	0.17	0.27	0.38	0.22	0.22
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1568	962	240	2015	1242	308	599	468	398	779	348
v/s Ratio Prot		c0.44	0.07	c0.07	0.24	0.02	0.11	0.17	0.04	c0.21	0.21	
v/s Ratio Perm			0.22	0.32		0.07	0.14		0.08	c0.21		0.01
v/c Ratio		0.99	0.47	0.69	0.43	0.11	0.80	1.02	0.42	1.12	0.94	0.03
Uniform Delay, d1		35.8	15.4	34.2	15.9	4.0	37.3	54.0	38.8	38.9	49.9	39.8
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		19.6	0.4	7.9	0.7	0.0	13.4	40.6	0.6	80.3	21.3	0.2
Delay (s)		55.4	15.8	42.1	16.6	4.1	50.7	94.6	39.5	119.2	71.2	40.0
Level of Service		E	B	D	B	A	D	F	D	F	E	D
Approach Delay (s)		45.9			18.7			73.4			88.1	
Approach LOS		D			B			E			F	

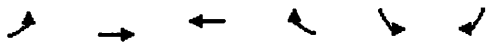
Intersection Summary				
HCM Average Control Delay	54.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	1.00			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	99.1%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑↑↑	↑↑↱		Y	
Volume (veh/h)	19	795	1832	10	5	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	864	1991	11	5	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			466			
pX, platoon unblocked	0.65				0.65	0.65
vC, conflicting volume	2002				2326	1001
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1458				1959	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				84	98
cM capacity (veh/h)	297				33	702

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	193	346	346	1328	675	23
Volume Left	21	0	0	0	0	5
Volume Right	0	0	0	0	11	17
cSH	297	1700	1700	1700	1700	122
Volume to Capacity	0.07	0.20	0.20	0.78	0.40	0.19
Queue Length 95th (ft)	6	0	0	0	0	16
Control Delay (s)	3.2	0.0	0.0	0.0	0.0	41.2
Lane LOS	A					E
Approach Delay (s)	0.7			0.0		41.2
Approach LOS						E

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑↑↑	↑↑↱		⅄	
Volume (veh/h)	21	1864	1043	3	5	44
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	2026	1134	3	5	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			461			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	1137				1856	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	836				1672	176
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	93
cM capacity (veh/h)	683				72	720

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	428	810	810	756	381	53
Volume Left	23	0	0	0	0	5
Volume Right	0	0	0	0	3	48
cSH	683	1700	1700	1700	1700	376
Volume to Capacity	0.03	0.48	0.48	0.44	0.22	0.14
Queue Length 95th (ft)	3	0	0	0	0	12
Control Delay (s)	1.0	0.0	0.0	0.0	0.0	16.2
Lane LOS	A					C
Approach Delay (s)	0.2			0.0		16.2
Approach LOS						C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	18	892	15	43	645
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)	6	20	999	17	48	722
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			573			
pX, platoon unblocked	0.83	0.83			0.83	
vC, conflicting volume	1464	508			1015	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1158	11			620	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			94	
cM capacity (veh/h)	148	890			798	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	26	666	350	289	481
Volume Left	6	0	0	48	0
Volume Right	20	0	17	0	0
cSH	426	1700	1700	798	1700
Volume to Capacity	0.06	0.39	0.21	0.06	0.28
Queue Length 95th (ft)	5	0	0	5	0
Control Delay (s)	14.0	0.0	0.0	2.2	0.0
Lane LOS	B			A	
Approach Delay (s)	14.0	0.0		0.8	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	35	666	6	37	1041
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)	2	39	746	7	41	1165
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			564			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1415	376			752	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1112	0			323	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			96	
cM capacity (veh/h)	164	910			1036	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	41	497	255	430	777
Volume Left	2	0	0	41	0
Volume Right	39	0	7	0	0
cSH	730	1700	1700	1036	1700
Volume to Capacity	0.06	0.29	0.15	0.04	0.46
Queue Length 95th (ft)	5	0	0	3	0
Control Delay (s)	10.2	0.0	0.0	1.2	0.0
Lane LOS	B			A	
Approach Delay (s)	10.2	0.0		0.4	
Approach LOS	B				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	8	4	60	899	601	49
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)	9	4	67	1006	673	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				505		
pX, platoon unblocked	0.83					
vC, conflicting volume	1338	364	728			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1004	364	728			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	92			
cM capacity (veh/h)	183	633	872			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	13	67	503	503	449	279
Volume Left	9	67	0	0	0	0
Volume Right	4	0	0	0	0	55
cSH	240	872	1700	1700	1700	1700
Volume to Capacity	0.06	0.08	0.30	0.30	0.26	0.16
Queue Length 95th (ft)	4	6	0	0	0	0
Control Delay (s)	20.9	9.5	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	20.9	0.6			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	16	51	12	656	1028	15
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	57	13	734	1151	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				507		
pX, platoon unblocked	0.84					
vC, conflicting volume	1553	584	1168			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1275	584	1168			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	87	98			
cM capacity (veh/h)	130	455	594			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	75	13	367	367	767	400
Volume Left	18	13	0	0	0	0
Volume Right	57	0	0	0	0	17
cSH	285	594	1700	1700	1700	1700
Volume to Capacity	0.26	0.02	0.22	0.22	0.45	0.24
Queue Length 95th (ft)	26	2	0	0	0	0
Control Delay (s)	22.1	11.2	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	22.1	0.2			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	34	21	7	61	18
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)	4	38	24	8	68	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	184	27			31	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184	27			31	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			96	
cM capacity (veh/h)	771	1048			1581	

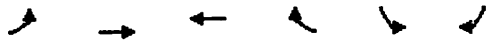
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	43	31	88
Volume Left	4	0	68
Volume Right	38	8	0
cSH	1010	1700	1581
Volume to Capacity	0.04	0.02	0.04
Queue Length 95th (ft)	3	0	3
Control Delay (s)	8.7	0.0	5.8
Lane LOS	A		A
Approach Delay (s)	8.7	0.0	5.8
Approach LOS	A		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	65	15	9	44	28
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)	22	73	17	10	49	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	152	22			27	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	22			27	
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	93			97	
cM capacity (veh/h)	814	1055			1587	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	95	27	81
Volume Left	22	0	49
Volume Right	73	10	0
cSH	987	1700	1587
Volume to Capacity	0.10	0.02	0.03
Queue Length 95th (ft)	8	0	2
Control Delay (s)	9.0	0.0	4.6
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	4.6
Approach LOS	A		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	58	10	22	107	20	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	11	25	120	22	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	144				226	85
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	144				226	85
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				97	98
cM capacity (veh/h)	1438				728	975

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	76	144	40
Volume Left	65	0	22
Volume Right	0	120	18
cSH	1438	1700	820
Volume to Capacity	0.05	0.08	0.05
Queue Length 95th (ft)	4	0	4
Control Delay (s)	6.6	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	6.6	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	26	5	21	55	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	29	6	24	62	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	29				107	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				107	17
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				93	94
cM capacity (veh/h)	1584				874	1061

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	59	29	129
Volume Left	30	0	62
Volume Right	0	24	67
cSH	1584	1700	962
Volume to Capacity	0.02	0.02	0.13
Queue Length 95th (ft)	1	0	12
Control Delay (s)	3.8	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.8	0.0	9.3
Approach LOS			A

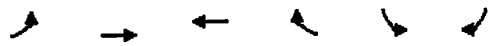
Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	0	582	218	117	1315	357	368	626	67	145	429	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		1.00	1.00	0.28	1.00	1.00	0.22	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)		3539	1583	523	3539	1583	414	3539	1583	411	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	633	237	127	1429	388	400	680	73	158	466	138
RTOR Reduction (vph)	0	0	90	0	0	18	0	0	45	0	0	44
Lane Group Flow (vph)	0	633	147	127	1429	370	400	680	28	158	466	94
Turn Type			pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm
Protected Phases		2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2	6		6	8		8	4		4
Actuated Green, G (s)		49.4	71.3	66.1	66.1	79.4	51.9	32.6	43.3	37.3	24.0	24.0
Effective Green, g (s)		52.4	77.3	69.1	69.1	85.4	54.9	35.6	49.3	43.3	27.0	27.0
Actuated g/C Ratio		0.40	0.59	0.53	0.53	0.66	0.42	0.27	0.38	0.33	0.21	0.21
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1426	978	409	1881	1076	435	969	637	307	735	329
v/s Ratio Prot		0.18	0.03	0.03	c0.40	0.04	c0.18	0.19	0.00	0.06	0.13	
v/s Ratio Perm			0.06	0.13		0.19	c0.21		0.01	0.11		0.06
v/c Ratio		0.44	0.15	0.31	0.76	0.34	0.92	0.70	0.04	0.51	0.63	0.29
Uniform Delay, d1		28.2	11.7	16.8	23.9	9.9	29.9	42.4	25.5	32.4	47.0	43.4
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.0	0.1	0.4	2.9	0.2	24.2	2.3	0.0	1.5	1.8	0.5
Delay (s)		29.2	11.8	17.2	26.9	10.1	54.1	44.7	25.5	33.9	48.8	43.9
Level of Service		C	B	B	C	B	D	D	C	C	D	D
Approach Delay (s)		24.5			22.9			46.8			44.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	0	1422	447	151	802	133	249	582	197	416	700	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		1.00	1.00	0.07	1.00	1.00	0.18	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)		3539	1583	123	3539	1583	339	3539	1583	298	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1546	486	164	872	145	271	633	214	452	761	28
RTOR Reduction (vph)	0	0	38	0	0	1	0	0	17	0	0	17
Lane Group Flow (vph)	0	1546	448	164	872	144	271	633	197	452	761	11
Turn Type			pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm
Protected Phases		2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2	6		6	8		8	4		4
Actuated Green, G (s)		54.6	70.4	71.0	71.0	93.0	34.8	19.0	29.4	47.0	25.2	25.2
Effective Green, g (s)		57.6	76.4	74.0	74.0	99.0	40.8	22.0	35.4	50.0	28.2	28.2
Actuated g/C Ratio		0.44	0.59	0.57	0.57	0.76	0.31	0.17	0.27	0.38	0.22	0.22
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1568	967	240	2015	1242	313	599	468	398	768	343
v/s Ratio Prot		c0.44	0.07	c0.07	0.25	0.02	0.13	0.18	0.04	c0.22	0.22	
v/s Ratio Perm			0.22	0.32		0.07	0.15		0.08	c0.22		0.01
v/c Ratio		0.99	0.46	0.68	0.43	0.12	0.87	1.06	0.42	1.14	0.99	0.03
Uniform Delay, d1		35.8	15.2	34.0	16.0	4.1	37.6	54.0	38.9	38.9	50.8	40.1
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		19.6	0.4	7.8	0.7	0.0	21.3	52.7	0.6	87.5	30.3	0.2
Delay (s)		55.4	15.5	41.8	16.7	4.1	58.9	106.7	39.5	126.4	81.1	40.3
Level of Service		E	B	D	B	A	E	F	D	F	F	D
Approach Delay (s)		45.9			18.6			82.2			96.7	
Approach LOS		D			B			F			F	

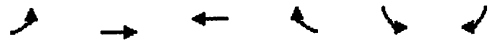
Intersection Summary			
HCM Average Control Delay	58.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		Y	
Volume (veh/h)	19	795	1832	17	5	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	864	1991	18	5	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			466			
pX, platoon unblocked	0.67				0.67	0.67
vC, conflicting volume	2010				2330	1005
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1518				1997	14
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				83	96
cM capacity (veh/h)	291				33	710

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	193	346	346	1328	682	35
Volume Left	21	0	0	0	0	5
Volume Right	0	0	0	0	18	29
cSH	291	1700	1700	1700	1700	167
Volume to Capacity	0.07	0.20	0.20	0.78	0.40	0.21
Queue Length 95th (ft)	6	0	0	0	0	19
Control Delay (s)	3.2	0.0	0.0	0.0	0.0	32.2
Lane LOS	A					D
Approach Delay (s)	0.7			0.0		32.2
Approach LOS						D

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑↑↑	↑↑↱		⋎	
Volume (veh/h)	21	1864	1043	34	5	67
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	2026	1134	37	5	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			461			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	1171				1873	585
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	870				1688	188
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	90
cM capacity (veh/h)	662				70	706

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	428	810	810	756	415	78
Volume Left	23	0	0	0	0	5
Volume Right	0	0	0	0	37	73
cSH	662	1700	1700	1700	1700	433
Volume to Capacity	0.03	0.48	0.48	0.44	0.24	0.18
Queue Length 95th (ft)	3	0	0	0	0	16
Control Delay (s)	1.0	0.0	0.0	0.0	0.0	15.1
Lane LOS	A					C
Approach Delay (s)	0.2			0.0		15.1
Approach LOS						C

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	61.7%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	20	928	20	44	667
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)	5	22	1009	22	48	725
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			573			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1478	515			1030	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1181	31			647	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	97			94	
cM capacity (veh/h)	144	867			782	

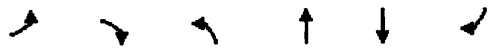
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	27	672	358	289	483
Volume Left	5	0	0	48	0
Volume Right	22	0	22	0	0
cSH	432	1700	1700	782	1700
Volume to Capacity	0.06	0.40	0.21	0.06	0.28
Queue Length 95th (ft)	5	0	0	5	0
Control Delay (s)	13.9	0.0	0.0	2.2	0.0
Lane LOS	B			A	
Approach Delay (s)	13.9	0.0		0.8	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	42	693	9	38	1091
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)	2	46	753	10	41	1186
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			564			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1434	382			763	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1134	0			335	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	95			96	
cM capacity (veh/h)	158	910			1025	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	48	502	261	437	791
Volume Left	2	0	0	41	0
Volume Right	46	0	10	0	0
cSH	748	1700	1700	1025	1700
Volume to Capacity	0.06	0.30	0.15	0.04	0.47
Queue Length 95th (ft)	5	0	0	3	0
Control Delay (s)	10.1	0.0	0.0	1.2	0.0
Lane LOS	B			A	
Approach Delay (s)	10.1	0.0		0.4	
Approach LOS	B				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	22	82	78	926	619	53
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)	24	89	85	1007	673	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				505		
pX, platoon unblocked	0.84					
vC, conflicting volume	1374	365	730			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055	365	730			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	86	90			
cM capacity (veh/h)	167	632	870			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	113	85	503	503	449	282
Volume Left	24	85	0	0	0	0
Volume Right	89	0	0	0	0	58
cSH	397	870	1700	1700	1700	1700
Volume to Capacity	0.28	0.10	0.30	0.30	0.26	0.17
Queue Length 95th (ft)	29	8	0	0	0	0
Control Delay (s)	17.6	9.6	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	17.6	0.7			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	26	83	39	676	1059	34
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)	28	90	42	735	1151	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				507		
pX, platoon unblocked	0.84					
vC, conflicting volume	1622	594	1188			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1356	594	1188			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	80	93			
cM capacity (veh/h)	109	448	583			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	118	42	367	367	767	421
Volume Left	28	42	0	0	0	0
Volume Right	90	0	0	0	0	37
cSH	257	583	1700	1700	1700	1700
Volume to Capacity	0.46	0.07	0.22	0.22	0.45	0.25
Queue Length 95th (ft)	57	6	0	0	0	0
Control Delay (s)	30.4	11.7	0.0	0.0	0.0	0.0
Lane LOS	D	B				
Approach Delay (s)	30.4	0.6			0.0	
Approach LOS	D					

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	35	26	44	69	24
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)	9	38	28	48	75	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	228	52			76	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	228	52			76	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			95	
cM capacity (veh/h)	722	1015			1523	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	47	76	101
Volume Left	9	0	75
Volume Right	38	48	0
cSH	944	1700	1523
Volume to Capacity	0.05	0.04	0.05
Queue Length 95th (ft)	4	0	4
Control Delay (s)	9.0	0.0	5.7
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	5.7
Approach LOS	A		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	28	70	18	25	73	55
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)	30	76	20	27	79	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	252	33			47	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252	33			47	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	93			95	
cM capacity (veh/h)	699	1040			1561	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	107	47	139
Volume Left	30	0	79
Volume Right	76	27	0
cSH	913	1700	1561
Volume to Capacity	0.12	0.03	0.05
Queue Length 95th (ft)	10	0	4
Control Delay (s)	9.5	0.0	4.4
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	4.4
Approach LOS	A		

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	47	6	9	23	110	8	0	55	21	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	51	7	10	25	120	9	0	60	23	0	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	145			58			247	349	54	346	292	85
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	145			58			247	349	54	346	292	85
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 %	95			99			99	100	94	96	100	98
cM capacity (veh/h)	1438			1547			667	545	1013	550	587	974

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	65	58	10	145	68	40
Volume Left	65	0	10	0	9	23
Volume Right	0	7	0	120	60	17
cSH	1438	1700	1547	1700	950	678
Volume to Capacity	0.05	0.03	0.01	0.09	0.07	0.06
Queue Length 95th (ft)	4	0	0	0	6	5
Control Delay (s)	7.6	0.0	7.3	0.0	9.1	10.6
Lane LOS	A		A		A	B
Approach Delay (s)	4.0		0.5		9.1	10.6
Approach LOS					A	B

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	28.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	43	26	46	26	22	10	0	24	57	0	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	47	28	50	28	24	11	0	26	62	0	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	52			75			317	274	61	274	276	40
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	52			75			317	274	61	274	276	40
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			97			98	100	97	90	100	93
cM capacity (veh/h)	1554			1524			570	600	1004	635	599	1031

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	30	75	50	52	37	129
Volume Left	30	0	50	0	11	62
Volume Right	0	28	0	24	26	67
cSH	1554	1700	1524	1700	821	794
Volume to Capacity	0.02	0.04	0.03	0.03	0.05	0.16
Queue Length 95th (ft)	1	0	3	0	4	15
Control Delay (s)	7.4	0.0	7.4	0.0	9.6	10.4
Lane LOS	A		A		A	B
Approach Delay (s)	2.1		3.6		9.6	10.4
Approach LOS					A	B

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	7	41	29	7	6	26
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)	8	45	32	8	7	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	77	35			39	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	77	35			39	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			100	
cM capacity (veh/h)	923	1037			1571	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	39	35
Volume Left	8	0	7
Volume Right	45	8	0
cSH	1019	1700	1571
Volume to Capacity	0.05	0.02	0.00
Queue Length 95th (ft)	4	0	0
Control Delay (s)	8.7	0.0	1.4
Lane LOS	A		A
Approach Delay (s)	8.7	0.0	1.4
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	16.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	16	19	24	31	26	57
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)	17	21	26	34	28	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	161	43			60	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	161	43			60	
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	98			98	
cM capacity (veh/h)	814	1027			1544	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	60	90
Volume Left	17	0	28
Volume Right	21	34	0
cSH	918	1700	1544
Volume to Capacity	0.04	0.04	0.02
Queue Length 95th (ft)	3	0	1
Control Delay (s)	9.1	0.0	2.4
Lane LOS	A		A
Approach Delay (s)	9.1	0.0	2.4
Approach LOS	A		

Intersection Summary			
Average Delay		3.0	
Intersection Capacity Utilization		21.1%	ICU Level of Service A
Analysis Period (min)		15	