APPENDIX G

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TRAFFIC IMPACT STUDY

ISLIP PINES
SUNRISE HIGHWAY (NYS ROUTE 27) &
VETERANS MEMORIAL HIGHWAY (NYS ROUTE 454)
TOWN OF ISLIP, SUFFOLK COUNTY, NEW YORK
DISTRICT 0500 – SECTIONS 217, 218, & 239
BLOCK 01 – LOTS 3.3, 3.4, 4.19, 5, 6, 6.1, 7, 17.2, &17.3
AND BLOCK 02 – LOT 3.2

PREPARED FOR:

SEROTA PROPERTIES

PREPARED BY:

STONEFIELD ENGINEERING & DESIGN, LLC
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INTRODUCTION

This Traffic Impact Study has been prepared to investigate the potential impacts on the adjacent roadway network of the proposed mixed use development known as Islip Pines. The subject property has frontage along Veterans Memorial Highway (NYS Route 454), the Sunrise Highway (NYS Route 27) North Service Road (hereinafter referred to as the North Service Road), and Beacon Drive in the Town of Islip, Suffolk County, New York. The site location is shown on appended **Figure 1**.

The project is located on an undeveloped parcel within District 0500; Sections 217, 218, and 219; Block 01, Lots 3.3, 3.4, 4.19, 5, 6, 6.1, 7, 17.2, and 17.3; and Block 02, Lot 3.2. Under the proposed development program, it is proposed to construct the following:

- 1,085,400 square feet of industrial space
- 468,673 square feet of shopping center (including a 60,000 square foot cinema)
- 130,904 square feet of office building
- 250 residential units
- A 200-room hotel

Access is proposed via a full movement signalized access along Veterans Memorial Highway, a right-in/right-out access point along the North Service Road, and three (3) full movement access points along Beacon Drive.

METHODOLOGY

Stonefield Engineering & Design, LLC has prepared this Traffic Impact Study in accordance with the recommended guidelines and practices outlined by the Institute of Transportation Engineers (ITE) within Transportation Impact Analyses for Site Development. A detailed field investigation has been performed to assess the existing conditions of the adjacent roadway network. A data collection effort has been completed to identify the existing traffic volumes at the study intersections to serve as a base for the traffic analyses. Capacity analysis, a procedure used to estimate the traffic-carrying ability of roadway facilities over a range of defined operating conditions, was performed using the *2000 Highway Capacity Manual* (HCM), the Highway

Capacity Software (HCS 5.5), and Synchro 7 Software for all study conditions to assess the roadway operations.

For an unsignalized intersection, Level of Service (LOS) A indicates operations with delay of less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle. For a signalized intersection, LOS A indicates operations with delay of less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 80 seconds per vehicle. The Technical Appendix contains the Highway Capacity Analysis Detail Sheets for the study intersections analyzed in this assessment. The traffic signal timing utilized within the signalized analysis is based on field recordings and timing directives provided by Suffolk County and the New York State Department of Transportation (NYSDOT).

2010 EXISTING CONDITION

EXISTING ROADWAY CONDITIONS

The proposed mixed-use development has frontage along Veterans Memorial Highway (NYS Route 454), the North Service Road, and Beacon Drive in the Town of Islip, Suffolk County, New York. The subject property is undeveloped and is located within District 0500, Sections 217, 218, and 219, Block 01, Lots 3.3, 3.4, 4.19, 5, 6; 6.1, 7, 17.2, and 17.3, and Block 02, Lot 3.2. A FedEx distribution facility is located along Veterans Memorial Highway along the westerly edge of the subject property and several retail and commercial developments are located along Beacon Drive to the east of the subject property.

Veterans Memorial Highway (Route 454) provides two lanes in each direction and has a posted speed limit of 55 mph. The roadway alignment is generally straight and flat and is divided by a grass median with guiderail along the site frontage. Shoulders are provided along both sides of the roadway and sidewalks and curbs are located along noncontiguous portions of the roadway. A FedEx distribution facility is located along westbound Route 454 between Church Street and Broadway Avenue. During a field investigation of the study area network, it was observed that when trucks exit the FedEx facility during the weekday morning peak hour, westbound queues from the intersection of Route 454 with Broadway Avenue extend past Church Street, a distance of over 1,650 feet. Traffic volumes are significantly heavier in the westbound direction during the weekday morning peak hour and weighted in the eastbound direction during the

weekday evening peak hour. Route 454 reaches its terminus via a grade separated interchange with the Sunrise Highway North and South Service Roads.

Broadway Avenue is a two lane roadway and has a posted speed limit of 30 mph. The roadway forms signalized intersections with Route 454, Church Street, two (2) adjacent shopping center driveways, and the Sunrise Highway North and South Service Roads within the study area. The roadway widens at these intersections to accommodate left-turn and right-turn bays. During observations along the study area network, a southbound queue was noted at the intersection of Broadway Avenue with the North Service Road for vehicles turning right onto the North Service Road. This queue extended through Church Street, but cleared during each observed cycle. A significant queue was also observed along the North Service Road; however this queue also cleared during each observed cycle. Land uses are primarily retail and office, with a residential development on the southwest corner at the intersection of Broadway Avenue with Route 454. Curbs and sidewalks, but no shoulders, are provided along both sides of the roadway.

Church Street provides one lane in each direction and has a posted speed limit of 30 mph. Sidewalks and curbs are located along the southerly side to the east of Broadway Avenue and along both sides to the west of Broadway Avenue. Land uses are office to the west of Broadway Avenue and retail to the east of Broadway Avenue. This roadway terminates at a right in/right out intersection with eastbound Route 454 before beginning again south of Route 454, after Route 454 merges with the South Service Road. Between Route 454 and Nicolls Road, Church Street has a posted speed limit of 30 mph and provides one lane in each direction. Land uses along this stretch are commercial. East of Nicolls Road, land uses along Church Street are predominately residential.

The Sunrise Highway North and South Service Roads (hereinafter referred to as the North Service Road and the South Service Road) have a posted speed limit of 40 mph and provide one (1) to three (3) lanes in each direction, depending on the location. Shoulders are provided along both sides of the roadways, and the right sides of both roadways are curbed. Land uses along the roadways are primarily retail. Traffic volumes are significantly heavier in the westbound direction during the morning peak hour and in the eastbound direction during the evening peak hour.

As part of the data collection, an automatic traffic recorder (ATR) was placed on the North Service Road along the site frontage to collect ambient speed data, as well as existing traffic volumes, along the site frontage. A review of the speed data indicates an 85th percentile speed of 65 miles per hour, which was utilized as the base free flow speed in the weave analyses.

Nicolls Road (CR 97) provides two lanes in each direction and is divided by a grass median. Shoulders are provided along both sides of the roadway, and there are no curbs or sidewalks within the study area. The posted speed limit is 55 mph. Along the study area, Nicolls Road forms signalized intersections with Church Street and Colin Drive/Greenbelt Parkway and a full interchange with the Sunrise Highway North and South Service Roads. Land uses to the east of the roadway are residential and a mix of residential and commercial exist to the west.

Beacon Drive is a two lane roadway with a posted speed limit of 30 mph. It provides access to several one-story office buildings and a shopping center which includes a Costco Wholesale Club. A sidewalk is provided along the easterly side of the roadway only. Beacon Drive intersects the North Service Road just after the North Service Road merges with the ramp from southbound Nicolls Road, forcing vehicles traveling from the North Service Road to Beacon Drive to complete two lane changes in less than 200 feet.

Route 454 intersects Broadway Avenue to form a four-leg intersection controlled by a 4-phase traffic signal operating on a 150-second cycle during the weekday morning peak hour, a 135-second cycle during the weekday evening peak hour, and a 120-second cycle at all other times. The northbound approach of Broadway Avenue provides one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) channelized right-turn lane. The southbound approach of Broadway Avenue provides one (1) shared left-turn/through lane and one (1) channelized right-turn lane. The eastbound and westbound approaches of Route 454 each provide one (1) exclusive left-turn lane, two (2) exclusive through lanes, and one (1) exclusive right-turn lane. A crosswalk is provided across the westbound approach of Route 454 and the southbound approach of Broadway Avenue. Note, the westbound left-turn movement currently operates under a permitted only phase.

Broadway Avenue intersects Church Street to form a four-leg intersection controlled by a 3-phase traffic signal operating on a variable cycle length. The northbound approach of Broadway Avenue provides one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) shared through/right-turn lane. The southbound approach of Broadway Avenue provides one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) exclusive right-turn lane. The eastbound and westbound approaches of Church Street provide one (1) exclusive left-turn lane and one (1) shared through/right-turn lane. Crosswalks are provided across the northbound and westbound approaches to the intersection.

The Sunrise Highway North Service Road intersects Broadway Avenue to form a four-leg intersection controlled by a 4-phase traffic signal operating on a 115-second background cycle during the weekday evening peak hour and a 100-second background cycle at all other times. Note, this intersection operates on the same controller as the intersection of Broadway Avenue with the shopping center driveways, located approximately 100 feet to the north. The westbound approach of the North Service Road provides one (1) exclusive left-turn lane, two (2) exclusive through lanes, and one (1) exclusive right-turn lane. The northbound approach of Broadway Avenue provides two (2) exclusive left-turn lanes and two (2) exclusive through lanes, and the southbound approach of Broadway Avenue provides two (2) exclusive through lanes and one (1) exclusive right-turn lane.

At the intersection of Broadway Avenue with the shopping center driveways, the northbound approach of Broadway Avenue provides one (1) exclusive through lane and one (1) shared through/right-turn lane and the southbound approach of Broadway Avenue provides one (1) exclusive left-turn lane, two (2) exclusive through lanes, and one (1) shared through/right-turn lane. The westbound approach from Sun Vet Mall provides one (1) exclusive left-turn lane and one (1) shared through/right-turn lane. The eastbound approach from the shopping center to the west provides one (1) exclusive left-turn lane and one (1) shared through/right-turn lane.

The Sunrise Highway South Service Road intersects Broadway Avenue to form a four-leg intersection controlled by a 3-phase traffic signal operating on a 115-second background cycle during the weekday evening peak hour and 100-second background cycle at all other times. The eastbound approach of the South Service Road provides one (1) exclusive left-turn lane, two (2) exclusive through lanes, and one (1) exclusive right-turn lane. The southbound approach of Broadway Avenue provides one (1) exclusive left-

turn lane and two (2) exclusive through lanes. The northbound approach of Broadway Avenue provides two (2) exclusive through lanes and one (1) exclusive right-turn lane. Crosswalks are provided across the eastbound, northbound, and westbound approaches to the intersection.

Church Street intersects Route 454 Eastbound to form an unsignalized T-intersection with the eastbound approach of Church Street operating under stop control. Note, Route 454 has a north/south orientation at this intersection when compared to the Church Street alignment. The eastbound approach of Church Street provides a channelized right-turn lane and the southbound approach of Route 454 provides one (1) exclusive through lane and one (1) shared through/right-turn lane.

Nicolls Road intersects Greenbelt Parkway and Colin Drive to form a four-leg intersection controlled by a 4-phase traffic signal operating on a variable cycle length. The northbound and southbound approaches of Nicolls Road provide one exclusive left-turn lane, two (2) exclusive through lanes, and one (1) channelized right-turn lane. The eastbound approach of Colin Drive provides two (2) exclusive left-turn lanes and one (1) channelized right-turn lane. The westbound approach of Greenbelt Parkway provides one (1) shared left-turn/through lane and one (1) channelized right-turn lane. Crosswalks are provided across the northbound and southbound approaches of Nicolls Road.

Nicolls Road intersects Church Street to form a four-leg intersection controlled by a 3-phase traffic signal operating on the variable cycle length. The northbound and southbound approaches of Nicolls Road provide one (1) exclusive left-turn lane, two (2) exclusive through lanes, and one (1) channelized right-turn lane. The eastbound and westbound approaches of Church Street provide one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) channelized right-turn lane.

Beacon Drive intersects the North Service Road to form an unsignalized T-intersection, with the southbound approach of Beacon Drive operating under stop control. The westbound approach of the North Service Road provides three (3) exclusive through lanes and one (1) exclusive right-turn lane. The southbound approach of Beacon Drive provides one (1) exclusive right-turn lane. Just east of this intersection, the southbound ramp from Nicolls Road merges with the North Service Road to form a weaving section with the exclusive right-turn lane from the North Service Road onto Beacon Drive. Note this weaving section is approximately 182 feet in length.

EXISTING TRAFFIC VOLUMES

Manual turning movement counts were collected during the typical weekday morning, weekday evening, and Saturday midday time periods to evaluate existing traffic conditions and identify the specific hours when traffic activity on the adjacent roadways is at a maximum and could be potentially impacted by the development of the site. In accordance with the Final Scope provided by the Town of Islip Department of Planning and Development on March 18, 2010, turning movement counts were collected on Tuesday, April 13, 2010, from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 7:00 p.m. and on Saturday, April 10, 2010, from 11:00 a.m. to 2:00 p.m. at the following locations:

- Route 454 and Broadway Avenue (signalized)
- Route 454 and Church Street (unsignalized)
- Broadway Avenue and Church Street (signalized)
- Broadway Avenue and Shopping Center Driveways (signalized)
- Broadway Avenue and North Service Road (signalized)
- Broadway Avenue and South Service Road (signalized)
- Nicolls Road (CR 97) and Colin Drive/Greenbelt Parkway (signalized)
- Nicolls Road (CR 97) and Church Street (signalized)
- North Service Road, Ramp from Nicolls Road Southbound, and Beacon Drive (weave/unsignalized)

As a supplement to the manual counts, Automatic Traffic Recorders (ATR's) were placed on the following roadways from Saturday, April 10, 2010, to Monday, April 19, 2010:

- Route 454 (Veterans Highway)
- Sunrise Highway North Service Road
- Sunrise Highway South Service Road
- Church Street
- Nicolls Road (CR 97)
- Ramps of the Sunrise Highway/Nicolls Road interchange

The traffic volume data was collected and analyzed to identify the design peak hour in accordance with HCM and ITE guidelines. The study time periods have been chosen as they are representative of the peak periods of both the adjacent roadway network and the proposed development and match the hours requested in the Final Scope provided by the Town of Islip. Based on the collected data, the weekday

morning peak hour occurs from 7:30 a.m. to 8:30 a.m.; the weekday evening peak hour occurs from 4:45 p.m. to 5:45 p.m.; and the Saturday midday peak hour occurs from 12:15 p.m. to 1:15 p.m. The collected peak hour traffic volume data was then balanced and seasonally adjusted to determine the 2010 Existing Traffic Volumes. The 2010 Existing weekday morning, weekday evening, and Saturday midday peak hour traffic volumes are summarized on appended **Figure 2.**

EXISTING LOS/CAPACITY ANALYSIS

The following is a summary of the capacity analysis results under the 2010 Existing Condition. Capacity analysis summary tables are appended to this study.

Under the existing condition, the signalized intersection of Route 454 with Broadway Avenue is calculated to operate at overall Level of Service E during the weekday morning and Saturday midday peak hours and overall Level of Service D during the weekday evening peak hour. There is a heavy traffic volume in the westbound direction during the weekday morning peak hour and in the eastbound direction during the weekday evening peak hour, resulting in these approaches operating at or near capacity. The northbound and southbound approaches of Broadway Avenue are calculated to operate at or near capacity during all three peak hours studied.

At the signalized intersection of Broadway Avenue with Church Street, all movements are calculated to operate at Level of Service C or better during the weekday morning, weekday evening, and Saturday midday peak hours. Note, there is a relatively high northbound left-turn volume during all three peak hours studied and a high eastbound right-turn volume during the weekday evening and Saturday midday peak hours.

The signalized intersections of Broadway Avenue with the North Service Road and the Shopping Center Driveways operate under a single traffic signal controller and are calculated to operate at overall Level of Service D or better during all three peak hours studied. The northbound left-turn movement from Broadway Avenue to the North Service Road is calculated to operate at Level of Service E during all three peak hours studied and the eastbound and westbound left-turn movements at the shopping driveways are calculated to operate under constrained conditions during the Saturday midday peak hour. Note that the short spacing between these two traffic signals reduces the queuing capacity and vehicle throughput of each intersection.

The signalized intersection of Broadway Avenue with the South Service Road is calculated to operate at overall Level of Service C during the weekday morning, weekday evening, and Saturday midday peak hours. All movements operate at Level of Service D or better during all three peak hours studied.

At the unsignalized intersection of Church Street with Route 454, the eastbound right-turn movement from Church Street is calculated to operate at Level of Service B during the weekday morning peak hour, Level of Service E during the weekday evening peak hour, and Level of Service C during the Saturday midday peak hour.

The signalized intersection of Nicolls Road (CR 97) with Colin Drive/Greenbelt Parkway is calculated to operate at overall Level of Service F during the weekday morning peak hour and overall Level of Service E during the weekday evening and Saturday midday peak hours. The Nicolls Road southbound through movement is calculated to operate under constrained conditions during all three peak hours studied.

The signalized intersection of Nicolls Road (CR 97) with Church Street is calculated to operate at overall Level of Service C or better during the weekday morning, weekday evening, and Saturday midday peak hours. All movements are calculated to operate at Level of Service D or better during all three peak hours studied.

The weaving section along the North Service Road between the Nicolls Road southbound ramp and Beacon Drive operates at Level of Service E during the weekday morning peak hour, Level of Service C during the weekday evening peak hour, and Level of Service D during the Saturday midday peak hour. The southbound stop controlled approach of Beacon Drive at the North Service Road is calculated to operate under constrained conditions during the weekday evening and Saturday midday peak hours.

2018 NO-BUILD CONDITION

BACKGROUND GROWTH

The 2010 traffic volume data was grown to a future horizon year of 2018, which is a conservative estimate for five (5) years after the proposed development is expected to be fully constructed. In accordance with industry guidelines and based on data obtained from the New York State Department of

Transportation (NYSDOT), the existing traffic volumes at the study intersections were increased by 1% for eight (8) years to generate the 2018 Base Volumes. These volumes are summarized on appended **Figure 3**.

SITE SPECIFIC GROWTH

To evaluate the future traffic conditions, it is important to consider the potential site-generated traffic of other, site-specific projects that could influence the traffic volume at the study intersections. Site-specific development projects include those that are in the entitlement process or have recently been approved for building permits in proximity to the proposed development. Based on consultations with NYSDOT, there are no approved developments that would significantly alter the travel patterns on the adjacent roadway network. However, it was agreed upon that the traffic analysis would consider the repopulation of the vacant retail stores and shopping centers in the area.

A field inventory was taken of the existing vacancies at retail centers in the area. Using the available aerial photography to determine the size of the buildings, it was estimated that of the 1,850,000 square feet of retail space in the area, approximately 205,000 square feet (11%) is unoccupied. Table 1 summarizes the existing vacancies in the area at the time the traffic counts were calculated. Trip generation estimates were prepared for the vacant retail space and assigned to the roadway network to repopulate the space and create a 100% utilization condition, as illustrated on appended **Figure 4**.

TABLE 1 – OCCUPANCY OF AREA RETAIL STORES AND SHOPPING CENTERS

Location	Total Size (SF)	Vacant (SF)[1]	% Occupied
Sun Vet Mall – Northeast Corner at the intersection of North Service Road with Broadway Avenue	300,000	60,000	80%[2]
Southwest Corner at the intersection of South Service Road with Waverly Avenue	125,000	8,000	94%
Waverly Place – Northeast Corner at the intersection of North Service Road with Waverly Place	105,000	0	100%
Along both sides of Gateway Blvd, north of the North Service Road	350,000	5,000	99%
Home Depot along Gateway Blvd	140,000	0	100%
Costco & Savers along Beacon Drive	160,000	30,000	81%
Attias Flea Market – Southwest Corner at the intersection of South Service Road with Broadway Avenue	150,000	75,000	50%
Shopping Center on the Northwest Corner at the intersection of Broadway Avenue with North Service Road	150,000	27,200[3]	82%
Northwest Corner at the intersection of Johnson Avenue with North Service Road	370,000	0	100%

Total	**1,850,000**	**205,200**	**89%**

1. Except where noted, all sizes and vacancies are based on field observations and aerial mapping
2. % occupied based on conversations with the property manager
3. Vacancy listed on building

2018 NO-BUILD TRAFFIC VOLUMES

The site-specific development trips were added to the 2018 Base Volumes to calculate the 2018 No-Build Condition Traffic Volumes for the weekday morning, weekday evening, and Saturday midday peak hours. These volumes are summarized on appended **Figure 5**.

2018 NO-BUILD LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was conducted for the 2018 No-Build Condition during the weekday morning, weekday evening, and Saturday midday peak hours along the study area network. It is noted that roadway improvements are planned for Broadway Avenue which include roadway widening to provide two (2) through lanes in each direction and several left-turn bays starting at the intersection of Broadway Avenue with the shopping center driveways to the south and ending approximately 450 north of the Broadway Avenue/Route 454 intersection. The improvements shown on the Broadway Avenue Reconstruction Plans prepared by Gibbons, Esposito & Boyce Engineers, P.C. dated September 2009 and approved by NYSDOT on November 23, 2009 were incorporated into the No-Build analyses. Capacity analysis summary tables are located in the Appendix.

Under the 2018 No-Build Condition, the signalized intersection of Broadway Avenue with Route 454 is calculated to operate at overall Level of Service E during the weekday morning and weekday evening peak hours and overall Level of Service D during the Saturday midday peak hour. As a result of the Broadway Avenue improvements, the Levels of Service generally improve from the Existing Condition to the No-Build Condition; however, there are still capacity constraints on all four approaches to the intersection. The eastbound and westbound left-turn movements are calculated to operate at Level of Service F during the weekday morning peak hour and the northbound left-turn movement is calculated to operate at Level of Service F during the weekday evening peak hour.

Under the 2018 No-Build Condition, the signalized intersection of Broadway Avenue with Church Street is calculated to operate at overall Level of Service B during weekday morning and weekday evening peak hours and overall Level of Service C during the Saturday midday peak hour. All movements at the intersection are calculated to operate at Level of Service C or better during both peak hours studied with the exception of the eastbound through/right-turn movement, which is calculated to operate at Level of Service E during the Saturday midday peak hour.

The intersections of Broadway Avenue with the Shopping Center Driveways and the North Service Road are calculated to operate at overall Level of Service F and E, respectively, during the Saturday midday peak hour under the 2018 No-Build Condition and overall Level of Service D or better during the weekday morning and evening peak hours. The westbound approach of the Shopping Center Driveway is calculated to operate under constrained conditions during the weekday evening and Saturday midday peak hours and the eastbound approach of the Shopping Center Driveway is calculated to operate under constrained conditions during the Saturday midday peak hour. The northbound left-turn movement from Broadway Avenue to the North Service Road is calculated to operate at Level of Service E during all three peak hours studied and the northbound through movement of Broadway Avenue at the North Service Road is calculated to operate at Level of Service E during the weekday evening peak hour and Level of Service F during the Saturday midday peak hour. The remaining movements are calculated to operate Level of Service D or better during all three peak hours studied.

The signalized intersection of Broadway Avenue with the South Service Road would generally operate at similar Levels of Service under the 2018 No-Build Condition as compared to the 2010 Existing Condition. The intersection is calculated to operate at overall Levels of Service C during the weekday morning, weekday evening, and Saturday midday peak hours with all movements operating at Level of Service D or better.

At the unsignalized intersection of Church Street with Route 454, the eastbound approach of Church Street is calculated to operate under constrained conditions during the weekday evening peak hour. It is calculated to operate at Level of Service B during the weekday morning peak hour and Level of Service C during the Saturday midday peak hour.

The signalized intersection of Nicolls Road with Colin Drive and Greenbelt Parkway is calculated to operate at overall Level of Service F during the weekday morning, weekday evening, and Saturday midday peak hours under the 2018 No-Build Condition. The southbound left-turn movement and northbound through movement are calculated to operate under constrained conditions during the weekday evening peak hour and the southbound through movement is calculated to operate under constrained conditions during all three peak hours studied.

The signalized intersection of Nicolls Road with Church Street is calculated at overall Level of Service C or better during all three peak hours studied. The northbound left-turn movement is calculated to operate at Level of Service E during the weekday morning, weekday evening, and Saturday midday peak hours with the remaining movements operating at Level of Service D or better during all three peak hours studied.

Under the 2018 No-Build Condition, the weave section along the North Service Road between the Nicolls Road southbound ramp and Beacon Drive is calculated to operate at Level of Service F during the weekday morning peak hour, Level of Service D during the weekday evening peak hour, and Level of Service E during the Saturday midday peak hour. The southbound approach of Beacon Drive at the North Service Road is calculated to operate under constrained conditions during all three peak hours studied.

2018 BUILD CONDITION

The site-generated traffic volume of the proposed mixed-use development has been estimated to identify the potential impacts of the project. For the purpose of this analysis, a complete project "build out" is assumed within three (3) years of the preparation of this study. Per the requirements set forth in the Final Scope, we have analyzed the anticipated traffic volumes five (5) years after the site is developed.

PROPOSED TRIP GENERATION

Trip generation projections for the proposed mixed-use development were prepared utilizing the following land uses published by the Institute of Transportation Engineers (ITE) in Trip Generation Manual, 8th Edition: Land Use 130: "Industrial Park" for the 1,085,400 square feet of industrial space; Land Use 230: "Residential Condominium/Townhouse" for the 250 residential units; Land Use 310: "Hotel" for the 200-room hotel; Land Use 710: "General Office Building" for the 130,904 square foot office building; and Land

Use Code 820: "Shopping Center" for the 408,673 square feet of retail space and 60,000 square foot cinema. Table II provides the weekday morning, weekday evening, and Saturday midday expected trip generation volumes associated with the proposed development depicted on the Site Layout Plan ("Submittal Plan") prepared by Sidney B. Bowne & Son, LLP, dated December 9, 2010.

TABLE II – PROPOSED TRIP GENERATION

	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
1,085,400 SF Industrial LUC 130	531	116	647	184	694	878	122	258	380
250 Residential Units LUC 230	18	89	107	85	42	127	62	53	115
200-Room Hotel LUC 310	68	44	112	63	55	118	81	63	144
130,904 SF Office LUC 710	179	24	203	33	162	195	29	25	54
468,673 SF Retail LUC 820	234	149	383	878	913	1,791	1,216	1,123	2,339
Total	**1,030**	**422**	**1,452**	**1,243**	**1,866**	**3,109**	**1,510**	**1,522**	**3,032**

Please note that the trip generation for the park/recreational area component of the development has not been included as an element of the total trip generation of the site. It is anticipated that the vehicular and pedestrian traffic demand generated to and from the recreation area during the peak hours of study would be comprised of internal trips within the mixed use development project.

Chapter 7 of ITE's Trip Generation Handbook, (Second Edition), states that internally captured trips can be a component in the travel patterns at multi-use developments, such as the one proposed. When combined within a single development, individual land uses tend to interact, and thus attract a portion of each others trip generation, such as a resident visiting the retail shopping areas. Utilizing the published data, internal trips were calculated for the retail, residential, and office uses during the weekday evening and Saturday midday peak hours. It is noted that the Trip Generation Handbook does not have published data for the weekday morning and Saturday midday peak hours. The published weekday midday rates were utilized for the Saturday peak hour as the interaction characteristics would be similar during these two periods. No credit was taken for the weekday morning peak hour as there would likely be significantly less interaction during the morning peak hours. Note that no interaction credit was taken from the hotel and

industrial uses in order to provide a conservative analysis although it is likely that some interaction would occur.

As stated within Chapter 5 of ITE's Trip Generation Handbook, (Second Edition), there are instances when the total number of external trips generated by a site is different from the amount of new traffic added to the street system by the generator. Shopping Centers are specifically located on or adjacent to busy streets to attract motorists already on the roadway. Therefore, the proposed site would be expected to attract a portion of its retail trips from the traffic passing the site on the way from an origin to an ultimate destination. These trips do not add new traffic to the adjacent roadway system and are referred to as pass-by trips. Based upon the published ITE data for Land Use 820: "Shopping Centers," approximately 25% of the external site-generated retail traffic during the weekday evening peak hour and approximately 27% during the Saturday midday peak hour is expected to be comprised of pass-by traffic. Per the ITE methodology, the net external trips (ITE trip generation less internal trips) were used to calculate the pass-by trips.

The following table summarizes the total trip generation for the proposed development in terms of newly generated external site-trips (New), pass-by external site-trips (Pass-by), and internal site-trip volumes. A detailed breakdown of the "New", "Pass-by", and "Internal" site-generated trips for each land use is appended.

TABLE III – PROPOSED TRIP GENERATION – NEW, PASS-BY, AND INTERNAL TRIPS

	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	Enter	Exit	**Total**	Enter	Exit	**Total**	Enter	Exit	**Total**
New	1,030	422	**1,452**	957	1,580	**2,537**	1,155	1,167	**2,322**
Pass-By	0	0	**0**	208	208	**416**	298	298	**596**
Internal	0	0	**0**	78	78	**156**	57	57	**114**
TOTAL	1,030	422	**1,452**	1,243	1,866	**3,109**	1,510	1,522	**3,032**

At the site driveways, the calculated number of pass-by trips is shown as a negative number at the through movement as the vehicles are temporarily diverted from the through travel stream into and out of the site access point. The Internal Trips are internal to the site and therefore not shown on the adjacent roadway network.

ALTERNATIVE TRIP GENERATION SCENARIOS

In accordance with the requirements of the Final Scope, additional Site Layout Plans were developed for two (2) alternative development programs and the "as-of-right" development plan.

Alternate 1 Site Layout Plan

The Alternate 1 Site Layout Plan replaces the residential and park uses illustrated on the Submittal Plan with additional industrial space, and the office and hotel uses have been replaced with additional retail space, increasing the total industrial and retail space to 1,263,949 square feet and 571,400 square feet, respectively. The general access and circulation components would be similar to the Submittal Plan, and, as shown in the table below, the total trip generation is generally similar to the trip generation of the Submittal Plan during all three peak periods of study. It is noted that the absence of residential and office uses would reduce the likelihood of internal capture of vehicular traffic at the site, increasing the traffic impact of the site on the adjacent roadway network.

TABLE IV –TRIP GENERATION – ALTERNATE 1

	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
1,263,949 SF Industrial LUC 130	596	131	727	213	802	1,015	141	301	442
571,400 SF Retail LUC 820	263	168	431	1,002	1,043	2,045	1,383	1,277	2,660
Total (Alternate 1)	**859**	**299**	**1,158**	**1,215**	**1,845**	**3,060**	**1,524**	**1,578**	**3,102**
Total (Submittal Plan)	**1,030**	**422**	**1,452**	**1,243**	**1,866**	**3,109**	**1,510**	**1,522**	**3,032**

Alternate 2 Site Layout Plan

The Alternate 2 Site Layout Plan removes the industrial, residential, and park components from the proposed development plan and reduces the office space to 118,500 square feet while increasing the retail space to 657,536 square feet. The general access and circulation components in the southerly portion of the site would remain, however "New Road," which would serve as the primary access to the industrial area, has been removed and a large portion of the proposed industrial area would be dedicated as Open Space. The total trip generation would be less than the proposed development plan during the weekday morning

and evening peak hours. The Saturday midday peak hour trip generation would be comparable to the Submittal Plan.

TABLE V – TRIP GENERATION – ALTERNATE 2

	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
200-Room Hotel LUC 310	68	44	112	63	55	118	81	63	144
118,500 SF Office LUC 710	162	22	184	30	147	177	26	23	49
657,536 SF Retail LUC 820	285	183	468	1,101	1,146	2,247	1,516	1,399	2,915
Total (Alternate 2)	**515**	**249**	**764**	**1,194**	**1,348**	**2,542**	**1,623**	**1,485**	**3,108**
Total (Submittal Plan)	**1,030**	**422**	**1,452**	**1,243**	**1,866**	**3,109**	**1,510**	**1,522**	**3,032**

As-Of-Right Site Layout Plan

The as-of-right use on the subject property would allow for the construction of a total of 2,035,172 square feet of industrial space, with access and circulation elements similar to the Submittal Plan. Although the volume of site-generated trips on the adjacent roadway network would be less than the proposed development program, the volume of heavy vehicle traffic would likely significantly increase as a result of the increase in industrial space on the subject property. Additionally, the as-of-right development plan would eliminate the opportunity for mixed-use development and internal capture of traffic as the site would be comprised of entirely industrial uses.

TABLE VI – TRIP GENERATION – AS-OF-RIGHT

	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
2,035,172 SF Industrial LUC 130	861	189	1,050	338	1,271	1,609	228	484	712
Total (Submittal Plan)	**1,030**	**422**	**1,452**	**1,243**	**1,866**	**3,109**	**1,510**	**1,522**	**3,032**

TRIP ASSIGNMENT/DISTRIBUTION

The trips generated by the proposed development were distributed according to a Gravity Model prepared for the site based on a 5-mile market area, Journey-to-Work Models prepared for the site using the 2000 census data with the Township of Islip as a place of work and residence, and the access management plan of the site. The results of the Gravity Model were used to determine the distribution for the retail portion of the proposed development; the Journey-to-Work Model with the Town of Islip as a place of residence was used to determine the distribution for the residential and hotel trips; and the Journey-to-Work model with the Town of Islip as a place of work was used to determine the trip distribution for the office and industrial trips. The following table summarizes the results of the distribution analyses.

TABLE VII – TRIP DISTRIBUTION

To/From	Retail	Office and Industrial	Residential and Hotel
Route 27 – East	19%	9%	4%
Route 27 – West	4%	32%	39%
Route 454 – West	3%	27%	39%
Nicolls Road – North	8%	11%	5%
Nicolls Road – South	2%	3%	1%
Broadway Avenue - North	19%	5%	1%
Broadway Avenue - South	15%	9%	6%
Church Street – East	4%	1%	-
Church Street – West	18%	2%	5%
Greenbelt Parkway - East	8%	1%	-
Total	**100%**	**100%**	**100%**

The "New" Retail Traffic Volumes are illustrated on **Figure 6** and the "Pass-By" Retail Traffic Volumes expected to access the site are depicted on **Figure 7.** The residential, office, hotel, and industrial traffic volumes are depicted on **Figures 8, 9, 10, and 11**, respectively.

2018 BUILD TRAFFIC VOLUMES

The site-generated trips were added to the 2018 No-Build Volumes to calculate the 2018 Build Volumes, as shown on appended **Figure 13.**

2018 BUILD LOS/CAPACITY ANALYSIS

Capacity Analysis summary tables comparing the Existing, No-Build, and Build Conditions Level of Service and delay values are located in the Appendix. The following are discussions of the Level of Service findings at each study location.

Under the 2018 Build Condition, the signalized intersection of Route 454 with Broadway Avenue is calculated to operate at overall Level of Service E during the weekday morning, weekday evening, and Saturday midday peak hours. All movements would generally operate at or near No-Build Levels of Service with the exception of the southbound left-turn movement from Broadway Avenue which is calculated to operate under constrained conditions during all three peak hours studied and the eastbound through movement which is calculated to operate under constrained conditions during the weekday evening peak hour.

With the addition of the site-generated traffic to the signalized intersection of Broadway Avenue with Church Street, the eastbound through movement is calculated to operate under constrained conditions during the weekday evening and Saturday midday peak hours and the westbound left-turn movement is calculated to operate under constrained conditions during all three peak hours studied.

Under the 2018 Build Condition, the addition of the site-generated traffic along Broadway Avenue would result in the northbound through movement along Broadway Avenue operating under constrained conditions at its intersection with the North Service Road during the weekday morning, weekday evening, and Saturday midday peak hours and the southbound through movement along Broadway Avenue operating under constrained conditions at its approach with the shopping center driveways during the weekday evening peak hour and Saturday midday peak hour. The remaining movements at both intersections are calculated to generally operate at or near No-Build levels of service during all three peak hours studied. The capacity constraints, which are apparent under existing conditions, are a result of the close proximity of these two intersections, which results in a reduction in queuing capacity as well as a reduction in vehicular throughput.

Under the 2018 Build Condition, the signalized intersection of Broadway Avenue with the South Service Road is calculated to operate at overall Level of Service C during the weekday morning and weekday evening

hours and overall Level of Service D during the Saturday midday peak hour. All movements are calculated to operate at overall Level of Service D or better with the exception of the eastbound left-turn movement which is calculated to operate under constrained conditions during the Saturday midday peak hour.

The proposed access to the site along Route 454 would intersect the State Highway opposite Church Street to form a four-leg intersection controlled by a 4-phase traffic signal operating on the same cycle length as the Route 454/Broadway Avenue traffic signal in order to provide for coordination along the Route 454 corridor. As currently proposed, the eastbound approach of Church Street would provide one (1) exclusive through lane and one (1) shared through/right-turn lane and the westbound approach of the proposed site access would provide exclusive left-turn, through, and right-turn lanes. The northbound approach of Route 454 would provide one (1) exclusive left-turn lane, two (2) exclusive through lanes, and one (1) exclusive right turn lane. The southbound approach of Route 454 would provide two (2) exclusive left-turn lanes, one (1) exclusive through lane, and one (1) shared through/right-turn lane. As proposed, the intersection would operate at overall Level of Service E during the weekday morning peak hour, overall Level of Service D during the weekday evening peak hour, and overall Level of Service C during the Saturday midday peak hour.

Under the 2018 Build Condition, the signalized intersection of Nicolls Road with Colin Drive and Greenbelt Parkway is calculated to operate under constrained conditions during the weekday morning, weekday evening, and Saturday midday peak hours. It is noted that the majority of the movements at this intersection are calculated to operate with an increased delay in the Build Condition as compared to the No-Build Condition, even no they do not increase in traffic volume. This is largely due to the variable cycle length. Under the No-Build condition, the eastbound and westbound approaches of the intersection are underutilized and do not receive their full allotment of green signal time. The addition of the site-generated traffic to the eastbound and westbound approaches increases the allotment of green time to these approaches. This results in an increase in the actuated cycle length, which results in a nominal increase in delay to all movements at the intersection. Note that the proposed development is anticipated to increase the total volume at this intersection by approximately 8% or less during all three peak hours studied.

The signalized intersection of Nicolls Road with Church Street is calculated to operate at overall Level of Service C during the weekday morning, weekday evening, and Saturday midday peak hours. All movements are anticipated to operate at or near No-Build levels of service during all three peak hours

studied and the proposed development would increase the overall traffic volumes at this intersection by less than 5.5%.

The weave section along the North Service Road between the southbound ramp from Nicolls Road and Beacon Drive is calculated to operate under constrained conditions during the weekday morning and Saturday midday peak hours and operate at Level of Service D during the weekday evening peak hour. The southbound approach of Beacon Drive at the North Service Road is calculated to operate under constrained conditions during all three peak hours studied. The weave section created between the proposed access along the North Service Road and the ramp to Route 454 is calculated to operate at Level of Service D or better during all three peak hours studied.

RECOMMENDED MITIGATION MEASURES

A series of mitigation measures within the surrounding roadway network have been identified to attempt to address existing roadway network constraints as well as provide additional capacity to accommodate the site-generated traffic associated with the proposed development project. The modifications are regional improvements meant to benefit the adjacent roadway network and are not necessarily required to provide efficient ingress and egress for the subject property. Therefore, the implementation for these improvements would be expected to be shared by both the regional jurisdictional agencies and the Applicant as the improvements would provide significant benefits to the existing traveling public in addition to vehicles traveling to and from the subject property. These improvements have been analyzed under the Build with Mitigation scenario. Note that these improvements are in addition to the planned improvements along Broadway Avenue, as identified previously in this study. Please note that the recommended mitigation measures identified are largely dependant on the proposed access configuration and resulting trip distribution pattern. Should the proposed access to the site be modified or relocated, the measures identified would likely change in scope.

Route 454/Broadway Avenue Capacity Improvements

In order to provide additional capacity at the existing signalized intersection of Route 454 with Broadway Avenue, the eastbound and westbound exclusive right turn lanes could be restriped to provide a shared through/right turn lane, resulting in eastbound and westbound auxiliary lanes at the intersection.

Widening along Route 454 to the west of the intersection would likely be required. With the capacity improvements, the Route 454/Broadway Avenue intersection would operate at overall Level of Service D or better during all three peak hours studied.

Broadway Avenue/Church Street Signal Improvements and Church Street Widening

The capacity of the Broadway Avenue/Church Street traffic signal could be improved by modifying the existing signal equipment to provide a protected left-turn phase for the eastbound and westbound approaches of Church Street. Additionally, widening Church Street to two (2) lanes in the westbound direction between Route 454 and Broadway Avenue would provide for additional queuing for the westbound Church Street left-turn movement at Broadway Avenue as well as provide for better progression to this intersection from the proposed traffic signal at the site driveway along Route 454. With these improvements, the intersection would operate at overall Level of Service D or better during all three peak hours studied.

Broadway Avenue and North and South Service Roads Signal Timing Improvements

At the adjacent signalized intersections of Broadway Avenue with the North Service Road and the Shopping Center Driveways, it is recommended to reallocate green time from the North Service Road phase and the Shopping Center Driveways phase to the northbound/southbound Broadway Avenue phase in order to reduce delays and queuing along Broadway Avenue. Although this would increase the delays on the minor approaches, it would provide for better progression for motorists along the Broadway Avenue corridor. With these improvements, the intersections would operate at overall improved levels of service and delay as compared to the No Build condition during the weekday morning and weekday evening peak hours. The intersections would operate as similar levels of service to the No Build condition during the Saturday midday peak hour.

At the signalized intersection of Broadway Avenue with the South Service Road, it is recommended to reallocate green signal time from the southbound left-turn phase and the northbound/southbound phase to the eastbound South Service Road phase during the Saturday peak hour in order to reduce queuing and delays on the eastbound approach. With these improvements, all movements would operate at Level of Service D or better during all three peak hours studied.

Nicolls Road and Colin Drive/Greenbelt Parkway Striping and Signal Timing Improvements

The capacity of the signalized intersection of Nicolls Road with Colin Drive and Greenbelt Parkway could be improved by restriping the westbound approach to provide exclusive left-turn and through lanes. Additionally, the signal timing could be modified to reallocate additional green signal time to the northbound/southbound phase from the eastbound and westbound phases. With these improvements, the intersection would generally operate at No Build levels of service during all three peak hours studied.

Proposed Signalized Access along Route 454

As part of the proposed development, a traffic signal would be constructed by the Applicant at the intersection of Route 454 with Church Street and the proposed site driveway. In addition, two (2) southbound left-turn lanes are proposed to be constructed along Route 454 to provide efficient access into the site and one (1) exclusive left-turn lane and one (1) exclusive right-turn lane would be constructed to provide access from the northbound approach of Route 454 to Church Street and the proposed site driveway. Additionally, the eastbound approach of Church Street would be modified to provide one (1) exclusive through lane and one (1) shared through/right-turn lane and the proposed westbound approach of the site driveway would provide exclusive left-turn, through, and right-turn lanes. The improvements at the site driveway would be constructed by the Applicant to provide safe and effective access to and from the site's primary access.

Proposed Right-In/Right-Out Access along the North Service Road

As part of the proposed development, a right-in/right-out access point would be constructed by the Applicant along the North Service Road. The access point has been located in order to maximize its spacing distance from the Route 454 exit ramp to the west while maintaining sufficient distance from the North Service Road/Beacon Drive intersection. Deceleration and acceleration lanes would be provided along the North Service Road to provide safe and efficient ingress and egress movements.

Potential Removal of Beacon Drive

As the existing short weave section along the North Service Road between the southbound Nicolls Road ramp and Beacon Drive provides a difficult weaving maneuver for motorists and is calculated to operate at poor levels of service, the Town has suggested that the removal of Beacon Drive be considered, which would divert all vehicles using the intersection through the site access points. This will create a longer

weave section, which would be safer for motorists and would operate at or better than the Nicolls Road to Beacon Drive weave section under the No Build condition, operating at Level of Service E during the weekday morning and Saturday midday peak hours, and Level of Service D during the weekday evening peak hour. With the changes in traffic patterns the weaving section between the proposed North Service Road driveway and the ramp to Route 454 would operate at Level of Service D or better during all three peak hours studied. However, it is important to note that the feasibility of the removal of Beacon Drive will be subject to additional discussion and consultations with the governing agencies and the properties along Beacon Drive that could be impacted.

ACCIDENT ANALYSIS

In order to identify accident trends and specific problematic locations within the adjacent roadway network, motor vehicle accident data was obtained from NYSDOT. The data received encompassed a 38 month period (over three (3) years) from October 1, 2006 to November 30, 2009. During this period, 118 accidents were identified to have occurred along the study area network. Of these accidents, approximately 40% were rear end collisions, which can be attributed to traffic congestion and constrained conditions. A summary of the accident data is located in the Appendix. Numerous roadway improvements have been proposed in an attempt to alleviate congestion in the area.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

The intent of TDM strategies is to more efficiently and effectively use transportation resources and create connectivity between various land uses that could potentially reduce vehicular traffic demand and encourage multi-modal travel options. In general accordance with smart growth principles and TDM techniques, the proposed development has been designed and planned to create an interaction between land uses that would reduce the need for reliance on a personal vehicle and foster the use of various modes of transportation to traverse the property, journey to work, shop, and utilize the various offerings on the parcel. Within the development, sidewalks would be provided along the internal site roadways and crosswalks and appropriate way-finding signage would be provided at the internal site intersections to allow safe pedestrian circulation between proposed land uses as well as to the adjacent shopping centers to the east and west of the subject property.

Existing transit options in the area include Suffolk County Transit Bus 54 and Bus 59. Bus 54 runs from the Patchogue station along the Long Island Railroad through the Suffolk County offices in Hauppauge to the Walt Whitman Mall in Huntington Station, with stops in multiple residential areas and shopping centers, including Sun Vet Mall. Bus 59 runs between the Sayville station along the Long Island Railroad and Smith Haven Mall in Lake Grove, with stops at the Ronkonkoma Long Island Railroad station (approximately 5 miles from the site) and multiple residential and retail areas, including Sun Vet Mall. It is strongly recommended that expansion of the Suffolk County Transit lines be considered to provide stops within the proposed development site. Data published by ITE indicates a significant vehicle trip reduction for residential, commercial, and industrial developments located along bus transit corridors. However, no transit reduction was incorporated into the analysis in order to provide a conservative estimate of the future operating conditions of the adjacent roadway system.

SITE CIRCULATION/PARKING SUPPLY

A review was conducted of the proposed mixed-use development using the Site Layout Plan prepared by Sidney B. Bowne & Son, LLP, dated December 9, 2010. In completing this review, particular attention has been focused on the site access, circulation, and parking supply.

SITE CIRCULATION

Access is proposed via a full movement signalized access along Veterans Memorial Highway, a right-in/right-out access along the North Service Road, and three (3) full movement access points along Beacon Drive. The access along Route 454 will form the primary internal roadway to the site (known as Relocated Church Street) and intersect Beacon Drive along the easterly side of the site to form a four-leg intersection with Beacon Drive and the northerly Costco access. Relocated Church Street would generally provide two lanes in each direction and be divided by a grass median. At this time, the final geometry of the internal intersections has not been determined and are shown on the plan to conceptually illustrate the internal circulation of the site. During the preparation of final design plans, the anticipated traffic volumes at the major internal intersections would be analyzed to determine the appropriate lane geometry and whether any internal traffic signals would be required.

Approximately 500 feet to the north of the proposed Beacon Drive/Relocated Church Street intersection, the site access road to the industrial area (known as New Road) will intersect Beacon Drive opposite Colin Drive, to form a conventional four-leg intersection. The third access along Beacon Drive is proposed to be located approximately 650 feet south of the proposed Relocated Church Street/Beacon Drive intersection and would form the main access driveway through the retail area of the site and ultimately intersect Relocated Church Street opposite New Road to form a four-leg intersection, located approximately 500 feet east of the proposed access along Route 454.

Along the Sunrise Highway North Service Road, access is proposed via a right-in/right-out driveway. The driveway has been located in order to maximize its spacing distance from the Route 454 exit ramp to the west while maintaining sufficient distance from the North Service Road/Beacon Drive intersection. Deceleration and acceleration lanes would be provided along the North Service Road to provide safe and efficient ingress and egress movements. Approximately 300 feet north of the proposed North Service Road access, this driveway would intersect an internal circulation aisle to form an unsignalized T-intersection. The eastbound and westbound approaches of the internal aisle would be under stop control and the northbound approach of the site access would be free flow in order to prevent queuing onto the North Service Road.

Truck Access and Circulation

The Service Areas for the industrial portion of the proposed development are located along the northerly property line for Industrial Buildings 1 and 2 and between Industrial Buildings 3 and 4, which are situated on the easterly half of the site between New Road and Relocated Church Street. As all of the access driveways for the industrial buildings are located along New Road, trucks access the Service Areas from Route 454 to the west would enter the site via Relocated Church Street and turn left at the internal Relocated Church Street/New Road intersection. Trucks accessing the site from Sunrise Highway to the east would likely enter the site along the North Service Road via Beacon Drive and turn left onto New Road. Trucks accessing the site from Sunrise Highway to the west would likely utilize a similar route, accessing the North Service Road via its grade-separated interchange with Nicolls Road.

Trucks accessing the retail area of the site would arrive in a similar pattern as the industrial trucks, but would utilize Relocated Church Street to access the individual retail loading zones instead of New Road.

Trucks accessing the southerly retail buildings would also have the option of utilizing the proposed right-in/right-out access along the North Service Road.

Trucks exiting the site to travel east along Sunrise Highway would likely turn left out of the signalized access along Route 454 to access the South Service Road. Trucks exiting the site to travel west along Sunrise Highway would likely utilize either Beacon Drive or the proposed right-in/right-out driveway to access the North Service Road. Trucks exiting the site to travel west along Route 454 would likely turn right out of the proposed signalized access along Route 454.

Conceptual Shared Access Scenario at Primary Driveway

The site developer is currently pursuing an agreement with the owner of the adjacent property to the west (currently occupied by FedEx) to provide a shared, signalized access point along Route 454. This shared access would be located further northwest along Route 454, increasing the spacing distance between the proposed traffic signal and the entrance from the North Service Road. Under this scenario, the existing intersection of Church Street with Route 454 would remain unsignalized and the volume of traffic along the Church Street corridor would likely be reduced from the current access plan as a direct connection from the subject property to Church Street would no longer exist. Additionally, the shared access driveway would form a T-intersection with Route 454, which would provide for better overall Levels of Service than under the current scenario. Note that an agreement with the adjacent property owner has not been consummated as of the date of this study; therefore this access is conceptual only and a full analysis has not been undertaken.

PARKING SUPPLY

A total of 5,640 spaces are proposed to be provided on-site to support the proposed development. This includes 2,765 spaces for the retail and cinema, 552 spaces for the residential (including the parking for the recreation park), and a total of 2,323 spaces for the industrial, office, and hotel. The proposed parking supply was compared to the requirements for the proposed Islip Smart Growth Planned Development District (ISGPDD) and for the Town of Islip as well as with industry standard rates published by the Urban Land Institute (ULI) in Shared Parking, Second Edition and ITE in Parking Generation, 4th Edition. As shown in Table VIII, the total proposed parking supply would be sufficient to accommodate the proposed

development plan and meets the requirements of the ISGPDD as well as the total parking supply recommended by the ULI and ITE. It is further expected that the mixed use nature of the site would encourage shared parking conditions on the site in which parking stalls would be utilized by various uses throughout the course of a typical weekday and weekend period. Note that the parking requirements of the Town of Islip are generally higher than the published data, and the application of the Town parking requirements to this development would result in an excessive land area and resources devoted to parking.

TABLE VIII – PARKING SUPPLY

	Industry Publications		Local Requirements	
Land Use	**ULI Rates**	**ITE Rates[1]**	**Town of Islip**	**ISGPDD**
408,673 SF Retail	*4 spaces / 1,000 SF GFA[2]* 1,635 Spaces	*3.9 spaces / 1,000 SF GFA* 1,594 Spaces	*1 space / 175 SF GFA* 2,335 Spaces	*4 spaces / 1,000 SF GFA* 1,635 Spaces
60,000 SF Cinema (1,800 seats)	*0.27 spaces / seat* 486 Spaces	*0.36 spaces / seat* 648 Spaces	*1 space / 175 SF GFA[4]* 343 Spaces	*4 spaces / 1,000 SF GFA[4]* 240 Spaces
Retail Total **(2,765 Spaces Provided)**	**2,121 Spaces**	**2,242 Spaces**	**2,678 Spaces**	**1,875 Spaces**
130,904 SF Office	*3.35 spaces / 1,000 SF GFA* 439 Spaces	*3.45 spaces / 1,000 SF GFA* 452 Spaces	*1 space / 200 SF GFA* 655 Spaces	*3.3 spaces / 1,000 SF GFA* 432 Spaces
200-Room Hotel	*1.25 spaces / room* 250 Spaces	*1.54 spaces / room* 308 Spaces	*1 space / room + employees* 210 Spaces[5]	*1 space / room + 5%* 210 Spaces
1,085,400 SF Industrial	*not published[3]* 2,008 Spaces	*1.85 spaces / 1,000 SF GFA* 2,008 Spaces	*1 / 600 SF GFA[6]* 2,352 Spaces	*1. space / 1,000 SF GFA* 1,086 Spaces
Industrial Total **(2,323 Spaces Provided)**	**2,697 Spaces**	**2,768 Spaces**	**3,217 Spaces**	**1,728 Spaces**
250 Residential Units (552 Spaces Provided)	*1.85 spaces / unit* 463 Spaces	*1.52 spaces / unit* 380 Spaces	*2 spaces / unit* 500 Spaces	*2 spaces / unit* 500 Spaces
Total **(5,640 Spaces Provided)**	**5,281 Spaces**	**5,390 Spaces**	**6,395 Spaces**	**4,103 Spaces**

1. The 85% ITE rates were utilized for analysis purposes.
2. GFA – Gross Floor Area
3. ULI does not have published rates for an industrial use; therefore the ITE rate was utilized.
4. The Town of Islip and the ISGPDD do not specify parking requirements for a cinema; therefore the retail rate was utilized.
5. Assumed 5% for employees.
6. 15% computed as office space at 1 space per 200 SF GFA.

CONCLUSIONS

This report was prepared to examine the potential traffic impact of the proposed mixed-use development known as Islip Pines. The analysis findings which have been based on industry standard guidelines indicate that the traffic impacts generated by the proposed development would generally be mitigated to acceptable operating conditions within the study area once the recommended mitigation measures are implemented. The site driveways and on-site layout have been designed to provide for

effective access to and from the subject property and the parking supply would be sufficient to support this project.

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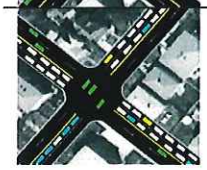
TECHNICAL APPENDIX

LEVEL OF SERVICE/AVERAGE CONTROL DELAY CRITERIA

LEVEL OF SERVICE /AVERAGE CONTROL DELAY CRITERIA

The ability of a roadway to effectively accommodate traffic demand is determined through an assessment of the volume-to-capacity ratio, delay and Level of Service of the lane group and/or intersection. The volume-to-capacity ratio is the ratio of traffic flow rate to capacity for a given transportation facility. As defined within the 2000 Highway Capacity Manual (HCM), intersection delay is the total additional travel time experienced by drivers, passengers, or pedestrians as a result of control measures and interaction with other users of the facility, divided by the volume departing from the corresponding cross section of the facility. Level of service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

For an unsignalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle. For a signalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle and LOS F denotes operations with delay in excess of 80 seconds per vehicle.

	Level Of Service (LOS)	Signalized Delay Range (average control delay in sec/veh)	Unsignalized Delay Range (average control delay in sec/veh)
	A	<=10	<=10
	B	>10 and <=20	>10 and <=15
	C	>20 and <=35	>15 and <=25
	D	>35 and <=55	>25 and <=35
	E	>55 and <=80	>35 and <=50
	F	>80	>50

Source: Highway Capacity Manual (2000 Edition)

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

BROADWAY AVENUE & ROUTE 454

NB (Northbound) and SB (Southbound) approaches are the Broadway Avenue approaches
EB (Eastbound) and WB (Westbound) approaches are the Route 454 approaches
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	D (41.3)	F (102.0)	F (115.1)	E (74.1)
EB Through	B (17.3)	B (19.9)	C (23.0)	C (25.2)
EB Right	B (15.1)	B (17.0)	B (17.6)	
WB Left	C (21.6)	F (92.4)	F (105.8)	F (107.4)
WB Through	E (77.5)	E (78.9)	E (76.2)	C (20.4)
WB Right	C (21.4)	B (18.9)	A (1.0)	
NB Left	F (145.6)	F (125.9)	F (125.9)	E (75.5)
NB Through	E (69.8)	D (54.9)	E (60.9)	E (56.3)
NB Right	E (56.4)	A (0.0)	A (0.0)	A (0.0)
SB Left	F (127.9)	E (73.0)	F (83.0)	E (74.1)
SB Through		E (73.5)	E (72.9)	E (71.2)
SB Right	D (53.0)	A (0.2)	A (0.2)	A (0.2)
Intersection	**E (73.1)**	**E (65.6)**	**E (62.7)**	**C (33.5)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	C (25.4)	E (64.6)	E (64.6)	E (68.9)
EB Through	D (43.5)	E (62.9)	F (82.9)	D (39.2)
EB Right	B (18.0)	B (18.5)	B (18.0)	
WB Left	F (92.0)	E (67.9)	E (57.5)	D (54.7)
WB Through	D (37.4)	D (38.6)	D (43.9)	E (59.4)
WB Right	C (31.8)	C (32.7)	D (40.9)	
NB Left	E (56.9)	F (104.8)	F (104.8)	E (68.7)
NB Through	F (87.0)	E (55.6)	E (62.4)	E (64.0)
NB Right	D (47.0)	A (0.0)	A (0.0)	A (0.0)
SB Left	F (88.5)	E (65.8)	F (168.1)	E (75.9)
SB Through		E (59.3)	E (59.3)	E (55.3)
SB Right	D (44.6)	A (0.1)	A (0.1)	A (0.1)
Intersection	**D (47.8)**	**E (56.6)**	**E (70.1)**	**D (51.6)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	C (24.0)	E (72.5)	E (72.5)	E (68.6)
EB Through	C (26.4)	D (35.7)	D (39.1)	C (33.6)
EB Right	C (21.1)	C (26.6)	C (26.6)	
WB Left	C (33.4)	E (59.5)	C (34.2)	D (40.2)
WB Through	D (39.1)	D (41.1)	D (48.7)	D (46.7)
WB Right	C (32.5)	C (33.9)	E (58.2)	
NB Left	E (66.8)	E (67.6)	E (67.6)	E (60.0)
NB Through	F (145.0)	D (46.5)	E (61.1)	E (56.3)
NB Right	D (39.5)	A (0.0)	A (0.0)	A (0.0)
SB Left	F (154.4)	E (58.1)	F (120.8)	E (60.5)
SB Through		D (49.2)	D (49.2)	C (30.2)
SB Right	D (36.4)	A (0.1)	A (0.1)	A (0.1)
Intersection	**E (66.0)**	**D (43.8)**	**E (55.6)**	**D (43.6)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

BROADWAY AVENUE & CHURCH STREET

NB (Northbound) and SB (Southbound) approaches are the Broadway Avenue approaches
EB (Eastbound) and WB (Westbound) approaches are the Church Street approaches
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	C (20.2)	B (17.8)	B (18.1)	C (29.3)
EB Through/Right	C (20.5)	B (19.2)	D (36.3)	D (43.2)
WB Left	B (18.8)	B (16.9)	F (135.9)	C (26.7)
WB Through/Right	B (19.0)	B (17.0)	B (18.1)	C (28.3)
NB Left	A (4.3)	A (6.0)	A (6.2)	B (17.5)
NB Through/Right	A (5.5)	A (7.0)	A (7.9)	B (15.2)
SB Left	A (9.6)	B (11.5)	B (11.7)	B (18.3)
SB Through	B (12.7)	B (13.9)	B (13.9)	C (22.8)
SB Right	B (10.2)			
Intersection	**A (9.4)**	**B (10.6)**	**C (23.1)**	**C (21.8)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	B (17.1)	B (13.8)	B (17.9)	C (23.7)
EB Through/Right	C (24.1)	C (20.4)	F (311.1)	D (54.4)
WB Left	B (16.1)	B (13.2)	F (637.4)	E (56.3)
WB Through/Right	B (16.0)	B (13.0)	C (21.0)	C (20.0)
NB Left	A (5.3)	A (7.6)	A (5.4)	D (40.5)
NB Through/Right	A (7.2)	A (9.7)	A (7.9)	D (36.7)
SB Left	A (8.9)	B (10.0)	B (10.4)	C (31.0)
SB Through	B (13.0)	B (12.7)	B (13.0)	D (42.5)
SB Right	A (9.5)			
Intersection	**B (12.9)**	**B (12.9)**	**F (156.7)**	**D (42.7)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	B (19.0)	C (20.7)	C (30.0)	B (18.8)
EB Through/Right	B (19.3)	E (78.8)	F (410.7)	D (44.8)
WB Left	B (17.0)	B (18.5)	F (729.6)	E (76.5)
WB Through/Right	B (17.2)	B (18.4)	F (142.9)	C (21.2)
NB Left	A (5.4)	A (5.3)	A (5.3)	D (44.0)
NB Through/Right	A (7.3)	A (7.4)	A (8.1)	D (54.4)
SB Left	A (7.5)	A (9.9)	A (9.8)	C (29.7)
SB Through	B (12.2)	B (13.2)	B (12.8)	D (46.9)
SB Right	A (7.9)			
Intersection	**B (11.6)**	**C (21.4)**	**F (173.4)**	**D (48.2)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

BROADWAY AVENUE & SHOPPING CENTER DRIVEWAYS

NB (Northbound) and SB (Southbound) approaches are the Broadway Avenue approaches
EB (Eastbound) and WB (Westbound) approaches are the Shopping Center Driveways
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	D (43.5)	D (42.8)	D (41.6)	D (42.4)
EB Through/Right	D (40.3)	D (39.1)	D (38.3)	D (38.8)
WB Left/Through	D (41.1)	D (42.0)	D (40.9)	D (41.7)
WB Right	D (40.0)	D (38.9)	D (38.1)	D (38.6)
NB Through/Right	A (7.8)	B (10.6)	C (26.2)	A (3.7)
SB Left	C (32.2)	C (32.9)	C (32.9)	D (43.6)
SB Through	C (31.9)	D (37.9)	E (58.3)	C (32.4)
SB Right		C (32.5)	D (37.1)	C (22.7)
Intersection	**C (20.9)**	**C (24.8)**	**D (36.8)**	**B (17.1)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	D (46.5)	D (46.3)	D (46.3)	D (44.1)
EB Through/Right	D (43.7)	D (40.3)	D (40.3)	D (39.4)
WB Left/Through	D (52.3)	F (125.6)	F (125.6)	F (97.8)
WB Right	D (43.1)	D (39.8)	D (39.8)	D (38.8)
NB Through/Right	A (8.7)	B (18.6)	C (33.4)	A (3.2)
SB Left	C (33.4)	C (34.7)	C (34.7)	D (39.9)
SB Through	D (40.1)	E (64.4)	F (303.9)	E (59.1)
SB Right		D (48.2)	D (51.9)	D (39.0)
Intersection	**C (30.3)**	**D (47.4)**	**F (131.1)**	**D (37.1)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	F (93.2)	F (699.0)	F (699.0)	F (699.0)
EB Through/Right	D (36.2)	D (36.5)	D (36.5)	D (36.5)
WB Left/Through	E (78.2)	F (359.2)	F (359.2)	F (359.2)
WB Right	D (36.0)	D (36.4)	D (36.4)	D (36.4)
NB Through/Right	B (18.7)	C (27.2)	D (37.5)	B (19.9)
SB Left	D (36.2)	D (40.1)	D (40.1)	D (44.8)
SB Through	D (43.8)	F (96.4)	F (288.8)	F (282.0)
SB Right		D (42.7)	D (43.9)	D (43.1)
Intersection	**D (41.3)**	**F (133.2)**	**F (173.5)**	**F (165.8)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

BROADWAY AVENUE & NORTH SERVICE ROAD

NB (Northbound) and SB (Southbound) approaches are the Broadway Avenue approaches
WB (Westbound) approach is the North Service Road approach
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
WB Left	C (31.3)	C (31.1)	C (27.9)	C (32.8)
WB Through	C (32.7)	C (31.9)	C (28.5)	C (33.8)
WB Right	C (28.6)	C (27.6)	C (25.0)	C (28.9)
NB Left	E (61.9)	E (61.2)	D (52.6)	D (52.6)
NB Through	D (37.0)	D (40.4)	F (197.7)	C (34.0)
SB Through	A (5.5)	A (9.7)	B (14.4)	A (5.1)
SB Right	C (24.1)	C (20.2)	D (37.0)	B (15.0)
Intersection	**C (34.2)**	**C (33.7)**	**F (80.6)**	**C (30.3)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
WB Left	D (44.6)	D (51.0)	D (49.4)	E (58.1)
WB Through	D (39.1)	D (37.1)	D (36.6)	D (38.6)
WB Right	D (35.4)	C (33.2)	C (32.8)	C (34.5)
NB Left	E (61.8)	E (60.8)	E (57.1)	E (62.9)
NB Through	D (40.4)	E (66.8)	F (254.4)	D (38.5)
SB Through	A (9.9)	B (16.8)	C (25.8)	A (8.9)
SB Right	A (9.1)	B (13.9)	D (41.2)	A (8.8)
Intersection	**D (35.5)**	**D (41.7)**	**F (90.1)**	**C (33.2)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
WB Left	D (44.6)	F (97.9)	F (97.9)	F (97.9)
WB Through	C (29.8)	C (30.0)	C (30.0)	C (30.0)
WB Right	C (25.6)	C (25.2)	C (25.2)	C (25.2)
NB Left	E (56.2)	E (59.4)	D (53.1)	D (52.9)
NB Through	E (59.1)	F (174.3)	F (417.5)	F (137.0)
SB Through	B (10.7)	B (17.2)	C (22.1)	C (22.1)
SB Right	A (9.2)	B (15.6)	C (24.1)	C (24.0)
Intersection	**D (37.4)**	**E (70.0)**	**F (132.4)**	**E (66.2)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

BROADWAY AVENUE & SOUTH SERVICE ROAD

NB (Northbound) and SB (Southbound) approaches are the Broadway Avenue approaches
EB (Eastbound) approach is the South Service Road approach
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	B (12.2)	B (14.3)	C (22.2)	C (22.2)
EB Through	B (11.0)	B (12.8)	B (14.7)	B (14.7)
EB Right	B (11.4)	B (13.1)	B (15.1)	B (15.1)
NB Through	D (37.8)	D (36.1)	C (34.0)	C (34.0)
NB Right	C (31.9)	C (30.1)	C (27.9)	C (27.9)
SB Left	C (31.6)	C (29.0)	C (25.2)	C (29.1)
SB Through	C (31.8)	C (28.8)	C (23.5)	C (27.2)
Intersection	**C (28.6)**	**C (27.6)**	**C (26.2)**	**C (27.0)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	B (13.5)	B (17.8)	C (24.5)	C (24.5)
EB Through	B (10.8)	B (13.7)	B (16.3)	B (16.3)
EB Right	B (11.5)	B (14.3)	B (17.6)	B (17.6)
NB Through	D (46.8)	D (46.8)	D (43.8)	D (43.8)
NB Right	D (42.5)	D (39.6)	D (36.4)	D (36.4)
SB Left	D (41.2)	D (45.6)	D (44.8)	D (36.4)
SB Through	D (39.8)	D (36.7)	C (33.5)	C (30.4)
Intersection	**C (29.6)**	**C (31.6)**	**C (32.1)**	**C (30.5)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	C (23.0)	D (36.3)	F (98.3)	D (52.6)
EB Through	B (16.6)	C (22.0)	C (25.5)	C (21.5)
EB Right	B (16.4)	C (22.2)	C (26.6)	C (23.3)
NB Through	D (36.8)	C (32.5)	C (30.5)	D (39.4)
NB Right	C (32.6)	C (33.6)	C (29.0)	C (32.0)
SB Left	C (31.2)	C (33.9)	C (34.0)	D (51.9)
SB Through	C (28.4)	C (23.9)	C (20.0)	C (21.6)
Intersection	**C (27.2)**	**C (29.2)**	**D (38.7)**	**C (34.3)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

ROUTE 454 & CHURCH STREET/PROPOSED SITE ACCESS

NB (Northbound) and SB (Southbound) approaches are the Route 454 approaches
EB (Eastbound) approach is the Proposed Site Driveway approach
WB (Westbound) approach is the Church Street approach
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Through/Right	--	--	E (75.6)	E (66.2)
EB Right	B (11.0)	B (11.5)	--	--
WB Left	--	--	E (67.4)	E (67.5)
WB Through	--	--	E (63.2)	E (60.7)
WB Right	--	--	C (30.8)	C (30.0)
NB Left	--	--	F (80.3)	F (80.3)
NB Through	--	--	F (80.0)	C (34.1)
NB Right	--	--	B (15.5)	B (18.4)
SB Left	--	--	E (70.9)	E (65.5)
SB Through/Right	--	--	A (8.4)	B (13.6)
Intersection	--	--	**E (63.4)**	**D (38.9)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Through/Right	--	--	E (64.8)	E (59.8)
EB Right	E (49.8)	F (111.4)	--	--
WB Left	--	--	E (72.9)	D (42.8)
WB Through	--	--	D (38.2)	C (23.5)
WB Right	--	--	C (22.0)	B (17.7)
NB Left	--	--	E (71.8)	E (71.8)
NB Through	--	--	C (33.6)	C (33.6)
NB Right	--	--	C (24.9)	C (27.9)
SB Left	--	--	F (80.3)	E (75.5)
SB Through/Right	--	--	C (26.4)	E (58.4)
Intersection	--	--	**D (39.6)**	**D (47.4)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Through/Right	--	--	E (56.0)	D (51.9)
EB Right	C (16.1)	C (22.0)	--	--
WB Left	--	--	D (46.6)	D (49.3)
WB Through	--	--	C (28.3)	B (17.7)
WB Right	--	--	B (10.2)	B (12.9)
NB Left	--	--	E (62.0)	E (62.0)
NB Through	--	--	D (44.4)	D (35.8)
NB Right	--	--	C (27.5)	C (28.1)
SB Left	--	--	D (45.2)	D (47.0)
SB Through/Right	--	--	B (14.9)	B (19.6)
Intersection	--	--	**C (34.6)**	**C (32.7)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

NICOLLS ROAD & COLIN DRIVE/GREENBELT PARKWAY

NB (Northbound) and SB (Southbound) approaches are the Nicolls Road approaches
EB (Eastbound) approach is the Colin Drive approach
WB (Westbound) approach is the Greenbelt Parkway approach
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	D (53.5)	D (53.1)	D (53.7)	D (54.8)
EB Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)
WB Left	D (50.6)	D (53.3)	E (56.9)	E (56.1)
WB Through/Right				D (53.0)
NB Left	D (51.9)	D (54.5)	E (58.4)	E (60.0)
NB Through	B (17.3)	C (28.5)	D (40.5)	C (26.7)
NB Right	A (7.3)	A (9.0)	B (10.9)	A (8.9)
SB Left	F (90.4)	E (59.6)	E (62.7)	E (63.7)
SB Through	F (220.3)	F (311.3)	F (357.1)	F (289.2)
SB Right	B (13.2)	B (15.2)	B (18.9)	B (16.1)
Intersection	**F (128.5)**	**F (180.5)**	**F (202.3)**	**F (162.6)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	D (48.9)	D (51.4)	E (57.9)	E (63.8)
EB Right	A (0.2)	A (0.2)	A (0.3)	A (0.3)
WB Left	D (52.4)	D (52.9)	E (61.5)	E (65.5)
WB Through/Right				E (63.8)
NB Left	D (50.6)	D (53.7)	E (61.9)	E (69.6)
NB Through	E (66.0)	F (132.7)	F (214.6)	F (145.8)
NB Right	A (7.9)	A (9.7)	B (15.2)	B (12.2)
SB Left	E (75.5)	F (81.4)	E (67.3)	E (72.5)
SB Through	F (84.5)	F (162.3)	F (244.8)	F (155.4)
SB Right	B (12.6)	B (15.0)	C (21.8)	B (18.0)
Intersection	**E (67.7)**	**F (128.4)**	**F (187.1)**	**F (125.8)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build	Mitigation
EB Left	E (56.8)	E (61.1)	E (70.5)	E (75.2)
EB Right	A (0.2)	A (0.2)	A (0.4)	A (0.4)
WB Left	E (57.8)	E (65.4)	E (77.2)	E (74.9)
WB Through/Right				E (72.6)
NB Left	E (58.1)	E (69.3)	F (104.0)	F (82.8)
NB Through	C (23.1)	D (45.0)	F (109.4)	D (51.2)
NB Right	B (10.2)	B (13.2)	C (21.1)	B (15.1)
SB Left	E (72.3)	E (78.1)	F (93.2)	F (88.3)
SB Through	F (117.8)	F (212.9)	F (317.9)	F (215.0)
SB Right	B (19.7)	C (23.7)	C (34.7)	C (27.6)
Intersection	**E (63.7)**	**F (109.2)**	**F (166.1)**	**F (108.6)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

NICOLLS ROAD & CHURCH STREET

NB (Northbound) and SB (Southbound) approaches are the Nicolls Road approaches
EB (Eastbound) and WB (Westbound) approaches are the Church Street approaches
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build
EB Left	C (23.8)	C (25.4)	C (28.4)
EB Through/Right	C (20.3)	C (21.0)	C (22.4)
WB Left	C (20.2)	C (20.9)	C (22.3)
WB Through/Right	C (20.1)	C (20.8)	C (22.3)
NB Left	D (50.9)	E (56.2)	E (56.7)
NB Through	C (25.6)	C (30.0)	C (29.8)
NB Right	B (18.1)	C (20.0)	B (19.8)
SB Left	D (41.4)	D (46.4)	D (49.0)
SB Through	B (18.0)	C (20.3)	B (19.8)
SB Right	B (14.8)	B (16.4)	B (15.9)
Intersection	**C (22.4)**	**C (25.3)**	**C (25.7)**

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build
EB Left	D (36.4)	D (39.2)	D (40.1)
EB Through/Right	C (32.8)	D (37.3)	D (37.8)
WB Left	C (26.9)	C (29.0)	C (30.4)
WB Through/Right	C (26.4)	C (28.2)	C (29.9)
NB Left	D (49.1)	E (55.9)	E (60.7)
NB Through	C (21.7)	C (25.0)	C (29.1)
NB Right	B (15.9)	B (17.5)	B (20.0)
SB Left	D (36.1)	D (41.9)	D (48.2)
SB Through	B (12.4)	B (14.0)	B (15.6)
SB Right	A (9.1)	A (9.9)	B (10.8)
Intersection	**C (21.7)**	**C (24.7)**	**C (27.4)**

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build
EB Left	C (29.5)	C (33.6)	D (40.4)
EB Through/Right	C (28.0)	C (31.3)	C (32.9)
WB Left	C (26.6)	C (28.8)	C (30.5)
WB Through/Right	C (26.5)	C (28.8)	C (30.8)
NB Left	E (56.1)	E (75.3)	D (48.2)
NB Through	B (16.8)	B (19.1)	C (22.5)
NB Right	B (12.0)	B (13.0)	B (15.0)
SB Left	C (30.2)	C (34.1)	D (38.6)
SB Through	A (9.0)	A (9.7)	B (11.2)
SB Right	A (7.0)	A (7.4)	A (8.5)
Intersection	**B (16.9)**	**B (19.2)**	**C (22.1)**

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

NORTH SERVICE ROAD & BEACON DRIVE

SB (Southbound) approach is the Beacon Drive approach
WB (Westbound) approach is the North Service Road approach
X (n) = Level of Service (seconds of delay)

WEEKDAY MORNING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build
SB Right	D (32.3)	F (53.7)	F (120.7)

WEEKDAY EVENING PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build
SB Right	F (134.6)	F (952.8)	F (879.8)

WEEKEND MIDDAY PEAK PERIOD

Lane Group	2010 Existing	2018 No-Build	2018 Build
SB Right	F (209.6)	F(612.6)	F (931.7)

NORTH SERVICE ROAD WEAVE SECTIONS

Weave 1 is between the Nicolls Road Southbound Ramp and Beacon Drive
Weave 2 is between the Nicolls Road Southbound Ramp and the Proposed Site Driveway
Weave 3 is between the Proposed Site Driveway and the ramp to Route 454
X (n) = Level of Service (Weaving Segment Density pc/mi/ln)

WEEKDAY MORNING PEAK PERIOD

Weave	2010 Existing	2018 No-Build	2018 Build	Remove Beacon
Weave 1	E (38.13)	F (43.78)	F (47.26)	--
Weave 2	--	--	--	E (36.18)
Weave 3	--	--	D (34.30)	D (33.88)

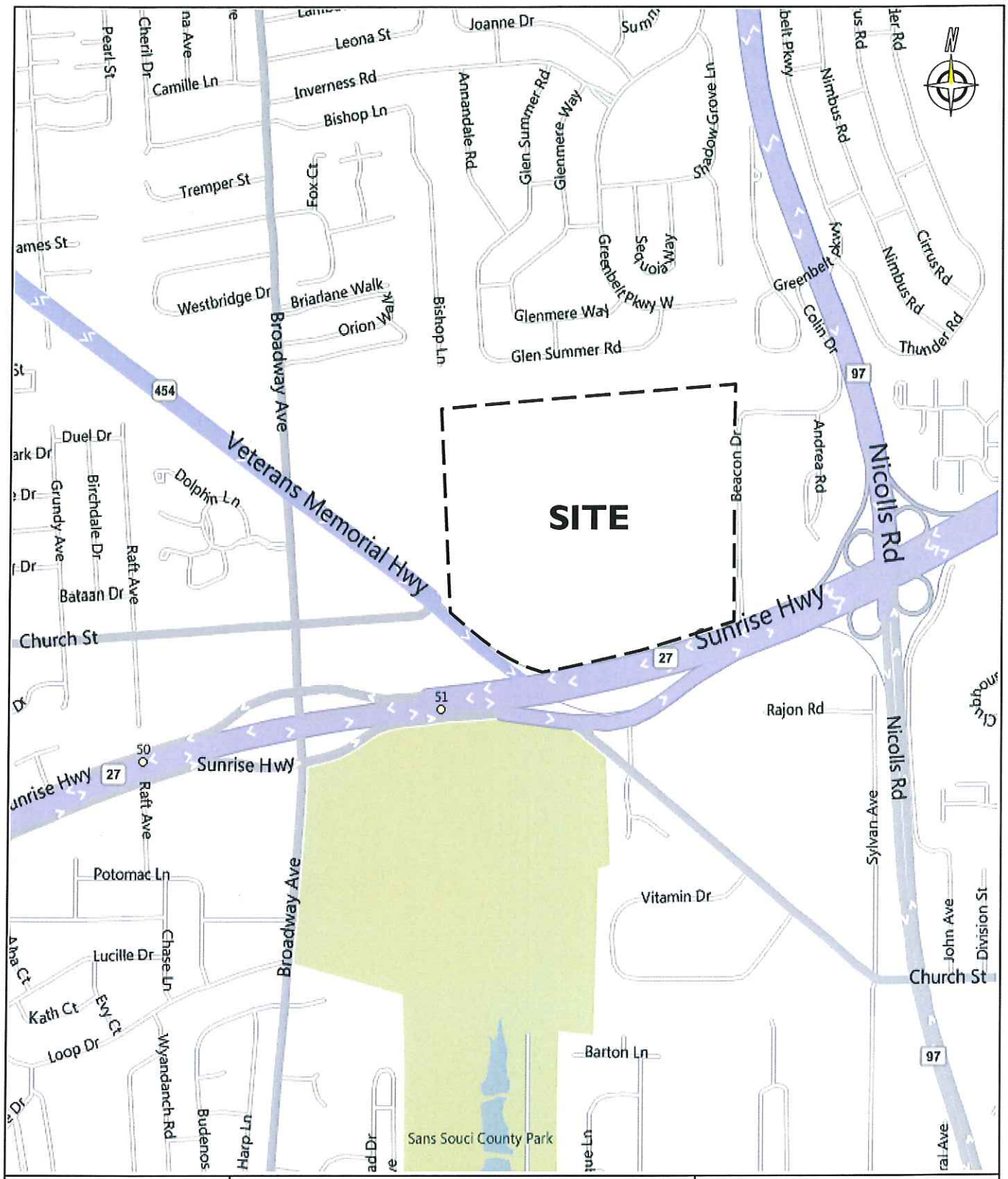
WEEKDAY EVENING PEAK PERIOD

Weave	2010 Existing	2018 No-Build	2018 Build	Remove Beacon
Weave 1	C (26.48)	D (31.75)	D (34.78)	--
Weave 2	--	--	--	D (28.55)
Weave 3	--	--	C (25.16)	C (27.17)

WEEKEND MIDDAY PEAK PERIOD

Weave	2010 Existing	2018 No-Build	2018 Build	Remove Beacon
Weave 1	D (34.38)	E (42.56)	F (46.39)	--
Weave 2	--	--	--	E (37.23)
Weave 3	--	--	C (27.04)	D (29.40)

FIGURES



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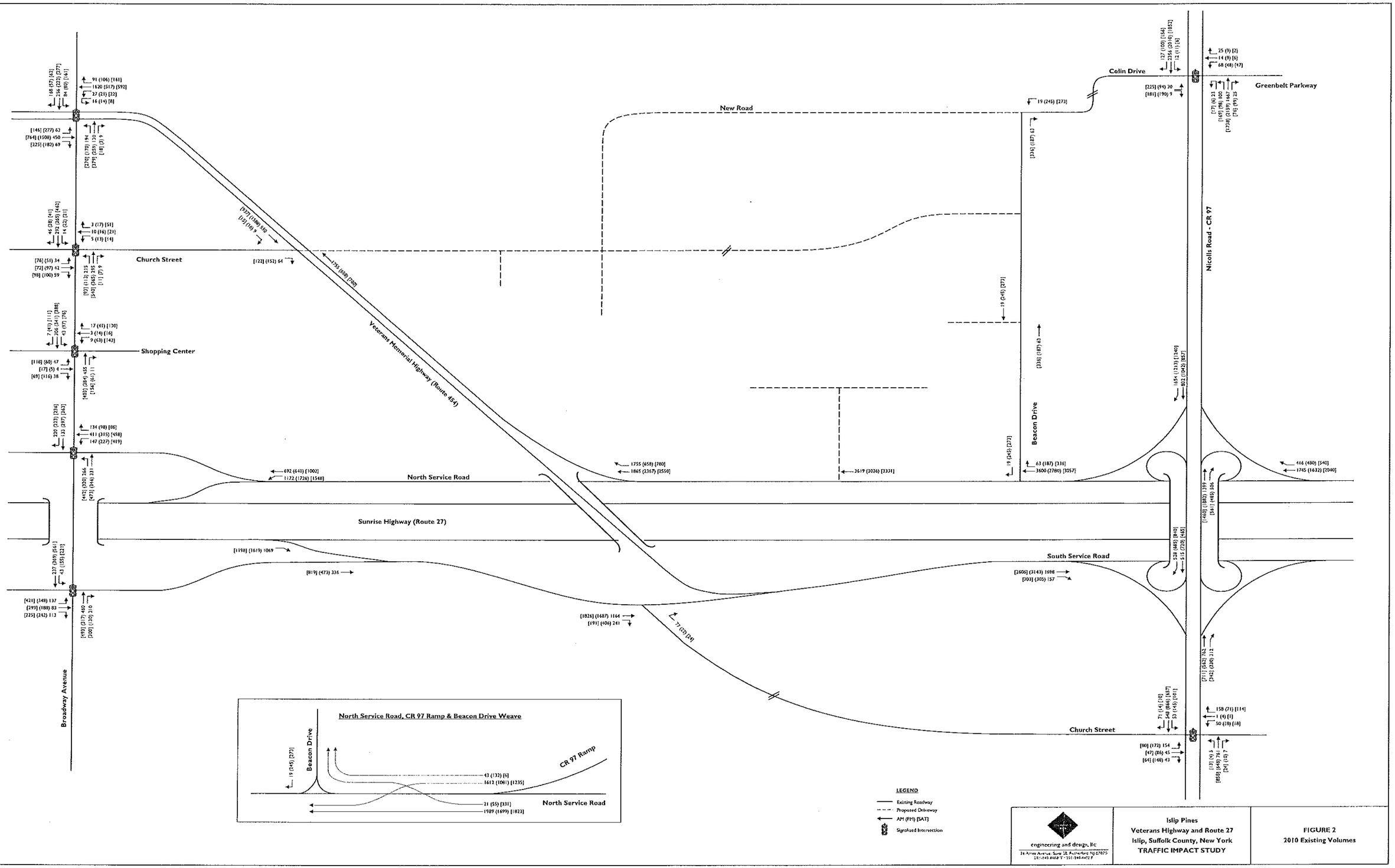
Islip Pines
Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY

FIGURE 1
Site Location Map


Colin Drive
Greenbelt Parkway
New Road
Nicolls Road - CR 97
Church Street
Shopping Center
Veterans Memorial Highway (Route 454)
Beacon Drive
North Service Road
Sunrise Highway (Route 27)
South Service Road
Broadway Avenue
North Service Road, CR 97 Ramp & Beacon Drive Weave
CR 97 Ramp
LEGEND
Existing Roadway
Proposed Driveway
AM (PM) [SAT]
Signalized Intersection
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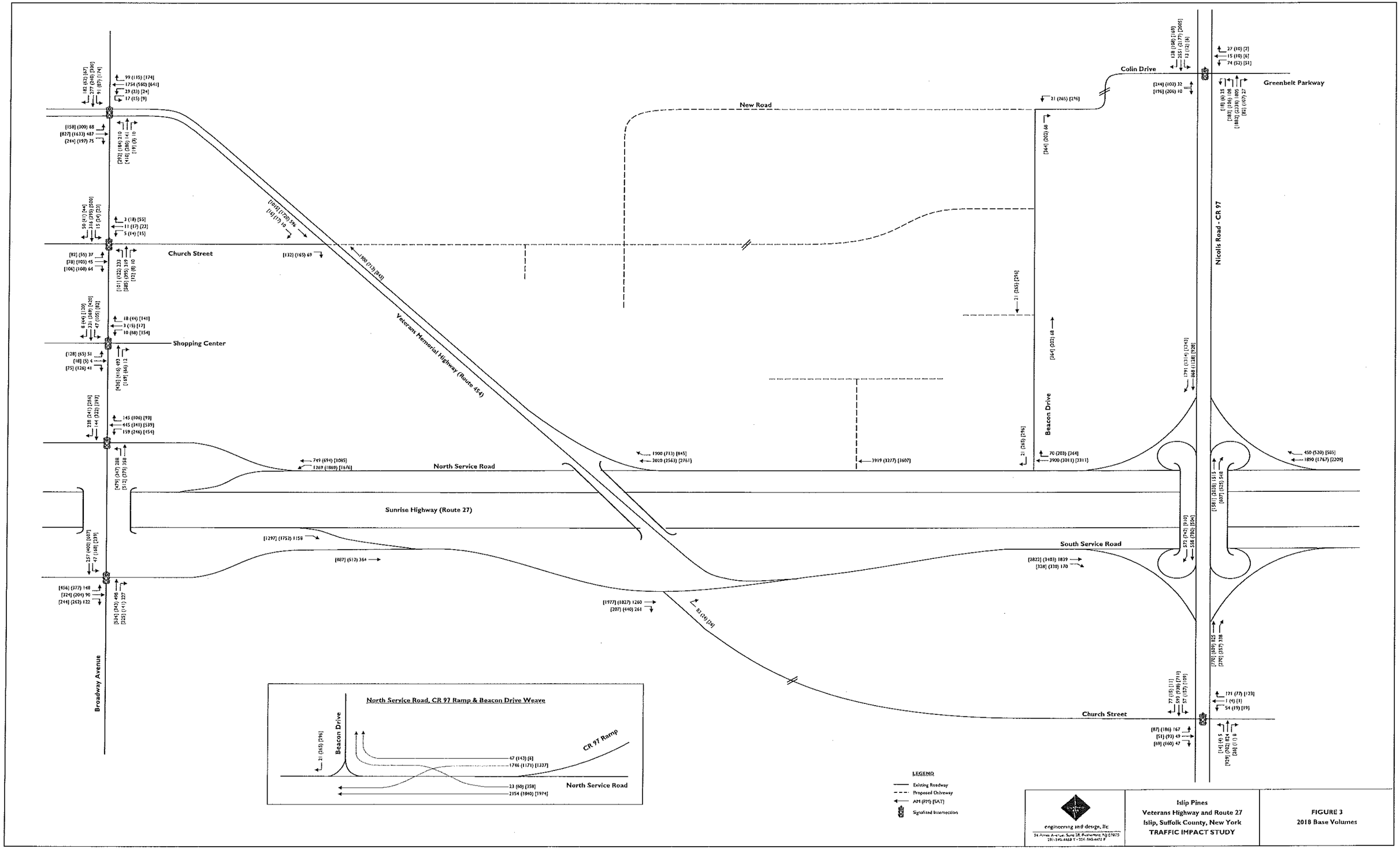
Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY
FIGURE 2
2010 Existing Volumes


Broadway Avenue
Church Street
Shopping Center
Sunrise Highway (Route 27)
North Service Road
South Service Road
New Road
Veterans Memorial Highway (Route 454)
Colin Drive
Greenbelt Parkway
Nicolls Road - CR 97
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Signalized Intersection
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Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY
FIGURE 3
2018 Base Volumes

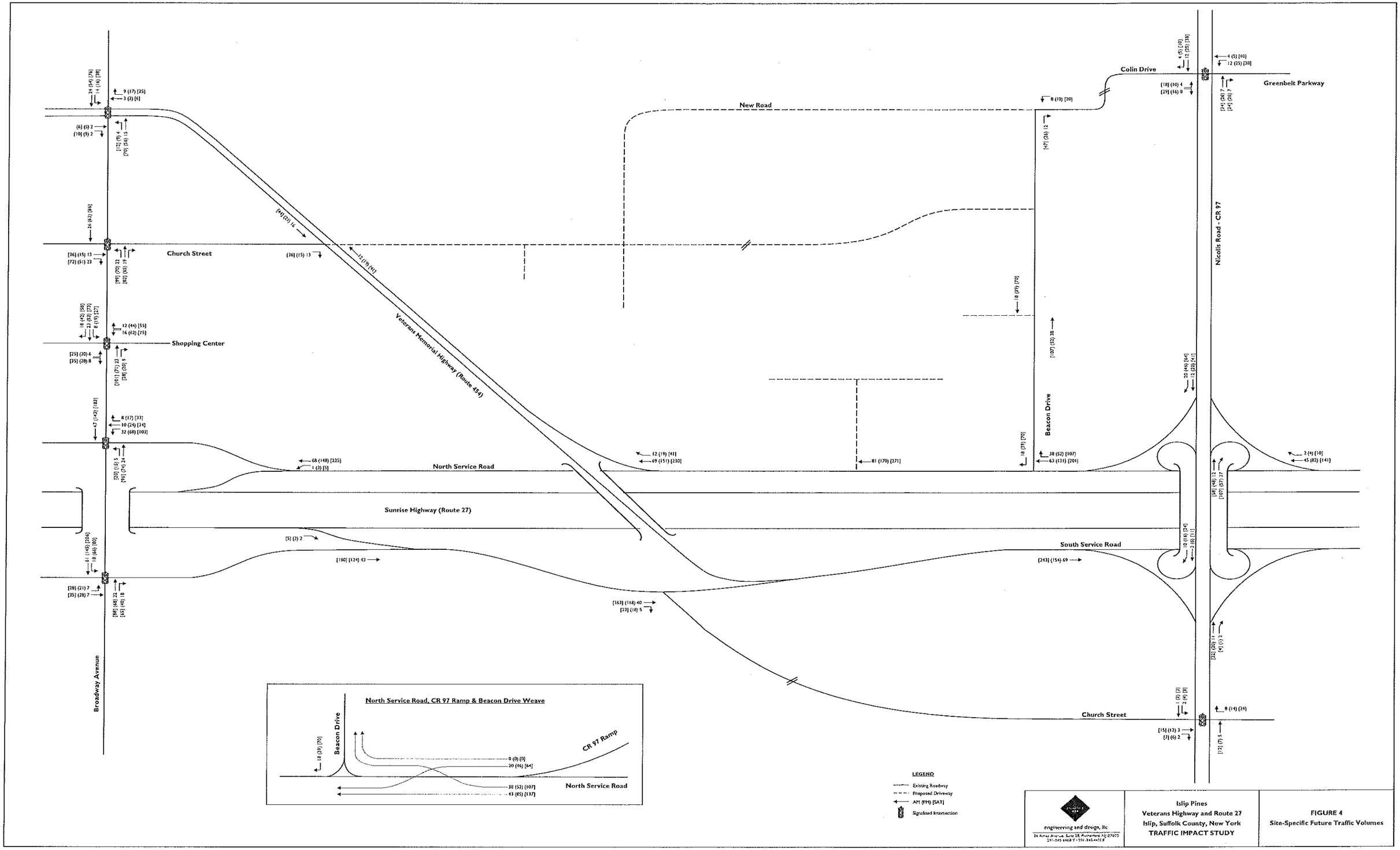


FIGURE 4
Site-Specific Future Traffic Volumes

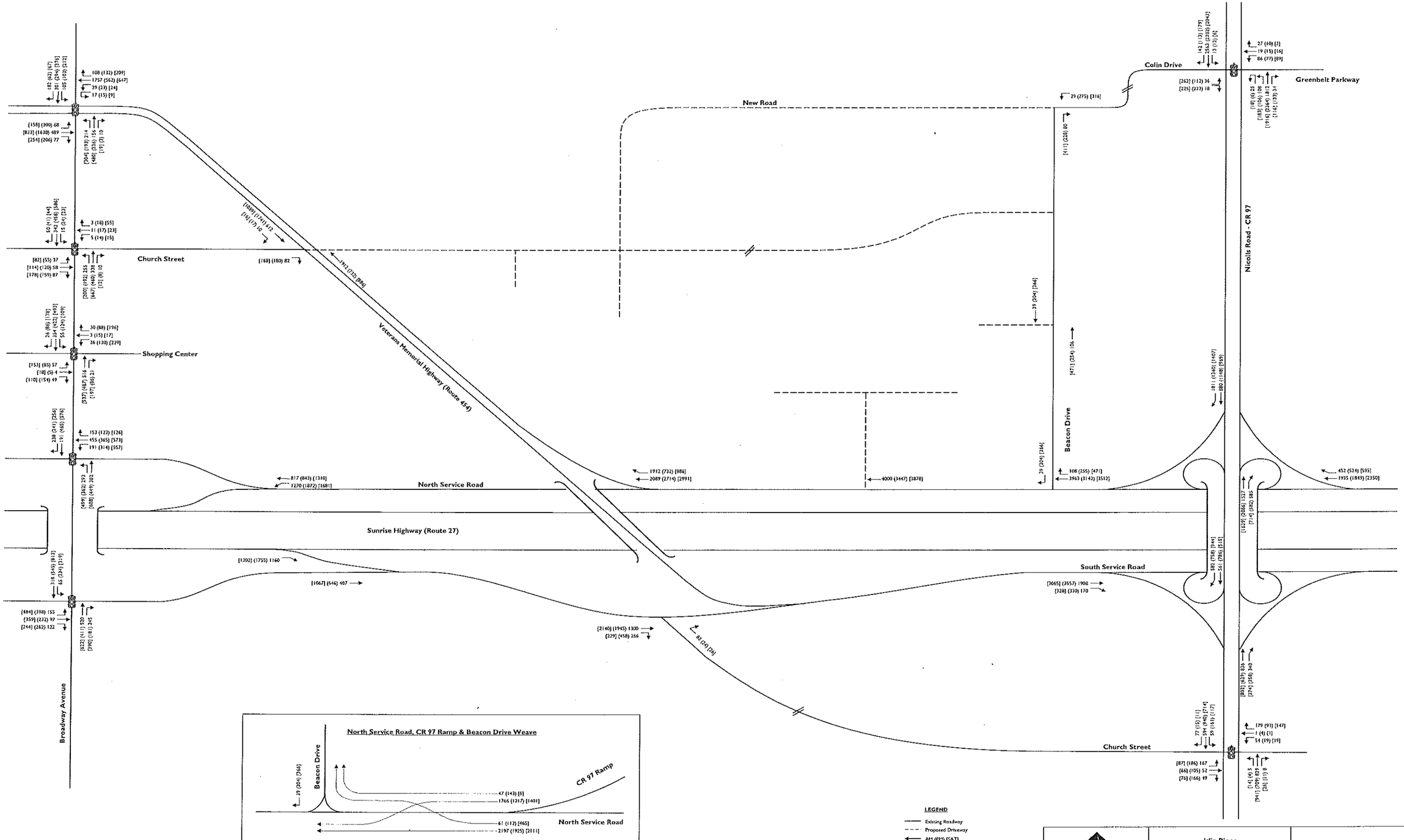
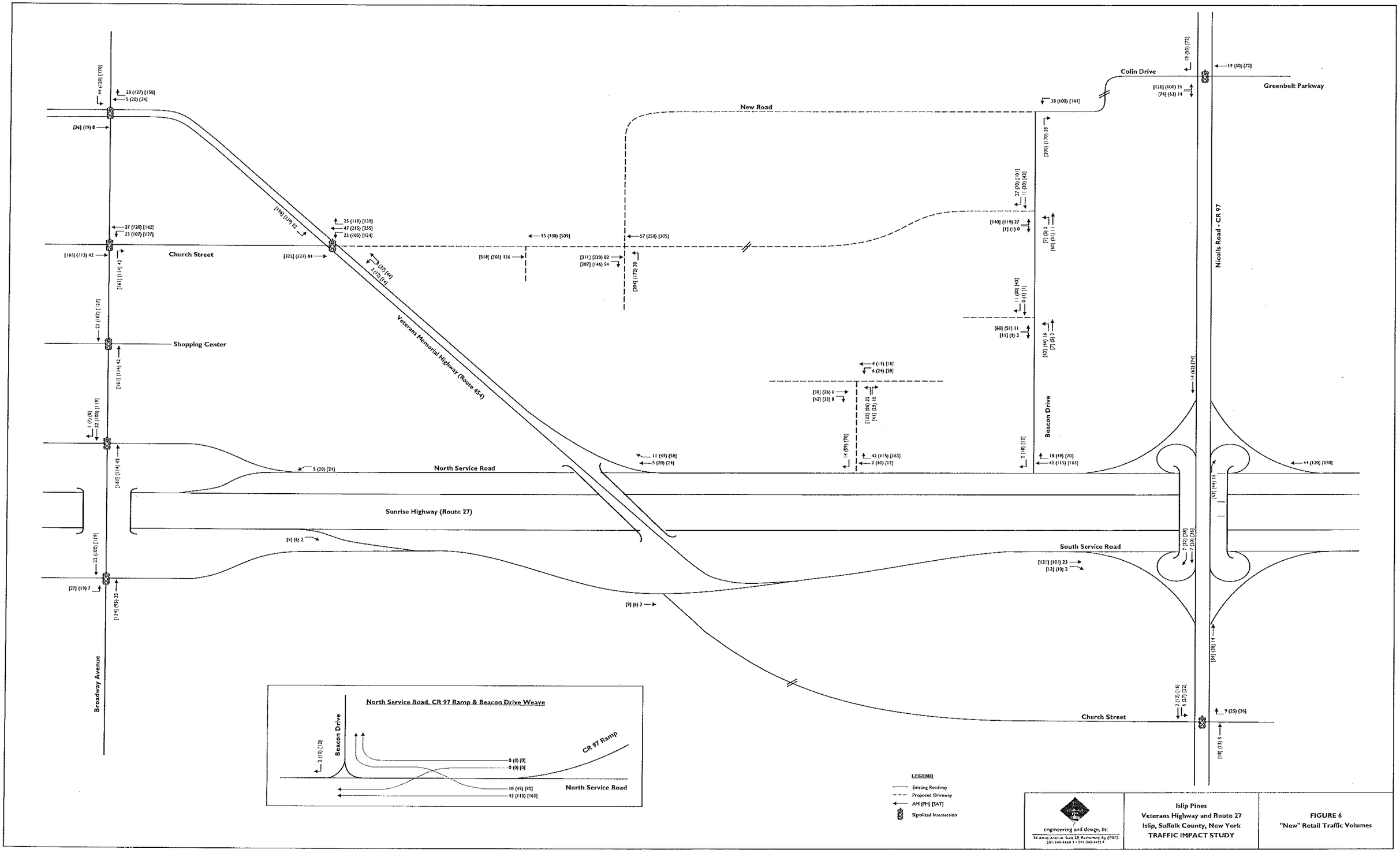


FIGURE 5
2018 No Build Traffic Volumes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Greenbelt Parkway
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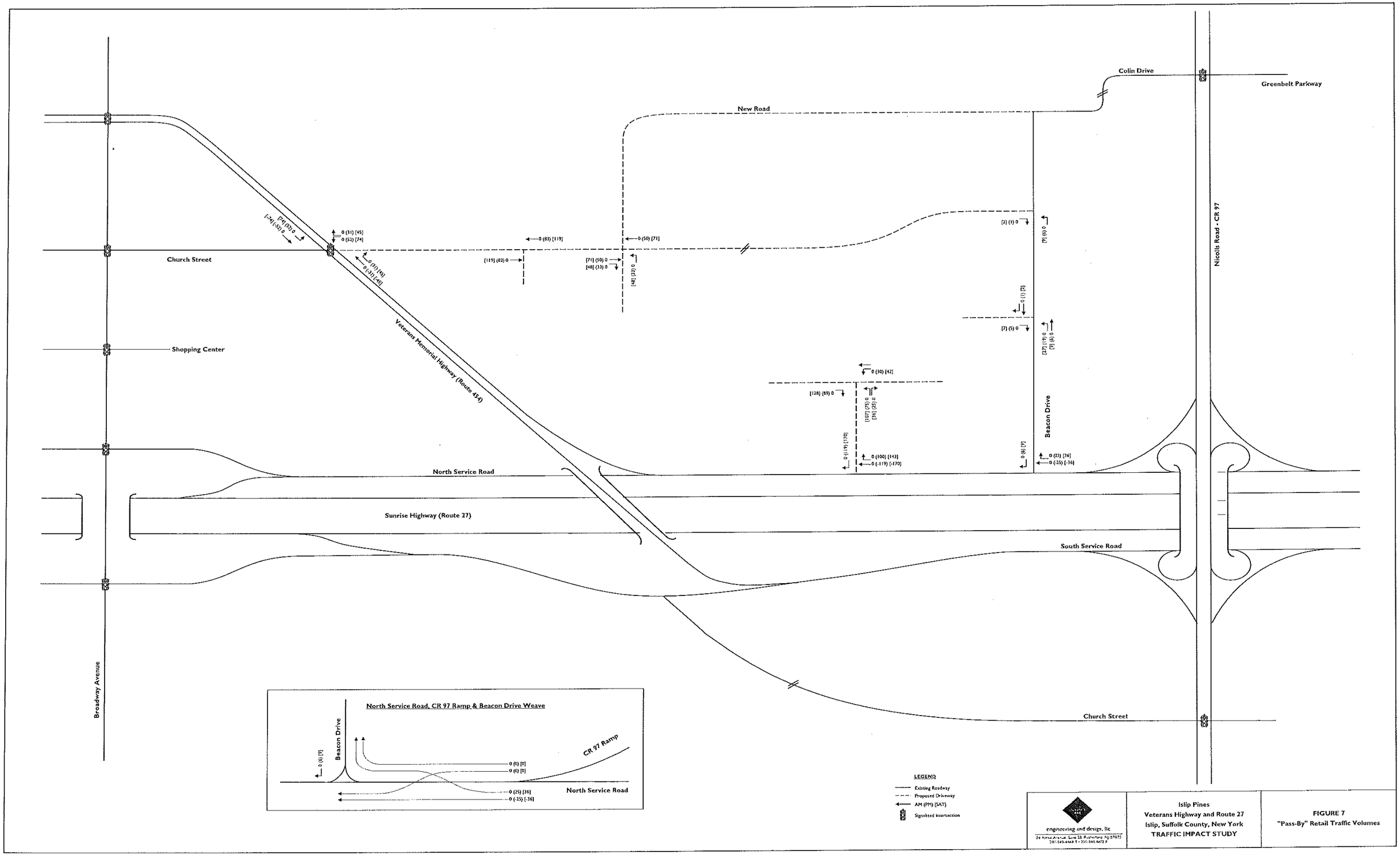
FIGURE 6
"New" Retail Traffic Volumes



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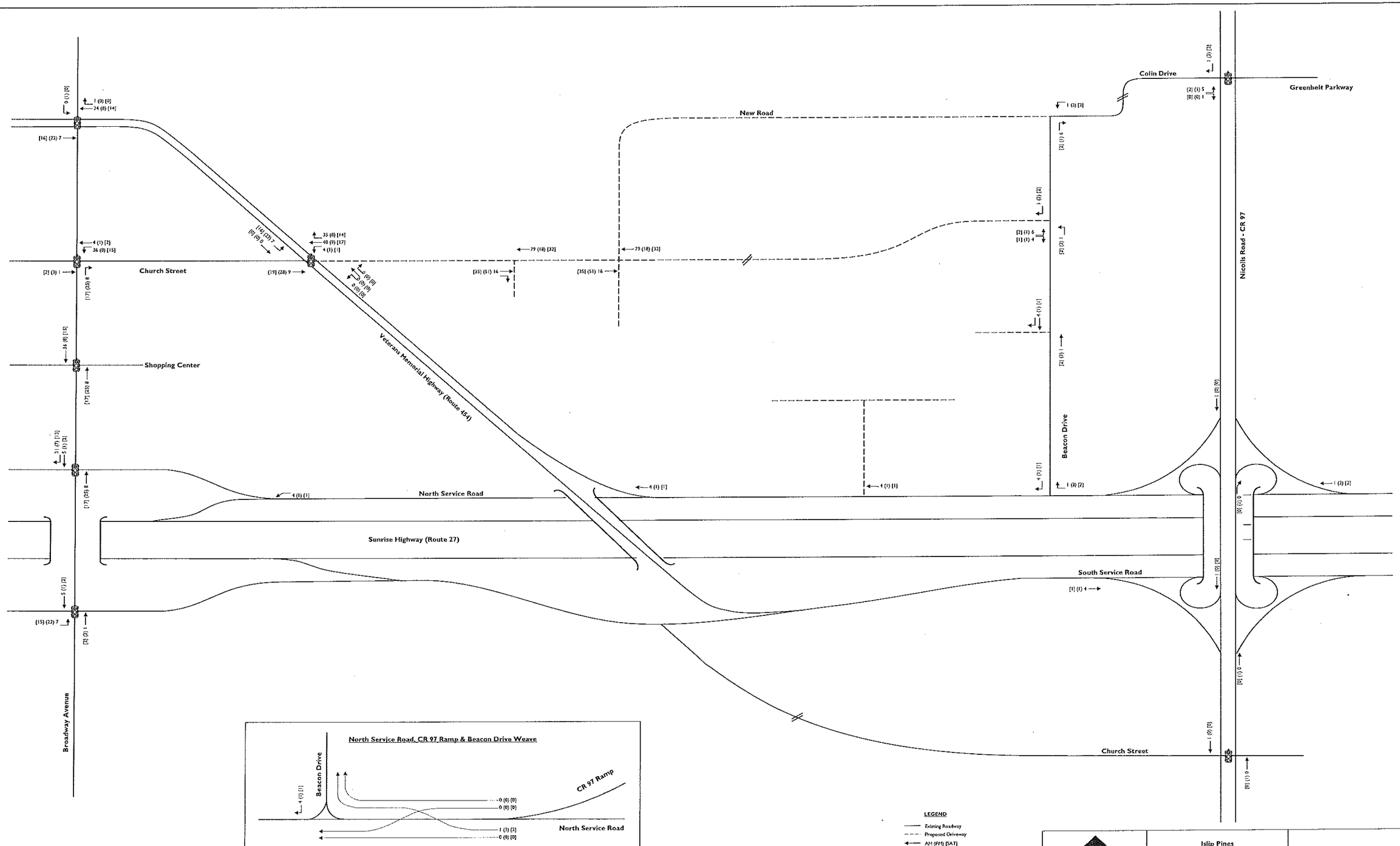
Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY

FIGURE 7
"Pass-By" Retail Traffic Volumes



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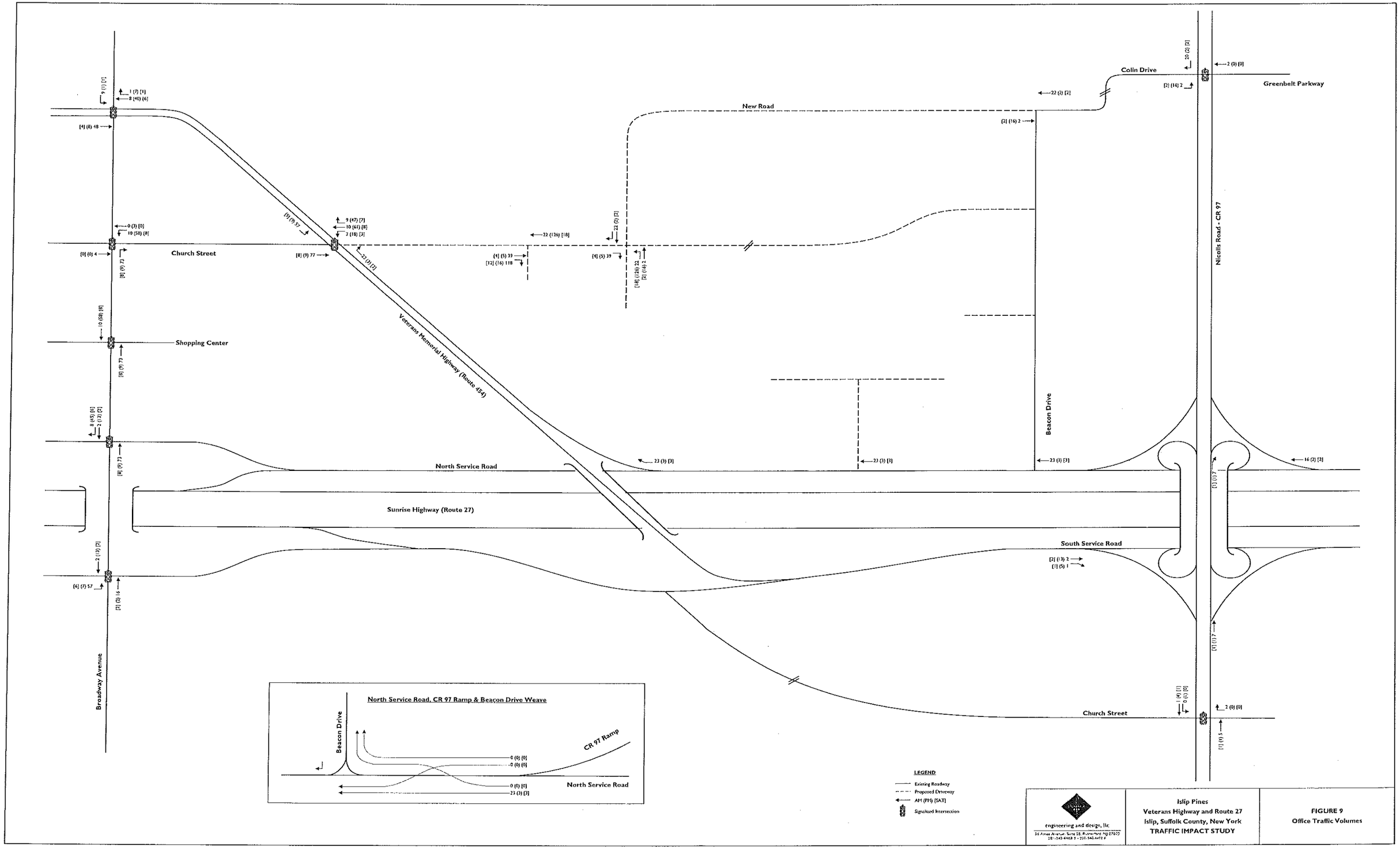
Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY

FIGURE 8
Residential Traffic Volumes


Colin Drive
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Existing Roadway
Proposed Driveway
AM (PM) [SAT]
Signalized Intersection
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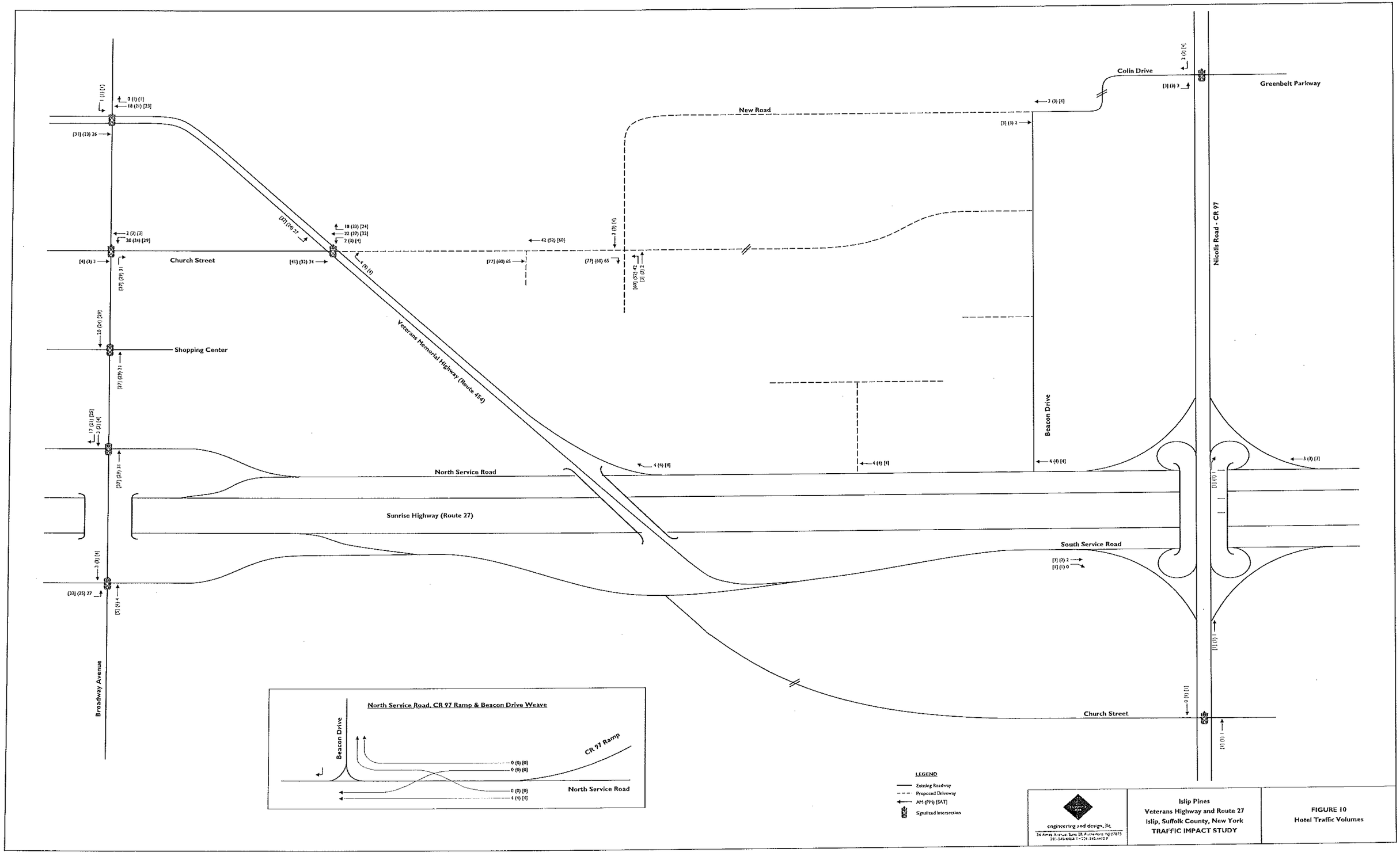
Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY
FIGURE 9
Office Traffic Volumes


Colin Drive
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AM (PM) [SAT]
Signalized Intersection
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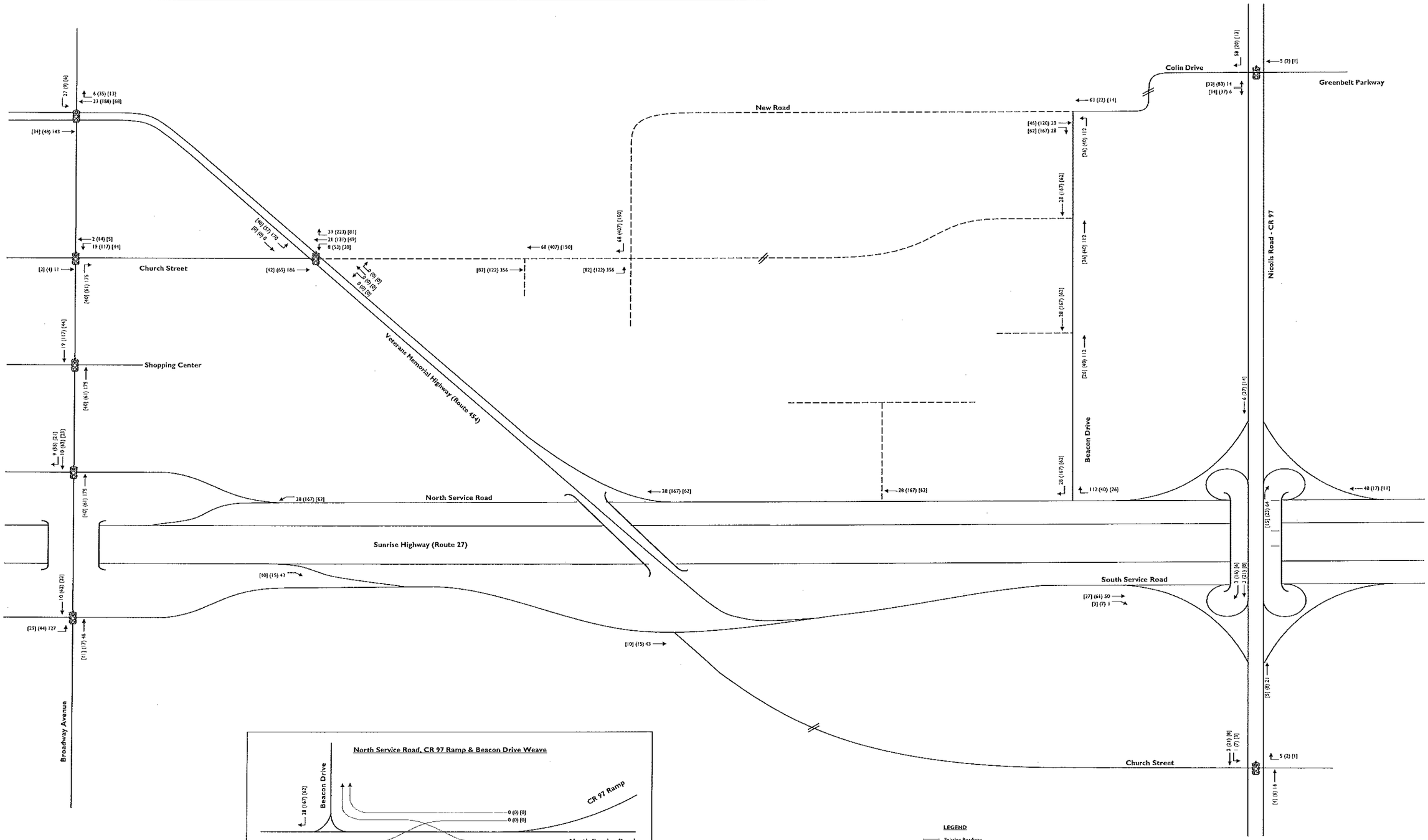
Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY
FIGURE 10
Hotel Traffic Volumes



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Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY

FIGURE 11
Industrial Traffic Volumes

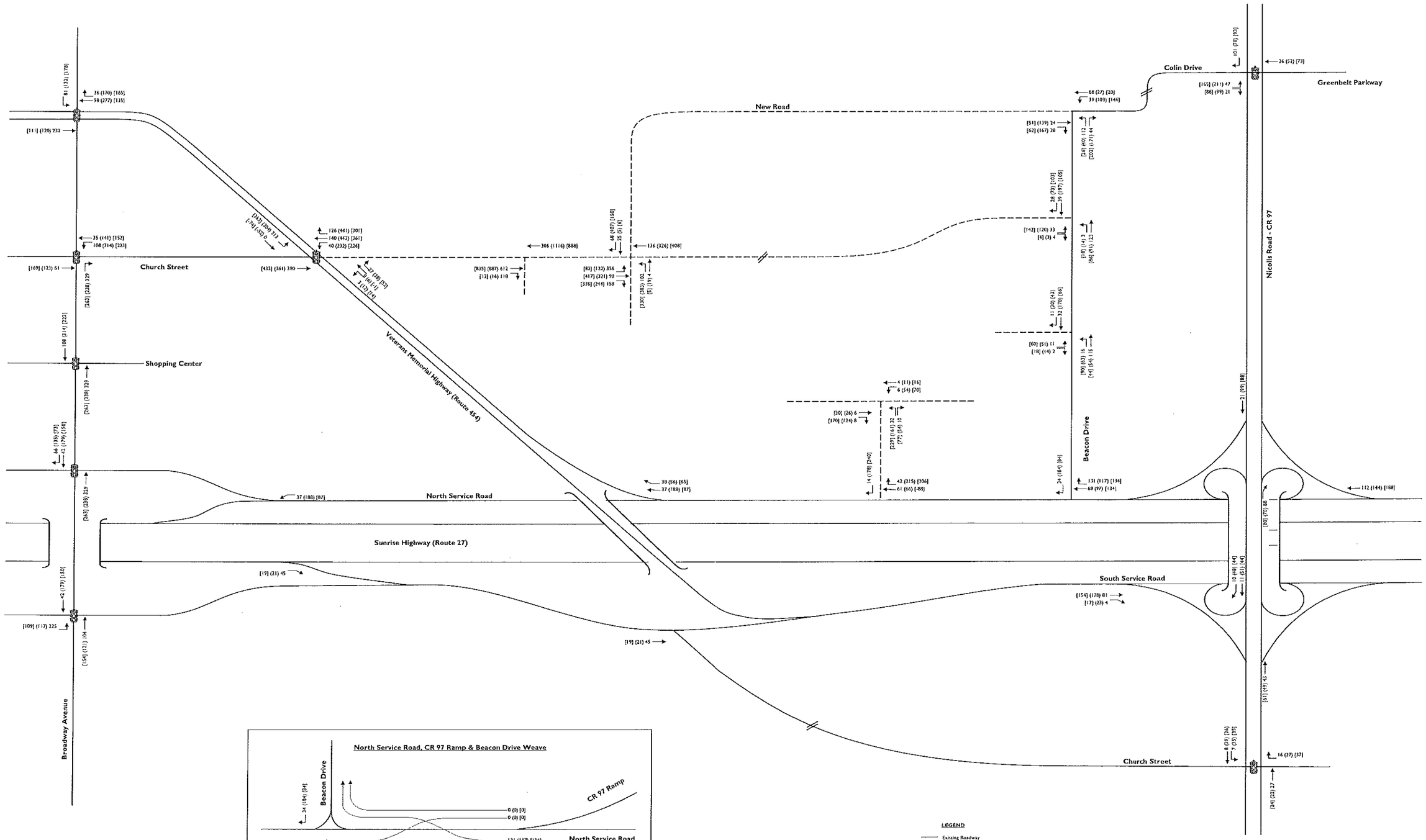
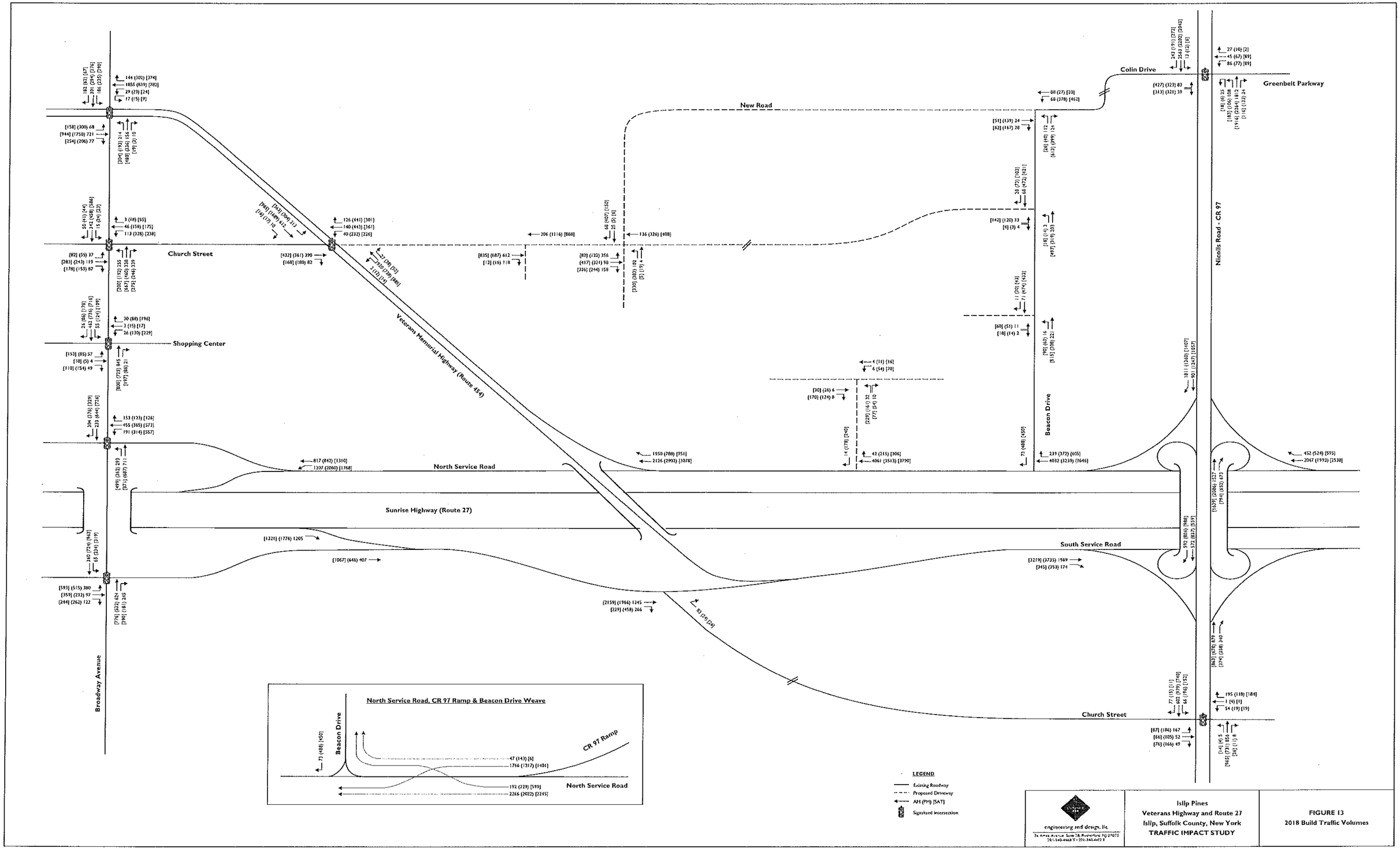


FIGURE 12
Total Site Traffic Volumes



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Veterans Highway and Route 27
Islip, Suffolk County, New York
TRAFFIC IMPACT STUDY

FIGURE 13
2018 Build Traffic Volumes

TRIP GENERATION & DISTRIBUTION

TRIP GENERATION SUMMARY TABLE

	AM			PM			SAT		
	In	Out	Total	In	Out	Total	In	Out	Total
Retail									
New Trips	234	149	383	630	669	1,299	895	791	1,686
Passby %	0.00%	0.00%	0.00%	24.81%	24.81%	24.81%	27.34%	27.34%	27.34%
Passby Trips	0	0	0	208	208	416	298	298	596
Internal Trips	0	0	0	40	36	76	23	34	57
Total Trips	**234**	**149**	**383**	**878**	**913**	**1,791**	**1,216**	**1,123**	**2,339**
Residential									
New Trips	18	89	107	57	20	77	39	35	74
Internal Trips	0	0	0	28	22	50	23	18	41
Total Trips	**18**	**89**	**107**	**85**	**42**	**127**	**62**	**53**	**115**
Office									
New Trips	179	24	203	23	142	165	18	20	38
Internal Trips	0	0	0	10	20	30	11	5	16
Total Trips	**179**	**24**	**203**	**33**	**162**	**195**	**29**	**25**	**54**
Hotel									
New Trips	68	44	112	63	55	118	81	63	144
Internal Trips	0	0	0	0	0	0	0	0	0
Total Trips	**68**	**44**	**112**	**63**	**55**	**118**	**81**	**63**	**144**
Industrial									
New Trips	531	116	647	184	694	878	122	258	380
Internal Trips	0	0	0	0	0	0	0	0	0
Total Trips	**531**	**116**	**647**	**184**	**694**	**878**	**122**	**258**	**380**
Total									
New Trips	1,030	422	1,452	957	1,580	2,537	1,155	1,167	2,322
Passby Trips	0	0	0	208	208	416	298	298	596
Internal Trips	0	0	0	78	78	156	57	57	114
Total Trips	**1,030**	**422**	**1,452**	**1,243**	**1,866**	**3,109**	**1,510**	**1,522**	**3,032**

MULTI-USE DEVELOPMENT TRIP GENERATION AND INTERNAL CAPTURE SUMMARY

Analyst: MRW
Date: 12/16/2010

Name of Development: Islip Pines
Time Period: PM PSH

LAND USE A: Retail

ITE LU Code: 820
Size: 468.673 KSF

	Total	Internal	External
Enter	878	40	838
Exit	913	36	877
Total	1,791	76	1,715
%	100.0%	4.2%	95.8%

Exit to External: 877
Enter from External: 838

LAND USE B: Residential

ITE LU Code: 230
Size: 250 units

	Total	Internal	External
Enter	85	28	57
Exit	42	22	20
Total	127	50	77
%	100.0%	39.4%	60.6%

Enter from External: 57
Exit to External: 20

LAND USE C: Office

ITE LU Code: 710
Size: 130.904 KSF

	Total	Internal	External
Enter	33	10	23
Exit	162	20	142
Total	195	30	165
%	100.0%	15.4%	84.6%

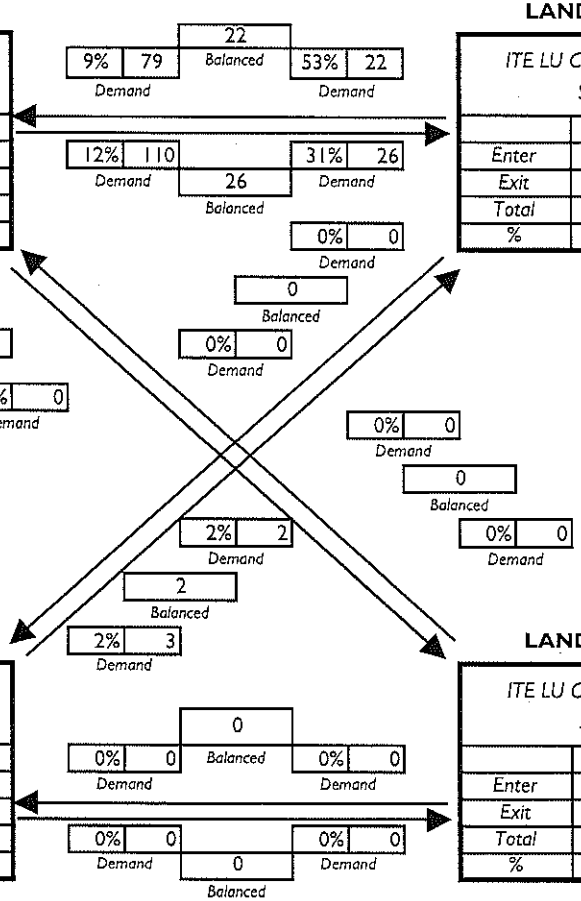
Exit to External: 142
Enter from External: 23

LAND USE D:

ITE LU Code:
Size:

	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%			

Enter from External: 0
Exit to External: 0



Net External Trips for Mulit-Use Development

	Land Use A	Land Use B	Land Use C	Land Use D	Total	
Enter	838	57	23	0	918	
Exit	877	20	142	0	1,039	
Total	1,715	77	165	0	1,957	Internal Capture
Single Use Trip Gen Est.	1,791	127	195	0	2,113	7.4%

Note: Internal capture rates obtained from ITE publication *Trip Generation Handbook, Second Edition*

MULTI-USE DEVELOPMENT TRIP GENERATION AND INTERNAL CAPTURE SUMMARY

Analyst: MRW
Date: 12/16/2010

Name of Development: Islip Pines
Time Period: SAT Midday

LAND USE A: Retail

ITE LU Code: 820
Size: 468.673 KSF

	Total	Internal	External
Enter	1,216	23	1,193
Exit	1,123	34	1,089
Total	2,339	57	2,282
%	100.0%	2.4%	97.6%

Exit to External: 1089
Enter from External: 1193

LAND USE B: Residential

ITE LU Code: 230
Size: 250 units

	Total	Internal	External
Enter	62	23	39
Exit	53	18	35
Total	115	41	74
%	100.0%	35.7%	64.3%

Enter from External: 39
Exit to External: 35

LAND USE C: Office

ITE LU Code: 710
Size: 130.904 KSF

	Total	Internal	External
Enter	29	11	18
Exit	25	5	20
Total	54	16	38
%	100.0%	29.6%	70.4%

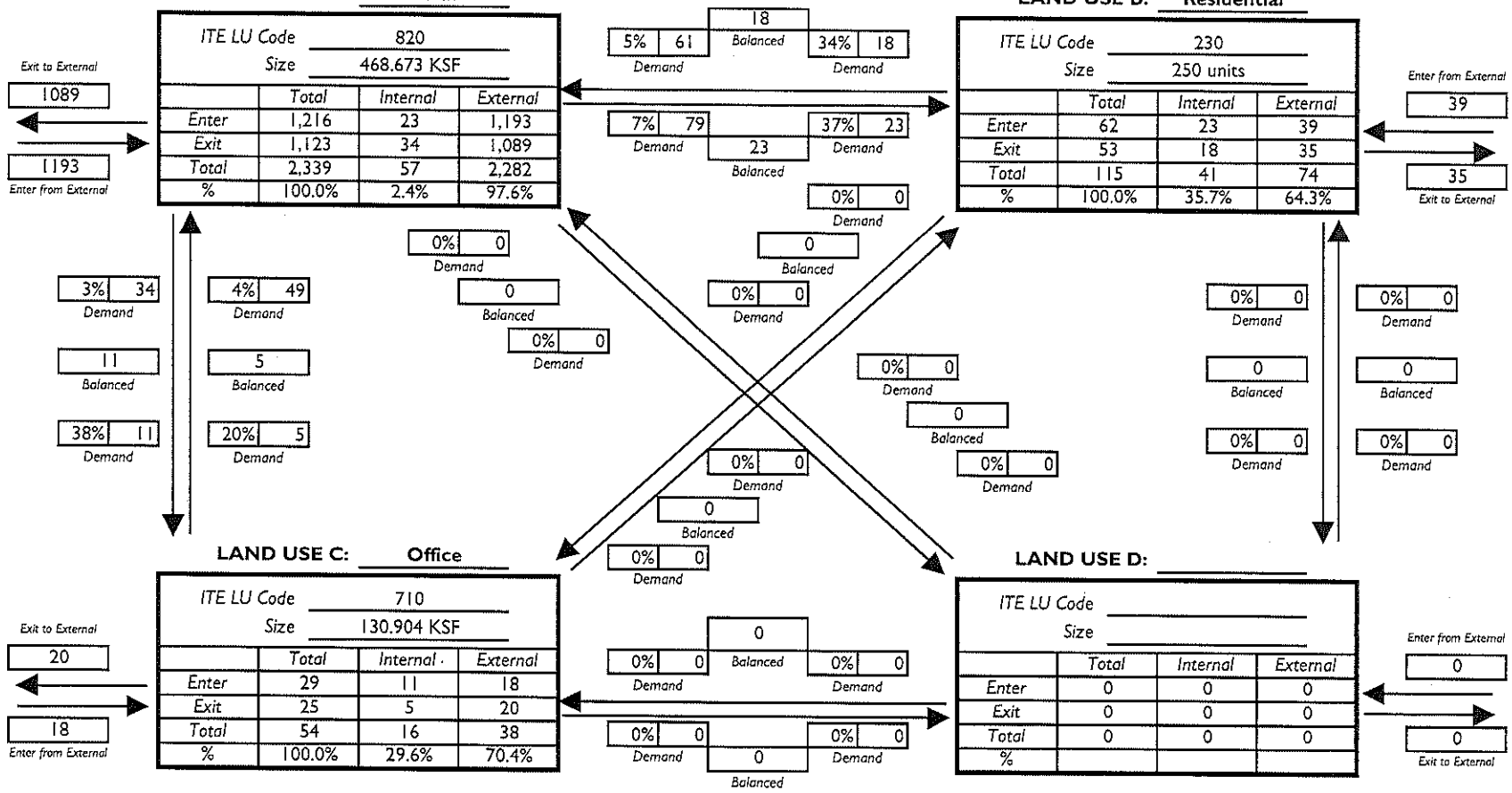
Exit to External: 20
Enter from External: 18

LAND USE D:

ITE LU Code:
Size:

	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%			

Enter from External: 0
Exit to External: 0



Net External Trips for Mulit-Use Development

	Land Use A	Land Use B	Land Use C	Land Use D	Total
Enter	1,193	39	18	0	1,250
Exit	1,089	35	20	0	1,144
Total	2,282	74	38	0	2,394
Single Use Trip Gen Est.	2,339	115	54	0	2,508

Internal Capture: 4.5%

Note: Internal capture rates obtained from ITE publication *Trip Generation Handbook, Second Edition*

GRAVITY MODEL - 5 MILE RADIUS
Islip Pines
Town of Islip, Suffolk County, NY

Attractor/Generator Census Tract	2000 Population	% Population Within Study Area	Study Area Population (Ai)	Roadway Distance (d)	Ai / d^2	Trip Percent (Tij)
SUFFOLK COUNTY						
TOWN OF ISLIP						
Census Tract 1458.05	5,914	25%	1,479	5.5	48.88	0.22%
Census Tract 1458.07	4,652	40%	1,861	5.3	66.24	0.29%
Census Tract 1458.08	3,417	85%	2,904	4.9	120.97	0.53%
Census Tract 1466.04	4,724	90%	4,252	4.9	177.08	0.78%
Census Tract 1466.05	1,332	100%	1,332	3.9	87.57	0.39%
Census Tract 1466.06	7,497	100%	7,497	2.8	956.25	4.23%
Census Tract 1466.07	2,374	100%	2,374	1.8	732.72	3.24%
Census Tract 1466.08	2,301	100%	2,301	1.0	2301.00	10.17%
Census Tract 1466.11	2,689	100%	2,689	1.8	829.94	3.67%
Census Tract 1466.12	5,027	100%	5,027	2.5	804.32	3.56%
Census Tract 1466.13	3,957	100%	3,957	1.8	1221.30	5.40%
Census Tract 1466.14 - A	6,113	85%	5,196	2.2	1073.56	4.75%
Census Tract 1466.14 - B	6,113	15%	917	1.3	542.57	2.40%
Census Tract 1466.15	5,078	100%	5,078	1.6	1983.59	8.77%
Census Tract 1476.01	2,611	10%	261	5.3	9.30	0.04%
Census Tract 1476.02	5,464	100%	5,464	5.0	218.56	0.97%
Census Tract 1477.01	3,435	100%	3,435	3.5	280.41	1.24%
Census Tract 1477.02	5,003	100%	5,003	4.8	217.14	0.96%
Census Tract 1478.02	4,342	100%	4,342	3.6	335.03	1.48%
Census Tract 1478.03	2,651	100%	2,651	2.4	460.24	2.03%
Census Tract 1478.04	5,237	100%	5,237	1.6	2045.70	9.04%
Census Tract 1479.01	5,391	100%	5,391	2.5	862.56	3.81%
Census Tract 1479.02	4,341	100%	4,341	3.4	375.52	1.66%
TOWN OF BROOKHAVEN						
Census Tract 1585.02	3,613	70%	2,529	5.5	83.61	0.37%
Census Tract 1585.08	6,293	40%	2,517	4.8	109.25	0.48%
Census Tract 1585.10	6,951	40%	2,780	6.2	72.33	0.32%
Census Tract 1585.11	5,852	20%	1,170	5.9	33.62	0.15%
Census Tract 1586.04	5,036	100%	5,036	4.4	260.12	1.15%
Census Tract 1586.05	5,100	100%	5,100	4.7	230.87	1.02%
Census Tract 1586.06	5,011	100%	5,011	4.7	226.84	1.00%
Census Tract 1586.07	3,161	100%	3,161	4.1	188.04	0.83%
Census Tract 1586.08	3,907	100%	3,907	5.4	133.98	0.59%
Census Tract 1586.09	4,369	100%	4,369	4.9	181.97	0.80%
Census Tract 1587.11	3,750	25%	938	6.4	22.89	0.10%
Census Tract 1587.12	6,898	40%	2,759	5.9	79.26	0.35%
Census Tract 1588.02	4,407	100%	4,407	2.2	910.54	4.03%
Census Tract 1588.03	4,259	100%	4,259	4.1	253.36	1.12%
Census Tract 1588.04	7,801	100%	7,801	2.4	1354.34	5.99%
Census Tract 1589	7,011	100%	7,011	2.5	1121.76	4.96%

GRAVITY MODEL - 5 MILE RADIUS

Islip Pines

Town of Islip, Suffolk County, NY

Attractor/Generator Census Tract	2000 Population	% Population Within Study Area	Study Area Population (Ai)	Roadway Distance (d)	Ai / d^2	Trip Percent (Tij)
Census Tract 1590	4,932	100%	4,932	3.5	402.61	1.78%
Census Tract 1591.02	5,837	100%	5,837	3.8	404.22	1.79%
Census Tract 1591.05	7,105	95%	6,750	5.0	269.99	1.19%
Census Tract 1591.07	3,869	100%	3,869	4.5	191.06	0.84%
Census Tract 1591.08	7,468	50%	3,734	5.9	107.27	0.47%
Census Tract 1592.01	2,890	100%	2,890	4.5	142.72	0.63%
Census Tract 1592.03	5,076	50%	2,538	5.4	87.04	0.38%
				Sum of Ai / d^2 =	22618.16	100.00%

GRAVITY MODEL - ROUTINGS TO SITE
Islip Pines
Town of Islip, Suffolk County, NY

Attractor/Generator Census Tract	Routing to Site
SUFFOLK COUNTY	
TOWN OF ISLIP	
Census Tract 1458.05	Local Roads to Ocean Avenue to Lakeland Avenue to Rt 454
Census Tract 1458.07	Local Roads to Ocean Avenue to Lakeland Avenue to Rt 454
Census Tract 1458.08	Local Roads to Ocean Avenue to Lakeland Avenue to Rt 454
Census Tract 1466.04	Local Roads to Lakeland Avenue to Route 454
Census Tract 1466.05	Local Roads to Lakeland Avenue to Route 454
Census Tract 1466.06	Church Street EB to Site
Census Tract 1466.07	Local Roads to Church Street EB to Site
Census Tract 1466.08	Local Roads to Church Street EB to Site
Census Tract 1466.11	Local Roads to Greenbelt Parkway to Colin Drive to Beacon Drive to Site
Census Tract 1466.12	Local Roads to Broadway Avenue SB to Route 454 to Site
Census Tract 1466.13	Local Roads to Broadway Avenue SB to Route 454 to Site
Census Tract 1466.14 - A	Local Roads to Patchogue-Holbrook Road to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1466.14 - B	Local Roads to Broadway Avenue SB to Route 454 to Site
Census Tract 1466.15	50% Local Roads to Broadway Avenue SB to Route 454 to Site, 50% Local Roads to Greenbelt Parkway to Colin Drive to Beacon Drive to Site
Census Tract 1476.01	Local Roads to Route 27 EB to Broadway Avenue to Church Street to Site
Census Tract 1476.02	Local Roads to Route 27 EB to Broadway Avenue to Church Street to Site
Census Tract 1477.01	Local Roads to Route 27 EB to Broadway Avenue to Church Street to Site
Census Tract 1477.02	Local Roads to Main Street to Broadway Avenue to Churst Street to Site
Census Tract 1478.02	Local Roads to Main Street to Broadway Avenue to Churst Street to Site
Census Tract 1478.03	Local Roads to Route 27 EB to Broadway Avenue to Church Street to Site
Census Tract 1478.04	Local Roads to Broadway Avenue NB to Church Street to Site
Census Tract 1479.01	60% Main Street to Broadway Avenue to Church Street to Site; 40% Main Street to CR 97 to Route 27 to Site
Census Tract 1479.02	Local Roads to Bayport Avenue to Main Street to Broadway Avenue to Church Street to Site
TOWN OF BROOKHAVEN	
Census Tract 1585.02	Local Roads to Patchogue Road to main Street to Broadway Avenue to Route 454 to Site
Census Tract 1585.08	Local roads to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1585.10	Local roads to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1585.11	Local roads to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1586.04	Local Roads to Main Street to Broadway Avenue to Churst Street to Site
Census Tract 1586.05	50% Local Roads to Main Street to Broadway Avenue to Churst Street to Site; 50% Local roads to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1586.06	Local roads to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1586.07	Local roads to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1586.08	Local Roads to Smithtown Avenue to Route 454 to Site
Census Tract 1586.09	Local Roads to Patchogue Road to main Street to Broadway Avenue to Route 454 to Site
Census Tract 1587.11	Local roads to CR 97 SB to Colin Drive to Beacon Drive to Site
Census Tract 1587.12	Local Roads to Medford Avenue to Route 27 WB to Site
Census Tract 1588.02	Local Roads to Church Street EB to CR 97 NB to Route 27 WB to Site
Census Tract 1588.03	Local Roads to Route 27 WB to Beacon Street to Site
Census Tract 1588.04	Local Roads to Route 27 WB to Beacon Street to Site
Census Tract 1589	Local Roads to Waverly Avenue to Route 27 WB to Beacon Street to Site
Census Tract 1590	Local Roads to Waverly Avenue to Route 27 WB to Beacon Street to Site
Census Tract 1591.02	Local Roads to Route 27 WB to Beacon Street to Site
Census Tract 1591.05	Local Roads to Route 27 WB to Beacon Street to Site
Census Tract 1591.07	Local Roads to Medford Avenue to Route 27 WB to Site
Census Tract 1591.08	Local Roads to Hospital Road to Route 27 WB to Beacon Street to Site
Census Tract 1592.01	Local Roads to Main Street to Medford Avenue to Route 27 WB to Beacon Street to Site
Census Tract 1592.03	Country Road to Main Street to Meadford Avenue to Route 27 WB to Site

JOURNEY-TO-WORK DATA

Workplace	Residence	Count	Percentage
Islip town Suffolk Co. NY	Bridgeport town Fairfield Co. CT	12	0.01%
Islip town Suffolk Co. NY	Danbury town Fairfield Co. CT	9	0.01%
Islip town Suffolk Co. NY	Fairfield town Fairfield Co. CT	7	0.01%
Islip town Suffolk Co. NY	Monroe town Fairfield Co. CT	5	0.00%
Islip town Suffolk Co. NY	Trumbull town Fairfield Co. CT	6	0.00%
Islip town Suffolk Co. NY	Canaan town Litchfield Co. CT	2	0.00%
Islip town Suffolk Co. NY	Hamden town New Haven Co. CT	10	0.01%
Islip town Suffolk Co. NY	Wallingford town New Haven Co. CT	11	0.01%
Islip town Suffolk Co. NY	Conway town Franklin Co. MA	2	0.00%
Islip town Suffolk Co. NY	Newton city Middlesex Co. MA	12	0.01%
Islip town Suffolk Co. NY	Brockton city Plymouth Co. MA	8	0.01%
Islip town Suffolk Co. NY	Hardwick town Worcester Co. MA	4	0.00%
Islip town Suffolk Co. NY	Shrewsbury town Worcester Co. MA	10	0.01%
Islip town Suffolk Co. NY	Swanzey town Cheshire Co. NH	8	0.01%
Islip town Suffolk Co. NY	Enfield town Grafton Co. NH	6	0.00%
Islip town Suffolk Co. NY	Hudson town Hillsborough Co. NH	7	0.01%
Islip town Suffolk Co. NY	Washington town Sullivan Co. NH	5	0.00%
Islip town Suffolk Co. NY	Dumont bor. Bergen Co. NJ	7	0.01%
Islip town Suffolk Co. NY	Fort Lee bor. Bergen Co. NJ	9	0.01%
Islip town Suffolk Co. NY	Ridgewood village Bergen Co. NJ	5	0.00%
Islip town Suffolk Co. NY	Runnemede bor. Camden Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Newark city Essex Co. NJ	9	0.01%
Islip town Suffolk Co. NY	North Bergen Twp. Hudson Co. NJ	7	0.01%
Islip town Suffolk Co. NY	Edison Twp. Middlesex Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Woodbridge Twp. Middlesex Co. NJ	5	0.00%
Islip town Suffolk Co. NY	Middletown Twp. Monmouth Co. NJ	31	0.02%
Islip town Suffolk Co. NY	Jefferson Twp. Morris Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Kinnelon bor. Morris Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Brick Twp. Ocean Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Clifton city Passaic Co. NJ	9	0.01%
Islip town Suffolk Co. NY	Ringwood bor. Passaic Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Hillsbor. Twp. Somerset Co. NJ	10	0.01%
Islip town Suffolk Co. NY	Elizabeth city Union Co. NJ	9	0.01%
Islip town Suffolk Co. NY	Albany city Albany Co. NY	8	0.01%
Islip town Suffolk Co. NY	Bronx bor. Bronx Co. NY	139	0.11%
Islip town Suffolk Co. NY	Hancock town Delaware Co. NY	2	0.00%
Islip town Suffolk Co. NY	Masonville town Delaware Co. NY	3	0.00%
Islip town Suffolk Co. NY	Tompkins town Delaware Co. NY	4	0.00%
Islip town Suffolk Co. NY	Beacon city Dutchess Co. NY	8	0.01%
Islip town Suffolk Co. NY	East Fishkill town Dutchess Co. NY	9	0.01%
Islip town Suffolk Co. NY	Athens town Greene Co. NY	2	0.00%
Islip town Suffolk Co. NY	Durham town Greene Co. NY	4	0.00%
Islip town Suffolk Co. NY	Lexington town Greene Co. NY	2	0.00%
Islip town Suffolk Co. NY	Brooklyn bor. Kings Co. NY	670	0.52%
Islip town Suffolk Co. NY	Glen Cove city Nassau Co. NY	116	0.09%
Islip town Suffolk Co. NY	Hempstead town Nassau Co. NY	4683	3.60%
Islip town Suffolk Co. NY	Long Beach city Nassau Co. NY	279	0.21%
Islip town Suffolk Co. NY	North Hempstead town Nassau Co. NY	895	0.69%
Islip town Suffolk Co. NY	Oyster Bay town Nassau Co. NY	3721	2.86%
Islip town Suffolk Co. NY	Manhattan bor. New York Co. NY	368	0.28%
Islip town Suffolk Co. NY	Wilson town Niagara Co. NY	2	0.00%
Islip town Suffolk Co. NY	Crawford town Orange Co. NY	6	0.00%
Islip town Suffolk Co. NY	Goshen town Orange Co. NY	8	0.01%
Islip town Suffolk Co. NY	Newburgh city Orange Co. NY	6	0.00%
Islip town Suffolk Co. NY	Carmel town Putnam Co. NY	6	0.00%
Islip town Suffolk Co. NY	Queens bor. Queens Co. NY	2318	1.78%
Islip town Suffolk Co. NY	Staten Island bor. Richmond Co. NY	48	0.04%
Islip town Suffolk Co. NY	Clarkstown town Rockland Co. NY	3	0.00%

JOURNEY-TO-WORK DATA

Workplace	Residence	Count	Percentage
Islip town Suffolk Co. NY	Ramapo town Rockland Co. NY	15	0.01%
Islip town Suffolk Co. NY	Glenville town Schenectady Co. NY	7	0.01%
Islip town Suffolk Co. NY	Ovid town Seneca Co. NY	1	0.00%
Islip town Suffolk Co. NY	Babylon town Suffolk Co. NY	10530	8.10%
Islip town Suffolk Co. NY	Brookhaven town Suffolk Co. NY	33663	25.88%
Islip town Suffolk Co. NY	East Hampton town Suffolk Co. NY	146	0.11%
Islip town Suffolk Co. NY	Huntington town Suffolk Co. NY	6053	4.65%
Islip town Suffolk Co. NY	Islip town Suffolk Co. NY	56109	43.14%
Islip town Suffolk Co. NY	Poospatuck Res. Suffolk Co. NY	2	0.00%
Islip town Suffolk Co. NY	Riverhead town Suffolk Co. NY	937	0.72%
Islip town Suffolk Co. NY	Shelter Island town Suffolk Co. NY	13	0.01%
Islip town Suffolk Co. NY	Shinnecock Res. Suffolk Co. NY	36	0.03%
Islip town Suffolk Co. NY	Smithtown town Suffolk Co. NY	7246	5.57%
Islip town Suffolk Co. NY	Southampton town Suffolk Co. NY	1130	0.87%
Islip town Suffolk Co. NY	Southold town Suffolk Co. NY	334	0.26%
Islip town Suffolk Co. NY	Callicoon town Sullivan Co. NY	9	0.01%
Islip town Suffolk Co. NY	Mamakating town Sullivan Co. NY	4	0.00%
Islip town Suffolk Co. NY	Barton town Tioga Co. NY	7	0.01%
Islip town Suffolk Co. NY	Horicon town Warren Co. NY	2	0.00%
Islip town Suffolk Co. NY	Cortlandt town Westchester Co. NY	6	0.00%
Islip town Suffolk Co. NY	Greenburgh town Westchester Co. NY	16	0.01%
Islip town Suffolk Co. NY	Mamaroneck town Westchester Co. NY	6	0.00%
Islip town Suffolk Co. NY	New Rochelle city Westchester Co. NY	21	0.02%
Islip town Suffolk Co. NY	Pelham town Westchester Co. NY	13	0.01%
Islip town Suffolk Co. NY	White Plains city Westchester Co. NY	9	0.01%
Islip town Suffolk Co. NY	Yonkers city Westchester Co. NY	21	0.02%
Islip town Suffolk Co. NY	Wethersfield town Wyoming Co. NY	2	0.00%
Islip town Suffolk Co. NY	Spring Twp. Berks Co. PA	10	0.01%
Islip town Suffolk Co. NY	Warwick Twp. Chester Co. PA	4	0.00%
Islip town Suffolk Co. NY	Westtown Twp. Chester Co. PA	14	0.01%
Islip town Suffolk Co. NY	East Lansdowne bor. Delaware Co. PA	3	0.00%
Islip town Suffolk Co. NY	Loyalsock Twp. Lycoming Co. PA	8	0.01%
Islip town Suffolk Co. NY	Middle Smithfield Twp. Monroe Co. PA	13	0.01%
Islip town Suffolk Co. NY	Bushkill Twp. Northampton Co. PA	4	0.00%
Islip town Suffolk Co. NY	Greene Twp. Pike Co. PA	5	0.00%
Islip town Suffolk Co. NY	Lackawaxen Twp. Pike Co. PA	16	0.01%
Islip town Suffolk Co. NY	Milford Twp. Pike Co. PA	3	0.00%
Islip town Suffolk Co. NY	Shohola Twp. Pike Co. PA	3	0.00%
Islip town Suffolk Co. NY	Buckingham Twp. Wayne Co. PA	3	0.00%
Islip town Suffolk Co. NY	Lake Twp. Wayne Co. PA	4	0.00%
Islip town Suffolk Co. NY	Mount Pleasant Twp. Wayne Co. PA	2	0.00%
Islip town Suffolk Co. NY	Spring Garden Twp. York Co. PA	9	0.01%
Islip town Suffolk Co. NY	Providence city Providence Co. RI	14	0.01%
Islip town Suffolk Co. NY	North Kingstown town Washington Co. RI	12	0.01%
Islip town Suffolk Co. NY	South Kingstown town Washington Co. RI	8	0.01%
Islip town Suffolk Co. NY	Burlington city Chittenden Co. VT	5	0.00%
Islip town Suffolk Co. NY	Hubbardton town Rutland Co. VT	1	0.00%
Islip town Suffolk Co. NY	Chester town Windsor Co. VT	2	0.00%
	Total	**130058**	**100.00%**

Source: U.S. Census Bureau
Internet Release date: July 25, 2003

JOURNEY-TO-WORK DATA

Residence	Workplace	Count	Percentage
Islip town Suffolk Co. NY	Fairfield town Fairfield Co. CT	5	0.00%
Islip town Suffolk Co. NY	Greenwich town Fairfield Co. CT	7	0.00%
Islip town Suffolk Co. NY	Stamford town Fairfield Co. CT	7	0.00%
Islip town Suffolk Co. NY	Wilton town Fairfield Co. CT	15	0.01%
Islip town Suffolk Co. NY	New Milford town Litchfield Co. CT	5	0.00%
Islip town Suffolk Co. NY	East Haven town New Haven Co. CT	4	0.00%
Islip town Suffolk Co. NY	Madison town New Haven Co. CT	10	0.01%
Islip town Suffolk Co. NY	Milford town New Haven Co. CT	21	0.01%
Islip town Suffolk Co. NY	Wallingford town New Haven Co. CT	2	0.00%
Islip town Suffolk Co. NY	Biddeford city York Co. ME	5	0.00%
Islip town Suffolk Co. NY	Andover town Essex Co. MA	10	0.01%
Islip town Suffolk Co. NY	Springfield city Hampden Co. MA	6	0.00%
Islip town Suffolk Co. NY	Everett city Middlesex Co. MA	6	0.00%
Islip town Suffolk Co. NY	Lowell city Middlesex Co. MA	10	0.01%
Islip town Suffolk Co. NY	Pleasantville city Atlantic Co. NJ	11	0.01%
Islip town Suffolk Co. NY	Bogota bor. Bergen Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Carlstadt bor. Bergen Co. NJ	8	0.01%
Islip town Suffolk Co. NY	East Rutherford bor. Bergen Co. NJ	7	0.00%
Islip town Suffolk Co. NY	Elmwood Park bor. Bergen Co. NJ	2	0.00%
Islip town Suffolk Co. NY	Englewood city Bergen Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Englewood Cliffs bor. Bergen Co. NJ	7	0.00%
Islip town Suffolk Co. NY	Fair Lawn bor. Bergen Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Fort Lee bor. Bergen Co. NJ	10	0.01%
Islip town Suffolk Co. NY	Franklin Lakes bor. Bergen Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Lyndhurst Twp. Bergen Co. NJ	3	0.00%
Islip town Suffolk Co. NY	Maywood bor. Bergen Co. NJ	11	0.01%
Islip town Suffolk Co. NY	Montvale bor. Bergen Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Moonachie bor. Bergen Co. NJ	7	0.00%
Islip town Suffolk Co. NY	Northvale bor. Bergen Co. NJ	4	0.00%
Islip town Suffolk Co. NY	Palisades Park bor. Bergen Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Paramus bor. Bergen Co. NJ	4	0.00%
Islip town Suffolk Co. NY	Ridgefield bor. Bergen Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Ridgewood village Bergen Co. NJ	6	0.00%
Islip town Suffolk Co. NY	River Edge bor. Bergen Co. NJ	7	0.00%
Islip town Suffolk Co. NY	Saddle Brook Twp. Bergen Co. NJ	8	0.01%
Islip town Suffolk Co. NY	South Hackensack Twp. Bergen Co. NJ	9	0.01%
Islip town Suffolk Co. NY	Tenafly bor. Bergen Co. NJ	9	0.01%
Islip town Suffolk Co. NY	Delanco Twp. Burlington Co. NJ	11	0.01%
Islip town Suffolk Co. NY	Evesham Twp. Burlington Co. NJ	5	0.00%
Islip town Suffolk Co. NY	Mount Laurel Twp. Burlington Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Bloomfield Twp. Essex Co. NJ	5	0.00%
Islip town Suffolk Co. NY	City of Orange Twp. Essex Co. NJ	5	0.00%
Islip town Suffolk Co. NY	East Orange city Essex Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Millburn Twp. Essex Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Newark city Essex Co. NJ	57	0.04%
Islip town Suffolk Co. NY	Nutley Twp. Essex Co. NJ	5	0.00%
Islip town Suffolk Co. NY	West Caldwell Twp. Essex Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Hoboken city Hudson Co. NJ	15	0.01%
Islip town Suffolk Co. NY	Jersey City city Hudson Co. NJ	118	0.08%
Islip town Suffolk Co. NY	Secaucus town Hudson Co. NJ	9	0.01%
Islip town Suffolk Co. NY	Weehawken Twp. Hudson Co. NJ	3	0.00%
Islip town Suffolk Co. NY	Edison Twp. Middlesex Co. NJ	11	0.01%
Islip town Suffolk Co. NY	Middlesex bor. Middlesex Co. NJ	8	0.01%

JOURNEY-TO-WORK DATA

Residence	Workplace	Count	Percentage
Islip town Suffolk Co. NY	Piscataway Twp. Middlesex Co. NJ	22	0.01%
Islip town Suffolk Co. NY	Woodbridge Twp. Middlesex Co. NJ	13	0.01%
Islip town Suffolk Co. NY	Highlands bor. Monmouth Co. NJ	5	0.00%
Islip town Suffolk Co. NY	Manalapan Twp. Monmouth Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Hanover Twp. Morris Co. NJ	19	0.01%
Islip town Suffolk Co. NY	Long Hill Twp. Morris Co. NJ	11	0.01%
Islip town Suffolk Co. NY	Morris Twp. Morris Co. NJ	5	0.00%
Islip town Suffolk Co. NY	Parsippany-Troy Hills Twp. Morris Co. NJ	4	0.00%
Islip town Suffolk Co. NY	Clifton city Passaic Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Totowa bor. Passaic Co. NJ	8	0.01%
Islip town Suffolk Co. NY	Franklin Twp. Somerset Co. NJ	16	0.01%
Islip town Suffolk Co. NY	Kenilworth bor. Union Co. NJ	6	0.00%
Islip town Suffolk Co. NY	Linden city Union Co. NJ	5	0.00%
Islip town Suffolk Co. NY	Union Twp. Union Co. NJ	5	0.00%
Islip town Suffolk Co. NY	Albany city Albany Co. NY	4	0.00%
Islip town Suffolk Co. NY	Colonie town Albany Co. NY	7	0.00%
Islip town Suffolk Co. NY	Bronx bor. Bronx Co. NY	829	0.54%
Islip town Suffolk Co. NY	Sanford town Broome Co. NY	6	0.00%
Islip town Suffolk Co. NY	Union town Broome Co. NY	6	0.00%
Islip town Suffolk Co. NY	Horseheads town Chemung Co. NY	7	0.00%
Islip town Suffolk Co. NY	Cortland city Cortland Co. NY	16	0.01%
Islip town Suffolk Co. NY	Solon town Cortland Co. NY	7	0.00%
Islip town Suffolk Co. NY	Hyde Park town Dutchess Co. NY	5	0.00%
Islip town Suffolk Co. NY	Boston town Erie Co. NY	3	0.00%
Islip town Suffolk Co. NY	Grand Island town Erie Co. NY	8	0.01%
Islip town Suffolk Co. NY	Hamburg town Erie Co. NY	8	0.01%
Islip town Suffolk Co. NY	Bombay town Franklin Co. NY	5	0.00%
Islip town Suffolk Co. NY	Byron town Genesee Co. NY	7	0.00%
Islip town Suffolk Co. NY	Wells town Hamilton Co. NY	7	0.00%
Islip town Suffolk Co. NY	Herkimer town Herkimer Co. NY	7	0.00%
Islip town Suffolk Co. NY	Watertown city Jefferson Co. NY	5	0.00%
Islip town Suffolk Co. NY	Brooklyn bor. Kings Co. NY	2935	1.92%
Islip town Suffolk Co. NY	Montague town Lewis Co. NY	7	0.00%
Islip town Suffolk Co. NY	Gates town Monroe Co. NY	7	0.00%
Islip town Suffolk Co. NY	Henrietta town Monroe Co. NY	4	0.00%
Islip town Suffolk Co. NY	Rochester city Monroe Co. NY	10	0.01%
Islip town Suffolk Co. NY	Sweden town Monroe Co. NY	3	0.00%
Islip town Suffolk Co. NY	Glen Cove city Nassau Co. NY	337	0.22%
Islip town Suffolk Co. NY	Hempstead town Nassau Co. NY	7686	5.04%
Islip town Suffolk Co. NY	Long Beach city Nassau Co. NY	148	0.10%
Islip town Suffolk Co. NY	North Hempstead town Nassau Co. NY	3636	2.38%
Islip town Suffolk Co. NY	Oyster Bay town Nassau Co. NY	7595	4.98%
Islip town Suffolk Co. NY	Manhattan bor. New York Co. NY	9434	6.19%
Islip town Suffolk Co. NY	New Hartford town Oneida Co. NY	5	0.00%
Islip town Suffolk Co. NY	Trenton town Oneida Co. NY	5	0.00%
Islip town Suffolk Co. NY	De Witt town Onondaga Co. NY	6	0.00%
Islip town Suffolk Co. NY	Syracuse city Onondaga Co. NY	7	0.00%
Islip town Suffolk Co. NY	Highlands town Orange Co. NY	9	0.01%
Islip town Suffolk Co. NY	Newburgh town Orange Co. NY	6	0.00%
Islip town Suffolk Co. NY	Port Jervis city Orange Co. NY	13	0.01%
Islip town Suffolk Co. NY	Wallkill town Orange Co. NY	5	0.00%
Islip town Suffolk Co. NY	Queens bor. Queens Co. NY	6395	4.19%
Islip town Suffolk Co. NY	Nassau town Rensselaer Co. NY	78	0.05%
Islip town Suffolk Co. NY	Staten Island bor. Richmond Co. NY	174	0.11%

JOURNEY-TO-WORK DATA

Residence	Workplace	Count	Percentage
Islip town Suffolk Co. NY	Clarkstown town Rockland Co. NY	3	0.00%
Islip town Suffolk Co. NY	Clifton town St. Lawrence Co. NY	15	0.01%
Islip town Suffolk Co. NY	Babylon town Suffolk Co. NY	15285	10.02%
Islip town Suffolk Co. NY	Brookhaven town Suffolk Co. NY	14329	9.40%
Islip town Suffolk Co. NY	East Hampton town Suffolk Co. NY	385	0.25%
Islip town Suffolk Co. NY	Huntington town Suffolk Co. NY	11930	7.82%
Islip town Suffolk Co. NY	Islip town Suffolk Co. NY	56109	36.80%
Islip town Suffolk Co. NY	Riverhead town Suffolk Co. NY	998	0.65%
Islip town Suffolk Co. NY	Shelter Island town Suffolk Co. NY	17	0.01%
Islip town Suffolk Co. NY	Smithtown town Suffolk Co. NY	10780	7.07%
Islip town Suffolk Co. NY	Southampton town Suffolk Co. NY	1826	1.20%
Islip town Suffolk Co. NY	Southold town Suffolk Co. NY	375	0.25%
Islip town Suffolk Co. NY	Kingston city Ulster Co. NY	6	0.00%
Islip town Suffolk Co. NY	Ulster town Ulster Co. NY	6	0.00%
Islip town Suffolk Co. NY	Arcadia town Wayne Co. NY	7	0.00%
Islip town Suffolk Co. NY	Bedford town Westchester Co. NY	15	0.01%
Islip town Suffolk Co. NY	Eastchester town Westchester Co. NY	6	0.00%
Islip town Suffolk Co. NY	Greenburgh town Westchester Co. NY	40	0.03%
Islip town Suffolk Co. NY	Harrison town Westchester Co. NY	28	0.02%
Islip town Suffolk Co. NY	Mamaroneck town Westchester Co. NY	6	0.00%
Islip town Suffolk Co. NY	Mount Pleasant town Westchester Co. NY	6	0.00%
Islip town Suffolk Co. NY	Mount Vernon city Westchester Co. NY	15	0.01%
Islip town Suffolk Co. NY	North Castle town Westchester Co. NY	6	0.00%
Islip town Suffolk Co. NY	Ossining town Westchester Co. NY	6	0.00%
Islip town Suffolk Co. NY	Pound Ridge town Westchester Co. NY	3	0.00%
Islip town Suffolk Co. NY	White Plains city Westchester Co. NY	50	0.03%
Islip town Suffolk Co. NY	Yonkers city Westchester Co. NY	18	0.01%
Islip town Suffolk Co. NY	Bennington town Wyoming Co. NY	14	0.01%
Islip town Suffolk Co. NY	Castile town Wyoming Co. NY	6	0.00%
Islip town Suffolk Co. NY	Eagle town Wyoming Co. NY	7	0.00%
Islip town Suffolk Co. NY	Northampton Twp. Bucks Co. PA	6	0.00%
Islip town Suffolk Co. NY	Tinicum Twp. Delaware Co. PA	10	0.01%
Islip town Suffolk Co. NY	South Londonderry Twp. Lebanon Co. PA	6	0.00%
Islip town Suffolk Co. NY	Upper Dublin Twp. Montgomery Co. PA	9	0.01%
Islip town Suffolk Co. NY	Bristol town Bristol Co. RI	10	0.01%
	Total	**152469**	**100.00%**

Source: U.S. Census Bureau
Internet Release date: July 25, 2003

HIGHWAY CAPACITY ANALYSIS DETAIL SHEETS

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	63	450	69	16	27	1620	91	194	130	9	84	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00		0.99
Satd. Flow (prot)	1656	3312	1482		1719	3438	1538	1719	1810	1538		1787
Flt Permitted	0.05	1.00	1.00		0.48	1.00	1.00	0.95	1.00	1.00		0.99
Satd. Flow (perm)	90	3312	1482		861	3438	1538	1719	1810	1538		1787
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96
Adj. Flow (vph)	68	484	74	17	29	1761	99	246	165	11	88	267
RTOR Reduction (vph)	0	0	33	0	0	0	14	0	0	10	0	0
Lane Group Flow (vph)	68	484	41	0	46	1761	85	246	165	1	0	355
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt		Perm	Perm	Perm		Perm	Split		Perm	Split	
Protected Phases	7	4				8		6	6		2	2
Permitted Phases	4		4	8	8		8			6		
Actuated Green, G (s)	84.0	84.0	84.0		72.7	72.7	72.7	20.0	20.0	20.0		28.0
Effective Green, g (s)	84.0	84.0	84.0		72.7	72.7	72.7	20.0	20.0	20.0		28.0
Actuated g/C Ratio	0.56	0.56	0.56		0.48	0.48	0.48	0.13	0.13	0.13		0.19
Clearance Time (s)	5.0	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
Lane Grp Cap (vph)	116	1855	830		417	1666	745	229	241	205		334
v/s Ratio Prot	c0.02	0.15				c0.51		c0.14	0.09			c0.20
v/s Ratio Perm	0.30		0.03		0.05		0.05			0.00		
v/c Ratio	0.59	0.26	0.05		0.11	1.06	0.11	1.07	0.68	0.01		1.06
Uniform Delay, d1	34.0	17.0	14.9		21.0	38.6	21.1	65.0	62.0	56.4		61.0
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	7.4	0.3	0.1		0.5	38.9	0.3	80.6	7.8	0.0		66.9
Delay (s)	41.3	17.3	15.1		21.6	77.5	21.4	145.6	69.8	56.4		127.9
Level of Service	D	B	B		C	E	C	F	E	E		F
Approach Delay (s)		19.7				73.3			113.6			103.2
Approach LOS		B				E			F			F

Intersection Summary			
HCM Average Control Delay	73.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	168
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1538
Flt Permitted	1.00
Satd. Flow (perm)	1538
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	175
RTOR Reduction (vph)	91
Lane Group Flow (vph)	84
Heavy Vehicles (%)	5%
Turn Type	Perm
Protected Phases	
Permitted Phases	2
Actuated Green, G (s)	28.0
Effective Green, g (s)	28.0
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	287
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.29
Uniform Delay, d1	52.5
Progression Factor	1.00
Incremental Delay, d2	0.6
Delay (s)	53.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	42	59	5	10	3	215	295	9	14	292	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1703	1635		1787	1817		1736	3455		1719	1810	1538
Flt Permitted	0.77	1.00		0.77	1.00		0.48	1.00		0.50	1.00	1.00
Satd. Flow (perm)	1379	1635		1447	1817		872	3455		909	1810	1538
Peak-hour factor, PHF	0.79	0.79	0.79	0.59	0.59	0.59	0.71	0.71	0.71	0.96	0.96	0.96
Adj. Flow (vph)	43	53	75	8	17	5	303	415	13	15	304	48
RTOR Reduction (vph)	0	66	0	0	4	0	0	3	0	0	0	31
Lane Group Flow (vph)	43	62	0	8	18	0	303	425	0	15	304	17
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	4%	4%	4%	5%	5%	5%
Turn Type	Perm			Perm			pm+pt			pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	5.2	5.2		5.2	5.2		29.8	25.8		17.2	16.2	16.2
Effective Green, g (s)	5.2	5.2		5.2	5.2		29.8	25.8		17.2	16.2	16.2
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.63	0.55		0.37	0.34	0.34
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	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
Lane Grp Cap (vph)	153	181		160	201		748	1897		350	624	530
v/s Ratio Prot		c0.04			0.01		c0.09	0.12		0.00	c0.17	
v/s Ratio Perm	0.03			0.01			0.17			0.01		0.01
v/c Ratio	0.28	0.34		0.05	0.09		0.41	0.22		0.04	0.49	0.03
Uniform Delay, d1	19.2	19.3		18.7	18.8		4.0	5.5		9.5	12.1	10.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	1.1		0.1	0.2		0.4	0.1		0.1	0.6	0.0
Delay (s)	20.2	20.5		18.8	19.0		4.3	5.5		9.6	12.7	10.2
Level of Service	C	C		B	B		A	A		A	B	B
Approach Delay (s)		20.4			18.9			5.0			12.3	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
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)	47	4	38	9	3	17	0	455	11	7	306	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.91	
Frt	1.00	0.86			1.00	0.85		1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1703	1550			1592	1404		3459		1703	4803	
Flt Permitted	0.74	1.00			0.75	1.00		1.00		0.17	1.00	
Satd. Flow (perm)	1333	1550			1244	1404		3459		300	4803	
Peak-hour factor, PHF	0.82	0.82	0.82	0.56	0.56	0.56	0.92	0.82	0.82	0.95	0.95	0.95
Adj. Flow (vph)	57	5	46	16	5	30	0	555	13	7	322	45
RTOR Reduction (vph)	0	41	0	0	0	27	0	1	0	0	16	0
Lane Group Flow (vph)	57	10	0	0	21	3	0	567	0	7	351	0
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	4%	4%	6%	6%	6%
Turn Type	Perm			Perm		Perm				pm+pt		
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		
Actuated Green, G (s)	10.7	10.7			10.7	10.7		55.3		39.9	23.9	
Effective Green, g (s)	10.7	10.7			10.7	10.7		55.3		39.9	23.9	
Actuated g/C Ratio	0.11	0.11			0.11	0.11		0.55		0.40	0.24	
Clearance Time (s)	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	
Lane Grp Cap (vph)	143	166			133	150		1913		344	1148	
v/s Ratio Prot		0.01						c0.16		c0.00	0.07	
v/s Ratio Perm	c0.04				0.02	0.00				0.00		
v/c Ratio	0.40	0.06			0.16	0.02		0.30		0.02	0.31	
Uniform Delay, d1	41.6	40.1			40.6	40.0		11.9		32.1	31.2	
Progression Factor	1.00	1.00			1.00	1.00		0.64		1.00	1.00	
Incremental Delay, d2	1.8	0.2			0.6	0.1		0.1		0.1	0.7	
Delay (s)	43.5	40.3			41.1	40.0		7.8		32.2	31.9	
Level of Service	D	D			D	D		A		C	C	
Approach Delay (s)		42.0			40.5			7.8			31.9	
Approach LOS		D			D			A			C	

Intersection Summary

HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
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	0	0	147	411	134	266	331	0	0	133	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	3471	1553	3400	3505			3406	1524
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	3471	1553	3400	3505			3406	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.92	0.92	0.89	0.89
Adj. Flow (vph)	0	0	0	165	462	151	283	352	0	0	149	247
RTOR Reduction (vph)	0	0	0	0	0	113	0	0	0	0	0	89
Lane Group Flow (vph)	0	0	0	165	462	38	283	352	0	0	149	158
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	2%	2%	6%	6%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				25.4	25.4	25.4	17.0	23.9			34.6	34.6
Effective Green, g (s)				25.4	25.4	25.4	17.0	23.9			34.6	34.6
Actuated g/C Ratio				0.25	0.25	0.25	0.17	0.24			0.35	0.35
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				441	882	394	578	838			1178	527
v/s Ratio Prot					c0.13		c0.08	c0.10			0.04	
v/s Ratio Perm				0.10		0.02						c0.10
v/c Ratio				0.37	0.52	0.10	0.49	0.42			0.13	0.30
Uniform Delay, d1				30.7	32.1	28.5	37.6	32.2			22.4	23.9
Progression Factor				1.00	1.00	1.00	1.57	1.10			0.24	1.00
Incremental Delay, d2				0.5	0.6	0.1	2.9	1.5			0.0	0.3
Delay (s)				31.3	32.7	28.6	61.9	37.0			5.5	24.1
Level of Service				C	C	C	E	D			A	C
Approach Delay (s)		0.0			31.6			48.1			17.1	
Approach LOS		A			C			D			B	

Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
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)	137	83	113	0	0	0	0	460	210	43	237	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1641	3282	1468					3505	1568	1671	3343	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.25	1.00	
Satd. Flow (perm)	1641	3282	1468					3505	1568	441	3343	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	156	94	128	0	0	0	0	500	228	49	269	0
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	179	0	0	0
Lane Group Flow (vph)	156	94	69	0	0	0	0	500	49	49	269	0
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	2%	3%	3%	8%	8%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	53.8	53.8	53.8					21.7	21.7	33.2	33.2	
Effective Green, g (s)	53.8	53.8	53.8					21.7	21.7	33.2	33.2	
Actuated g/C Ratio	0.54	0.54	0.54					0.22	0.22	0.33	0.33	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	883	1766	790					761	340	226	1110	
v/s Ratio Prot		0.03						c0.14		0.01	c0.08	
v/s Ratio Perm	c0.10		0.05						0.03	0.06		
v/c Ratio	0.18	0.05	0.09					0.66	0.15	0.22	0.24	
Uniform Delay, d1	11.8	11.0	11.2					35.8	31.7	23.8	24.3	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.31	1.31	
Incremental Delay, d2	0.4	0.1	0.2					2.1	0.2	0.5	0.1	
Delay (s)	12.2	11.0	11.4					37.8	31.9	31.6	31.8	
Level of Service	B	B	B					D	C	C	C	
Approach Delay (s)		11.7			0.0			35.9			31.8	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	64	0	1755	550	9
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	1.00	0.91	0.91	0.84	0.84
Hourly flow rate (vph)	0	64	0	1929	655	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage veh)				1	1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1624	333	665			
vC1, stage 1 conf vol	660					
vC2, stage 2 conf vol	964					
vCu, unblocked vol	1624	333	665			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	90	100			
cM capacity (veh/h)	219	669	900			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	64	964	964	437	229
Volume Left	0	0	0	0	0
Volume Right	64	0	0	0	11
cSH	669	1700	1700	1700	1700
Volume to Capacity	0.10	0.57	0.57	0.26	0.13
Queue Length 95th (ft)	8	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.0	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	30	0	9	68	14	25	23	100	1667	25	12	2356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		0.97			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367		1553		1749			1719	3438	1538	1752	3505
Flt Permitted	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367		1553		1749			1719	3438	1538	1752	3505
Peak-hour factor, PHF	0.77	0.77	0.77	0.95	0.95	0.95	0.93	0.93	0.93	0.93	0.89	0.89
Adj. Flow (vph)	39	0	12	72	15	26	25	108	1792	27	13	2647
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	5	0	0
Lane Group Flow (vph)	39	0	12	0	105	0	0	133	1792	22	13	2647
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	5%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	4.1		110.9		11.9			13.7	71.1	71.1	1.4	58.8
Effective Green, g (s)	4.1		110.9		11.9			13.7	71.1	71.1	1.4	58.8
Actuated g/C Ratio	0.04		1.00		0.11			0.12	0.64	0.64	0.01	0.53
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	124		1553		188			212	2204	986	22	1858
v/s Ratio Prot	c0.01				c0.06			c0.08	c0.52		0.01	c0.76
v/s Ratio Perm			0.01							0.01		
v/c Ratio	0.31		0.01		0.56			0.63	0.81	0.02	0.59	1.42
Uniform Delay, d1	52.0		0.0		47.0			46.2	14.9	7.2	54.5	26.1
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5		0.0		3.6			5.7	2.4	0.0	36.0	194.3
Delay (s)	53.5		0.0		50.6			51.9	17.3	7.3	90.4	220.3
Level of Service	D		A		D			D	B	A	F	F
Approach Delay (s)		40.9			50.6				19.5			209.2
Approach LOS		D			D				B			F

Intersection Summary			
HCM Average Control Delay	128.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	110.9	Sum of lost time (s)	28.9
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	127
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	143
RTOR Reduction (vph)	36
Lane Group Flow (vph)	107
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	58.8
Effective Green, g (s)	58.8
Actuated g/C Ratio	0.53
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	831
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.13
Uniform Delay, d1	13.1
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	13.2
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	154	45	43	50	1	158	5	761	7	53	548	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1626	1587		1719	1539		1736	3471	1553	1687	3374	1509
Flt Permitted	0.62	1.00		0.69	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1064	1587		1254	1539		1736	3471	1553	1687	3374	1509
Peak-hour factor, PHF	0.89	0.89	0.89	0.81	0.81	0.81	0.88	0.88	0.88	0.85	0.85	0.85
Adj. Flow (vph)	173	51	48	62	1	195	6	865	8	62	645	84
RTOR Reduction (vph)	0	18	0	0	128	0	0	0	5	0	0	48
Lane Group Flow (vph)	173	81	0	62	68	0	6	865	3	62	645	36
Heavy Vehicles (%)	11%	11%	11%	5%	5%	5%	4%	4%	4%	7%	7%	7%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	30.7	30.7		30.7	30.7		1.1	32.3	32.3	7.2	38.4	38.4
Effective Green, g (s)	30.7	30.7		30.7	30.7		1.1	32.3	32.3	7.2	38.4	38.4
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.01	0.36	0.36	0.08	0.43	0.43
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	367	547		433	531		21	1260	564	136	1456	651
v/s Ratio Prot		0.05			0.04		0.00	c0.25		c0.04	0.19	
v/s Ratio Perm	c0.16			0.05					0.00			0.02
v/c Ratio	0.47	0.15		0.14	0.13		0.29	0.69	0.01	0.46	0.44	0.06
Uniform Delay, d1	22.8	20.1		20.1	20.0		43.6	24.1	18.1	39.0	17.8	14.7
Progression Factor	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		0.2	0.1		7.4	1.6	0.0	2.4	0.2	0.0
Delay (s)	23.8	20.3		20.2	20.1		50.9	25.6	18.1	41.4	18.0	14.8
Level of Service	C	C		C	C		D	C	B	D	B	B
Approach Delay (s)		22.5			20.1			25.7			19.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↱		↱
Volume (veh/h)	0	0	3600	63	0	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.97	0.68	0.92	0.63
Hourly flow rate (vph)	0	0	3711	93	0	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	3711				3711	1237
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3711				3711	1237
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	100				100	81
cM capacity (veh/h)	58				3	162

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1237	1237	1237	93	30
Volume Left	0	0	0	0	0
Volume Right	0	0	0	93	30
cSH	1700	1700	1700	1700	162
Volume to Capacity	0.73	0.73	0.73	0.05	0.19
Queue Length 95th (ft)	0	0	0	0	17
Control Delay (s)	0.0	0.0	0.0	0.0	32.3
Lane LOS					D
Approach Delay (s)	0.0				32.3
Approach LOS					D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	277	1508	182	14	21	517	106	170	259	3	80	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00		0.99
Satd. Flow (prot)	1770	3539	1583		1719	3438	1538	1787	1881	1599		1838
Flt Permitted	0.30	1.00	1.00		0.09	1.00	1.00	0.95	1.00	1.00		0.99
Satd. Flow (perm)	565	3539	1583		162	3438	1538	1787	1881	1599		1838
Peak-hour factor, PHF	0.88	0.88	0.88	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.91	0.91
Adj. Flow (vph)	315	1714	207	15	22	544	112	189	288	3	88	244
RTOR Reduction (vph)	0	0	78	0	0	0	57	0	0	2	0	0
Lane Group Flow (vph)	315	1714	129	0	37	544	55	189	288	1	0	332
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	1%	1%	1%	2%	2%
Turn Type	pm+pt		Perm	Perm	Perm		Perm	Split		Perm	Split	
Protected Phases	7	4				8		6	6		2	2
Permitted Phases	4		4	8	8		8			6		
Actuated Green, G (s)	68.9	68.9	68.9		44.6	44.6	44.6	22.4	22.4	22.4		25.7
Effective Green, g (s)	68.9	68.9	68.9		44.6	44.6	44.6	22.4	22.4	22.4		25.7
Actuated g/C Ratio	0.51	0.51	0.51		0.33	0.33	0.33	0.17	0.17	0.17		0.19
Clearance Time (s)	5.0	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
Lane Grp Cap (vph)	461	1806	808		54	1136	508	297	312	265		350
v/s Ratio Prot	0.10	c0.48				0.16		0.11	c0.15			c0.18
v/s Ratio Perm	0.25		0.08		0.23		0.04			0.00		
v/c Ratio	0.68	0.95	0.16		0.69	0.48	0.11	0.64	0.92	0.01		0.95
Uniform Delay, d1	21.2	31.4	17.6		39.1	36.0	31.4	52.5	55.5	47.0		54.0
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	4.2	12.1	0.4		52.8	1.4	0.4	4.4	31.6	0.0		34.5
Delay (s)	25.4	43.5	18.0		92.0	37.4	31.8	56.9	87.0	47.0		88.5
Level of Service	C	D	B		F	D	C	E	F	D		F
Approach Delay (s)		38.6				39.4			74.9			81.5
Approach LOS		D				D			E			F

Intersection Summary

HCM Average Control Delay	47.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	57
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	63
RTOR Reduction (vph)	51
Lane Group Flow (vph)	12
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	2
Actuated Green, G (s)	25.7
Effective Green, g (s)	25.7
Actuated g/C Ratio	0.19
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	301
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	44.6
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	44.6
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	97	100	13	16	17	113	365	7	22	365	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.92		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1704		1770	1719		1770	3530		1770	1863	1583
Flt Permitted	0.73	1.00		0.59	1.00		0.39	1.00		0.52	1.00	1.00
Satd. Flow (perm)	1352	1704		1093	1719		730	3530		970	1863	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	65	124	128	15	18	19	119	384	7	24	392	41
RTOR Reduction (vph)	0	44	0	0	16	0	0	2	0	0	0	26
Lane Group Flow (vph)	65	208	0	15	21	0	119	389	0	24	392	15
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pt			pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.3	8.3		8.3	8.3		26.2	22.2		18.0	17.0	17.0
Effective Green, g (s)	8.3	8.3		8.3	8.3		26.2	22.2		18.0	17.0	17.0
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.56	0.48		0.39	0.37	0.37
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	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
Lane Grp Cap (vph)	241	304		195	307		550	1685		393	681	579
v/s Ratio Prot		c0.12			0.01		c0.03	0.11		0.00	c0.21	
v/s Ratio Perm	0.05			0.01			0.09			0.02		0.01
v/c Ratio	0.27	0.68		0.08	0.07		0.22	0.23		0.06	0.58	0.03
Uniform Delay, d1	16.5	17.9		15.9	15.9		5.1	7.1		8.9	11.9	9.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	6.2		0.2	0.1		0.2	0.1		0.1	1.2	0.0
Delay (s)	17.1	24.1		16.1	16.0		5.3	7.2		8.9	13.0	9.5
Level of Service	B	C		B	B		A	A		A	B	A
Approach Delay (s)		22.6			16.0			6.8			12.5	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	46.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
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)	60	5	116	63	14	41	0	384	61	41	341	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.91	
Frt	1.00	0.86			1.00	0.85		0.98		1.00	0.97	
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1787	1612			1790	1583		3501		1752	4869	
Flt Permitted	0.70	1.00			0.59	1.00		1.00		0.16	1.00	
Satd. Flow (perm)	1318	1612			1095	1583		3501		299	4869	
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.92	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	67	6	129	71	16	46	0	404	64	44	367	104
RTOR Reduction (vph)	0	111	0	0	0	40	0	10	0	0	41	0
Lane Group Flow (vph)	67	24	0	0	87	6	0	458	0	44	430	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	3%	3%	3%
Turn Type	Perm			Perm		Perm				pm+pt		
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		
Actuated Green, G (s)	15.7	15.7			15.7	15.7		56.3		49.7	24.7	
Effective Green, g (s)	15.7	15.7			15.7	15.7		56.3		49.7	24.7	
Actuated g/C Ratio	0.14	0.14			0.14	0.14		0.49		0.43	0.21	
Clearance Time (s)	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	
Lane Grp Cap (vph)	180	220			149	216		1714		445	1046	
v/s Ratio Prot		0.01						c0.13		c0.02	c0.09	
v/s Ratio Perm	0.05				c0.08	0.00				0.02		
v/c Ratio	0.37	0.11			0.58	0.03		0.27		0.10	0.41	
Uniform Delay, d1	45.2	43.5			46.6	43.0		17.2		32.9	38.9	
Progression Factor	1.00	1.00			1.00	1.00		0.50		1.00	1.00	
Incremental Delay, d2	1.3	0.2			5.7	0.1		0.1		0.4	1.2	
Delay (s)	46.5	43.7			52.3	43.1		8.7		33.4	40.1	
Level of Service	D	D			D	D		A		C	D	
Approach Delay (s)		44.6			49.1			8.7			39.5	
Approach LOS		D			D			A			D	

Intersection Summary			
HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
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	0	0	227	315	98	320	346	0	0	297	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3505	1568
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.91	0.91	0.92	0.92	0.91	0.91
Adj. Flow (vph)	0	0	0	261	362	113	352	380	0	0	326	245
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	0	0	0	104
Lane Group Flow (vph)	0	0	0	261	362	25	352	380	0	0	326	141
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	3%	3%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				25.6	25.6	25.6	26.0	24.7			40.4	40.4
Effective Green, g (s)				25.6	25.6	25.6	26.0	24.7			40.4	40.4
Actuated g/C Ratio				0.22	0.22	0.22	0.23	0.21			0.35	0.35
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				398	796	356	784	768			1231	551
v/s Ratio Prot					0.10		c0.10	c0.11			c0.09	
v/s Ratio Perm				c0.15		0.02						0.09
v/c Ratio				0.66	0.45	0.07	0.45	0.49			0.26	0.26
Uniform Delay, d1				40.7	38.7	35.3	38.3	39.7			26.7	26.6
Progression Factor				1.00	1.00	1.00	1.57	0.96			0.37	0.33
Incremental Delay, d2				3.9	0.4	0.1	1.8	2.2			0.1	0.2
Delay (s)				44.6	39.1	35.4	61.8	40.4			9.9	9.1
Level of Service				D	D	D	E	D			A	A
Approach Delay (s)		0.0			40.5			50.7			9.5	
Approach LOS		A			D			D			A	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
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)	348	188	242	0	0	0	0	317	130	155	369	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.31	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	571	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.94	0.94	0.98	0.98	0.92
Adj. Flow (vph)	355	192	247	0	0	0	0	337	138	158	377	0
RTOR Reduction (vph)	0	0	104	0	0	0	0	0	118	0	0	0
Lane Group Flow (vph)	355	192	143	0	0	0	0	337	20	158	377	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	66.8	66.8	66.8					17.0	17.0	35.2	35.2	
Effective Green, g (s)	66.8	66.8	66.8					17.0	17.0	35.2	35.2	
Actuated g/C Ratio	0.58	0.58	0.58					0.15	0.15	0.31	0.31	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1038	2076	929					528	236	312	1083	
v/s Ratio Prot		0.05						c0.09		c0.06	0.11	
v/s Ratio Perm	c0.20		0.09						0.01	0.10		
v/c Ratio	0.34	0.09	0.15					0.64	0.09	0.51	0.35	
Uniform Delay, d1	12.6	10.7	11.1					46.1	42.3	30.9	31.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.29	1.28	
Incremental Delay, d2	0.9	0.1	0.4					2.5	0.2	1.2	0.2	
Delay (s)	13.5	10.8	11.5					48.6	42.5	41.2	39.8	
Level of Service	B	B	B					D	D	D	D	
Approach Delay (s)		12.2			0.0			46.8			40.2	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	152	0	658	1588	16
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.67	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	0	227	0	693	1726	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage veh)				1	1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2081	872	1743			
vC1, stage 1 conf vol	1735					
vC2, stage 2 conf vol	346					
vCu, unblocked vol	2081	872	1743			
tC, single (s)	6.8	7.0	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	22	100			
cM capacity (veh/h)	108	292	339			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	227	346	346	1151	593
Volume Left	0	0	0	0	0
Volume Right	227	0	0	0	17
cSH	292	1700	1700	1700	1700
Volume to Capacity	0.78	0.20	0.20	0.68	0.35
Queue Length 95th (ft)	150	0	0	0	0
Control Delay (s)	49.8	0.0	0.0	0.0	0.0
Lane LOS	E				
Approach Delay (s)	49.8	0.0		0.0	
Approach LOS	E				

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	94	0	190	48	9	9	6	98	2159	99	11	2010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		0.98			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599		1799			1770	3539	1583	1770	3539
Flt Permitted	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599		1799			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.89	0.89	0.89	0.89	0.96	0.96
Adj. Flow (vph)	101	0	204	52	10	10	7	110	2426	111	11	2094
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	16	0	0
Lane Group Flow (vph)	101	0	204	0	67	0	0	117	2426	95	11	2094
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	8.6		109.8		8.0			12.4	69.5	69.5	1.3	58.4
Effective Green, g (s)	8.6		109.8		8.0			12.4	69.5	69.5	1.3	58.4
Actuated g/C Ratio	0.08		1.00		0.07			0.11	0.63	0.63	0.01	0.53
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	272		1599		131			200	2240	1002	21	1882
v/s Ratio Prot	c0.03				c0.04			c0.07	c0.69		0.01	0.59
v/s Ratio Perm			0.13							0.06		
v/c Ratio	0.37		0.13		0.51			0.58	1.08	0.10	0.52	1.11
Uniform Delay, d1	48.0		0.0		49.0			46.3	20.2	7.9	53.9	25.7
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.2		3.4			4.3	45.9	0.0	21.6	58.8
Delay (s)	48.9		0.2		52.4			50.6	66.0	7.9	75.5	84.5
Level of Service	D		A		D			D	E	A	E	F
Approach Delay (s)		16.3			52.4				62.9			81.1
Approach LOS		B			D				E			F

Intersection Summary			
HCM Average Control Delay	67.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	109.8	Sum of lost time (s)	22.4
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	100
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	104
RTOR Reduction (vph)	33
Lane Group Flow (vph)	71
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	58.4
Effective Green, g (s)	58.4
Actuated g/C Ratio	0.53
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	842
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.08
Uniform Delay, d1	12.6
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	12.6
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	86	148	18	4	71	4	648	10	145	866	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1703		1703	1537		1752	3505	1568	1770	3539	1583
Flt Permitted	0.70	1.00		0.42	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1323	1703		759	1537		1752	3505	1568	1770	3539	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.76	0.76	0.76	0.93	0.93	0.93
Adj. Flow (vph)	202	101	174	20	4	79	5	853	13	156	931	15
RTOR Reduction (vph)	0	39	0	0	61	0	0	0	8	0	0	6
Lane Group Flow (vph)	202	236	0	20	22	0	5	853	5	156	931	9
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	19.8	19.8		19.8	19.8		1.0	34.5	34.5	13.8	47.3	47.3
Effective Green, g (s)	19.8	19.8		19.8	19.8		1.0	34.5	34.5	13.8	47.3	47.3
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.01	0.40	0.40	0.16	0.54	0.54
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	301	388		173	350		20	1392	623	281	1926	862
v/s Ratio Prot		0.14			0.01		0.00	c0.24		c0.09	0.26	
v/s Ratio Perm	c0.15			0.03					0.00			0.01
v/c Ratio	0.67	0.61		0.12	0.06		0.25	0.61	0.01	0.56	0.48	0.01
Uniform Delay, d1	30.6	30.1		26.6	26.3		42.6	20.9	15.9	33.7	12.2	9.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	2.7		0.3	0.1		6.5	0.8	0.0	2.4	0.2	0.0
Delay (s)	36.4	32.8		26.9	26.4		49.1	21.7	15.9	36.1	12.4	9.1
Level of Service	D	C		C	C		D	C	B	D	B	A
Approach Delay (s)		34.3			26.5			21.8			15.7	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	18.8
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↗		↗
Volume (veh/h)	0	0	2780	187	0	245
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.98	0.72	0.92	0.83
Hourly flow rate (vph)	0	0	2837	260	0	295
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	2837				2837	946
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2837				2837	946
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	132				14	263

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	946	946	946	260	295
Volume Left	0	0	0	0	0
Volume Right	0	0	0	260	295
cSH	1700	1700	1700	1700	263
Volume to Capacity	0.56	0.56	0.56	0.15	1.12
Queue Length 95th (ft)	0	0	0	0	319
Control Delay (s)	0.0	0.0	0.0	0.0	134.6
Lane LOS					F
Approach Delay (s)	0.0				134.6
Approach LOS					F

Intersection Summary			
Average Delay	11.7		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	146	764	225	8	22	592	161	270	379	18	161	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00		0.98
Satd. Flow (prot)	1752	3505	1568		1752	3505	1568	1770	1863	1583		1794
Flt Permitted	0.23	1.00	1.00		0.34	1.00	1.00	0.95	1.00	1.00		0.98
Satd. Flow (perm)	426	3505	1568		636	3505	1568	1770	1863	1583		1794
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.91	0.91
Adj. Flow (vph)	155	813	239	8	23	623	169	293	412	20	177	304
RTOR Reduction (vph)	0	0	135	0	0	0	86	0	0	9	0	0
Lane Group Flow (vph)	155	813	104	0	31	623	83	293	412	11	0	481
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	4%	4%
Turn Type	pm+pt		Perm	Perm	Perm		Perm	Split		Perm	Split	
Protected Phases	7	4				8		6	6		2	2
Permitted Phases	4		4	8	8		8			6		
Actuated Green, G (s)	52.0	52.0	52.0		35.2	35.2	35.2	23.0	23.0	23.0		27.0
Effective Green, g (s)	52.0	52.0	52.0		35.2	35.2	35.2	23.0	23.0	23.0		27.0
Actuated g/C Ratio	0.43	0.43	0.43		0.29	0.29	0.29	0.19	0.19	0.19		0.22
Clearance Time (s)	5.0	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
Lane Grp Cap (vph)	315	1519	679		187	1028	460	339	357	303		404
v/s Ratio Prot	0.05	c0.23				c0.18		0.17	c0.22			c0.27
v/s Ratio Perm	0.17		0.07		0.05		0.05			0.01		
v/c Ratio	0.49	0.54	0.15		0.17	0.61	0.18	0.86	1.15	0.04		1.19
Uniform Delay, d1	22.8	25.1	20.6		31.5	36.4	31.6	47.0	48.5	39.5		46.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	1.2	1.4	0.5		1.9	2.7	0.9	19.8	96.5	0.0		107.9
Delay (s)	24.0	26.4	21.1		33.4	39.1	32.5	66.8	145.0	39.5		154.4
Level of Service	C	C	C		C	D	C	E	F	D		F
Approach Delay (s)		25.1				37.5			110.5			139.8
Approach LOS		C				D			F			F

Intersection Summary			
HCM Average Control Delay	66.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	62
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	68
RTOR Reduction (vph)	53
Lane Group Flow (vph)	15
Heavy Vehicles (%)	4%
Turn Type	Perm
Protected Phases	
Permitted Phases	2
Actuated Green, G (s)	27.0
Effective Green, g (s)	27.0
Actuated g/C Ratio	0.22
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	349
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	36.4
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	36.4
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	72	98	14	21	51	93	540	11	21	462	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	1669		1752	1649		1787	3564		1787	1881	1599
Flt Permitted	0.68	1.00		0.63	1.00		0.32	1.00		0.44	1.00	1.00
Satd. Flow (perm)	1250	1669		1168	1649		610	3564		825	1881	1599
Peak-hour factor, PHF	0.86	0.86	0.86	0.64	0.64	0.64	0.97	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	88	84	114	22	33	80	96	557	11	23	502	45
RTOR Reduction (vph)	0	59	0	0	66	0	0	2	0	0	0	26
Lane Group Flow (vph)	88	139	0	22	47	0	96	566	0	23	502	19
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			pm+pt			pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.2	8.2		8.2	8.2		27.7	23.8		21.4	20.5	20.5
Effective Green, g (s)	8.2	8.2		8.2	8.2		27.7	23.8		21.4	20.5	20.5
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.58	0.50		0.45	0.43	0.43
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	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
Lane Grp Cap (vph)	214	286		200	282		456	1771		387	805	684
v/s Ratio Prot		c0.08			0.03		c0.02	0.16		0.00	c0.27	
v/s Ratio Perm	0.07			0.02			0.10			0.03		0.01
v/c Ratio	0.41	0.49		0.11	0.17		0.21	0.32		0.06	0.62	0.03
Uniform Delay, d1	17.7	17.9		16.8	16.9		5.2	7.2		7.4	10.7	7.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	1.3		0.2	0.3		0.2	0.1		0.1	1.5	0.0
Delay (s)	19.0	19.3		17.0	17.2		5.4	7.3		7.5	12.2	7.9
Level of Service	B	B		B	B		A	A		A	B	A
Approach Delay (s)		19.2			17.2			7.0			11.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
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)	118	17	69	142	16	130	0	403	156	111	388	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.91	
Frt	1.00	0.88			1.00	0.85		0.96		1.00	0.98	
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1787	1655			1818	1615		3425		1787	5009	
Flt Permitted	0.49	1.00			0.68	1.00		1.00		0.27	1.00	
Satd. Flow (perm)	927	1655			1288	1615		3425		505	5009	
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.92	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	137	20	80	167	19	153	0	424	164	118	413	81
RTOR Reduction (vph)	0	67	0	0	0	129	0	41	0	0	29	0
Lane Group Flow (vph)	137	33	0	0	186	24	0	548	0	118	465	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm				pm+pt		
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		
Actuated Green, G (s)	16.0	16.0			16.0	16.0		50.0		30.9	14.9	
Effective Green, g (s)	16.0	16.0			16.0	16.0		50.0		30.9	14.9	
Actuated g/C Ratio	0.16	0.16			0.16	0.16		0.50		0.31	0.15	
Clearance Time (s)	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	
Lane Grp Cap (vph)	148	265			206	258		1713		361	746	
v/s Ratio Prot		0.02						c0.16		c0.05	c0.09	
v/s Ratio Perm	c0.15				0.14	0.02				0.05		
v/c Ratio	0.93	0.12			0.90	0.09		0.32		0.33	0.62	
Uniform Delay, d1	41.4	36.0			41.2	35.8		14.9		33.8	39.9	
Progression Factor	1.00	1.00			1.00	1.00		1.25		1.00	1.00	
Incremental Delay, d2	51.8	0.2			37.0	0.2		0.1		2.4	3.9	
Delay (s)	93.2	36.2			78.2	36.0		18.7		36.2	43.8	
Level of Service	F	D			E	D		B		D	D	
Approach Delay (s)		69.2			59.2			18.7			42.3	
Approach LOS		E			E			B			D	

Intersection Summary			
HCM Average Control Delay	41.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
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	0	0	419	498	86	442	473	0	0	363	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3574	1599
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3574	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.96	0.96	0.95	0.95	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	436	519	90	465	498	0	0	390	254
RTOR Reduction (vph)	0	0	0	0	0	64	0	0	0	0	0	56
Lane Group Flow (vph)	0	0	0	436	519	26	465	498	0	0	390	198
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	1%	1%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				29.1	29.1	29.1	17.0	14.9			30.9	30.9
Effective Green, g (s)				29.1	29.1	29.1	17.0	14.9			30.9	30.9
Actuated g/C Ratio				0.29	0.29	0.29	0.17	0.15			0.31	0.31
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				520	1040	465	589	533			1104	494
v/s Ratio Prot					0.15		c0.13	c0.14			0.11	
v/s Ratio Perm				c0.24		0.02						c0.12
v/c Ratio				0.84	0.50	0.06	0.79	0.93			0.35	0.40
Uniform Delay, d1				33.2	29.4	25.6	39.8	42.1			26.8	27.2
Progression Factor				1.00	1.00	1.00	1.17	0.83			0.39	0.32
Incremental Delay, d2				11.3	0.4	0.1	9.4	24.0			0.1	0.4
Delay (s)				44.6	29.8	25.6	56.2	59.1			10.7	9.2
Level of Service				D	C	C	E	E			B	A
Approach Delay (s)		0.0			35.6			57.7			10.1	
Approach LOS		A			D			E			B	

Intersection Summary			
HCM Average Control Delay	37.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
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)	421	299	225	0	0	0	0	493	300	221	561	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1787	3574	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.26	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	480	3574	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.98	0.98	0.96	0.96	0.92
Adj. Flow (vph)	468	332	250	0	0	0	0	503	306	230	584	0
RTOR Reduction (vph)	0	0	136	0	0	0	0	0	208	0	0	0
Lane Group Flow (vph)	468	332	114	0	0	0	0	503	98	230	584	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	45.6	45.6	45.6					22.3	22.3	41.4	41.4	
Effective Green, g (s)	45.6	45.6	45.6					22.3	22.3	41.4	41.4	
Actuated g/C Ratio	0.46	0.46	0.46					0.22	0.22	0.41	0.41	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	815	1630	729					797	357	383	1480	
v/s Ratio Prot		0.09						0.14		c0.08	0.16	
v/s Ratio Perm	c0.26		0.07						0.06	c0.16		
v/c Ratio	0.57	0.20	0.16					0.63	0.27	0.60	0.39	
Uniform Delay, d1	20.0	16.3	15.9					35.1	32.1	20.7	20.5	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.40	1.38	
Incremental Delay, d2	2.9	0.3	0.5					1.6	0.4	2.1	0.1	
Delay (s)	23.0	16.6	16.4					36.8	32.6	31.2	28.4	
Level of Service	C	B	B					D	C	C	C	
Approach Delay (s)		19.4			0.0			35.2			29.2	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	122	0	780	937	15
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.67	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	182	0	830	1018	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage veh)				1	1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1442	517	1035			
vC1, stage 1 conf vol	1027					
vC2, stage 2 conf vol	415					
vCu, unblocked vol	1442	517	1035			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	64	100			
cM capacity (veh/h)	236	506	661			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	182	415	415	679	356
Volume Left	0	0	0	0	0
Volume Right	182	0	0	0	16
cSH	506	1700	1700	1700	1700
Volume to Capacity	0.36	0.24	0.24	0.40	0.21
Queue Length 95th (ft)	41	0	0	0	0
Control Delay (s)	16.1	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	16.1	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	225	0	181	47	6	2	17	169	1738	76	6	1852
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.96			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599		1795			1770	3539	1583	1752	3505
Flt Permitted	0.95		1.00		0.96			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599		1795			1770	3539	1583	1752	3505
Peak-hour factor, PHF	0.82	0.82	0.82	0.70	0.70	0.70	0.96	0.96	0.96	0.96	0.98	0.98
Adj. Flow (vph)	274	0	221	67	9	3	18	176	1810	79	6	1890
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	14	0	0
Lane Group Flow (vph)	274	0	221	0	78	0	0	194	1810	65	6	1890
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	15.0		125.5		10.7			19.6	76.1	76.1	1.3	57.8
Effective Green, g (s)	15.0		125.5		10.7			19.6	76.1	76.1	1.3	57.8
Actuated g/C Ratio	0.12		1.00		0.09			0.16	0.61	0.61	0.01	0.46
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	414		1599		153			276	2146	960	18	1614
v/s Ratio Prot	c0.08				c0.04			c0.11	c0.51		0.00	c0.54
v/s Ratio Perm			0.14							0.04		
v/c Ratio	0.66		0.14		0.51			0.70	0.84	0.07	0.33	1.17
Uniform Delay, d1	52.8		0.0		54.9			50.2	19.9	10.1	61.7	33.8
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9		0.2		2.9			7.9	3.2	0.0	10.6	84.0
Delay (s)	56.8		0.2		57.8			58.1	23.1	10.2	72.3	117.8
Level of Service	E		A		E			E	C	B	E	F
Approach Delay (s)		31.5			57.8				25.9			110.1
Approach LOS		C			E				C			F

Intersection Summary			
HCM Average Control Delay	63.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	125.5	Sum of lost time (s)	28.9
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	156
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	159
RTOR Reduction (vph)	53
Lane Group Flow (vph)	106
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	57.8
Effective Green, g (s)	57.8
Actuated g/C Ratio	0.46
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	722
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.15
Uniform Delay, d1	19.6
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	19.7
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	47	64	18	1	114	13	858	24	101	657	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1718		1787	1601		1770	3539	1583	1787	3574	1599
Flt Permitted	0.66	1.00		0.67	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1243	1718		1270	1601		1770	3539	1583	1787	3574	1599
Peak-hour factor, PHF	0.87	0.87	0.87	0.76	0.76	0.76	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	92	54	74	24	1	150	14	933	26	117	764	12
RTOR Reduction (vph)	0	35	0	0	125	0	0	0	16	0	0	5
Lane Group Flow (vph)	92	93	0	24	26	0	14	933	10	117	764	7
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	12.3	12.3		12.3	12.3		1.1	27.9	27.9	15.3	42.1	42.1
Effective Green, g (s)	12.3	12.3		12.3	12.3		1.1	27.9	27.9	15.3	42.1	42.1
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.01	0.38	0.38	0.21	0.57	0.57
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	206	284		210	265		26	1329	594	368	2025	906
v/s Ratio Prot		0.05			0.02		0.01	c0.26		0.07	c0.21	
v/s Ratio Perm	c0.07			0.02					0.01			0.00
v/c Ratio	0.45	0.33		0.11	0.10		0.54	0.70	0.02	0.32	0.38	0.01
Uniform Delay, d1	27.9	27.3		26.4	26.3		36.3	19.7	14.6	25.1	8.9	7.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.7		0.2	0.2		19.8	1.7	0.0	0.5	0.1	0.0
Delay (s)	29.5	28.0		26.6	26.5		56.1	21.4	14.6	25.6	9.0	7.0
Level of Service	C	C		C	C		E	C	B	C	A	A
Approach Delay (s)		28.6			26.5			21.7			11.1	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	13.8
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↱		↱
Volume (veh/h)	0	0	3057	336	0	273
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.98	0.63	0.92	0.91
Hourly flow rate (vph)	0	0	3119	533	0	300
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	3119				3119	1040
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3119				3119	1040
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	101				9	229

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1040	1040	1040	533	300
Volume Left	0	0	0	0	0
Volume Right	0	0	0	533	300
cSH	1700	1700	1700	1700	229
Volume to Capacity	0.61	0.61	0.61	0.31	1.31
Queue Length 95th (ft)	0	0	0	0	399
Control Delay (s)	0.0	0.0	0.0	0.0	209.6
Lane LOS					F
Approach Delay (s)	0.0				209.6
Approach LOS					F

Intersection Summary			
Average Delay	15.9		
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	68	489	77	17	29	1757	108	214	156	10	105	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	13	12	12
Total Lost time (s)	5.0	6.0	6.0		5.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	1482		1719	3438	1538	1719	3438	1589	1719	3438
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	1482		1719	3438	1538	1719	3438	1589	1719	3438
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96
Adj. Flow (vph)	73	526	83	18	32	1910	117	271	197	13	109	314
RTOR Reduction (vph)	0	0	39	0	0	0	16	0	0	0	0	0
Lane Group Flow (vph)	73	526	44	0	50	1910	101	271	197	13	109	314
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot	Prot		Perm	Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases			2				6			Free		
Actuated Green, G (s)	8.5	79.9	79.9		6.5	77.9	77.9	23.0	25.8	150.0	14.8	17.6
Effective Green, g (s)	8.5	79.9	79.9		6.5	77.9	77.9	23.0	25.8	150.0	14.8	17.6
Actuated g/C Ratio	0.06	0.53	0.53		0.04	0.52	0.52	0.15	0.17	1.00	0.10	0.12
Clearance Time (s)	5.0	6.0	6.0		5.0	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
Lane Grp Cap (vph)	94	1764	789		74	1785	799	264	591	1589	170	403
v/s Ratio Prot	c0.04	0.16			0.03	c0.56		c0.16	0.06		0.06	c0.09
v/s Ratio Perm			0.03				0.07			0.01		
v/c Ratio	0.78	0.30	0.06		0.68	1.07	0.13	1.03	0.33	0.01	0.64	0.78
Uniform Delay, d1	69.8	19.5	16.9		70.7	36.0	18.5	63.5	54.5	0.0	65.0	64.3
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	32.2	0.4	0.1		21.7	42.8	0.3	62.4	0.3	0.0	8.0	9.2
Delay (s)	102.0	19.9	17.0		92.4	78.9	18.9	125.9	54.9	0.0	73.0	73.5
Level of Service	F	B	B		F	E	B	F	D	A	E	E
Approach Delay (s)		28.3				75.8			93.4			50.7
Approach LOS		C				E			F			D

Intersection Summary

HCM Average Control Delay	65.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	182
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1538
Flt Permitted	1.00
Satd. Flow (perm)	1538
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	190
Heavy Vehicles (%)	5%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1538
v/s Ratio Prot	
v/s Ratio Perm	c0.12
v/c Ratio	0.12
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	58	87	5	11	3	255	338	10	15	342	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.97		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1631		1787	1822		1736	3456		1719	3372	
Flt Permitted	0.74	1.00		0.64	1.00		0.42	1.00		0.47	1.00	
Satd. Flow (perm)	1329	1631		1208	1822		767	3456		856	3372	
Peak-hour factor, PHF	0.79	0.79	0.79	0.59	0.59	0.59	0.71	0.71	0.71	0.96	0.96	0.96
Adj. Flow (vph)	47	73	110	8	19	5	359	476	14	16	356	52
RTOR Reduction (vph)	0	66	0	0	4	0	0	3	0	0	24	0
Lane Group Flow (vph)	47	117	0	8	20	0	359	487	0	16	384	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	4%	4%	4%	5%	5%	5%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.6	7.6		7.6	7.6		27.8	23.7		14.7	13.6	
Effective Green, g (s)	7.6	7.6		7.6	7.6		27.8	23.7		14.7	13.6	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.59	0.50		0.31	0.29	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	262		194	292		679	1728		285	967	
v/s Ratio Prot		c0.07			0.01		c0.12	0.14		0.00	0.11	
v/s Ratio Perm	0.04			0.01			c0.19			0.02		
v/c Ratio	0.22	0.45		0.04	0.07		0.53	0.28		0.06	0.40	
Uniform Delay, d1	17.3	18.0		16.8	16.9		5.3	6.9		11.4	13.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	1.2		0.1	0.1		0.7	0.1		0.1	0.3	
Delay (s)	17.8	19.2		16.9	17.0		6.0	7.0		11.5	13.9	
Level of Service	B	B		B	B		A	A		B	B	
Approach Delay (s)		18.9			17.0			6.6			13.8	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	47.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
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)	57	4	49	26	3	30	0	516	21	26	354	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.86			1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1703	1544			1581	1404		3450		1703	3406	1473
Flt Permitted	0.72	1.00			0.70	1.00		1.00		0.19	1.00	1.00
Satd. Flow (perm)	1297	1544			1157	1404		3450		343	3406	1473
Peak-hour factor, PHF	0.82	0.82	0.82	0.56	0.56	0.56	0.92	0.82	0.82	0.95	0.95	0.95
Adj. Flow (vph)	70	5	60	46	5	54	0	629	26	27	373	58
RTOR Reduction (vph)	0	53	0	0	0	47	0	3	0	0	0	29
Lane Group Flow (vph)	70	12	0	0	51	7	0	652	0	27	373	29
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	4%	4%	6%	6%	6%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	12.1	12.1			12.1	12.1		53.9		36.9	20.9	20.9
Effective Green, g (s)	12.1	12.1			12.1	12.1		53.9		36.9	20.9	20.9
Actuated g/C Ratio	0.12	0.12			0.12	0.12		0.54		0.37	0.21	0.21
Clearance Time (s)	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
Lane Grp Cap (vph)	157	187			140	170		1860		344	712	308
v/s Ratio Prot		0.01						c0.19		c0.01	c0.11	
v/s Ratio Perm	c0.05				0.04	0.00				0.02		0.02
v/c Ratio	0.45	0.07			0.36	0.04		0.35		0.08	0.52	0.09
Uniform Delay, d1	40.8	38.9			40.4	38.8		13.1		32.5	35.1	31.9
Progression Factor	1.00	1.00			1.00	1.00		0.80		1.00	1.00	1.00
Incremental Delay, d2	2.0	0.1			1.6	0.1		0.1		0.4	2.7	0.6
Delay (s)	42.8	39.1			42.0	38.9		10.6		32.9	37.9	32.5
Level of Service	D	D			D	D		B		C	D	C
Approach Delay (s)		41.0			40.4			10.6			36.9	
Approach LOS		D			D			B			D	

Intersection Summary

HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
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	0	0	191	455	153	293	382	0	0	191	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	3471	1553	3400	3505			3406	1524
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	3471	1553	3400	3505			3406	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.92	0.92	0.89	0.89
Adj. Flow (vph)	0	0	0	215	511	172	312	406	0	0	215	267
RTOR Reduction (vph)	0	0	0	0	0	126	0	0	0	0	0	72
Lane Group Flow (vph)	0	0	0	215	511	46	312	406	0	0	215	195
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	2%	2%	6%	6%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				27.0	27.0	27.0	17.0	20.9			33.0	33.0
Effective Green, g (s)				27.0	27.0	27.0	17.0	20.9			33.0	33.0
Actuated g/C Ratio				0.27	0.27	0.27	0.17	0.21			0.33	0.33
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				469	937	419	578	733			1124	503
v/s Ratio Prot					c0.15		c0.09	c0.12			0.06	
v/s Ratio Perm				0.12		0.03						c0.13
v/c Ratio				0.46	0.55	0.11	0.54	0.55			0.19	0.39
Uniform Delay, d1				30.4	31.2	27.5	37.9	35.4			24.0	25.7
Progression Factor				1.00	1.00	1.00	1.52	1.06			0.40	0.77
Incremental Delay, d2				0.7	0.7	0.1	3.4	2.9			0.1	0.4
Delay (s)				31.1	31.9	27.6	61.2	40.4			9.7	20.2
Level of Service				C	C	C	E	D			A	C
Approach Delay (s)		0.0			30.9			49.4			15.5	
Approach LOS		A			C			D			B	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
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)	155	97	122	0	0	0	0	520	245	65	318	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1641	3282	1468					3505	1568	1671	3343	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.23	1.00	
Satd. Flow (perm)	1641	3282	1468					3505	1568	405	3343	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	176	110	139	0	0	0	0	565	266	74	361	0
RTOR Reduction (vph)	0	0	69	0	0	0	0	0	201	0	0	0
Lane Group Flow (vph)	176	110	70	0	0	0	0	565	65	74	361	0
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	2%	3%	3%	8%	8%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	50.5	50.5	50.5					24.3	24.3	36.5	36.5	
Effective Green, g (s)	50.5	50.5	50.5					24.3	24.3	36.5	36.5	
Actuated g/C Ratio	0.50	0.50	0.50					0.24	0.24	0.36	0.36	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	829	1657	741					852	381	239	1220	
v/s Ratio Prot		0.03						c0.16		0.02	c0.11	
v/s Ratio Perm	c0.11		0.05						0.04	0.09		
v/c Ratio	0.21	0.07	0.09					0.66	0.17	0.31	0.30	
Uniform Delay, d1	13.7	12.7	12.9					34.2	29.9	22.2	22.6	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.28	1.27	
Incremental Delay, d2	0.6	0.1	0.3					2.0	0.2	0.7	0.1	
Delay (s)	14.3	12.8	13.1					36.1	30.1	29.0	28.8	
Level of Service	B	B	B					D	C	C	C	
Approach Delay (s)		13.5			0.0			34.2			28.8	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	82	0	1912	612	10
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	1.00	0.91	0.91	0.84	0.84
Hourly flow rate (vph)	0	82	0	2101	729	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage veh)				1	1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1785	370	740			
vC1, stage 1 conf vol	735					
vC2, stage 2 conf vol	1051					
vCu, unblocked vol	1785	370	740			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	193	633	842			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	82	1051	1051	486	255
Volume Left	0	0	0	0	0
Volume Right	82	0	0	0	12
cSH	633	1700	1700	1700	1700
Volume to Capacity	0.13	0.62	0.62	0.29	0.15
Queue Length 95th (ft)	11	0	0	0	0
Control Delay (s)	11.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.5	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	37	0	18	86	19	27	25	108	1812	34	13	2563
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		0.97			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367		1553		1755			1719	3438	1538	1752	3505
Flt Permitted	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367		1553		1755			1719	3438	1538	1752	3505
Peak-hour factor, PHF	0.77	0.77	0.77	0.95	0.95	0.95	0.93	0.93	0.93	0.93	0.89	0.89
Adj. Flow (vph)	48	0	23	91	20	28	27	116	1948	37	15	2880
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	7	0	0
Lane Group Flow (vph)	48	0	23	0	133	0	0	143	1948	30	15	2880
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	5%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	5.7		114.0		13.8			14.4	69.3	69.3	2.8	57.7
Effective Green, g (s)	5.7		114.0		13.8			14.4	69.3	69.3	2.8	57.7
Actuated g/C Ratio	0.05		1.00		0.12			0.13	0.61	0.61	0.02	0.51
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	168		1553		212			217	2090	935	43	1774
v/s Ratio Prot	c0.01				c0.08			c0.08	c0.57		0.01	c0.82
v/s Ratio Perm			0.01							0.02		
v/c Ratio	0.29		0.01		0.63			0.66	0.93	0.03	0.35	1.62
Uniform Delay, d1	52.2		0.0		47.6			47.5	20.2	8.9	54.7	28.2
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.0		5.7			7.0	8.3	0.0	4.9	283.2
Delay (s)	53.1		0.0		53.3			54.5	28.5	9.0	59.6	311.3
Level of Service	D		A		D			D	C	A	E	F
Approach Delay (s)		35.9			53.3				29.9			294.6
Approach LOS		D			D				C			F

Intersection Summary

HCM Average Control Delay	180.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	114.0	Sum of lost time (s)	28.9
Intersection Capacity Utilization	106.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	142
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	160
RTOR Reduction (vph)	39
Lane Group Flow (vph)	121
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	57.7
Effective Green, g (s)	57.7
Actuated g/C Ratio	0.51
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	794
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.15
Uniform Delay, d1	15.1
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	15.2
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	52	49	54	1	179	5	829	8	59	594	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1626	1587		1719	1539		1736	3471	1553	1687	3374	1509
Flt Permitted	0.58	1.00		0.68	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	995	1587		1238	1539		1736	3471	1553	1687	3374	1509
Peak-hour factor, PHF	0.89	0.89	0.89	0.81	0.81	0.81	0.88	0.88	0.88	0.85	0.85	0.85
Adj. Flow (vph)	188	58	55	67	1	221	6	942	9	69	699	91
RTOR Reduction (vph)	0	18	0	0	140	0	0	0	6	0	0	52
Lane Group Flow (vph)	188	95	0	67	82	0	6	942	3	69	699	39
Heavy Vehicles (%)	11%	11%	11%	5%	5%	5%	4%	4%	4%	7%	7%	7%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	35.9	35.9		35.9	35.9		1.1	35.3	35.3	7.8	42.0	42.0
Effective Green, g (s)	35.9	35.9		35.9	35.9		1.1	35.3	35.3	7.8	42.0	42.0
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.01	0.36	0.36	0.08	0.43	0.43
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	365	583		454	565		20	1253	561	135	1449	648
v/s Ratio Prot		0.06			0.05		0.00	c0.27		c0.04	0.21	
v/s Ratio Perm	c0.19			0.05					0.00			0.03
v/c Ratio	0.52	0.16		0.15	0.15		0.30	0.75	0.01	0.51	0.48	0.06
Uniform Delay, d1	24.2	20.8		20.7	20.7		48.0	27.4	20.0	43.2	20.1	16.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1		0.2	0.1		8.3	2.6	0.0	3.2	0.3	0.0
Delay (s)	25.4	21.0		20.9	20.8		56.2	30.0	20.0	46.4	20.3	16.4
Level of Service	C	C		C	C		E	C	C	D	C	B
Approach Delay (s)		23.7			20.8			30.1			22.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	97.8	Sum of lost time (s)	18.8
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↱		↱
Volume (veh/h)	0	0	3963	108	0	39
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.97	0.68	0.92	0.63
Hourly flow rate (vph)	0	0	4086	159	0	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	4086				4086	1362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4086				4086	1362
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	100				100	53
cM capacity (veh/h)	40				2	133

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1362	1362	1362	159	62
Volume Left	0	0	0	0	0
Volume Right	0	0	0	159	62
cSH	1700	1700	1700	1700	133
Volume to Capacity	0.80	0.80	0.80	0.09	0.47
Queue Length 95th (ft)	0	0	0	0	53
Control Delay (s)	0.0	0.0	0.0	0.0	53.7
Lane LOS					F
Approach Delay (s)	0.0				53.7
Approach LOS					F

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	300	1638	206	15	23	562	132	193	336	3	103	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	13	12	12
Total Lost time (s)	5.0	6.0	6.0		5.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1583		1719	3438	1538	1787	3574	1652	1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1583		1719	3438	1538	1787	3574	1652	1770	3539
Peak-hour factor, PHF	0.88	0.88	0.88	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.91	0.91
Adj. Flow (vph)	341	1861	234	16	24	592	139	214	373	3	113	323
RTOR Reduction (vph)	0	0	81	0	0	0	64	0	0	0	0	0
Lane Group Flow (vph)	341	1861	153	0	40	592	75	214	373	3	113	323
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	1%	1%	1%	2%	2%
Turn Type	Prot		Perm	Prot	Prot		Perm	Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases			2				6			Free		
Actuated Green, G (s)	30.8	68.8	68.8		6.2	44.2	44.2	17.0	23.5	135.0	13.5	20.0
Effective Green, g (s)	30.8	68.8	68.8		6.2	44.2	44.2	17.0	23.5	135.0	13.5	20.0
Actuated g/C Ratio	0.23	0.51	0.51		0.05	0.33	0.33	0.13	0.17	1.00	0.10	0.15
Clearance Time (s)	5.0	6.0	6.0		5.0	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
Lane Grp Cap (vph)	404	1804	807		79	1126	504	225	622	1652	177	524
v/s Ratio Prot	c0.19	c0.53			0.02	0.17		c0.12	c0.10		0.06	0.09
v/s Ratio Perm			0.10				0.05			0.00		
v/c Ratio	0.84	1.03	0.19		0.51	0.53	0.15	0.95	0.60	0.00	0.64	0.62
Uniform Delay, d1	49.8	33.1	18.0		62.9	36.9	32.1	58.6	51.4	0.0	58.4	53.9
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	14.8	29.8	0.5		5.0	1.8	0.6	46.2	4.2	0.0	7.4	5.4
Delay (s)	64.6	62.9	18.5		67.9	38.6	32.7	104.8	55.6	0.0	65.8	59.3
Level of Service	E	E	B		E	D	C	F	E	A	E	E
Approach Delay (s)		58.9				39.1			73.2			52.7
Approach LOS		E				D			E			D

Intersection Summary			
HCM Average Control Delay	56.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	62
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	68
RTOR Reduction (vph)	0
Lane Group Flow (vph)	68
Heavy Vehicles (%)	2%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.04
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	120	159	14	17	18	192	460	8	24	458	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.92		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1687		1770	1719		1770	3531		1770	3496	
Flt Permitted	0.73	1.00		0.43	1.00		0.37	1.00		0.47	1.00	
Satd. Flow (perm)	1350	1687		799	1719		697	3531		880	3496	
Peak-hour factor, PHF	0.78	0.78	0.78	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	71	154	204	16	19	20	202	484	8	26	492	44
RTOR Reduction (vph)	0	66	0	0	15	0	0	2	0	0	14	0
Lane Group Flow (vph)	71	292	0	16	24	0	202	490	0	26	522	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.2	11.2		11.2	11.2		21.9	17.8		15.4	14.3	
Effective Green, g (s)	11.2	11.2		11.2	11.2		21.9	17.8		15.4	14.3	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.49	0.39		0.34	0.32	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	335	419		198	427		448	1394		322	1108	
v/s Ratio Prot		c0.17			0.01		c0.05	0.14		0.00	0.15	
v/s Ratio Perm	0.05			0.02			c0.17			0.03		
v/c Ratio	0.21	0.70		0.08	0.06		0.45	0.35		0.08	0.47	
Uniform Delay, d1	13.4	15.4		13.0	12.9		6.9	9.6		9.9	12.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	5.0		0.2	0.1		0.7	0.2		0.1	0.3	
Delay (s)	13.8	20.4		13.2	13.0		7.6	9.7		10.0	12.7	
Level of Service	B	C		B	B		A	A		B	B	
Approach Delay (s)		19.3			13.0			9.1			12.6	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	45.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
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)	85	5	154	130	15	88	0	487	86	86	422	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.86			1.00	0.85		0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1609			1783	1583		3493		1752	3505	1516
Flt Permitted	0.54	1.00			0.49	1.00		1.00		0.23	1.00	1.00
Satd. Flow (perm)	1017	1609			916	1583		3493		427	3505	1516
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.92	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	94	6	171	146	17	99	0	513	91	92	454	133
RTOR Reduction (vph)	0	141	0	0	0	82	0	13	0	0	0	52
Lane Group Flow (vph)	94	36	0	0	163	17	0	591	0	92	454	81
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	3%	3%	3%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	20.0	20.0			20.0	20.0		52.0		42.3	17.3	17.3
Effective Green, g (s)	20.0	20.0			20.0	20.0		52.0		42.3	17.3	17.3
Actuated g/C Ratio	0.17	0.17			0.17	0.17		0.45		0.37	0.15	0.15
Clearance Time (s)	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
Lane Grp Cap (vph)	177	280			159	275		1579		445	527	228
v/s Ratio Prot		0.02						c0.17		c0.04	c0.13	
v/s Ratio Perm	0.09				c0.18	0.01				0.03		0.05
v/c Ratio	0.53	0.13			1.03	0.06		0.37		0.21	0.86	0.36
Uniform Delay, d1	43.2	40.1			47.5	39.7		20.8		33.7	47.7	43.8
Progression Factor	1.00	1.00			1.00	1.00		0.89		1.00	1.00	1.00
Incremental Delay, d2	3.0	0.2			78.1	0.1		0.1		1.1	16.7	4.3
Delay (s)	46.3	40.3			125.6	39.8		18.6		34.7	64.4	48.2
Level of Service	D	D			F	D		B		C	E	D
Approach Delay (s)		42.4			93.2			18.6			57.2	
Approach LOS		D			F			B			E	

Intersection Summary

HCM Average Control Delay	47.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
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	0	0	314	365	123	362	449	0	0	465	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3505	1568
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.91	0.91	0.92	0.92	0.91	0.91
Adj. Flow (vph)	0	0	0	361	420	141	398	493	0	0	511	265
RTOR Reduction (vph)	0	0	0	0	0	106	0	0	0	0	0	80
Lane Group Flow (vph)	0	0	0	361	420	35	398	493	0	0	511	185
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	3%	3%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				28.7	28.7	28.7	26.0	17.3			37.3	37.3
Effective Green, g (s)				28.7	28.7	28.7	26.0	17.3			37.3	37.3
Actuated g/C Ratio				0.25	0.25	0.25	0.23	0.15			0.32	0.32
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				446	892	399	784	538			1137	509
v/s Ratio Prot					0.12		c0.11	c0.14			c0.15	
v/s Ratio Perm				c0.20		0.02						0.12
v/c Ratio				0.81	0.47	0.09	0.51	0.92			0.45	0.36
Uniform Delay, d1				40.6	36.7	33.1	38.9	48.1			30.7	29.7
Progression Factor				1.00	1.00	1.00	1.51	0.93			0.54	0.46
Incremental Delay, d2				10.4	0.4	0.1	2.2	22.0			0.2	0.3
Delay (s)				51.0	37.1	33.2	60.8	66.8			16.8	13.9
Level of Service				D	D	C	E	E			B	B
Approach Delay (s)		0.0			41.9			64.1			15.8	
Approach LOS		A			D			E			B	

Intersection Summary

HCM Average Control Delay	41.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
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)	398	232	262	0	0	0	0	411	181	234	545	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.25	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	468	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.94	0.94	0.98	0.98	0.92
Adj. Flow (vph)	406	237	267	0	0	0	0	437	193	239	556	0
RTOR Reduction (vph)	0	0	125	0	0	0	0	0	158	0	0	0
Lane Group Flow (vph)	406	237	142	0	0	0	0	437	35	239	556	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	61.0	61.0	61.0					20.8	20.8	41.0	41.0	
Effective Green, g (s)	61.0	61.0	61.0					20.8	20.8	41.0	41.0	
Actuated g/C Ratio	0.53	0.53	0.53					0.18	0.18	0.36	0.36	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	948	1896	848					646	289	339	1262	
v/s Ratio Prot		0.07						0.12		c0.09	0.16	
v/s Ratio Perm	c0.23		0.09						0.02	c0.16		
v/c Ratio	0.43	0.12	0.17					0.68	0.12	0.71	0.44	
Uniform Delay, d1	16.4	13.6	13.9					44.0	39.4	28.5	28.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.41	1.29	
Incremental Delay, d2	1.4	0.1	0.4					2.8	0.2	5.4	0.2	
Delay (s)	17.8	13.7	14.3					46.8	39.6	45.6	36.7	
Level of Service	B	B	B					D	D	D	D	
Approach Delay (s)		15.7			0.0			44.6			39.4	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	180	0	732	1741	17
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.67	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	0	269	0	771	1892	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage veh)				1	1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2287	955	1911			
vC1, stage 1 conf vol	1902					
vC2, stage 2 conf vol	385					
vCu, unblocked vol	2287	955	1911			
tC, single (s)	6.8	7.0	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	0	100			
cM capacity (veh/h)	88	257	291			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	269	385	385	1262	649
Volume Left	0	0	0	0	0
Volume Right	269	0	0	0	18
cSH	257	1700	1700	1700	1700
Volume to Capacity	1.05	0.23	0.23	0.74	0.38
Queue Length 95th (ft)	270	0	0	0	0
Control Delay (s)	111.4	0.0	0.0	0.0	0.0
Lane LOS	F				
Approach Delay (s)	111.4	0.0		0.0	
Approach LOS	F				

Intersection Summary			
Average Delay	10.1		
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	111	0	222	77	15	10	6	106	2364	133	12	2202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.96			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599		1806			1770	3539	1583	1770	3539
Flt Permitted	0.95		1.00		0.96			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599		1806			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.89	0.89	0.89	0.89	0.96	0.96
Adj. Flow (vph)	119	0	239	83	16	11	7	119	2656	149	12	2294
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	21	0	0
Lane Group Flow (vph)	119	0	239	0	107	0	0	126	2656	128	12	2294
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	9.3		115.2		12.1			13.4	70.0	70.0	1.4	58.0
Effective Green, g (s)	9.3		115.2		12.1			13.4	70.0	70.0	1.4	58.0
Actuated g/C Ratio	0.08		1.00		0.11			0.12	0.61	0.61	0.01	0.50
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	280		1599		190			206	2150	962	22	1782
v/s Ratio Prot	c0.03				c0.06			c0.07	c0.75		0.01	0.65
v/s Ratio Perm			0.15							0.08		
v/c Ratio	0.42		0.15		0.56			0.61	1.24	0.13	0.55	1.29
Uniform Delay, d1	50.4		0.0		49.0			48.4	22.6	9.6	56.6	28.6
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0		0.2		3.8			5.3	110.1	0.1	24.9	133.7
Delay (s)	51.4		0.2		52.9			53.7	132.7	9.7	81.4	162.3
Level of Service	D		A		D			D	F	A	F	F
Approach Delay (s)		17.2			52.9				123.1			154.7
Approach LOS		B			D				F			F

Intersection Summary			
HCM Average Control Delay	128.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	115.2	Sum of lost time (s)	22.4
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	113
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	118
RTOR Reduction (vph)	36
Lane Group Flow (vph)	82
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	58.0
Effective Green, g (s)	58.0
Actuated g/C Ratio	0.50
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	797
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.10
Uniform Delay, d1	15.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	15.0
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	105	166	19	4	91	4	709	11	161	940	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1709		1703	1534		1752	3505	1568	1770	3539	1583
Flt Permitted	0.69	1.00		0.35	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1297	1709		622	1534		1752	3505	1568	1770	3539	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.76	0.76	0.76	0.93	0.93	0.93
Adj. Flow (vph)	219	124	195	21	4	101	5	933	14	173	1011	16
RTOR Reduction (vph)	0	35	0	0	76	0	0	0	8	0	0	5
Lane Group Flow (vph)	219	284	0	21	29	0	5	933	6	173	1011	11
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	23.9	23.9		23.9	23.9		1.0	38.9	38.9	15.5	53.4	53.4
Effective Green, g (s)	23.9	23.9		23.9	23.9		1.0	38.9	38.9	15.5	53.4	53.4
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.01	0.40	0.40	0.16	0.55	0.55
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	319	421		153	378		18	1404	628	283	1946	871
v/s Ratio Prot		0.17			0.02		0.00	c0.27		c0.10	0.29	
v/s Ratio Perm	c0.17			0.03					0.00			0.01
v/c Ratio	0.69	0.68		0.14	0.08		0.28	0.66	0.01	0.61	0.52	0.01
Uniform Delay, d1	33.2	33.1		28.6	28.1		47.7	23.8	17.5	38.0	13.8	9.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	4.3		0.4	0.1		8.3	1.2	0.0	3.9	0.2	0.0
Delay (s)	39.2	37.3		29.0	28.2		55.9	25.0	17.5	41.9	14.0	9.9
Level of Service	D	D		C	C		E	C	B	D	B	A
Approach Delay (s)		38.1			28.3			25.0			18.0	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	97.1	Sum of lost time (s)	18.8
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↱		↱
Volume (veh/h)	0	0	3142	255	0	304
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.98	0.72	0.92	0.83
Hourly flow rate (vph)	0	0	3206	354	0	366
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	3206				3206	1069
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3206				3206	1069
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	93				8	217

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1069	1069	1069	354	366
Volume Left	0	0	0	0	0
Volume Right	0	0	0	354	366
cSH	1700	1700	1700	1700	217
Volume to Capacity	0.63	0.63	0.63	0.21	1.69
Queue Length 95th (ft)	0	0	0	0	607
Control Delay (s)	0.0	0.0	0.0	0.0	366.6
Lane LOS					F
Approach Delay (s)	0.0				366.6
Approach LOS					F

Intersection Summary			
Average Delay	34.2		
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	158	833	254	9	24	647	209	304	480	19	212	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	13	12	12
Total Lost time (s)	5.0	6.0	6.0		5.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	3505	1568		1752	3505	1568	1770	3539	1636	1736	3471
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	3505	1568		1752	3505	1568	1770	3539	1636	1736	3471
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.91	0.91
Adj. Flow (vph)	168	886	270	9	25	681	220	330	522	21	233	413
RTOR Reduction (vph)	0	0	172	0	0	0	106	0	0	0	0	0
Lane Group Flow (vph)	168	886	98	0	34	681	114	330	522	21	233	413
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	4%	4%
Turn Type	Prot		Perm	Prot	Prot		Perm	Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases			2				6			Free		
Actuated Green, G (s)	14.2	43.6	43.6		5.4	34.8	34.8	25.2	27.0	120.0	21.0	22.8
Effective Green, g (s)	14.2	43.6	43.6		5.4	34.8	34.8	25.2	27.0	120.0	21.0	22.8
Actuated g/C Ratio	0.12	0.36	0.36		0.05	0.29	0.29	0.21	0.22	1.00	0.18	0.19
Clearance Time (s)	5.0	6.0	6.0		5.0	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
Lane Grp Cap (vph)	207	1273	570		79	1016	455	372	796	1636	304	659
v/s Ratio Prot	c0.10	c0.25			0.02	0.19		c0.19	c0.15		0.13	0.12
v/s Ratio Perm			0.06				0.07			0.01		
v/c Ratio	0.81	0.70	0.17		0.43	0.67	0.25	0.89	0.66	0.01	0.77	0.63
Uniform Delay, d1	51.6	32.6	25.9		55.8	37.5	32.6	46.0	42.3	0.0	47.2	44.7
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	20.9	3.2	0.7		3.7	3.5	1.3	21.6	4.2	0.0	11.0	4.5
Delay (s)	72.5	35.7	26.6		59.5	41.1	33.9	67.6	46.5	0.0	58.1	49.2
Level of Service	E	D	C		E	D	C	E	D	A	E	D
Approach Delay (s)		38.5				40.1			53.3			47.0
Approach LOS		D				D			D			D

Intersection Summary

HCM Average Control Delay	43.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	67
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	74
RTOR Reduction (vph)	0
Lane Group Flow (vph)	74
Heavy Vehicles (%)	4%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	120.0
Effective Green, g (s)	120.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1553
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.05
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	114	178	15	23	55	200	667	12	23	586	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1660		1752	1650		1787	3565		1787	3537	
Flt Permitted	0.68	1.00		0.49	1.00		0.30	1.00		0.39	1.00	
Satd. Flow (perm)	1240	1660		911	1650		558	3565		725	3537	
Peak-hour factor, PHF	0.86	0.86	0.86	0.64	0.64	0.64	0.97	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	95	133	207	23	36	86	206	688	12	25	637	48
RTOR Reduction (vph)	0	68	0	0	72	0	0	1	0	0	10	0
Lane Group Flow (vph)	95	272	0	23	50	0	206	699	0	25	675	0
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.1	8.1		8.1	8.1		29.8	25.7		18.9	17.8	
Effective Green, g (s)	8.1	8.1		8.1	8.1		29.8	25.7		18.9	17.8	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.52		0.38	0.36	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	269		148	268		555	1836		298	1262	
v/s Ratio Prot		c0.16			0.03		c0.07	0.20		0.00	c0.19	
v/s Ratio Perm	0.08			0.03			0.15			0.03		
v/c Ratio	0.47	1.01		0.16	0.19		0.37	0.38		0.08	0.53	
Uniform Delay, d1	19.0	20.9		18.0	18.1		4.9	7.3		9.8	12.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	57.9		0.5	0.3		0.4	0.1		0.1	0.4	
Delay (s)	20.7	78.8		18.5	18.4		5.3	7.4		9.9	13.2	
Level of Service	C	E		B	B		A	A		A	B	
Approach Delay (s)		66.1			18.4			7.0			13.1	
Approach LOS		E			B			A			B	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
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)	153	18	110	229	17	196	0	537	197	178	493	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.87			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1639			1816	1615		3431		1787	3574	1546
Flt Permitted	0.25	1.00			0.57	1.00		1.00		0.29	1.00	1.00
Satd. Flow (perm)	470	1639			1092	1615		3431		537	3574	1546
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.92	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	178	21	128	269	20	231	0	565	207	189	524	116
RTOR Reduction (vph)	0	108	0	0	0	194	0	38	0	0	0	46
Lane Group Flow (vph)	178	41	0	0	289	37	0	735	0	189	524	70
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	16.0	16.0			16.0	16.0		50.0		30.0	14.0	14.0
Effective Green, g (s)	16.0	16.0			16.0	16.0		50.0		30.0	14.0	14.0
Actuated g/C Ratio	0.16	0.16			0.16	0.16		0.50		0.30	0.14	0.14
Clearance Time (s)	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
Lane Grp Cap (vph)	75	262			175	258		1716		361	500	216
v/s Ratio Prot		0.03						c0.21		c0.08	c0.15	
v/s Ratio Perm	c0.38				0.26	0.02				0.07		0.05
v/c Ratio	2.37	0.16			1.65	0.14		0.43		0.52	1.05	0.33
Uniform Delay, d1	42.0	36.2			42.0	36.1		15.9		34.8	43.0	38.7
Progression Factor	1.00	1.00			1.00	1.00		1.71		1.00	1.00	1.00
Incremental Delay, d2	657.0	0.3			317.2	0.3		0.0		5.3	53.4	4.0
Delay (s)	699.0	36.5			359.2	36.4		27.2		40.1	96.4	42.7
Level of Service	F	D			F	D		C		D	F	D
Approach Delay (s)		397.1			215.8			27.2			76.1	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM Average Control Delay	133.2	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.1%	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	0	0	557	573	126	499	608	0	0	576	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3574	1599
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3574	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.96	0.96	0.95	0.95	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	580	597	131	525	640	0	0	619	275
RTOR Reduction (vph)	0	0	0	0	0	92	0	0	0	0	0	39
Lane Group Flow (vph)	0	0	0	580	597	39	525	640	0	0	619	236
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	1%	1%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				30.0	30.0	30.0	17.0	14.0			30.0	30.0
Effective Green, g (s)				30.0	30.0	30.0	17.0	14.0			30.0	30.0
Actuated g/C Ratio				0.30	0.30	0.30	0.17	0.14			0.30	0.30
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				536	1072	480	589	500			1072	480
v/s Ratio Prot					0.17		c0.15	c0.18			c0.17	
v/s Ratio Perm				c0.32		0.02						0.15
v/c Ratio				1.08	0.56	0.08	0.89	1.28			0.58	0.49
Uniform Delay, d1				35.0	29.4	25.1	40.6	43.0			29.6	28.7
Progression Factor				1.00	1.00	1.00	1.08	0.84			0.58	0.54
Incremental Delay, d2				62.9	0.6	0.1	15.4	138.1			0.1	0.1
Delay (s)				97.9	30.0	25.2	59.4	174.3			17.2	15.6
Level of Service				F	C	C	E	F			B	B
Approach Delay (s)		0.0			59.7			122.5			16.7	
Approach LOS		A			E			F			B	

Intersection Summary

HCM Average Control Delay	70.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	75.2%	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)	484	359	244	0	0	0	0	622	390	319	813	0
Ideal Flow (vphpi)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1787	3574	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.22	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	417	3574	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.98	0.98	0.96	0.96	0.92
Adj. Flow (vph)	538	399	271	0	0	0	0	635	398	332	847	0
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	119	0	0	0
Lane Group Flow (vph)	538	399	159	0	0	0	0	635	279	332	847	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	38.2	38.2	38.2					28.3	28.3	48.8	48.8	
Effective Green, g (s)	38.2	38.2	38.2					28.3	28.3	48.8	48.8	
Actuated g/C Ratio	0.38	0.38	0.38					0.28	0.28	0.49	0.49	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	683	1365	611					1011	453	416	1744	
v/s Ratio Prot		0.11						0.18		c0.12	0.24	
v/s Ratio Perm	c0.30		0.10						0.17	c0.27		
v/c Ratio	0.79	0.29	0.26					0.63	0.62	0.80	0.49	
Uniform Delay, d1	27.3	21.5	21.2					31.3	31.1	18.2	17.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.55	1.38	
Incremental Delay, d2	8.9	0.5	1.0					1.2	2.5	5.8	0.1	
Delay (s)	36.3	22.0	22.2					32.5	33.6	33.9	23.9	
Level of Service	D	C	C					C	C	C	C	
Approach Delay (s)		28.4			0.0			32.9			26.7	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	261	0	225	89	16	2	18	183	1916	116	6	2043
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		1.00			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.96			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599		1801			1770	3539	1583	1752	3505
Flt Permitted	0.95		1.00		0.96			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599		1801			1770	3539	1583	1752	3505
Peak-hour factor, PHF	0.82	0.82	0.82	0.70	0.70	0.70	0.96	0.96	0.96	0.96	0.98	0.98
Adj. Flow (vph)	318	0	274	127	23	3	19	191	1996	121	6	2085
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	21	0	0
Lane Group Flow (vph)	318	0	274	0	152	0	0	210	1996	100	6	2085
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	17.3		134.0		16.4			20.1	76.6	76.6	1.3	57.8
Effective Green, g (s)	17.3		134.0		16.4			20.1	76.6	76.6	1.3	57.8
Actuated g/C Ratio	0.13		1.00		0.12			0.15	0.57	0.57	0.01	0.43
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	448		1599		220			266	2023	905	17	1512
v/s Ratio Prot	c0.09				c0.08			c0.12	c0.56		0.00	c0.59
v/s Ratio Perm			0.17							0.06		
v/c Ratio	0.71		0.17		0.69			0.79	0.99	0.11	0.35	1.38
Uniform Delay, d1	55.9		0.0		56.4			54.9	28.2	13.1	65.9	38.1
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1		0.2		9.0			14.4	16.8	0.1	12.2	174.8
Delay (s)	61.1		0.2		65.4			69.3	45.0	13.2	78.1	212.9
Level of Service	E		A		E			E	D	B	E	F
Approach Delay (s)		32.9			65.4				45.5			197.3
Approach LOS		C			E				D			F

Intersection Summary

HCM Average Control Delay	109.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	134.0	Sum of lost time (s)	28.9
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	179
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	183
RTOR Reduction (vph)	59
Lane Group Flow (vph)	124
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	57.8
Effective Green, g (s)	57.8
Actuated g/C Ratio	0.43
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	676
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.18
Uniform Delay, d1	23.5
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	23.7
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	66	76	19	1	147	14	941	26	117	714	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1731		1787	1600		1770	3539	1583	1787	3574	1599
Flt Permitted	0.56	1.00		0.64	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1056	1731		1205	1600		1770	3539	1583	1787	3574	1599
Peak-hour factor, PHF	0.87	0.87	0.87	0.76	0.76	0.76	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	100	76	87	25	1	193	15	1023	28	136	830	13
RTOR Reduction (vph)	0	29	0	0	158	0	0	0	16	0	0	5
Lane Group Flow (vph)	100	134	0	25	36	0	15	1023	12	136	830	8
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	15.0	15.0		15.0	15.0		1.2	37.0	37.0	12.5	48.3	48.3
Effective Green, g (s)	15.0	15.0		15.0	15.0		1.2	37.0	37.0	12.5	48.3	48.3
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.01	0.44	0.44	0.15	0.58	0.58
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	190	312		217	288		25	1572	703	268	2072	927
v/s Ratio Prot		0.08			0.02		0.01	c0.29		c0.08	0.23	
v/s Ratio Perm	c0.09			0.02					0.01			0.00
v/c Ratio	0.53	0.43		0.12	0.12		0.60	0.65	0.02	0.51	0.40	0.01
Uniform Delay, d1	30.9	30.4		28.6	28.6		40.8	18.1	13.0	32.6	9.6	7.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	1.0		0.2	0.2		34.4	1.0	0.0	1.5	0.1	0.0
Delay (s)	33.6	31.3		28.8	28.8		75.3	19.1	13.0	34.1	9.7	7.4
Level of Service	C	C		C	C		E	B	B	C	A	A
Approach Delay (s)		32.2			28.8			19.7			13.1	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	83.3	Sum of lost time (s)	18.8
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	168	0	886	1059	16
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.67	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	251	0	943	1151	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage veh)				1	1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1631	584	1168			
vC1, stage 1 conf vol	1160					
vC2, stage 2 conf vol	471					
vCu, unblocked vol	1631	584	1168			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	45	100			
cM capacity (veh/h)	199	457	588			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	251	471	471	767	401
Volume Left	0	0	0	0	0
Volume Right	251	0	0	0	17
cSH	457	1700	1700	1700	1700
Volume to Capacity	0.55	0.28	0.28	0.45	0.24
Queue Length 95th (ft)	81	0	0	0	0
Control Delay (s)	22.0	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	22.0	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↱		↱
Volume (veh/h)	0	0	3512	471	0	366
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.98	0.63	0.92	0.91
Hourly flow rate (vph)	0	0	3584	748	0	402
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	3584				3584	1195
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3584				3584	1195
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	65				4	180

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1195	1195	1195	748	402
Volume Left	0	0	0	0	0
Volume Right	0	0	0	748	402
cSH	1700	1700	1700	1700	180
Volume to Capacity	0.70	0.70	0.70	0.44	2.23
Queue Length 95th (ft)	0	0	0	0	810
Control Delay (s)	0.0	0.0	0.0	0.0	612.6
Lane LOS					F
Approach Delay (s)	0.0				612.6
Approach LOS					F

Intersection Summary			
Average Delay	52.0		
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	68	721	77	17	29	1855	144	214	156	10	186	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	13	12	12
Total Lost time (s)	5.0	6.0	6.0		5.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	1482		1719	3438	1538	1719	3438	1589	1719	3438
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	1482		1719	3438	1538	1719	3438	1589	1719	3438
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96
Adj. Flow (vph)	73	775	83	18	32	2016	157	271	197	13	194	314
RTOR Reduction (vph)	0	0	40	0	0	0	20	0	0	0	0	0
Lane Group Flow (vph)	73	775	43	0	50	2016	137	271	197	13	194	314
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot	Prot		Perm	Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases			2				6			Free		
Actuated Green, G (s)	8.0	78.6	78.6		6.4	77.0	77.0	23.0	21.4	150.0	20.6	19.0
Effective Green, g (s)	8.0	78.6	78.6		6.4	77.0	77.0	23.0	21.4	150.0	20.6	19.0
Actuated g/C Ratio	0.05	0.52	0.52		0.04	0.51	0.51	0.15	0.14	1.00	0.14	0.13
Clearance Time (s)	5.0	6.0	6.0		5.0	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
Lane Grp Cap (vph)	88	1735	777		73	1765	790	264	490	1589	236	435
v/s Ratio Prot	c0.04	0.23			0.03	c0.59		c0.16	0.06		0.11	c0.09
v/s Ratio Perm			0.03				0.09			0.01		
v/c Ratio	0.83	0.45	0.06		0.68	1.14	0.17	1.03	0.40	0.01	0.82	0.72
Uniform Delay, d1	70.3	22.2	17.5		70.8	36.5	19.5	63.5	58.5	0.0	62.9	63.0
Progression Factor	1.00	1.00	1.00		1.40	0.28	0.05	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.8	0.8	0.1		6.4	65.9	0.1	62.4	2.4	0.0	20.1	9.9
Delay (s)	115.1	23.0	17.6		105.8	76.2	1.0	125.9	60.9	0.0	83.0	72.9
Level of Service	F	C	B		F	E	A	F	E	A	F	E
Approach Delay (s)		29.8				71.5			95.9			55.9
Approach LOS		C				E			F			E

Intersection Summary

HCM Average Control Delay	62.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	182
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1538
Flt Permitted	1.00
Satd. Flow (perm)	1538
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	190
Heavy Vehicles (%)	5%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1538
v/s Ratio Prot	
v/s Ratio Perm	c0.12
v/c Ratio	0.12
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	119	87	113	46	3	255	338	339	15	342	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.99		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1679		1787	1864		1736	3211		1719	3372	
Flt Permitted	0.70	1.00		0.53	1.00		0.42	1.00		0.30	1.00	
Satd. Flow (perm)	1260	1679		1004	1864		774	3211		543	3372	
Peak-hour factor, PHF	0.79	0.79	0.79	0.59	0.59	0.59	0.71	0.71	0.71	0.96	0.96	0.96
Adj. Flow (vph)	47	151	110	192	78	5	359	476	477	16	356	52
RTOR Reduction (vph)	0	32	0	0	3	0	0	237	0	0	23	0
Lane Group Flow (vph)	47	229	0	192	81	0	359	716	0	16	385	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	4%	4%	4%	5%	5%	5%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.1	8.1		8.1	8.1		28.5	24.5		15.3	14.3	
Effective Green, g (s)	8.1	8.1		8.1	8.1		28.5	24.5		15.3	14.3	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.59	0.50		0.31	0.29	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	280		167	311		676	1619		195	992	
v/s Ratio Prot		0.14			0.04		c0.12	0.22		0.00	0.11	
v/s Ratio Perm	0.04			c0.19			c0.19			0.02		
v/c Ratio	0.22	0.82		1.15	0.26		0.53	0.44		0.08	0.39	
Uniform Delay, d1	17.5	19.5		20.2	17.6		5.4	7.7		11.5	13.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	16.8		115.6	0.4		0.8	0.2		0.2	0.3	
Delay (s)	18.1	36.3		135.9	18.1		6.2	7.9		11.7	13.9	
Level of Service	B	D		F	B		A	A		B	B	
Approach Delay (s)		33.5			100.3			7.4			13.8	
Approach LOS		C			F			A			B	

Intersection Summary

HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	48.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
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)	57	4	49	26	3	30	0	845	21	26	462	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.86			1.00	0.85		1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1703	1544			1581	1404		3458		1703	3406	1473
Flt Permitted	0.72	1.00			0.70	1.00		1.00		0.25	1.00	1.00
Satd. Flow (perm)	1297	1544			1157	1404		3458		440	3406	1473
Peak-hour factor, PHF	0.82	0.82	0.82	0.56	0.56	0.56	0.92	0.82	0.82	0.95	0.95	0.95
Adj. Flow (vph)	70	5	60	46	5	54	0	1030	26	27	486	58
RTOR Reduction (vph)	0	52	0	0	0	47	0	2	0	0	0	23
Lane Group Flow (vph)	70	13	0	0	51	7	0	1054	0	27	486	35
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	4%	4%	6%	6%	6%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	13.0	13.0			13.0	13.0		53.0		32.3	16.3	16.3
Effective Green, g (s)	13.0	13.0			13.0	13.0		53.0		32.3	16.3	16.3
Actuated g/C Ratio	0.13	0.13			0.13	0.13		0.53		0.32	0.16	0.16
Clearance Time (s)	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
Lane Grp Cap (vph)	169	201			150	183		1833		344	555	240
v/s Ratio Prot		0.01						c0.30		c0.01	c0.14	
v/s Ratio Perm	c0.05				0.04	0.00				0.01		0.02
v/c Ratio	0.41	0.06			0.34	0.04		0.58		0.08	0.88	0.14
Uniform Delay, d1	40.0	38.2			39.6	38.0		15.9		32.5	40.9	35.9
Progression Factor	1.00	1.00			1.00	1.00		1.64		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1			1.4	0.1		0.1		0.4	17.4	1.3
Delay (s)	41.6	38.3			40.9	38.1		26.2		32.9	58.3	37.1
Level of Service	D	D			D	D		C		C	E	D
Approach Delay (s)		40.0			39.5			26.2			54.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	36.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
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	0	0	191	455	153	293	711	0	0	233	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	3471	1553	3400	3505			3406	1524
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	3471	1553	3400	3505			3406	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.92	0.92	0.89	0.89
Adj. Flow (vph)	0	0	0	215	511	172	312	756	0	0	262	342
RTOR Reduction (vph)	0	0	0	0	0	119	0	0	0	0	0	76
Lane Group Flow (vph)	0	0	0	215	511	53	312	756	0	0	262	266
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	2%	2%	6%	6%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				30.7	30.7	30.7	17.0	16.3			29.3	29.3
Effective Green, g (s)				30.7	30.7	30.7	17.0	16.3			29.3	29.3
Actuated g/C Ratio				0.31	0.31	0.31	0.17	0.16			0.29	0.29
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				533	1066	477	578	571			998	447
v/s Ratio Prot					c0.15		c0.09	c0.22			0.08	
v/s Ratio Perm				0.12		0.03						c0.17
v/c Ratio				0.40	0.48	0.11	0.54	1.32			0.26	0.59
Uniform Delay, d1				27.4	28.2	24.9	37.9	41.8			27.1	30.3
Progression Factor				1.00	1.00	1.00	1.30	0.99			0.53	1.18
Incremental Delay, d2				0.5	0.3	0.1	3.2	156.3			0.1	1.4
Delay (s)				27.9	28.5	25.0	52.6	197.7			14.4	37.0
Level of Service				C	C	C	D	F			B	D
Approach Delay (s)		0.0			27.7			155.3			27.2	
Approach LOS		A			C			F			C	

Intersection Summary

HCM Average Control Delay	80.6	HCM Level of Service	F
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
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)	380	97	122	0	0	0	0	624	245	65	360	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1641	3282	1468					3505	1568	1671	3343	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.20	1.00	
Satd. Flow (perm)	1641	3282	1468					3505	1568	343	3343	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	432	110	139	0	0	0	0	678	266	74	409	0
RTOR Reduction (vph)	0	0	74	0	0	0	0	0	163	0	0	0
Lane Group Flow (vph)	432	110	65	0	0	0	0	678	103	74	409	0
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	2%	3%	3%	8%	8%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	46.8	46.8	46.8					28.2	28.2	40.2	40.2	
Effective Green, g (s)	46.8	46.8	46.8					28.2	28.2	40.2	40.2	
Actuated g/C Ratio	0.47	0.47	0.47					0.28	0.28	0.40	0.40	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	768	1536	687					988	442	231	1344	
v/s Ratio Prot		0.03						c0.19		0.02	c0.12	
v/s Ratio Perm	c0.26		0.04						0.07	0.11		
v/c Ratio	0.56	0.07	0.09					0.69	0.23	0.32	0.30	
Uniform Delay, d1	19.2	14.6	14.8					32.0	27.6	20.3	20.4	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.21	1.15	
Incremental Delay, d2	3.0	0.1	0.3					2.0	0.3	0.8	0.1	
Delay (s)	22.2	14.7	15.1					34.0	27.9	25.2	23.5	
Level of Service	C	B	B					C	C	C	C	
Approach Delay (s)		19.5			0.0			32.2			23.8	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
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	390	82	40	140	126	3	1920	27	313	612	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3413		1770	1863	1583	1703	3406	1583	3433	3531	
Flt Permitted		1.00		0.14	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3413		256	1863	1583	1703	3406	1583	3433	3531	
Peak-hour factor, PHF	0.92	0.92	0.67	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	424	122	43	152	137	3	2021	29	340	665	11
RTOR Reduction (vph)	0	18	0	0	0	4	0	0	9	0	1	0
Lane Group Flow (vph)	0	528	0	43	152	133	3	2021	20	340	675	0
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	6%	6%	2%	2%	2%	2%
Turn Type				pm+pt		pm+ov	Prot		Perm	Prot		
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases				8		8			2			
Actuated Green, G (s)		26.1		33.1	33.1	50.6	1.3	82.4	82.4	17.5	98.6	
Effective Green, g (s)		26.1		33.1	33.1	50.6	1.3	82.4	82.4	17.5	98.6	
Actuated g/C Ratio		0.17		0.22	0.22	0.34	0.01	0.55	0.55	0.12	0.66	
Clearance Time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		594		97	411	534	15	1871	870	401	2321	
v/s Ratio Prot		c0.15		c0.01	0.08	0.03	0.00	c0.59		c0.10	0.19	
v/s Ratio Perm				0.09		0.05			0.01			
v/c Ratio		0.89		0.44	0.37	0.25	0.20	1.08	0.02	0.85	0.29	
Uniform Delay, d1		60.5		48.2	49.6	36.0	73.8	33.8	15.4	64.9	10.9	
Progression Factor		1.00		1.33	1.26	0.85	1.00	1.00	1.00	0.88	0.75	
Incremental Delay, d2		15.0		3.2	0.6	0.2	6.5	46.2	0.0	13.8	0.3	
Delay (s)		75.6		67.4	63.2	30.8	80.3	80.0	15.5	71.1	8.4	
Level of Service		E		E	E	C	F	E	B	E	A	
Approach Delay (s)		75.6			50.3			79.1			29.4	
Approach LOS		E			D			E			C	

Intersection Summary			
HCM Average Control Delay	63.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	83	0	39	86	45	27	25	108	1812	34	13	2563
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		0.98			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367		1553		1772			1719	3438	1538	1752	3505
Flt Permitted	0.95		1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367		1553		1772			1719	3438	1538	1752	3505
Peak-hour factor, PHF	0.77	0.77	0.77	0.95	0.95	0.95	0.93	0.93	0.93	0.93	0.89	0.89
Adj. Flow (vph)	108	0	51	91	47	28	27	116	1948	37	15	2880
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	8	0	0
Lane Group Flow (vph)	108	0	51	0	161	0	0	143	1948	29	15	2880
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	5%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	9.3		119.8		16.0			14.8	69.2	69.2	2.9	57.3
Effective Green, g (s)	9.3		119.8		16.0			14.8	69.2	69.2	2.9	57.3
Actuated g/C Ratio	0.08		1.00		0.13			0.12	0.58	0.58	0.02	0.48
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	261		1553		237			212	1986	888	42	1676
v/s Ratio Prot	c0.03				c0.09			c0.08	c0.57		0.01	c0.82
v/s Ratio Perm			0.03							0.02		
v/c Ratio	0.41		0.03		0.68			0.67	0.98	0.03	0.36	1.72
Uniform Delay, d1	52.7		0.0		49.4			50.2	24.7	10.9	57.5	31.2
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		0.0		7.5			8.2	15.8	0.0	5.1	325.8
Delay (s)	53.7		0.0		56.9			58.4	40.5	10.9	62.7	357.1
Level of Service	D		A		E			E	D	B	E	F
Approach Delay (s)		36.5			56.9				41.2			326.5
Approach LOS		D			E				D			F

Intersection Summary

HCM Average Control Delay	202.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	119.8	Sum of lost time (s)	28.9
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	243
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	273
RTOR Reduction (vph)	69
Lane Group Flow (vph)	204
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	57.3
Effective Green, g (s)	57.3
Actuated g/C Ratio	0.48
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	750
v/s Ratio Prot	
v/s Ratio Perm	0.13
v/c Ratio	0.27
Uniform Delay, d1	18.7
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	18.9
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	52	49	54	1	195	5	856	8	66	602	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1626	1587		1719	1539		1736	3471	1553	1687	3374	1509
Flt Permitted	0.55	1.00		0.68	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	937	1587		1238	1539		1736	3471	1553	1687	3374	1509
Peak-hour factor, PHF	0.89	0.89	0.89	0.81	0.81	0.81	0.88	0.88	0.88	0.85	0.85	0.85
Adj. Flow (vph)	188	58	55	67	1	241	6	973	9	78	708	91
RTOR Reduction (vph)	0	18	0	0	155	0	0	0	6	0	0	50
Lane Group Flow (vph)	188	95	0	67	87	0	6	973	3	78	708	41
Heavy Vehicles (%)	11%	11%	11%	5%	5%	5%	4%	4%	4%	7%	7%	7%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	35.8	35.8		35.8	35.8		1.2	37.7	37.7	8.4	44.9	44.9
Effective Green, g (s)	35.8	35.8		35.8	35.8		1.2	37.7	37.7	8.4	44.9	44.9
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.01	0.37	0.37	0.08	0.45	0.45
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	333	564		440	547		21	1299	581	141	1504	673
v/s Ratio Prot		0.06			0.06		0.00	c0.28		c0.05	0.21	
v/s Ratio Perm	c0.20			0.05					0.00			0.03
v/c Ratio	0.56	0.17		0.15	0.16		0.29	0.75	0.01	0.55	0.47	0.06
Uniform Delay, d1	26.2	22.2		22.1	22.2		49.3	27.4	19.7	44.3	19.6	15.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.1		0.2	0.1		7.4	2.4	0.0	4.6	0.2	0.0
Delay (s)	28.4	22.4		22.3	22.3		56.7	29.8	19.8	49.0	19.8	15.9
Level of Service	C	C		C	C		E	C	B	D	B	B
Approach Delay (s)		26.1			22.3			29.9			22.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.7	Sum of lost time (s)	18.8
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↱		↱
Volume (veh/h)	0	0	4032	239	0	73
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.97	0.68	0.92	0.63
Hourly flow rate (vph)	0	0	4157	351	0	116
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	4157				4157	1386
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4157				4157	1386
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	100				100	10
cM capacity (veh/h)	38				2	128

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1386	1386	1386	351	116
Volume Left	0	0	0	0	0
Volume Right	0	0	0	351	116
cSH	1700	1700	1700	1700	128
Volume to Capacity	0.82	0.82	0.82	0.21	0.90
Queue Length 95th (ft)	0	0	0	0	147
Control Delay (s)	0.0	0.0	0.0	0.0	120.7
Lane LOS					F
Approach Delay (s)	0.0				120.7
Approach LOS					F

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	300	1758	206	15	23	839	302	193	336	3	235	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	13	12	12
Total Lost time (s)	5.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1583		1719	3438	1538	1787	3574	1652	1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1583		1719	3438	1538	1787	3574	1652	1770	3539
Peak-hour factor, PHF	0.88	0.88	0.88	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.91	0.91
Adj. Flow (vph)	341	1998	234	16	24	883	318	214	373	3	258	323
RTOR Reduction (vph)	0	0	74	0	0	0	98	0	0	0	0	0
Lane Group Flow (vph)	341	1998	160	0	40	883	220	214	373	3	258	323
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	1%	1%	1%	2%	2%
Turn Type	Prot		Perm	Prot	Prot		Perm	Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases			2				6			Free		
Actuated Green, G (s)	30.8	69.9	69.9		7.1	44.2	44.2	17.0	20.0	135.0	17.0	20.0
Effective Green, g (s)	30.8	69.9	69.9		7.1	44.2	44.2	17.0	20.0	135.0	17.0	20.0
Actuated g/C Ratio	0.23	0.52	0.52		0.05	0.33	0.33	0.13	0.15	1.00	0.13	0.15
Clearance Time (s)	5.0	6.0	6.0		3.0	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
Lane Grp Cap (vph)	404	1832	820		90	1126	504	225	529	1652	223	524
v/s Ratio Prot	c0.19	c0.56			0.02	0.26		0.12	c0.10		c0.15	0.09
v/s Ratio Perm			0.10				0.14			0.00		
v/c Ratio	0.84	1.09	0.20		0.44	0.78	0.44	0.95	0.71	0.00	1.16	0.62
Uniform Delay, d1	49.8	32.6	17.5		62.0	41.1	35.6	58.6	54.7	0.0	59.0	53.9
Progression Factor	1.00	1.00	1.00		0.88	0.96	1.08	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.8	50.4	0.5		2.9	4.7	2.3	46.2	7.7	0.0	109.1	5.4
Delay (s)	64.6	82.9	18.0		57.5	43.9	40.9	104.8	62.4	0.0	168.1	59.3
Level of Service	E	F	B		E	D	D	F	E	A	F	E
Approach Delay (s)		74.6				43.6			77.4			96.3
Approach LOS		E				D			E			F

Intersection Summary			
HCM Average Control Delay	70.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	62
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	68
RTOR Reduction (vph)	0
Lane Group Flow (vph)	68
Heavy Vehicles (%)	2%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.04
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	243	159	328	158	18	192	460	246	24	458	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1735		1770	1835		1770	3354		1770	3496	
Flt Permitted	0.63	1.00		0.49	1.00		0.38	1.00		0.37	1.00	
Satd. Flow (perm)	1166	1735		920	1835		701	3354		688	3496	
Peak-hour factor, PHF	0.78	0.78	0.78	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	71	312	204	373	180	20	202	484	259	26	492	44
RTOR Reduction (vph)	0	28	0	0	5	0	0	105	0	0	13	0
Lane Group Flow (vph)	71	488	0	373	195	0	202	638	0	26	523	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.1	8.1		8.1	8.1		26.4	22.3		15.9	14.8	
Effective Green, g (s)	8.1	8.1		8.1	8.1		26.4	22.3		15.9	14.8	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.57	0.48		0.34	0.32	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	203	302		160	320		596	1608		261	1113	
v/s Ratio Prot		0.28			0.11		c0.06	0.19		0.00	c0.15	
v/s Ratio Perm	0.06			c0.41			0.13			0.03		
v/c Ratio	0.35	1.62		2.33	0.61		0.34	0.40		0.10	0.47	
Uniform Delay, d1	16.9	19.2		19.2	17.7		5.0	7.8		10.2	12.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	291.9		618.2	3.3		0.3	0.2		0.2	0.3	
Delay (s)	17.9	311.1		637.4	21.0		5.4	7.9		10.4	13.0	
Level of Service	B	F		F	C		A	A		B	B	
Approach Delay (s)		275.6			422.2			7.4			12.9	
Approach LOS		F			F			A			B	

Intersection Summary

HCM Average Control Delay	156.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	46.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
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)	85	5	154	130	15	88	0	725	86	86	736	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.86			1.00	0.85		0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1609			1783	1583		3517		1752	3505	1516
Flt Permitted	0.54	1.00			0.49	1.00		1.00		0.24	1.00	1.00
Satd. Flow (perm)	1017	1609			916	1583		3517		439	3505	1516
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.92	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	94	6	171	146	17	99	0	763	91	92	791	133
RTOR Reduction (vph)	0	141	0	0	0	82	0	8	0	0	0	30
Lane Group Flow (vph)	94	36	0	0	163	17	0	846	0	92	791	103
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	3%	3%	3%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	20.0	20.0			20.0	20.0		52.0		41.8	16.8	16.8
Effective Green, g (s)	20.0	20.0			20.0	20.0		52.0		41.8	16.8	16.8
Actuated g/C Ratio	0.17	0.17			0.17	0.17		0.45		0.36	0.15	0.15
Clearance Time (s)	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
Lane Grp Cap (vph)	177	280			159	275		1590		445	512	221
v/s Ratio Prot		0.02						c0.24		c0.04	c0.23	
v/s Ratio Perm	0.09				c0.18	0.01				0.03		0.07
v/c Ratio	0.53	0.13			1.03	0.06		0.53		0.21	1.54	0.47
Uniform Delay, d1	43.2	40.1			47.5	39.7		22.7		33.7	49.1	45.0
Progression Factor	1.00	1.00			1.00	1.00		1.47		1.00	1.00	1.00
Incremental Delay, d2	3.0	0.2			78.1	0.1		0.0		1.1	254.8	6.9
Delay (s)	46.3	40.3			125.6	39.8		33.4		34.7	303.9	51.9
Level of Service	D	D			F	D		C		C	F	D
Approach Delay (s)		42.4			93.2			33.4			246.5	
Approach LOS		D			F			C			F	

Intersection Summary

HCM Average Control Delay	131.1	HCM Level of Service	F
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
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	0	0	314	365	123	362	687	0	0	644	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3505	1568
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.91	0.91	0.92	0.92	0.91	0.91
Adj. Flow (vph)	0	0	0	361	420	141	398	755	0	0	708	413
RTOR Reduction (vph)	0	0	0	0	0	105	0	0	0	0	0	81
Lane Group Flow (vph)	0	0	0	361	420	36	398	755	0	0	708	332
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	3%	3%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				29.2	29.2	29.2	26.0	16.8			36.8	36.8
Effective Green, g (s)				29.2	29.2	29.2	26.0	16.8			36.8	36.8
Actuated g/C Ratio				0.25	0.25	0.25	0.23	0.15			0.32	0.32
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				454	907	406	784	522			1122	502
v/s Ratio Prot					0.12		c0.11	c0.21			0.20	
v/s Ratio Perm				c0.20		0.02						c0.21
v/c Ratio				0.80	0.46	0.09	0.51	1.45			0.63	0.66
Uniform Delay, d1				40.1	36.3	32.7	38.9	49.1			33.3	33.7
Progression Factor				1.00	1.00	1.00	1.41	0.90			0.77	1.21
Incremental Delay, d2				9.3	0.4	0.1	2.1	210.3			0.1	0.3
Delay (s)				49.4	36.6	32.8	57.1	254.4			25.8	41.2
Level of Service				D	D	C	E	F			C	D
Approach Delay (s)		0.0			41.1			186.3			31.5	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM Average Control Delay	90.1	HCM Level of Service	F
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
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)	515	232	262	0	0	0	0	532	181	234	724	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.20	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	377	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.94	0.94	0.98	0.98	0.92
Adj. Flow (vph)	526	237	267	0	0	0	0	566	193	239	739	0
RTOR Reduction (vph)	0	0	93	0	0	0	0	0	122	0	0	0
Lane Group Flow (vph)	526	237	174	0	0	0	0	566	71	239	739	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	56.1	56.1	56.1					25.9	25.9	45.9	45.9	
Effective Green, g (s)	56.1	56.1	56.1					25.9	25.9	45.9	45.9	
Actuated g/C Ratio	0.49	0.49	0.49					0.23	0.23	0.40	0.40	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	872	1743	780					805	360	332	1413	
v/s Ratio Prot		0.07						0.16		c0.09	0.21	
v/s Ratio Perm	c0.29		0.11						0.04	c0.19		
v/c Ratio	0.60	0.14	0.22					0.70	0.20	0.72	0.52	
Uniform Delay, d1	21.4	16.2	16.9					41.0	36.1	25.7	26.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.54	1.27	
Incremental Delay, d2	3.1	0.2	0.7					2.8	0.3	5.4	0.3	
Delay (s)	24.5	16.3	17.6					43.8	36.4	44.8	33.5	
Level of Service	C	B	B					D	D	D	C	
Approach Delay (s)		20.8			0.0			41.9			36.2	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
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	361	180	232	443	441	12	738	38	304	1689	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3310		1770	1863	1583	1703	3406	1583	3433	3534	
Flt Permitted		1.00		0.14	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3310		252	1863	1583	1703	3406	1583	3433	3534	
Peak-hour factor, PHF	0.92	0.92	0.67	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	392	269	252	482	479	13	777	41	330	1836	18
RTOR Reduction (vph)	0	92	0	0	0	29	0	0	25	0	0	0
Lane Group Flow (vph)	0	569	0	252	482	450	13	777	16	330	1854	0
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	6%	6%	2%	2%	2%	2%
Turn Type				pm+pt		pm+ov	Prot		Perm	Prot		
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases				8		8			2			
Actuated Green, G (s)		26.6		45.6	45.6	64.4	2.8	53.6	53.6	18.8	69.6	
Effective Green, g (s)		26.6		45.6	45.6	64.4	2.8	53.6	53.6	18.8	69.6	
Actuated g/C Ratio		0.20		0.34	0.34	0.48	0.02	0.40	0.40	0.14	0.52	
Clearance Time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		652		265	629	755	35	1352	629	478	1822	
v/s Ratio Prot		0.17		c0.11	0.26	0.08	0.01	0.23		c0.10	c0.52	
v/s Ratio Perm				c0.21		0.20			0.01			
v/c Ratio		0.87		0.95	0.77	0.60	0.37	0.57	0.03	0.69	1.02	
Uniform Delay, d1		52.6		37.1	39.9	25.8	65.2	31.8	24.8	55.3	32.7	
Progression Factor		1.00		0.97	0.84	0.81	1.00	1.00	1.00	1.44	0.46	
Incremental Delay, d2		12.3		37.0	4.6	1.0	6.5	1.8	0.1	0.4	11.4	
Delay (s)		64.8		72.9	38.2	22.0	71.8	33.6	24.9	80.3	26.4	
Level of Service		E		E	D	C	E	C	C	F	C	
Approach Delay (s)		64.8			39.0			33.7			34.6	
Approach LOS		E			D			C			C	

Intersection Summary			
HCM Average Control Delay	39.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	323	0	321	77	67	10	6	106	2364	133	12	2202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599		1837			1770	3539	1583	1770	3539
Flt Permitted	0.95		1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599		1837			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.89	0.89	0.89	0.89	0.96	0.96
Adj. Flow (vph)	347	0	345	83	72	11	7	119	2656	149	12	2294
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	25	0	0
Lane Group Flow (vph)	347	0	345	0	164	0	0	126	2656	124	12	2294
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	18.1		129.0		16.8			14.3	69.0	69.0	2.7	57.4
Effective Green, g (s)	18.1		129.0		16.8			14.3	69.0	69.0	2.7	57.4
Actuated g/C Ratio	0.14		1.00		0.13			0.11	0.53	0.53	0.02	0.44
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	486		1599		239			196	1893	847	37	1575
v/s Ratio Prot	c0.10				c0.09			c0.07	c0.75		0.01	0.65
v/s Ratio Perm			0.22							0.08		
v/c Ratio	0.71		0.22		0.69			0.64	1.40	0.15	0.32	1.46
Uniform Delay, d1	53.0		0.0		53.6			54.9	30.0	15.1	62.3	35.8
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9		0.3		8.0			7.0	184.6	0.1	5.1	209.0
Delay (s)	57.9		0.3		61.5			61.9	214.6	15.2	67.3	244.8
Level of Service	E		A		E			E	F	B	E	F
Approach Delay (s)		29.2			61.5				197.9			226.2
Approach LOS		C			E				F			F

Intersection Summary

HCM Average Control Delay	187.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	129.0	Sum of lost time (s)	22.4
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	191
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	199
RTOR Reduction (vph)	68
Lane Group Flow (vph)	131
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	57.4
Effective Green, g (s)	57.4
Actuated g/C Ratio	0.44
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	704
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.19
Uniform Delay, d1	21.7
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	21.8
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	105	166	19	4	118	4	731	11	196	979	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1709		1703	1532		1752	3505	1568	1770	3539	1583
Flt Permitted	0.67	1.00		0.35	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1262	1709		636	1532		1752	3505	1568	1770	3539	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.76	0.76	0.76	0.93	0.93	0.93
Adj. Flow (vph)	219	124	195	21	4	131	5	962	14	211	1053	16
RTOR Reduction (vph)	0	34	0	0	97	0	0	0	9	0	0	5
Lane Group Flow (vph)	219	285	0	21	38	0	5	962	5	211	1053	11
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	28.0	28.0		28.0	28.0		1.1	41.6	41.6	18.4	58.9	58.9
Effective Green, g (s)	28.0	28.0		28.0	28.0		1.1	41.6	41.6	18.4	58.9	58.9
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.01	0.39	0.39	0.17	0.55	0.55
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	331	448		167	402		18	1365	611	305	1952	873
v/s Ratio Prot		0.17			0.03		0.00	c0.27		c0.12	0.30	
v/s Ratio Perm	c0.17			0.03					0.00			0.01
v/c Ratio	0.66	0.64		0.13	0.10		0.28	0.70	0.01	0.69	0.54	0.01
Uniform Delay, d1	35.2	34.9		30.1	29.8		52.5	27.4	20.0	41.5	15.3	10.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	3.0		0.3	0.1		8.3	1.7	0.0	6.6	0.3	0.0
Delay (s)	40.1	37.8		30.4	29.9		60.7	29.1	20.0	48.2	15.6	10.8
Level of Service	D	D		C	C		E	C	B	D	B	B
Approach Delay (s)		38.8			30.0			29.1			20.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	106.8	Sum of lost time (s)	18.8
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↱		↱
Volume (veh/h)	0	0	3239	372	0	488
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.98	0.72	0.92	0.83
Hourly flow rate (vph)	0	0	3305	517	0	588
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	3305				3305	1102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3305				3305	1102
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	85				6	206

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1102	1102	1102	517	588
Volume Left	0	0	0	0	0
Volume Right	0	0	0	517	588
cSH	1700	1700	1700	1700	206
Volume to Capacity	0.65	0.65	0.65	0.30	2.85
Queue Length 95th (ft)	0	0	0	0	1298
Control Delay (s)	0.0	0.0	0.0	0.0	879.8
Lane LOS					F
Approach Delay (s)	0.0				879.8
Approach LOS					F

Intersection Summary			
Average Delay	117.3		
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	158	944	254	9	24	782	374	304	480	19	390	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0		5.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	3505	1568		1752	3505	1568	1770	3539	1583	1736	3471
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	3505	1568		1752	3505	1568	1770	3539	1583	1736	3471
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.91	0.91
Adj. Flow (vph)	168	1004	270	9	25	823	394	330	522	21	429	413
RTOR Reduction (vph)	0	0	172	0	0	0	157	0	0	0	0	0
Lane Group Flow (vph)	168	1004	98	0	34	823	237	330	522	21	429	413
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	4%	4%
Turn Type	Prot		Perm	Prot	Prot		Perm	Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases			2				6			Free		
Actuated Green, G (s)	14.2	43.6	43.6		5.4	34.8	34.8	25.2	21.0	120.0	27.0	22.8
Effective Green, g (s)	14.2	43.6	43.6		5.4	34.8	34.8	25.2	21.0	120.0	27.0	22.8
Actuated g/C Ratio	0.12	0.36	0.36		0.05	0.29	0.29	0.21	0.18	1.00	0.22	0.19
Clearance Time (s)	5.0	6.0	6.0		5.0	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
Lane Grp Cap (vph)	207	1273	570		79	1016	455	372	619	1583	391	659
v/s Ratio Prot	c0.10	c0.29			0.02	0.23		0.19	c0.15		c0.25	0.12
v/s Ratio Perm			0.06				0.15			0.01		
v/c Ratio	0.81	0.79	0.17		0.43	0.81	0.52	0.89	0.84	0.01	1.10	0.63
Uniform Delay, d1	51.6	34.1	25.9		55.8	39.5	35.6	46.0	47.9	0.0	46.5	44.7
Progression Factor	1.00	1.00	1.00		0.57	1.11	1.55	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.9	5.0	0.7		2.6	5.0	2.9	21.6	13.2	0.0	74.3	4.5
Delay (s)	72.5	39.1	26.6		34.2	48.7	58.2	67.6	61.1	0.0	120.8	49.2
Level of Service	E	D	C		C	D	E	E	E	A	F	D
Approach Delay (s)		40.7				51.3			62.1			78.8
Approach LOS		D				D			E			E

Intersection Summary

HCM Average Control Delay	55.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	67
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	74
RTOR Reduction (vph)	0
Lane Group Flow (vph)	74
Heavy Vehicles (%)	4%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	120.0
Effective Green, g (s)	120.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1553
v/s Ratio Prot	
v/s Ratio Perm	c0.05
v/c Ratio	0.05
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	283	178	238	175	55	200	667	275	23	586	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.96		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1721		1752	1778		1787	3418		1787	3537	
Flt Permitted	0.49	1.00		0.49	1.00		0.30	1.00		0.29	1.00	
Satd. Flow (perm)	902	1721		911	1778		566	3418		554	3537	
Peak-hour factor, PHF	0.86	0.86	0.86	0.64	0.64	0.64	0.97	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	95	329	207	372	273	86	206	688	284	25	637	48
RTOR Reduction (vph)	0	28	0	0	13	0	0	61	0	0	10	0
Lane Group Flow (vph)	95	508	0	372	346	0	206	911	0	25	675	0
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.1	8.1		8.1	8.1		30.2	26.2		19.5	18.5	
Effective Green, g (s)	8.1	8.1		8.1	8.1		30.2	26.2		19.5	18.5	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.52		0.39	0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	145	277		147	286		551	1780		239	1301	
v/s Ratio Prot		0.30			0.19		c0.06	c0.27		0.00	0.19	
v/s Ratio Perm	0.11			c0.41			0.16			0.04		
v/c Ratio	0.66	1.84		2.53	1.21		0.37	0.51		0.10	0.52	
Uniform Delay, d1	19.8	21.1		21.1	21.1		4.9	7.9		9.6	12.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.2	389.6		708.5	121.8		0.4	0.2		0.2	0.4	
Delay (s)	30.0	410.7		729.6	142.9		5.3	8.1		9.8	12.8	
Level of Service	C	F		F	F		A	A		A	B	
Approach Delay (s)		353.3			441.5			7.6			12.7	
Approach LOS		F			F			A			B	

Intersection Summary

HCM Average Control Delay	173.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	50.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
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)	153	18	110	229	17	196	0	800	197	178	716	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.87			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1639			1816	1615		3468		1787	3574	1599
Flt Permitted	0.25	1.00			0.57	1.00		1.00		0.29	1.00	1.00
Satd. Flow (perm)	470	1639			1092	1615		3468		537	3574	1599
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.92	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	178	21	128	269	20	231	0	842	207	189	762	116
RTOR Reduction (vph)	0	108	0	0	0	194	0	22	0	0	0	31
Lane Group Flow (vph)	178	41	0	0	289	37	0	1028	0	189	762	85
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	16.0	16.0			16.0	16.0		50.0		30.0	14.0	14.0
Effective Green, g (s)	16.0	16.0			16.0	16.0		50.0		30.0	14.0	14.0
Actuated g/C Ratio	0.16	0.16			0.16	0.16		0.50		0.30	0.14	0.14
Clearance Time (s)	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
Lane Grp Cap (vph)	75	262			175	258		1734		361	500	224
v/s Ratio Prot		0.03						c0.30		c0.08	c0.21	
v/s Ratio Perm	c0.38				0.26	0.02				0.07		0.05
v/c Ratio	2.37	0.16			1.65	0.14		0.59		0.52	1.52	0.38
Uniform Delay, d1	42.0	36.2			42.0	36.1		17.8		34.8	43.0	39.1
Progression Factor	1.00	1.00			1.00	1.00		2.11		1.00	1.00	1.00
Incremental Delay, d2	657.0	0.3			317.2	0.3		0.0		5.3	245.8	4.8
Delay (s)	699.0	36.5			359.2	36.4		37.5		40.1	288.8	43.9
Level of Service	F	D			F	D		D		D	F	D
Approach Delay (s)		397.1			215.8			37.5			218.2	
Approach LOS		F			F			D			F	

Intersection Summary

HCM Average Control Delay	173.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	80.3%	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	0	0	557	573	126	499	871	0	0	726	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3574	1599
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3574	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.96	0.96	0.95	0.95	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	580	597	131	525	917	0	0	781	354
RTOR Reduction (vph)	0	0	0	0	0	92	0	0	0	0	0	39
Lane Group Flow (vph)	0	0	0	580	597	39	525	917	0	0	781	315
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	1%	1%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				30.0	30.0	30.0	17.0	14.0			30.0	30.0
Effective Green, g (s)				30.0	30.0	30.0	17.0	14.0			30.0	30.0
Actuated g/C Ratio				0.30	0.30	0.30	0.17	0.14			0.30	0.30
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				536	1072	480	589	500			1072	480
v/s Ratio Prot					0.17		c0.15	c0.26			c0.22	
v/s Ratio Perm				c0.32		0.02						0.20
v/c Ratio				1.08	0.56	0.08	0.89	1.83			0.73	0.66
Uniform Delay, d1				35.0	29.4	25.1	40.6	43.0			31.4	30.5
Progression Factor				1.00	1.00	1.00	1.02	0.87			0.70	0.78
Incremental Delay, d2				62.9	0.6	0.1	11.8	379.9			0.2	0.3
Delay (s)				97.9	30.0	25.2	53.1	417.5			22.1	24.1
Level of Service				F	C	C	D	F			C	C
Approach Delay (s)		0.0			59.7			284.8			22.7	
Approach LOS		A			E			F			C	

Intersection Summary

HCM Average Control Delay	132.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	79.3%	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)	593	359	244	0	0	0	0	776	390	319	963	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1787	3574	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.17	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	326	3574	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.98	0.98	0.96	0.96	0.92
Adj. Flow (vph)	659	399	271	0	0	0	0	792	398	332	1003	0
RTOR Reduction (vph)	0	0	86	0	0	0	0	0	103	0	0	0
Lane Group Flow (vph)	659	399	185	0	0	0	0	792	295	332	1003	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	33.7	33.7	33.7					32.9	32.9	53.3	53.3	
Effective Green, g (s)	33.7	33.7	33.7					32.9	32.9	53.3	53.3	
Actuated g/C Ratio	0.34	0.34	0.34					0.33	0.33	0.53	0.53	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	602	1204	539					1176	526	399	1905	
v/s Ratio Prot		0.11						0.22		c0.13	0.28	
v/s Ratio Perm	c0.37		0.12						0.18	c0.32		
v/c Ratio	1.09	0.33	0.34					0.67	0.56	0.83	0.53	
Uniform Delay, d1	33.2	24.7	24.9					28.9	27.6	17.5	15.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.56	1.31	
Incremental Delay, d2	65.2	0.7	1.7					1.5	1.4	6.7	0.1	
Delay (s)	98.3	25.5	26.6					30.5	29.0	34.0	20.0	
Level of Service	F	C	C					C	C	C	B	
Approach Delay (s)		61.8			0.0			30.0			23.5	
Approach LOS		E			A			C			C	

Intersection Summary			
HCM Average Control Delay	38.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
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	432	168	226	361	301	14	885	52	363	985	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3343		1770	1863	1583	1703	3406	1583	3433	3531	
Flt Permitted		1.00		0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3343		248	1863	1583	1703	3406	1583	3433	3531	
Peak-hour factor, PHF	0.92	0.92	0.67	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	470	251	246	392	327	15	932	57	395	1071	17
RTOR Reduction (vph)	0	59	0	0	0	8	0	0	38	0	1	0
Lane Group Flow (vph)	0	662	0	246	392	319	15	932	19	395	1087	0
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	6%	6%	2%	2%	2%	2%
Turn Type				pm+pt		pm+ov	Prot		Perm	Prot		
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases				8		8			2			
Actuated Green, G (s)		27.1		46.4	46.4	63.5	3.1	39.5	39.5	17.1	53.5	
Effective Green, g (s)		27.1		46.4	46.4	63.5	3.1	39.5	39.5	17.1	53.5	
Actuated g/C Ratio		0.23		0.39	0.39	0.53	0.03	0.33	0.33	0.14	0.45	
Clearance Time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		755		303	720	838	44	1121	521	489	1574	
v/s Ratio Prot		0.20		c0.11	0.21	0.05	0.01	c0.27		c0.12	0.31	
v/s Ratio Perm				c0.20		0.15			0.01			
v/c Ratio		0.88		0.81	0.54	0.38	0.34	0.83	0.04	0.81	0.69	
Uniform Delay, d1		44.8		28.9	28.6	16.7	57.4	37.2	27.3	49.9	26.6	
Progression Factor		1.00		1.13	0.96	0.60	1.00	1.00	1.00	0.80	0.51	
Incremental Delay, d2		11.2		13.8	0.8	0.3	4.6	7.2	0.1	5.3	1.3	
Delay (s)		56.0		46.6	28.3	10.2	62.0	44.4	27.5	45.2	14.9	
Level of Service		E		D	C	B	E	D	C	D	B	
Approach Delay (s)		56.0			26.8			43.7			23.0	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	427	0	313	89	89	2	18	183	1916	116	6	2043
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0		5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85		1.00			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599		1833			1770	3539	1583	1752	3505
Flt Permitted	0.95		1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599		1833			1770	3539	1583	1752	3505
Peak-hour factor, PHF	0.82	0.82	0.82	0.70	0.70	0.70	0.96	0.96	0.96	0.96	0.98	0.98
Adj. Flow (vph)	521	0	382	127	127	3	19	191	1996	121	6	2085
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	24	0	0
Lane Group Flow (vph)	521	0	382	0	257	0	0	210	1996	97	6	2085
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	28.1		155.3		26.6			20.1	76.9	76.9	1.3	58.1
Effective Green, g (s)	28.1		155.3		26.6			20.1	76.9	76.9	1.3	58.1
Actuated g/C Ratio	0.18		1.00		0.17			0.13	0.50	0.50	0.01	0.37
Clearance Time (s)	5.7				5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0				3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	627		1599		314			229	1752	784	15	1311
v/s Ratio Prot	c0.15				c0.14			c0.12	c0.56		0.00	c0.59
v/s Ratio Perm			0.24							0.06		
v/c Ratio	0.83		0.24		0.82			0.92	1.14	0.12	0.40	1.59
Uniform Delay, d1	61.3		0.0		62.0			66.8	39.2	21.1	76.6	48.6
Progression Factor	1.00		1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.2		0.4		15.2			37.2	70.2	0.1	16.6	269.3
Delay (s)	70.5		0.4		77.2			104.0	109.4	21.1	93.2	317.9
Level of Service	E		A		E			F	F	C	F	F
Approach Delay (s)		40.8			77.2				104.3			284.1
Approach LOS		D			E				F			F

Intersection Summary			
HCM Average Control Delay	166.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	155.3	Sum of lost time (s)	28.9
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	272
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	278
RTOR Reduction (vph)	98
Lane Group Flow (vph)	180
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	58.1
Effective Green, g (s)	58.1
Actuated g/C Ratio	0.37
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	587
v/s Ratio Prot	
v/s Ratio Perm	0.11
v/c Ratio	0.31
Uniform Delay, d1	34.4
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	34.7
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	66	76	19	1	184	14	965	26	152	740	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1731		1787	1600		1770	3539	1583	1787	3574	1599
Flt Permitted	0.44	1.00		0.62	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	827	1731		1172	1600		1770	3539	1583	1787	3574	1599
Peak-hour factor, PHF	0.87	0.87	0.87	0.76	0.76	0.76	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	100	76	87	25	1	242	15	1049	28	177	860	13
RTOR Reduction (vph)	0	28	0	0	194	0	0	0	16	0	0	6
Lane Group Flow (vph)	100	135	0	25	49	0	15	1049	12	177	860	7
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	18.2	18.2		18.2	18.2		2.4	39.7	39.7	15.4	52.7	52.7
Effective Green, g (s)	18.2	18.2		18.2	18.2		2.4	39.7	39.7	15.4	52.7	52.7
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.03	0.43	0.43	0.17	0.57	0.57
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	342		232	316		46	1525	682	299	2045	915
v/s Ratio Prot		0.08			0.03		0.01	c0.30		c0.10	0.24	
v/s Ratio Perm	c0.12			0.02					0.01			0.00
v/c Ratio	0.61	0.39		0.11	0.15		0.33	0.69	0.02	0.59	0.42	0.01
Uniform Delay, d1	33.7	32.2		30.3	30.6		44.1	21.2	15.0	35.4	11.1	8.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	0.8		0.2	0.2		4.1	1.3	0.0	3.1	0.1	0.0
Delay (s)	40.4	32.9		30.5	30.8		48.2	22.5	15.0	38.6	11.2	8.5
Level of Service	D	C		C	C		D	C	B	D	B	A
Approach Delay (s)		35.8			30.8			22.7			15.8	
Approach LOS		D			C			C			B	

Intersection Summary

HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	18.8
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↱		↱
Volume (veh/h)	0	0	3646	605	0	450
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.98	0.63	0.92	0.91
Hourly flow rate (vph)	0	0	3720	960	0	495
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	3720				3720	1240
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3720				3720	1240
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	57				3	168

Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1240	1240	1240	960	495
Volume Left	0	0	0	0	0
Volume Right	0	0	0	960	495
cSH	1700	1700	1700	1700	168
Volume to Capacity	0.73	0.73	0.73	0.56	2.94
Queue Length 95th (ft)	0	0	0	0	1123
Control Delay (s)	0.0	0.0	0.0	0.0	931.7
Lane LOS					F
Approach Delay (s)	0.0				931.7
Approach LOS					F

Intersection Summary			
Average Delay	89.0		
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	68	721	77	17	29	1855	144	214	156	10	186	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	13	12	12
Total Lost time (s)	5.0	6.0			5.0	6.0		6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.91			1.00	0.91		1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.99			1.00	0.99		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	4690			1719	4886		1719	3438	1589	1719	3438
Flt Permitted	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	4690			1719	4886		1719	3438	1589	1719	3438
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96
Adj. Flow (vph)	73	775	83	18	32	2016	157	271	197	13	194	314
RTOR Reduction (vph)	0	7	0	0	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	73	851	0	0	50	2168	0	271	197	13	194	314
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot	Prot			Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases										Free		
Actuated Green, G (s)	11.2	72.1			8.4	69.3		28.3	24.3	150.0	22.2	18.2
Effective Green, g (s)	11.2	72.1			8.4	69.3		28.3	24.3	150.0	22.2	18.2
Actuated g/C Ratio	0.07	0.48			0.06	0.46		0.19	0.16	1.00	0.15	0.12
Clearance Time (s)	5.0	6.0			5.0	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
Lane Grp Cap (vph)	124	2254			96	2257		324	557	1589	254	417
v/s Ratio Prot	c0.04	0.18			0.03	c0.44		c0.16	0.06		0.11	c0.09
v/s Ratio Perm										0.01		
v/c Ratio	0.59	0.38			0.52	0.96		0.84	0.35	0.01	0.76	0.75
Uniform Delay, d1	67.2	24.7			68.8	39.0		58.6	55.9	0.0	61.4	63.7
Progression Factor	1.00	1.00			1.51	0.31		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	0.5			3.3	8.4		16.8	0.4	0.0	12.8	7.5
Delay (s)	74.1	25.2			107.4	20.4		75.5	56.3	0.0	74.1	71.2
Level of Service	E	C			F	C		E	E	A	E	E
Approach Delay (s)		29.0				22.4			65.6			52.7
Approach LOS		C				C			E			D

Intersection Summary

HCM Average Control Delay	33.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	182
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1538
Flt Permitted	1.00
Satd. Flow (perm)	1538
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	190
Heavy Vehicles (%)	5%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1538
v/s Ratio Prot	
v/s Ratio Perm	c0.12
v/c Ratio	0.12
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	119	87	113	46	3	255	338	339	15	342	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.99		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1679		1787	1864		1736	3211		1719	3372	
Flt Permitted	0.70	1.00		0.32	1.00		0.44	1.00		0.27	1.00	
Satd. Flow (perm)	1260	1679		608	1864		810	3211		491	3372	
Peak-hour factor, PHF	0.79	0.79	0.79	0.59	0.59	0.59	0.71	0.71	0.71	0.96	0.96	0.96
Adj. Flow (vph)	47	151	110	192	78	5	359	476	477	16	356	52
RTOR Reduction (vph)	0	29	0	0	2	0	0	142	0	0	11	0
Lane Group Flow (vph)	47	232	0	192	81	0	359	811	0	16	397	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	4%	4%	4%	5%	5%	5%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.8	20.0		34.4	26.6		53.6	48.0		40.1	37.5	
Effective Green, g (s)	24.8	20.0		34.4	26.6		53.6	48.0		40.1	37.5	
Actuated g/C Ratio	0.25	0.20		0.34	0.27		0.54	0.48		0.40	0.38	
Clearance Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	334	336		344	496		555	1541		229	1265	
v/s Ratio Prot	0.01	c0.14		c0.06	0.04		c0.08	0.25		0.00	0.12	
v/s Ratio Perm	0.03			0.13			c0.26			0.03		
v/c Ratio	0.14	0.69		0.56	0.16		0.65	0.53		0.07	0.31	
Uniform Delay, d1	29.1	37.1		24.8	28.2		13.8	18.1		18.2	22.1	
Progression Factor	1.00	1.00		1.00	1.00		1.09	0.78		1.00	1.00	
Incremental Delay, d2	0.2	6.0		2.0	0.2		2.4	1.2		0.1	0.7	
Delay (s)	29.3	43.2		26.7	28.3		17.5	15.2		18.3	22.8	
Level of Service	C	D		C	C		B	B		B	C	
Approach Delay (s)		41.0			27.2			15.8			22.6	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
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)	57	4	49	26	3	30	0	845	21	26	462	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.86			1.00	0.85		1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1703	1544			1581	1404		3458		1703	3406	1473
Flt Permitted	0.72	1.00			0.70	1.00		1.00		0.18	1.00	1.00
Satd. Flow (perm)	1297	1544			1157	1404		3458		320	3406	1473
Peak-hour factor, PHF	0.82	0.82	0.82	0.56	0.56	0.56	0.92	0.82	0.82	0.95	0.95	0.95
Adj. Flow (vph)	70	5	60	46	5	54	0	1030	26	27	486	58
RTOR Reduction (vph)	0	53	0	0	0	47	0	2	0	0	0	24
Lane Group Flow (vph)	70	12	0	0	51	7	0	1054	0	27	486	34
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	4%	4%	6%	6%	6%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	12.4	12.4			12.4	12.4		63.6		28.4	22.4	22.4
Effective Green, g (s)	12.4	12.4			12.4	12.4		63.6		28.4	22.4	22.4
Actuated g/C Ratio	0.12	0.12			0.12	0.12		0.64		0.28	0.22	0.22
Clearance Time (s)	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
Lane Grp Cap (vph)	161	191			143	174		2199		174	763	330
v/s Ratio Prot		0.01						c0.30		c0.01	c0.14	
v/s Ratio Perm	c0.05				0.04	0.00				0.03		0.02
v/c Ratio	0.43	0.07			0.36	0.04		0.48		0.16	0.64	0.10
Uniform Delay, d1	40.6	38.7			40.1	38.6		9.5		41.1	35.1	30.8
Progression Factor	1.00	1.00			1.00	1.00		0.38		1.02	0.81	0.72
Incremental Delay, d2	1.9	0.1			1.5	0.1		0.1		1.8	3.8	0.6
Delay (s)	42.4	38.8			41.7	38.6		3.7		43.6	32.4	22.7
Level of Service	D	D			D	D		A		D	C	C
Approach Delay (s)		40.7			40.1			3.7			31.9	
Approach LOS		D			D			A			C	

Intersection Summary

HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
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	0	0	191	455	153	293	711	0	0	233	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	3471	1553	3400	3505			3406	1524
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	3471	1553	3400	3505			3406	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.92	0.92	0.89	0.89
Adj. Flow (vph)	0	0	0	215	511	172	312	756	0	0	262	342
RTOR Reduction (vph)	0	0	0	0	0	129	0	0	0	0	0	51
Lane Group Flow (vph)	0	0	0	215	511	43	312	756	0	0	262	291
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	2%	2%	6%	6%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				25.2	25.2	25.2	17.0	32.4			34.8	34.8
Effective Green, g (s)				25.2	25.2	25.2	17.0	32.4			34.8	34.8
Actuated g/C Ratio				0.25	0.25	0.25	0.17	0.32			0.35	0.35
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				437	875	391	578	1136			1185	530
v/s Ratio Prot					c0.15		c0.09	c0.22			0.08	
v/s Ratio Perm				0.12		0.03						c0.19
v/c Ratio				0.49	0.58	0.11	0.54	0.67			0.22	0.55
Uniform Delay, d1				31.9	32.8	28.8	37.9	29.1			23.0	26.3
Progression Factor				1.00	1.00	1.00	1.30	1.08			0.22	0.53
Incremental Delay, d2				0.9	1.0	0.1	3.2	2.7			0.1	1.0
Delay (s)				32.8	33.8	28.9	52.6	34.0			5.1	15.0
Level of Service				C	C	C	D	C			A	B
Approach Delay (s)		0.0			32.6			39.4			10.7	
Approach LOS		A			C			D			B	

Intersection Summary

HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
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)	380	97	122	0	0	0	0	624	245	65	360	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1641	3282	1468					3505	1568	1671	3343	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.20	1.00	
Satd. Flow (perm)	1641	3282	1468					3505	1568	343	3343	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	432	110	139	0	0	0	0	678	266	74	409	0
RTOR Reduction (vph)	0	0	74	0	0	0	0	0	163	0	0	0
Lane Group Flow (vph)	432	110	65	0	0	0	0	678	103	74	409	0
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	2%	3%	3%	8%	8%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	46.8	46.8	46.8					28.2	28.2	40.2	40.2	
Effective Green, g (s)	46.8	46.8	46.8					28.2	28.2	40.2	40.2	
Actuated g/C Ratio	0.47	0.47	0.47					0.28	0.28	0.40	0.40	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	768	1536	687					988	442	231	1344	
v/s Ratio Prot		0.03						c0.19		0.02	c0.12	
v/s Ratio Perm	c0.26		0.04						0.07	0.11		
v/c Ratio	0.56	0.07	0.09					0.69	0.23	0.32	0.30	
Uniform Delay, d1	19.2	14.6	14.8					32.0	27.6	20.3	20.4	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.39	1.33	
Incremental Delay, d2	3.0	0.1	0.3					2.0	0.3	0.8	0.1	
Delay (s)	22.2	14.7	15.1					34.0	27.9	29.1	27.2	
Level of Service	C	B	B					C	C	C	C	
Approach Delay (s)		19.5			0.0			32.2			27.5	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
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	390	82	40	140	126	3	1920	27	313	612	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor		0.95		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3413		1770	3539	1583	1703	4893	1583	3433	3531	
Flt Permitted		1.00		0.16	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3413		300	3539	1583	1703	4893	1583	3433	3531	
Peak-hour factor, PHF	0.92	0.92	0.67	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	424	122	43	152	137	3	2021	29	340	665	11
RTOR Reduction (vph)	0	19	0	0	0	1	0	0	13	0	0	0
Lane Group Flow (vph)	0	527	0	43	152	136	3	2021	16	340	676	0
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	6%	6%	2%	2%	2%	2%
Turn Type				pm+pt		pm+ov	Prot		Perm	Prot		
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases				8		8			2			
Actuated Green, G (s)		28.4		38.0	38.0	56.9	1.3	76.1	76.1	18.9	93.7	
Effective Green, g (s)		28.4		38.0	38.0	56.9	1.3	76.1	76.1	18.9	93.7	
Actuated g/C Ratio		0.19		0.25	0.25	0.38	0.01	0.51	0.51	0.13	0.62	
Clearance Time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		646		141	897	600	15	2482	803	433	2206	
v/s Ratio Prot		c0.15		c0.01	0.04	0.03	0.00	c0.41		c0.10	0.19	
v/s Ratio Perm				0.06		0.06			0.01			
v/c Ratio		0.82		0.30	0.17	0.23	0.20	0.81	0.02	0.79	0.31	
Uniform Delay, d1		58.3		44.3	43.7	31.6	73.8	31.0	18.4	63.6	13.1	
Progression Factor		1.00		1.50	1.39	0.94	1.00	1.00	1.00	0.90	1.02	
Incremental Delay, d2		7.9		1.2	0.1	0.2	6.5	3.1	0.0	8.5	0.3	
Delay (s)		66.2		67.5	60.7	30.0	80.3	34.1	18.4	65.5	13.6	
Level of Service		E		E	E	C	F	C	B	E	B	
Approach Delay (s)		66.2			48.9			33.9			31.0	
Approach LOS		E			D			C			C	

Intersection Summary			
HCM Average Control Delay	38.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	83	0	39	86	45	27	25	108	1812	34	13	2563
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0	5.7	5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00	1.00	1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85	1.00	0.94			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00	0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367		1553	1770	1758			1719	3438	1538	1752	3505
Flt Permitted	0.95		1.00	0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367		1553	1770	1758			1719	3438	1538	1752	3505
Peak-hour factor, PHF	0.77	0.77	0.77	0.95	0.95	0.95	0.93	0.93	0.93	0.93	0.89	0.89
Adj. Flow (vph)	108	0	51	91	47	28	27	116	1948	37	15	2880
RTOR Reduction (vph)	0	0	0	0	14	0	0	0	0	7	0	0
Lane Group Flow (vph)	108	0	51	91	61	0	0	143	1948	30	15	2880
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	5%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	9.3		121.9	11.6	11.6			14.9	75.7	75.7	2.9	63.7
Effective Green, g (s)	9.3		121.9	11.6	11.6			14.9	75.7	75.7	2.9	63.7
Actuated g/C Ratio	0.08		1.00	0.10	0.10			0.12	0.62	0.62	0.02	0.52
Clearance Time (s)	5.7			5.7	5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0			3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	257		1553	168	167			210	2135	955	42	1832
v/s Ratio Prot	c0.03			c0.05	0.03			c0.08	c0.57		0.01	c0.82
v/s Ratio Perm			0.03							0.02		
v/c Ratio	0.42		0.03	0.54	0.36			0.68	0.91	0.03	0.36	1.57
Uniform Delay, d1	53.7		0.0	52.6	51.7			51.2	20.2	8.9	58.6	29.1
Progression Factor	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		0.0	3.5	1.3			8.8	6.5	0.0	5.1	260.1
Delay (s)	54.8		0.0	56.1	53.0			60.0	26.7	8.9	63.7	289.2
Level of Service	D		A	E	D			E	C	A	E	F
Approach Delay (s)		37.3			54.7				28.6			264.6
Approach LOS		D			D				C			F

Intersection Summary			
HCM Average Control Delay	162.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	121.9	Sum of lost time (s)	28.9
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	243
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	273
RTOR Reduction (vph)	68
Lane Group Flow (vph)	205
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	63.7
Effective Green, g (s)	63.7
Actuated g/C Ratio	0.52
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	819
v/s Ratio Prot	
v/s Ratio Perm	0.13
v/c Ratio	0.25
Uniform Delay, d1	16.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	16.1
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	300	1758	206	15	23	839	302	193	336	3	235	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	13	12	12
Total Lost time (s)	5.0	6.0			3.0	6.0		6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.91			1.00	0.91		1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.98			1.00	0.96		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5005			1719	4744		1787	3574	1652	1770	3539
Flt Permitted	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5005			1719	4744		1787	3574	1652	1770	3539
Peak-hour factor, PHF	0.88	0.88	0.88	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.91	0.91
Adj. Flow (vph)	341	1998	234	16	24	883	318	214	373	3	258	323
RTOR Reduction (vph)	0	9	0	0	0	45	0	0	0	0	0	0
Lane Group Flow (vph)	341	2223	0	0	40	1156	0	214	373	3	258	323
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	1%	1%	1%	2%	2%
Turn Type	Prot			Prot	Prot			Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases										Free		
Actuated Green, G (s)	29.9	65.4			7.5	41.0		20.6	18.2	135.0	22.9	20.5
Effective Green, g (s)	29.9	65.4			7.5	41.0		20.6	18.2	135.0	22.9	20.5
Actuated g/C Ratio	0.22	0.48			0.06	0.30		0.15	0.13	1.00	0.17	0.15
Clearance Time (s)	5.0	6.0			3.0	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
Lane Grp Cap (vph)	392	2425			96	1441		273	482	1652	300	537
v/s Ratio Prot	c0.19	c0.44			0.02	0.24		0.12	c0.10		c0.15	0.09
v/s Ratio Perm										0.00		
v/c Ratio	0.87	0.92			0.42	0.80		0.78	0.77	0.00	0.86	0.60
Uniform Delay, d1	50.7	32.3			61.6	43.3		55.1	56.4	0.0	54.5	53.4
Progression Factor	1.00	1.00			0.85	1.27		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.2	6.9			2.6	4.4		13.7	7.6	0.0	21.4	1.9
Delay (s)	68.9	39.2			54.7	59.4		68.7	64.0	0.0	75.9	55.3
Level of Service	E	D			D	E		E	E	A	E	E
Approach Delay (s)		43.1				59.3			65.4			57.7
Approach LOS		D				E			E			E

Intersection Summary			
HCM Average Control Delay	51.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	↱
Volume (vph)	62
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	68
RTOR Reduction (vph)	0
Lane Group Flow (vph)	68
Heavy Vehicles (%)	2%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	c0.04
v/c Ratio	0.04
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	243	159	328	158	18	192	460	246	24	458	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1735		1770	1835		1770	3354		1770	3496	
Flt Permitted	0.63	1.00		0.13	1.00		0.26	1.00		0.25	1.00	
Satd. Flow (perm)	1166	1735		247	1835		481	3354		472	3496	
Peak-hour factor, PHF	0.78	0.78	0.78	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	71	312	204	373	180	20	202	484	259	26	492	44
RTOR Reduction (vph)	0	21	0	0	3	0	0	53	0	0	5	0
Lane Group Flow (vph)	71	495	0	373	197	0	202	690	0	26	531	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.9	36.6		60.4	51.1		42.6	35.2		32.2	27.8	
Effective Green, g (s)	42.9	36.6		60.4	51.1		42.6	35.2		32.2	27.8	
Actuated g/C Ratio	0.37	0.32		0.53	0.44		0.37	0.31		0.28	0.24	
Clearance Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	467	552		405	815		310	1027		182	845	
v/s Ratio Prot	0.01	0.29		c0.17	0.11		c0.07	c0.21		0.01	0.15	
v/s Ratio Perm	0.05			c0.32			0.17			0.03		
v/c Ratio	0.15	0.90		0.92	0.24		0.65	0.67		0.14	0.63	
Uniform Delay, d1	23.6	37.4		30.2	19.9		26.7	34.8		30.6	39.0	
Progression Factor	1.00	1.00		1.00	1.00		1.35	0.96		1.00	1.00	
Incremental Delay, d2	0.2	17.0		26.1	0.2		4.5	3.2		0.4	3.5	
Delay (s)	23.7	54.4		56.3	20.0		40.5	36.7		31.0	42.5	
Level of Service	C	D		E	C		D	D		C	D	
Approach Delay (s)		50.7			43.6			37.5			42.0	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	42.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
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)	85	5	154	130	15	88	0	725	86	86	736	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.86			1.00	0.85		0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1609			1783	1583		3517		1752	3505	1516
Flt Permitted	0.55	1.00			0.50	1.00		1.00		0.15	1.00	1.00
Satd. Flow (perm)	1036	1609			938	1583		3517		273	3505	1516
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.92	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	94	6	171	146	17	99	0	763	91	92	791	133
RTOR Reduction (vph)	0	139	0	0	0	81	0	8	0	0	0	30
Lane Group Flow (vph)	94	38	0	0	163	18	0	846	0	92	791	103
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	3%	3%	3%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	21.2	21.2			21.2	21.2		65.0		37.8	27.0	27.0
Effective Green, g (s)	21.2	21.2			21.2	21.2		65.0		37.8	27.0	27.0
Actuated g/C Ratio	0.18	0.18			0.18	0.18		0.57		0.33	0.23	0.23
Clearance Time (s)	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
Lane Grp Cap (vph)	191	297			173	292		1988		229	823	356
v/s Ratio Prot		0.02						c0.24		c0.04	c0.23	
v/s Ratio Perm	0.09				c0.17	0.01				0.09		0.07
v/c Ratio	0.49	0.13			0.94	0.06		0.43		0.40	0.96	0.29
Uniform Delay, d1	42.1	39.2			46.3	38.7		14.3		45.6	43.5	36.1
Progression Factor	1.00	1.00			1.00	1.00		0.22		0.86	0.96	1.04
Incremental Delay, d2	2.0	0.2			51.5	0.1		0.1		0.8	17.6	1.3
Delay (s)	44.1	39.4			97.8	38.8		3.2		39.9	59.1	39.0
Level of Service	D	D			F	D		A		D	E	D
Approach Delay (s)		41.0			75.5			3.2			54.8	
Approach LOS		D			E			A			D	

Intersection Summary			
HCM Average Control Delay	37.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
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	0	0	314	365	123	362	687	0	0	644	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3505	1568
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.91	0.91	0.92	0.92	0.91	0.91
Adj. Flow (vph)	0	0	0	361	420	141	398	755	0	0	708	413
RTOR Reduction (vph)	0	0	0	0	0	108	0	0	0	0	0	47
Lane Group Flow (vph)	0	0	0	361	420	33	398	755	0	0	708	366
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	3%	3%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				27.0	27.0	27.0	16.8	32.0			48.2	48.2
Effective Green, g (s)				27.0	27.0	27.0	16.8	32.0			48.2	48.2
Actuated g/C Ratio				0.23	0.23	0.23	0.15	0.28			0.42	0.42
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				420	839	375	506	995			1469	657
v/s Ratio Prot					0.12		c0.11	c0.21			0.20	
v/s Ratio Perm				c0.20		0.02						c0.23
v/c Ratio				0.86	0.50	0.09	0.79	0.76			0.48	0.56
Uniform Delay, d1				42.2	38.2	34.4	47.4	38.0			24.3	25.3
Progression Factor				1.00	1.00	1.00	1.18	0.89			0.36	0.33
Incremental Delay, d2				15.9	0.5	0.1	7.0	4.8			0.1	0.5
Delay (s)				58.1	38.6	34.5	62.9	38.5			8.9	8.8
Level of Service				E	D	C	E	D			A	A
Approach Delay (s)		0.0			45.6			47.0			8.9	
Approach LOS		A			D			D			A	

Intersection Summary

HCM Average Control Delay	33.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
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)	515	232	262	0	0	0	0	532	181	234	724	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.20	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	377	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.94	0.94	0.98	0.98	0.92
Adj. Flow (vph)	526	237	267	0	0	0	0	566	193	239	739	0
RTOR Reduction (vph)	0	0	93	0	0	0	0	0	122	0	0	0
Lane Group Flow (vph)	526	237	174	0	0	0	0	566	71	239	739	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	56.1	56.1	56.1					25.9	25.9	45.9	45.9	
Effective Green, g (s)	56.1	56.1	56.1					25.9	25.9	45.9	45.9	
Actuated g/C Ratio	0.49	0.49	0.49					0.23	0.23	0.40	0.40	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	872	1743	780					805	360	332	1413	
v/s Ratio Prot		0.07						0.16		c0.09	0.21	
v/s Ratio Perm	c0.29		0.11						0.04	c0.19		
v/c Ratio	0.60	0.14	0.22					0.70	0.20	0.72	0.52	
Uniform Delay, d1	21.4	16.2	16.9					41.0	36.1	25.7	26.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.19	1.15	
Incremental Delay, d2	3.1	0.2	0.7					2.8	0.3	5.9	0.3	
Delay (s)	24.5	16.3	17.6					43.8	36.4	36.4	30.4	
Level of Service	C	B	B					D	D	D	C	
Approach Delay (s)		20.8			0.0			41.9			31.9	
Approach LOS		C			A			D			C	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
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	361	180	232	443	441	12	738	38	304	1689	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor		0.95		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frt		0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3310		1770	3539	1583	1703	4893	1583	3433	3534	
Flt Permitted		1.00		0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3310		241	3539	1583	1703	4893	1583	3433	3534	
Peak-hour factor, PHF	0.92	0.92	0.67	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	392	269	252	482	479	13	777	41	330	1836	18
RTOR Reduction (vph)	0	92	0	0	0	11	0	0	26	0	1	0
Lane Group Flow (vph)	0	569	0	252	482	468	13	777	15	330	1853	0
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	6%	6%	2%	2%	2%	2%
Turn Type				pm+pt		pm+ov	Prot		Perm	Prot		
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases				8		8			2			
Actuated Green, G (s)		27.9		50.5	50.5	69.3	2.8	48.7	48.7	18.8	64.7	
Effective Green, g (s)		27.9		50.5	50.5	69.3	2.8	48.7	48.7	18.8	64.7	
Actuated g/C Ratio		0.21		0.37	0.37	0.51	0.02	0.36	0.36	0.14	0.48	
Clearance Time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		684		312	1324	813	35	1765	571	478	1694	
v/s Ratio Prot		0.17		c0.12	0.14	0.08	0.01	0.16		c0.10	c0.52	
v/s Ratio Perm				c0.18		0.22			0.01			
v/c Ratio		0.83		0.81	0.36	0.58	0.37	0.44	0.03	0.69	1.09	
Uniform Delay, d1		51.3		34.4	30.6	22.7	65.2	32.8	27.8	55.3	35.2	
Progression Factor		1.00		0.90	0.76	0.74	1.00	1.00	1.00	1.33	0.32	
Incremental Delay, d2		8.5		11.9	0.1	0.8	6.5	0.8	0.1	1.9	47.2	
Delay (s)		59.8		42.8	23.5	17.7	71.8	33.6	27.9	75.5	58.4	
Level of Service		E		D	C	B	E	C	C	E	E	
Approach Delay (s)		59.8			25.2			33.9			61.0	
Approach LOS		E			C			C			E	

Intersection Summary			
HCM Average Control Delay	47.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	323	0	321	77	67	10	6	106	2364	133	12	2202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0	5.7	5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00	1.00	1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85	1.00	0.98			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00	0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599	1805	1862			1770	3539	1583	1770	3539
Flt Permitted	0.95		1.00	0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599	1805	1862			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.89	0.89	0.89	0.89	0.96	0.96
Adj. Flow (vph)	347	0	345	83	72	11	7	119	2656	149	12	2294
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	25	0	0
Lane Group Flow (vph)	347	0	345	83	79	0	0	126	2656	124	12	2294
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	19.0		139.7	11.7	11.7			14.7	83.7	83.7	2.9	71.9
Effective Green, g (s)	19.0		139.7	11.7	11.7			14.7	83.7	83.7	2.9	71.9
Actuated g/C Ratio	0.14		1.00	0.08	0.08			0.11	0.60	0.60	0.02	0.51
Clearance Time (s)	5.7			5.7	5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0			3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	472		1599	151	156			186	2120	948	37	1821
v/s Ratio Prot	c0.10			c0.05	0.04			c0.07	c0.75		0.01	0.65
v/s Ratio Perm			0.22							0.08		
v/c Ratio	0.74		0.22	0.55	0.51			0.68	1.25	0.13	0.32	1.26
Uniform Delay, d1	57.9		0.0	61.5	61.2			60.2	28.0	12.2	67.4	33.9
Progression Factor	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9		0.3	4.1	2.6			9.4	117.8	0.1	5.1	121.5
Delay (s)	63.8		0.3	65.5	63.8			69.6	145.8	12.2	72.5	155.4
Level of Service	E		A	E	E			E	F	B	E	F
Approach Delay (s)		32.1			64.7				135.8			144.1
Approach LOS		C			E				F			F

Intersection Summary

HCM Average Control Delay	125.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	139.7	Sum of lost time (s)	22.4
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	191
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	199
RTOR Reduction (vph)	69
Lane Group Flow (vph)	130
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	71.9
Effective Green, g (s)	71.9
Actuated g/C Ratio	0.51
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	815
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.16
Uniform Delay, d1	17.9
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	18.0
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	105	166	19	4	118	4	731	11	196	979	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1709		1703	1532		1752	3505	1568	1770	3539	1583
Flt Permitted	0.67	1.00		0.35	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1262	1709		636	1532		1752	3505	1568	1770	3539	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.76	0.76	0.76	0.93	0.93	0.93
Adj. Flow (vph)	219	124	195	21	4	131	5	962	14	211	1053	16
RTOR Reduction (vph)	0	34	0	0	97	0	0	0	9	0	0	5
Lane Group Flow (vph)	219	285	0	21	38	0	5	962	5	211	1053	11
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	28.0	28.0		28.0	28.0		1.1	41.6	41.6	18.4	58.9	58.9
Effective Green, g (s)	28.0	28.0		28.0	28.0		1.1	41.6	41.6	18.4	58.9	58.9
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.01	0.39	0.39	0.17	0.55	0.55
Clearance Time (s)	6.5	6.5		6.5	6.5		5.0	7.3	7.3	5.0	7.3	7.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	331	448		167	402		18	1365	611	305	1952	873
v/s Ratio Prot		0.17			0.03		0.00	c0.27		c0.12	0.30	
v/s Ratio Perm	c0.17			0.03					0.00			0.01
v/c Ratio	0.66	0.64		0.13	0.10		0.28	0.70	0.01	0.69	0.54	0.01
Uniform Delay, d1	35.2	34.9		30.1	29.8		52.5	27.4	20.0	41.5	15.3	10.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	3.0		0.3	0.1		8.3	1.7	0.0	6.6	0.3	0.0
Delay (s)	40.1	37.8		30.4	29.9		60.7	29.1	20.0	48.2	15.6	10.8
Level of Service	D	D		C	C		E	C	B	D	B	B
Approach Delay (s)		38.8			30.0			29.1			20.9	
Approach LOS		D			C			C			C	

Intersection Summary

HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	106.8	Sum of lost time (s)	18.8
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	158	944	254	9	24	782	374	304	480	19	390	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0			5.0	6.0		6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.91			1.00	0.91		1.00	0.95	1.00	0.91	0.91
Frt	1.00	0.97			1.00	0.95		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	0.99
Satd. Flow (prot)	1752	4876			1752	4791		1770	3539	1583	1579	3280
Flt Permitted	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	0.56
Satd. Flow (perm)	1752	4876			1752	4791		1770	3539	1583	1579	1854
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.91	0.91
Adj. Flow (vph)	168	1004	270	9	25	823	394	330	522	21	429	413
RTOR Reduction (vph)	0	34	0	0	0	67	0	0	0	0	0	0
Lane Group Flow (vph)	168	1240	0	0	34	1150	0	330	522	21	275	567
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	4%	4%
Turn Type	Prot			Prot	Prot			Prot		Free	Prot	
Protected Phases	5	2		1	1	6		7	4		3	8
Permitted Phases										Free		
Actuated Green, G (s)	14.6	44.9			5.4	35.7		26.5	21.4	120.0	25.3	45.5
Effective Green, g (s)	14.6	44.9			5.4	35.7		26.5	21.4	120.0	25.3	45.5
Actuated g/C Ratio	0.12	0.37			0.05	0.30		0.22	0.18	1.00	0.21	0.38
Clearance Time (s)	5.0	6.0			5.0	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
Lane Grp Cap (vph)	213	1824			79	1425		391	631	1583	333	1004
v/s Ratio Prot	c0.10	0.25			0.02	c0.24		c0.19	c0.15		0.17	0.12
v/s Ratio Perm										0.01		0.10
v/c Ratio	0.79	0.68			0.43	0.81		0.84	0.83	0.01	0.83	0.56
Uniform Delay, d1	51.2	31.5			55.8	39.0		44.8	47.5	0.0	45.2	29.4
Progression Factor	1.00	1.00			0.66	1.09		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.4	2.1			3.2	4.3		15.2	8.7	0.0	15.3	0.7
Delay (s)	68.6	33.6			40.2	46.7		60.0	56.3	0.0	60.5	30.2
Level of Service	E	C			D	D		E	E	A	E	C
Approach Delay (s)		37.7				46.5			56.3			36.8
Approach LOS		D				D			E			D

Intersection Summary

HCM Average Control Delay	43.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	67
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	74
RTOR Reduction (vph)	0
Lane Group Flow (vph)	74
Heavy Vehicles (%)	4%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	120.0
Effective Green, g (s)	120.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1553
v/s Ratio Prot	
v/s Ratio Perm	c0.05
v/c Ratio	0.05
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	283	178	238	175	55	200	667	275	23	586	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.96		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1721		1752	1778		1787	3418		1787	3537	
Flt Permitted	0.54	1.00		0.15	1.00		0.15	1.00		0.17	1.00	
Satd. Flow (perm)	993	1721		278	1778		291	3418		329	3537	
Peak-hour factor, PHF	0.86	0.86	0.86	0.64	0.64	0.64	0.97	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	95	329	207	372	273	86	206	688	284	25	637	48
RTOR Reduction (vph)	0	24	0	0	10	0	0	40	0	0	5	0
Lane Group Flow (vph)	95	512	0	372	349	0	206	932	0	25	680	0
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	40.8	34.0		52.0	42.2		36.0	30.0		25.9	22.9	
Effective Green, g (s)	40.8	34.0		52.0	42.2		36.0	30.0		25.9	22.9	
Actuated g/C Ratio	0.41	0.34		0.52	0.42		0.36	0.30		0.26	0.23	
Clearance Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	456	585		366	750		256	1025		129	810	
v/s Ratio Prot	0.01	0.30		c0.15	0.20		c0.08	c0.27		0.01	0.19	
v/s Ratio Perm	0.07			c0.38			0.21			0.04		
v/c Ratio	0.21	0.88		1.02	0.46		0.80	0.91		0.19	0.84	
Uniform Delay, d1	18.5	31.0		25.2	20.8		25.0	33.7		29.0	36.8	
Progression Factor	1.00	1.00		1.00	1.00		1.34	1.36		1.00	1.00	
Incremental Delay, d2	0.2	13.8		51.3	0.5		10.4	8.6		0.7	10.2	
Delay (s)	18.8	44.8		76.5	21.2		44.0	54.4		29.7	46.9	
Level of Service	B	D		E	C		D	D		C	D	
Approach Delay (s)		40.9			49.3			52.6			46.3	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	48.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
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)	153	18	110	229	17	196	0	800	197	178	716	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0		6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95		1.00	0.95	1.00
Frt	1.00	0.87			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1639			1816	1615		3468		1787	3574	1599
Flt Permitted	0.25	1.00			0.57	1.00		1.00		0.29	1.00	1.00
Satd. Flow (perm)	470	1639			1092	1615		3468		537	3574	1599
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.92	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	178	21	128	269	20	231	0	842	207	189	762	116
RTOR Reduction (vph)	0	108	0	0	0	194	0	22	0	0	0	31
Lane Group Flow (vph)	178	41	0	0	289	37	0	1028	0	189	762	85
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm				pm+pt		Perm
Protected Phases		3			3			4 5		6	1	
Permitted Phases	3			3		3				1		1
Actuated Green, G (s)	16.0	16.0			16.0	16.0		57.0		23.0	14.0	14.0
Effective Green, g (s)	16.0	16.0			16.0	16.0		57.0		23.0	14.0	14.0
Actuated g/C Ratio	0.16	0.16			0.16	0.16		0.57		0.23	0.14	0.14
Clearance Time (s)	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
Lane Grp Cap (vph)	75	262			175	258		1977		236	500	224
v/s Ratio Prot		0.03						c0.30		c0.07	c0.21	
v/s Ratio Perm	c0.38				0.26	0.02				0.11		0.05
v/c Ratio	2.37	0.16			1.65	0.14		0.52		0.80	1.52	0.38
Uniform Delay, d1	42.0	36.2			42.0	36.1		13.1		41.2	43.0	39.1
Progression Factor	1.00	1.00			1.00	1.00		1.51		0.79	0.96	1.05
Incremental Delay, d2	657.0	0.3			317.2	0.3		0.0		12.4	240.5	2.2
Delay (s)	699.0	36.5			359.2	36.4		19.9		44.8	282.0	43.1
Level of Service	F	D			F	D		B		D	F	D
Approach Delay (s)		397.1			215.8			19.9			214.0	
Approach LOS		F			F			B			F	

Intersection Summary

HCM Average Control Delay	165.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	80.3%	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	0	0	557	573	126	499	871	0	0	726	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	5.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1787	3574	1599	3467	3574			3574	1599
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1787	3574	1599	3467	3574			3574	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.96	0.96	0.95	0.95	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	580	597	131	525	917	0	0	781	354
RTOR Reduction (vph)	0	0	0	0	0	92	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	580	597	39	525	917	0	0	781	311
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	2%	2%	1%	1%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		2	5			1 3	
Permitted Phases				4		4						1 3
Actuated Green, G (s)				30.0	30.0	30.0	17.0	21.0			30.0	30.0
Effective Green, g (s)				30.0	30.0	30.0	17.0	21.0			30.0	30.0
Actuated g/C Ratio				0.30	0.30	0.30	0.17	0.21			0.30	0.30
Clearance Time (s)				6.0	6.0	6.0	5.0	6.0				
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)				536	1072	480	589	751			1072	480
v/s Ratio Prot					0.17		c0.15	c0.26			c0.22	
v/s Ratio Perm				c0.32		0.02						0.19
v/c Ratio				1.08	0.56	0.08	0.89	1.22			0.73	0.65
Uniform Delay, d1				35.0	29.4	25.1	40.6	39.5			31.4	30.4
Progression Factor				1.00	1.00	1.00	1.06	0.80			0.70	0.78
Incremental Delay, d2				62.9	0.6	0.1	10.0	105.5			0.2	0.3
Delay (s)				97.9	30.0	25.2	52.9	137.0			22.1	24.0
Level of Service				F	C	C	D	F			C	C
Approach Delay (s)		0.0			59.7			106.4			22.7	
Approach LOS		A			E			F			C	

Intersection Summary

HCM Average Control Delay	66.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.3%	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)	593	359	244	0	0	0	0	776	390	319	963	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1599					3574	1599	1787	3574	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.12	1.00	
Satd. Flow (perm)	1787	3574	1599					3574	1599	234	3574	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.98	0.98	0.96	0.96	0.92
Adj. Flow (vph)	659	399	271	0	0	0	0	792	398	332	1003	0
RTOR Reduction (vph)	0	0	43	0	0	0	0	0	170	0	0	0
Lane Group Flow (vph)	659	399	228	0	0	0	0	792	228	332	1003	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	39.0	39.0	39.0					27.2	27.2	48.0	48.0	
Effective Green, g (s)	39.0	39.0	39.0					27.2	27.2	48.0	48.0	
Actuated g/C Ratio	0.39	0.39	0.39					0.27	0.27	0.48	0.48	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	697	1394	624					972	435	358	1716	
v/s Ratio Prot		0.11						0.22		c0.15	0.28	
v/s Ratio Perm	c0.37		0.14						0.14	c0.30		
v/c Ratio	0.95	0.29	0.36					0.81	0.52	0.93	0.58	
Uniform Delay, d1	29.5	20.9	21.7					34.0	30.9	26.7	18.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.32	1.14	
Incremental Delay, d2	23.1	0.5	1.6					5.3	1.1	16.7	0.2	
Delay (s)	52.6	21.5	23.3					39.4	32.0	51.9	21.6	
Level of Service	D	C	C					D	C	D	C	
Approach Delay (s)		37.3			0.0			36.9			29.2	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
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	432	168	226	361	301	14	885	52	363	985	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor		0.95		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frt		0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3343		1770	3539	1583	1703	4893	1583	3433	3531	
Flt Permitted		1.00		0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3343		239	3539	1583	1703	4893	1583	3433	3531	
Peak-hour factor, PHF	0.92	0.92	0.67	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	470	251	246	392	327	15	932	57	395	1071	17
RTOR Reduction (vph)	0	60	0	0	0	6	0	0	39	0	1	0
Lane Group Flow (vph)	0	661	0	246	392	321	15	932	18	395	1087	0
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	6%	6%	2%	2%	2%	2%
Turn Type				pm+pt		pm+ov	Prot		Perm	Prot		
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases				8		8			2			
Actuated Green, G (s)		28.2		47.2	47.2	64.5	3.1	38.5	38.5	17.3	52.7	
Effective Green, g (s)		28.2		47.2	47.2	64.5	3.1	38.5	38.5	17.3	52.7	
Actuated g/C Ratio		0.24		0.39	0.39	0.54	0.03	0.32	0.32	0.14	0.44	
Clearance Time (s)		6.0		3.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		786		298	1392	851	44	1570	508	495	1551	
v/s Ratio Prot		0.20		c0.11	0.11	0.05	0.01	0.19		c0.12	c0.31	
v/s Ratio Perm				c0.21		0.15			0.01			
v/c Ratio		0.84		0.83	0.28	0.38	0.34	0.59	0.04	0.80	0.70	
Uniform Delay, d1		43.8		29.1	24.8	16.1	57.4	34.2	28.0	49.7	27.3	
Progression Factor		1.00		1.17	0.71	0.78	1.00	1.00	1.00	0.81	0.64	
Incremental Delay, d2		8.1		15.3	0.1	0.3	4.6	1.7	0.1	6.9	2.1	
Delay (s)		51.9		49.3	17.7	12.9	62.0	35.8	28.1	47.0	19.6	
Level of Service		D		D	B	B	E	D	C	D	B	
Approach Delay (s)		51.9			24.1			35.8			26.9	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	427	0	313	89	89	2	18	183	1916	116	6	2043
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7		4.0	5.7	5.7			4.5	6.5	6.5	4.5	6.5
Lane Util. Factor	0.97		1.00	1.00	1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00		0.85	1.00	1.00			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00	0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467		1599	1787	1875			1770	3539	1583	1752	3505
Flt Permitted	0.95		1.00	0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467		1599	1787	1875			1770	3539	1583	1752	3505
Peak-hour factor, PHF	0.82	0.82	0.82	0.70	0.70	0.70	0.96	0.96	0.96	0.96	0.98	0.98
Adj. Flow (vph)	521	0	382	127	127	3	19	191	1996	121	6	2085
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	22	0	0
Lane Group Flow (vph)	521	0	382	127	129	0	0	210	1996	99	6	2085
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%
Turn Type	Prot		Free	Split			Prot	Prot		Perm	Prot	
Protected Phases	8			4	4		5	5	2		1	6
Permitted Phases			Free							2		
Actuated Green, G (s)	25.7		150.5	15.7	15.7			21.5	85.3	85.3	1.4	65.2
Effective Green, g (s)	25.7		150.5	15.7	15.7			21.5	85.3	85.3	1.4	65.2
Actuated g/C Ratio	0.17		1.00	0.10	0.10			0.14	0.57	0.57	0.01	0.43
Clearance Time (s)	5.7			5.7	5.7			4.5	6.5	6.5	4.5	6.5
Vehicle Extension (s)	3.0			3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	592		1599	186	196			253	2006	897	16	1518
v/s Ratio Prot	c0.15			c0.07	0.07			c0.12	c0.56		0.00	c0.59
v/s Ratio Perm			0.24							0.06		
v/c Ratio	0.88		0.24	0.68	0.66			0.83	1.00	0.11	0.38	1.37
Uniform Delay, d1	60.9		0.0	65.0	64.8			62.7	32.4	15.1	74.1	42.6
Progression Factor	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.3		0.4	9.9	7.8			20.0	18.8	0.1	14.1	172.3
Delay (s)	75.2		0.4	74.9	72.6			82.8	51.2	15.1	88.3	215.0
Level of Service	E		A	E	E			F	D	B	F	F
Approach Delay (s)		43.5			73.7				52.2			192.7
Approach LOS		D			E				D			F

Intersection Summary

HCM Average Control Delay	108.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	150.5	Sum of lost time (s)	28.9
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	272
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	278
RTOR Reduction (vph)	95
Lane Group Flow (vph)	183
Heavy Vehicles (%)	3%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	65.2
Effective Green, g (s)	65.2
Actuated g/C Ratio	0.43
Clearance Time (s)	6.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	679
v/s Ratio Prot	
v/s Ratio Perm	0.12
v/c Ratio	0.27
Uniform Delay, d1	27.4
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	27.6
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	AM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2010 EXISTING

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.44
Weaving seg length, L (ft)	182	Weaving ratio, R	0.01
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	1989	0.94	6	0	1.5	1.2	0.971	1.00	2179
V_{o2}	43	0.98	6	0	1.5	1.2	0.971	1.00	45
V_{w1}	1612	0.98	6	0	1.5	1.2	0.971	1.00	1694
V_{w2}	21	0.94	6	0	1.5	1.2	0.971	1.00	23
V_w				1717	V_{nw}				2224
V									3941

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			3.75	0.85
Weaving and non-weaving speeds, Si (mi/h)			26.57	44.69

Number of lanes required for unconstrained operation, Nw 4.94
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	34.45
Weaving segment density, D (pc/mi/ln)	38.13
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	4667
Capacity as a 15-minute flow rate, c (veh/h)	4531
Capacity as a full-hour volume, c_h (veh/h)	4341

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	PM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2010 EXISTING

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65
Weaving number of lanes, N	3
Weaving seg length, L (ft)	182
Terrain	Level

Weaving type	B
Volume ratio, VR	0.38
Weaving ratio, R	0.05

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	1699	0.97	6	0	1.5	1.2	0.971	1.00	1804
V_{o2}	132	0.98	6	0	1.5	1.2	0.971	1.00	138
V_{w1}	1081	0.98	6	0	1.5	1.2	0.971	1.00	1136
V_{w2}	55	0.97	6	0	1.5	1.2	0.971	1.00	58
V_w				1194	V_{nw}				1942
V									3136

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			2.94	0.54
Weaving and non-weaving speeds, Si (mi/h)			28.97	50.79

Number of lanes required for unconstrained operation, Nw 4.65
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	39.47
Weaving segment density, D (pc/mi/ln)	26.48
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	4901
Capacity as a 15-minute flow rate, c (veh/h)	4758
Capacity as a full-hour volume, c_h (veh/h)	4635

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	SATURDAY PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2010 EXISTING

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.46
Weaving seg length, L (ft)	182	Weaving ratio, R	0.21
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	1823	0.99	6	0	1.5	1.2	0.971	1.00	1896
V_{o2}	6	0.98	6	0	1.5	1.2	0.971	1.00	6
V_{w1}	1235	0.99	6	0	1.5	1.2	0.971	1.00	1284
V_{w2}	331	0.98	6	0	1.5	1.2	0.971	1.00	347
V_w				1631	V_{nw}				1902
V									3533

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			3.62	0.85
Weaving and non-weaving speeds, Si (mi/h)			26.91	44.71

Number of lanes required for unconstrained operation, Nw 5.01
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	34.25
Weaving segment density, D (pc/mi/ln)	34.38
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	4566
Capacity as a 15-minute flow rate, c (veh/h)	4433
Capacity as a full-hour volume, c_h (veh/h)	4384

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	AM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2018 NO BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.44
Weaving seg length, L (ft)	182	Weaving ratio, R	0.03
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2197	0.94	6	0	1.5	1.2	0.971	1.00	2407
V_{o2}	47	0.98	6	0	1.5	1.2	0.971	1.00	49
V_{w1}	1766	0.98	6	0	1.5	1.2	0.971	1.00	1856
V_{w2}	61	0.94	6	0	1.5	1.2	0.971	1.00	66
V_w				1922	V_{nw}				2456
V									4378

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			4.06	0.96
Weaving and non-weaving speeds, Si (mi/h)			25.87	43.05

Number of lanes required for unconstrained operation, Nw 4.97
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	33.33
Weaving segment density, D (pc/mi/ln)	43.78
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	4654
Capacity as a 15-minute flow rate, c (veh/h)	4518
Capacity as a full-hour volume, c_h (veh/h)	4327

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	PM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2018 NO BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.39
Weaving seg length, L (ft)	182	Weaving ratio, R	0.08
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	1925	0.97	6	0	1.5	1.2	0.971	1.00	2044
V_{o2}	143	0.98	6	0	1.5	1.2	0.971	1.00	150
V_{w1}	1217	0.98	6	0	1.5	1.2	0.971	1.00	1279
V_{w2}	112	0.97	6	0	1.5	1.2	0.971	1.00	118
V_w				1397	V_{nw}				2194
V									3591

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			3.27	0.64
Weaving and non-weaving speeds, Si (mi/h)			27.88	48.59

Number of lanes required for unconstrained operation, Nw 4.72
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	37.70
Weaving segment density, D (pc/mi/ln)	31.75
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	4860
Capacity as a 15-minute flow rate, c (veh/h)	4718
Capacity as a full-hour volume, c_h (veh/h)	4595

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	SATURDAY PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2018 NO BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.47
Weaving seg length, L (ft)	182	Weaving ratio, R	0.25
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2111	0.99	6	0	1.5	1.2	0.971	1.00	2196
V_{o2}	6	0.98	6	0	1.5	1.2	0.971	1.00	6
V_{w1}	1401	0.99	6	0	1.5	1.2	0.971	1.00	1457
V_{w2}	465	0.98	6	0	1.5	1.2	0.971	1.00	488
V_w				1945	V_{nw}				2202
V									4147

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			4.09	1.03
Weaving and non-weaving speeds, Si (mi/h)			25.80	42.10

Number of lanes required for unconstrained operation, Nw 5.08
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	32.48
Weaving segment density, D (pc/mi/ln)	42.56
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	4537
Capacity as a 15-minute flow rate, c (veh/h)	4405
Capacity as a full-hour volume, c_h (veh/h)	4356

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	AM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2018 BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.45
Weaving seg length, L (ft)	182	Weaving ratio, R	0.10
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	fp	v
V_{o1}	2266	0.94	6	0	1.5	1.2	0.971	1.00	2482
V_{o2}	47	0.98	6	0	1.5	1.2	0.971	1.00	49
V_{w1}	1766	0.98	6	0	1.5	1.2	0.971	1.00	1856
V_{w2}	192	0.94	6	0	1.5	1.2	0.971	1.00	210
V_w				2066	V_{nw}				2531
V									4597

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			4.27	1.05
Weaving and non-weaving speeds, Si (mi/h)			25.44	41.79

Number of lanes required for unconstrained operation, Nw 5.02
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	32.42
Weaving segment density, D (pc/mi/ln)	47.26
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	4613
Capacity as a 15-minute flow rate, c (veh/h)	4479
Capacity as a full-hour volume, c_h (veh/h)	4286

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	PM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2018 BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.40
Weaving seg length, L (ft)	182	Weaving ratio, R	0.16
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2022	0.97	6	0	1.5	1.2	0.971	1.00	2147
V_{o2}	143	0.98	6	0	1.5	1.2	0.971	1.00	150
V_{w1}	1217	0.98	6	0	1.5	1.2	0.971	1.00	1279
V_{w2}	229	0.97	6	0	1.5	1.2	0.971	1.00	243
V_w				1522	V_{nw}				2297
V									3819

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			3.47	0.71
Weaving and non-weaving speeds, Si (mi/h)			27.31	47.24

Number of lanes required for unconstrained operation, Nw 4.78
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	36.60
Weaving segment density, D (pc/mi/ln)	34.78
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	4812
Capacity as a 15-minute flow rate, c (veh/h)	4672
Capacity as a full-hour volume, c_h (veh/h)	4549

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	SATURDAY PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO BEACON DRIVE
Jurisdiction	
Analysis Year	2018 BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.47
Weaving seg length, L (ft)	182	Weaving ratio, R	0.30
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2245	0.99	6	0	1.5	1.2	0.971	1.00	2335
V_{o2}	6	0.98	6	0	1.5	1.2	0.971	1.00	6
V_{w1}	1401	0.99	6	0	1.5	1.2	0.971	1.00	1457
V_{w2}	599	0.98	6	0	1.5	1.2	0.971	1.00	629
V_w				2086	V_{nw}				2341
V									4427

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.0010
b (Exhibit 24-6)			2.20	6.00
c (Exhibit 24-6)			0.70	1.00
d (Exhibit 24-6)			0.50	0.50
Weaving intensity factor, Wi			4.30	1.11
Weaving and non-weaving speeds, Si (mi/h)			25.38	41.08

Number of lanes required for unconstrained operation, Nw 5.10
Maximum number of lanes, Nw (max) 3.50

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	31.81
Weaving segment density, D (pc/mi/ln)	46.39
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	4529
Capacity as a 15-minute flow rate, c (veh/h)	4397
Capacity as a full-hour volume, c_h (veh/h)	4347

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	AM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO SITE DRIVEWAY
Jurisdiction	
Analysis Year	2018 BUILD WITH BEACON REMOVED

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.46
Weaving seg length, L (ft)	900	Weaving ratio, R	0.12
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	fp	v
V_{o1}	2224	0.94	6	0	1.5	1.2	0.971	1.00	2436
V_{o2}	47	0.98	6	0	1.5	1.2	0.971	1.00	49
V_{w1}	1766	0.98	6	0	1.5	1.2	0.971	1.00	1856
V_{w2}	234	0.94	6	0	1.5	1.2	0.971	1.00	256
V_w				2112	V_{nw}				2485
V									4597

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	1.04	0.99		
Weaving and non-weaving speeds, Si (mi/h)	41.96	42.68		

Number of lanes required for unconstrained operation, Nw 1.97
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	42.35
Weaving segment density, D (pc/mi/ln)	36.18
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	5247
Capacity as a 15-minute flow rate, c (veh/h)	5094
Capacity as a full-hour volume, c_h (veh/h)	4875

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	PM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO SITE DRIVEWAY
Jurisdiction	
Analysis Year	2018 BUILD WITH BEACON REMOVED

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.46
Weaving seg length, L (ft)	900	Weaving ratio, R	0.27
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	fp	v
V_{o1}	1807	0.97	6	0	1.5	1.2	0.971	1.00	1918
V_{o2}	143	0.98	6	0	1.5	1.2	0.971	1.00	150
V_{w1}	1217	0.98	6	0	1.5	1.2	0.971	1.00	1279
V_{w2}	444	0.97	6	0	1.5	1.2	0.971	1.00	471
V_w				1750	V_{nw}				2068
V									3818

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.91	0.82		
Weaving and non-weaving speeds, Si (mi/h)	43.77	45.28		

Number of lanes required for unconstrained operation, Nw 1.92
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.58
Weaving segment density, D (pc/mi/ln)	28.55
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	5251
Capacity as a 15-minute flow rate, c (veh/h)	5098
Capacity as a full-hour volume, c_h (veh/h)	4964

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	SATURDAY PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	CR 97 TO SITE DRIVEWAY
Jurisdiction	
Analysis Year	2018 BUILD WITH BEACON REMOVED

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.54
Weaving seg length, L (ft)	900	Weaving ratio, R	0.39
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	fp	v
V_{o1}	1939	0.99	6	0	1.5	1.2	0.971	1.00	2017
V_{o2}	6	0.98	6	0	1.5	1.2	0.971	1.00	6
V_{w1}	1401	0.99	6	0	1.5	1.2	0.971	1.00	1457
V_{w2}	905	0.98	6	0	1.5	1.2	0.971	1.00	951
V_w				2408	V_{nw}				2023
V									4431

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	1.15	1.33		
Weaving and non-weaving speeds, Si (mi/h)	40.63	38.59		

Number of lanes required for unconstrained operation, Nw 2.29
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	39.67
Weaving segment density, D (pc/mi/ln)	37.23
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	4941
Capacity as a 15-minute flow rate, c (veh/h)	4797
Capacity as a full-hour volume, c_h (veh/h)	4739

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	AM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	DRIVEWAY TO RT 454
Jurisdiction	
Analysis Year	2018 BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.48
Weaving seg length, L (ft)	800	Weaving ratio, R	0.00
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2119	0.98	6	0	1.5	1.2	0.971	1.00	2227
V_{o2}	7	0.98	6	0	1.5	1.2	0.971	1.00	7
V_{w1}	1943	0.98	6	0	1.5	1.2	0.971	1.00	2042
V_{w2}	7	0.98	6	0	1.5	1.2	0.971	1.00	7
V_w				2049	V_{nw}				2234
V									4283

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	1.08	1.05		
Weaving and non-weaving speeds, Si (mi/h)	41.45	41.78		

Number of lanes required for unconstrained operation, Nw 2.13
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	41.62
Weaving segment density, D (pc/mi/ln)	34.30
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	5075
Capacity as a 15-minute flow rate, c (veh/h)	4927
Capacity as a full-hour volume, c_h (veh/h)	4828

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	PM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	DRIVEWAY TO RT 454
Jurisdiction	
Analysis Year	2018 BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.24
Weaving seg length, L (ft)	800	Weaving ratio, R	0.15
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2765	0.94	6	0	1.5	1.2	0.971	1.00	3029
V_{o2}	41	0.94	6	0	1.5	1.2	0.971	1.00	44
V_{w1}	747	0.94	6	0	1.5	1.2	0.971	1.00	818
V_{w2}	137	0.94	6	0	1.5	1.2	0.971	1.00	150
V_w				968	V_{nw}				3073
V									4041

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.70	0.35		
Weaving and non-weaving speeds, Si (mi/h)	47.29	55.88		

Number of lanes required for unconstrained operation, Nw 1.18
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	53.55
Weaving segment density, D (pc/mi/ln)	25.16
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	6256
Capacity as a 15-minute flow rate, c (veh/h)	6074
Capacity as a full-hour volume, c_h (veh/h)	5710

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	SAT PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	DRIVEWAY TO RT 454
Jurisdiction	
Analysis Year	2018 BUILD

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.24
Weaving seg length, L (ft)	800	Weaving ratio, R	0.14
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2941	0.97	6	0	1.5	1.2	0.971	1.00	3122
V_{o2}	103	0.97	6	0	1.5	1.2	0.971	1.00	109
V_{w1}	848	0.97	6	0	1.5	1.2	0.971	1.00	900
V_{w2}	137	0.97	6	0	1.5	1.2	0.971	1.00	145
V_w				1045	V_{nw}				3231
V									4276

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.74	0.37		
Weaving and non-weaving speeds, Si (mi/h)	46.64	55.02		

Number of lanes required for unconstrained operation, Nw 1.20
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	52.71
Weaving segment density, D (pc/mi/ln)	27.04
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	6227
Capacity as a 15-minute flow rate, c (veh/h)	6046
Capacity as a full-hour volume, c_h (veh/h)	5865

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	AM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	DRIVEWAY TO RT 454
Jurisdiction	
Analysis Year	2018 BUILD WITH BEACON REMOVED

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.49
Weaving seg length, L (ft)	800	Weaving ratio, R	0.02
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2018	0.98	6	0	1.5	1.2	0.971	1.00	2120
V_{o2}	42	0.98	6	0	1.5	1.2	0.971	1.00	44
V_{w1}	1908	0.98	6	0	1.5	1.2	0.971	1.00	2005
V_{w2}	45	0.98	6	0	1.5	1.2	0.971	1.00	47
V_w				2052	V_{nw}				2164
V									4216

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	1.08	1.07		
Weaving and non-weaving speeds, Si (mi/h)	41.43	41.53		

Number of lanes required for unconstrained operation, Nw 2.16
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	41.48
Weaving segment density, D (pc/mi/ln)	33.88
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	5041
Capacity as a 15-minute flow rate, c (veh/h)	4894
Capacity as a full-hour volume, c_h (veh/h)	4796

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	PM PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	DRIVEWAY TO RT 454
Jurisdiction	
Analysis Year	2018 BUILD WITH BEACON REMOVED

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.32
Weaving seg length, L (ft)	800	Weaving ratio, R	0.45
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2378	0.94	6	0	1.5	1.2	0.971	1.00	2605
V_{o2}	142	0.94	6	0	1.5	1.2	0.971	1.00	155
V_{w1}	646	0.94	6	0	1.5	1.2	0.971	1.00	707
V_{w2}	524	0.94	6	0	1.5	1.2	0.971	1.00	574
V_w				1281	V_{nw}				2760
V									4041

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.80	0.50		
Weaving and non-weaving speeds, Si (mi/h)	45.49	51.74		

Number of lanes required for unconstrained operation, Nw 1.47
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	49.58
Weaving segment density, D (pc/mi/ln)	27.17
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	5813
Capacity as a 15-minute flow rate, c (veh/h)	5644
Capacity as a full-hour volume, c_h (veh/h)	5305

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	MRW
Agency/Company	SE&D
Date Performed	12/14/2010
Analysis Time Period	SAT PEAK

Site Information

Freeway/Dir of Travel	RT 27 NORTH SERVICE ROAD
Weaving Seg Location	DRIVEWAY TO RT 454
Jurisdiction	
Analysis Year	2018 BUILD WITH BEACON REMOVED

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	65	Weaving type	B
Weaving number of lanes, N	3	Volume ratio, VR	0.33
Weaving seg length, L (ft)	800	Weaving ratio, R	0.40
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	2551	0.97	6	0	1.5	1.2	0.971	1.00	2708
V_{o2}	163	0.97	6	0	1.5	1.2	0.971	1.00	173
V_{w1}	788	0.97	6	0	1.5	1.2	0.971	1.00	836
V_{w2}	527	0.97	6	0	1.5	1.2	0.971	1.00	559
V_w				1395	V_{nw}				2881
V									4276

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.85	0.55		
Weaving and non-weaving speeds, Si (mi/h)	44.74	50.52		

Number of lanes required for unconstrained operation, Nw 1.51
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	48.48
Weaving segment density, D (pc/mi/ln)	29.40
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	5767
Capacity as a 15-minute flow rate, c (veh/h)	5599
Capacity as a full-hour volume, c_h (veh/h)	5431

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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ACCIDENT ANALYSIS SUMMARY

Islip Pines

S-10056

Accident Analysis Summary: 2007-2009

Updated: 12/14/2010

Location	Rear End	Overtaking	Right Angle	Unidentified Collision with Motor Vehicle	Collision with Guide Rail	Other	Total
27 North	7	3	0	1	0	1	12
27 South	5	1	0	2	2	0	10
Broadway Avenue	0	0	0	0	0	1	1
Nicolls Road Ramp to NSR	0	0	0	1	0	1	2
Nicolls Road	0	1	0	0	1	3	5
North Service Road	0	2	0	3	1	2	8
NSR & Beacon Drive	3	0	0	3	0	0	6
NSR & Broadway Avenue	4	0	7	1	0	0	12
NSR & Veterans Highway	0	1	0	0	2	0	3
South Service Road	14	4	0	1	3	4	26
SSR & Broadway Avenue	4	0	1	4	1	3	13
SSR & Veterans Highway	0	0	0	0	3	0	3
Veterans Highway	8	0	0	1	7	1	17
Total	**45**	**12**	**8**	**17**	**20**	**16**	**118**

Notes:

-38 month period analyzed (Oct 1, 2006 to Nov 30, 2009)

-27 North - Sunrise Highway Westbound Lanes

-27 South - Sunrise Highway Eastbound Lanes

-NSR - Sunrise Highway North Service Road

-SSR - Sunrise Highway South Service Road

Islip Pines
S-10056
Accident Analysis: 2007-2009
Updated: 12/14/2010

Case #	Date	Time	Weather	Location	Accident Type	Injuries	Fatalities
2007-32162520	1/6/2007	4:07 AM	unknown	SSR and Veterans Hwy	collision with guide rail	0	0
2007-32182925	2/3/2007	7:49 AM	clear	SSR and Broadway	rear end	1	0
2007-32103326	2/12/2007	5:02 PM	clear	Veterans Hwy	rear end	1	0
2007-32200707	3/8/2007	5:30 PM	clear	Veterans Hwy	rear end	0	0
2007-32209265	3/16/2007	12:40 PM	hail	NSR and Veterans Hwy	collision with guide rail	0	0
2007-32208820	3/17/2007	5:25 AM	hail	Veterans Hwy	other	1	0
2007-32218506	3/23/2007	4:38 PM	rain	SSR	rear end	2	0
2007-32168936	4/3/2007	8:30 AM	cloudy	NSR and Broadway	rear end	0	0
2207-32253286	4/23/2007	11:50 AM	clear	SSR and Broadway	left turn (with other car)	0	0
2007-32273209	7/3/2007	4:45 PM	clear	Veterans Hwy	rear end	1	0
2007-32338583	7/21/2007	2:15 AM	clear	SSR and Veterans Hwy	collision with guide rail	1	0
2007-32268267	7/23/2007	4:19 PM	cloudy	SSR and Broadway	rear end	0	0
2007-32352001	7/25/2007	5:05 PM	clear	Veterans Hwy	collision with motor vehicle	0	0
2007-32379137	8/12/2007	1:17 AM	clear	SSR	overtaking	1	0
2007-32417446	9/4/2007	unknown	clear	27 S	rear end	1	0
2007-32413633	9/11/2007	2:58 AM	fog	SSR	collision with tree	0	0
2007-32357547	9/21/2007	6:04 PM	unknown	NSR and Broadway	right angle	0	0
2007-32442829	9/22/2007	11:04 PM	clear	SSR and Broadway	collision with motor vehicle	1	0
2007-32443011	9/24/2007	3:04 PM	clear	SSR	collision with curbing	0	0
2007-32474019	10/1/2007	12:04 PM	clear	SSR	rear end	0	0
2007-32372617	10/1/2007	10:30 PM	fog	Veterans Hwy	collision with guide rail	0	0
2007-32473867	10/6/2007	8:04 PM	clear	SSR	collision with guide rail	1	0
2007-32473867	10/6/2007	8:33 PM	clear	Veterans Hwy	collision with guide rail	1	0
2007-32357547	10/13/2007	7:04 AM	clear	SSR	overtaking	0	0
2007-32501960	10/23/2007	4:04 PM	cloudy	SSR	rear end	3	0
2007-32416754	10/30/2007	4:04 PM	cloudy	27 S	overtaking	0	0
2007-32514107	11/5/2007	6:04 PM	clear	SSR	rear end	0	0
2007-32514074	11/6/2007	7:04 AM	rain	SSR	rear end	0	0
2007-32534323	11/12/2007	9:15 PM	clear	SSR	collision with tree	1	0
2007-32588050	11/20/2007	11:04 AM	rain	27 S	collision with motor vehicle	1	0
2007-32557834	11/26/2007	10:04 PM	rain	NSR and Broadway	rear end	0	0
2007-32554636	11/29/2007	1:04 PM	clear	27 N	overtaking	2	0
2007-32571130	12/12/2007	4:04 PM	clear	27 S	rear end	1	0
2007-32571440	12/13/2007	12:04 PM	snow	27 S	collision with guide rail	0	0
2007-32491500	12/28/2007	7:53 AM	clear	SSR and Broadway	collision with tree	0	0
2007-32590260	12/28/2007	7:40 AM	clear	Veterans Hwy	collision with guide rail	1	0
2007-32491802	12/30/2007	9:04 AM	unknown	Broadway Ave	fire/explosion	0	0
2008-32491500	1/4/2008	5:48 PM	clear	SSR and Broadway	collision with motor vehicle	1	0
2008-32476130	1/7/2008	5:04 PM	clear	SSR	rear end	1	0
2008-32619403	1/11/2008	4:04 PM	cloudy	SSR	rear end	0	0
2008-32619351	1/16/2008	5:10 PM	clear	Veterans Hwy	rear end	0	0
2008-32554195	2/12/2008	4:04 PM	snow	27 S	rear end	2	0

Islip Pines
S-10056
Accident Analysis: 2007-2009
Updated: 12/14/2010

Case #	Date	Time	Weather	Location	Accident Type	Injuries	Fatalities
2008-32658967	2/28/2008	8:04 AM	cloudy	NSR and Veterans Hwy	collision with guide rail	1	0
2008-32658967	2/28/2008	8:11 AM	cloudy	SSR	overturned	1	0
2008-32800196	3/1/2008	2:50 PM	cloudy	SSR	collision with guide rail	0	0
2008-32658676	3/8/2008	4:04 AM	cloudy	SSR	collision with guide rail	1	0
2008-32690040	3/22/2008	6:04 AM	clear	27 N	rear end	0	0
2008-32607717	4/18/2008	unknown	clear	Veterans Hwy	rear end	0	0
2008-32752079	4/26/2008	9:04 AM	cloudy	27 N	collision with tree	0	0
2008-32607088	4/26/2008	2:04 PM	clear	SSR	overtaking	1	0
2008-32607748	4/29/2008	8:04 AM	clear	Nicolls ramp to NSR	collision with motor vehicle	0	0
2008-32709058	4/29/2008	8:04 AM	rain	SSR	rear end	0	0
2008-32623627	5/5/2008	8:04 AM	clear	27 N	rear end	3	0
2008-32615019	5/9/2008	unknown	unknown	Veterans Hwy	collision with guide rail	0	0
2008-32785862	6/8/2008	10:30 AM	clear	SSR	rear end	1	0
2008-32666358	6/10/2008	unknown	unknown	27 N	rear end	1	0
2008-32772575	6/20/2008	8:04 PM	cloudy	NSR	collision with motor vehicle	1	0
2008-32812122	6/23/2008	1:04 PM	cloudy	NSR and Broadway	right angle	1	0
2008-32680256	7/2/2008	10:04 AM	clear	NSR	overtaking	0	0
2008-32771993	7/8/2008	5:04 PM	clear	SSR	rear end	1	0
2008-32697499	7/26/2008	7:04 PM	clear	SSR	overtaking	0	0
2008-32752241	9/4/2008	6:04 AM	rain	Nicolls Road	overtaking	0	0
2008-32923208	9/5/2008	3:04 PM	clear	27 N	collision with motor vehicle	1	0
2008-32923450	9/7/2008	7:04 PM	clear	NSR and Broadway	right angle	1	0
2008-32936050	9/26/2008	11:04 PM	cloudy	NSR and Broadway	collision with motor vehicle	1	0
2008-32919976	10/8/2008	4:38 PM	clear	Veterans Hwy	collision with guide rail	1	0
2008-32793610	10/11/2008	6:04 AM	clear	27 S	collision with guide rail	0	0
2008-32909984	10/13/2008	10:04 AM	clear	Nicolls Road	overturned	1	0
2008-32937647	10/20/2008	11:04 AM	clear	Nicolls Road	collision with culvert/headwall	2	0
2008-32940567	10/21/2008	8:04 PM	clear	NSR	collision with motor vehicle	0	0
2008-32966049	10/24/2008	12:08 PM	clear	SSR and Broadway	left turn (with other car)	0	0
2008-32966174	10/26/2008	3:15 PM	clear	SSR and Broadway	rear end	0	0
2008-32966282	10/27/2008	3:04 PM	clear	NSR and Beacon	rear end	1	0
2008-32963500	11/1/2008	3:04 AM	cloudy	Nicolls ramp to NSR	overturned	0	0
2008-32824772	11/6/2008	9:04 PM	clear	NSR and Broadway	right angle	2	0
2008-32995471	11/14/2008	11:04 AM	cloudy	27 N	rear end	0	0
2008-32846413	11/18/2008	unkown	clear	NSR and Beacon	rear end	0	0
2008-33000302	12/5/2008	9:04 AM	clear	Nicolls Road	collision with guide rail	0	0
2008-33000262	12/5/2008	6:04 PM	clear	SSR	rear end	1	0
2008-32915932	12/15/2008	9:04 AM	cloudy	27 N	overtaking	1	0
2008-32915930	12/15/2008	5:04 PM	cloudy	27 S	rear end	0	0
2008-33012341	12/15/2008	1:04 PM	clear	NSR	overtaking	0	0
2008-32899515	12/18/2008	5:06 PM	clear	SSR	rear end	2	0
2008-33050873	12/19/2008	12:04 PM	snow	NSR and Beacon	collision with motor vehicle	0	0

Islip Pines
S-10056
Accident Analysis: 2007-2009
Updated: 12/14/2010

Case #	Date	Time	Weather	Location	Accident Type	Injuries	Fatalities
2008-32950205	12/20/2008	6:04 PM	unknown	SSR	collision with motor vehicle	0	0
2008-33050725	12/22/2008	12:04 PM	clear	27 S	rear end	1	0
2008-33059308	12/31/2008	3:11 PM	snow	SSR and Broadway	collision with guide rail	0	0
2009-32949920	1/17/2009	unkown	clear	NSR and Beacon	collision with motor vehicle	0	0
2009-32933007	1/25/2009	10:04 AM	clear	SSR and Broadway	collision with motor vehicle	1	0
2009-33110584	2/1/2009	2:57 PM	clear	Veterans Hwy	rear end	0	0
2009-33094231	2/3/2009	5:04 PM	snow	NSR	collision with motor vehicle	0	0
2009-32956730	2/11/2009	6:04 PM	clear	SSR	rear end	2	0
2009-33100603	2/14/2009	9:22 PM	cloudy	Veterans Hwy	collision with guide rail	1	0
2009-33120584	2/21/2009	3:04 PM	clear	27 N	overtaking	0	0
2009-32977808	3/2/2009	12:04 AM	snow	NSR	collision with guide rail	0	0
2009-33155994	3/12/2009	9:04 PM	clear	SSR and Broadway	collision with motor vehicle	0	0
2009-33177269	4/3/2009	3:04 PM	rain	SSR and Veterans Hwy	collision with guide rail	1	0
2009-33177269	4/3/2009	3:50 PM	rain	Veterans Hwy	collision with guide rail	1	0
2009-33003134	4/10/2009	12:04 PM	clear	27 N	rear end	3	0
2009-33207705	4/27/2009	10:04 AM	clear	NSR	out of control - collision with wall	0	0
2009-33055754	5/11/2009	8:04 PM	unknown	27 N	rear end	0	0
2009-33063624	5/12/2009	5:04 PM	unknown	NSR and Beacon	collision with motor vehicle	0	0
2009-33040402	5/12/2009	3:00 PM	clear	NSR and Broadway	right angle	0	0
2009-33063686	5/26/2009	2:24 PM	clear	NSR and Broadway	right angle	2	0
2009-33278880	5/29/2009	8:04 PM	cloudy	NSR	left turn (with other car)	0	0
2009-33096598	6/1/2009	2:30 PM	clear	NSR and Broadway	rear end	0	0
2009-33089589	6/7/2009	3:04 PM	clear	27 N	rear end	0	0
2009-33062234	6/12/2009	11:04 AM	cloudy	NSR and Broadway	rear end	1	0
2009-33296042	6/13/2009	1:17 PM	clear	SSR and Broadway	rear end	0	0
2009-33372575	7/11/2009	11:04 AM	clear	NSR and Beacon	rear end	2	0
2009-33105276	7/31/2009	3:04 PM	cloudy	NSR and Veterans Hwy	overtaking	2	0
2009-33176398	8/8/2009	12:04 PM	clear	SSR and Broadway	right angle	0	0
2009-33229295	8/10/2009	10:04 AM	cloudy	NSR and Broadway	right angle	0	0
2009-33203833	8/30/2009	6:04 PM	unknown	27 S	collision with motor vehicle		0
2009-33188993	9/11/2009	6:04 PM	unknown	Nicolls Road	out of control - collision with wall	0	0
2009-33220675	10/2/2009	unknown	clear	Veterans Hwy	rear end	1	0
2009-33362748	11/10/2009	unknown	clear	Veterans Hwy	rear end	0	0
2009-33267090	12/21/2009	8:17 AM	clear	SSR	rear end	1	0