



Traffic Impact Study

River Ridge Residential Development

NYS Route 9D at Rombout Avenue
City of Beacon, Dutchess County, New York

August 2, 2017

Prepared For

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MC Project No. 17004150A



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I. INTRODUCTION

A. PROJECT DESCRIPTION AND LOCATION (Figure No. 1)

This report has been prepared to evaluate the potential traffic impacts associated with the River Ridge residential development, which is planned to be developed on property located on the west side of NYS Route 9D opposite Rombout Avenue in the City of Beacon, Dutchess County, New York. The development, which is adjacent to the existing Reformed Church of Beacon, is proposed to consist of 18 residential townhome units. As shown on Figure No. 1, access to the development is proposed to be provided via a new driveway connection to NYS Route 9D located opposite Rombout Avenue.

A Design Year of 2022 has been utilized in completing the traffic analysis in order to evaluate future traffic conditions associated with this proposed development.

B. SCOPE OF STUDY

This study has been prepared to identify current and future traffic operating conditions on the surrounding roadway network and to assess the potential traffic impacts of the proposed River Ridge residential development.

All available traffic count data for the study area intersections were obtained from previous reports prepared by our office and other studies completed for the City of Beacon for this area. These data were supplemented with new traffic counts collected by representatives of Maser Consulting, P.A. These data were also compared to count data obtained from the New York State Department of Transportation (NYSDOT). Together these data were utilized to establish the Year 2017 Existing Traffic Volumes representing existing traffic conditions in the vicinity of the site.

The Year 2017 Existing Traffic Volumes were then projected to the 2022 Design Year to take into account background traffic growth as well as traffic from any other potential or approved developments in the area.

Estimates were then made of the potential traffic that the proposed development would generate during each of the peak hours (see Section III-B for further discussion). These volumes were then added to the roadway system based on anticipated arrival and departure distributions and combined with the Year 2022 No-Build Traffic Volumes resulting in the Year 2022 Build Traffic Volumes.

The Existing, No-Build and Build Traffic Volumes were then compared to roadway capacities based on the procedures from the Highway Capacity Manual to determine existing and future Levels of Service and operating conditions. Recommendations for improvements were made where necessary to serve the existing and/or future traffic volumes.

II. EXISTING ROADWAY AND TRAFFIC DESCRIPTIONS

A. DESCRIPTION OF EXISTING ROADWAYS

As shown on Figure No. 1, the proposed River Ridge residential development will be accessed from NYS Route 9D via a proposed driveway connection opposite Rombout Avenue. The proposed access driveway will serve both entering and exiting movements. The following is a brief description of the roadways located within the study area. In addition, Section III-F provides a further description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service and any recommended improvements for each of the study area intersections. Appendix "D" contains copies of the capacity analyses, which indicate the existing geometrics (including lane widths) and other characteristics for each of the individual intersections studied.

1. NYS Route 9D

NYS Route 9D is classified as a Principal Arterial Other roadway under New York State Department of Transportation (NYSDOT) jurisdiction. The roadway generally traverses in a north/south direction throughout Putnam and Southern Dutchess Counties. In the vicinity of the site the roadway provides regional access to I-84, the Main Street area and the Beacon Train Station. The roadway generally consists of a three lane cross-section in the immediate area of the project site with additional lanes provided in the vicinity of the I-84 interchange. The posted speed limit is 30 mph and sidewalks are provided along both sides of the roadway.

2. Beekman Street

Beekman Street is a City roadway that originates at a signalized full movement intersection with NYS Route 9D opposite West Church Street. The roadway traverses in a southwesterly direction, providing access to the Beacon/Metro-North train station. In addition to parking at the station, on-street metered parking is provided along Beekman Street. This roadway also provides access to Dia Beacon and terminates at an unsignalized intersection with Wolcott Avenue (Route 9D). The speed limit for the roadway is 20 mph from Ferry Street to Hammond Plaza and 25 mph between the railroad bridge and Wolcott Avenue. Sidewalks are located along the entire roadway in some sections alternating sides of the roadway, but closer to Main Street they are provided on both sides of the roadway.

3. West Church Street

West Church Street is a City roadway that originates at a signalized full movement intersection with NYS Route 9D opposite Beekman Street. The roadway traverses in an easterly direction, providing access to various residential uses and terminating at an unsignalized intersection with Cross Street. It consists of a single lane in each direction with a speed of 30 mph and sidewalks on both sides of the roadway.

4. Main Street

Main Street is a City roadway that originates at a signalized full movement intersection with NYS Route 9D opposite Municipal Place. The roadway traverses in an easterly direction, providing access to various commercial and residential uses. It consists of a single lane in each direction, however at its intersection with NYS Route 9D, the westbound Main Street approach consists of a shared left and through lane and a right turn lane. The roadway has a speed limit of 25 mph and sidewalks on both sides of the roadway. It should be noted that there is 2-hour street parking on both sides of the roadway.

5. Rombout Avenue

Rombout Avenue is a City roadway that originates at an unsignalized intersection with NYS Route 9D. The roadway traverses in a southeasterly direction, providing access to mainly residential uses and terminating beyond Teller Avenue at John Street. It consists of a single lane in each direction with a speed limit of 30 mph. It should be noted that the section of Rombout Avenue between NYS Route 9D and South Avenue does not have sidewalks on either side of the street.

B. YEAR 2017 EXISTING TRAFFIC VOLUMES (Figures No. 2. and 3)

Manual traffic counts and pedestrian counts were collected by representatives of Maser Consulting, P.A. on Tuesday March 7, 2017, Wednesday March 8, 2017 and Thursday March 9, 2017, while schools were in session. These were also supplemented with counts collected on Thursday July 20, 2017 and Tuesday July 25, 2017 during the weekday AM and PM peak periods for the NYS Route 9D/Rombout Avenue intersection. These traffic volume data, which are provided in Appendix “E” for reference, were used to determine the existing traffic volume conditions at the study area intersections. The traffic counts were then compared to traffic volume data from previous traffic studies conducted by our office and for the City of Beacon as well as traffic volume data available from the New York State Department of Transportation (NYSDOT) for the NYS Route 9D Corridor. Based on this information, the Year 2017 Existing Traffic Volumes were established for the Weekday Peak AM and Weekday Peak PM Hours at the following study area intersections.

- NYS Route 9D and Beekman Street/West Church Street
- NYS Route 9D and Main Street/Municipal Place
- NYS Route 9D and Rombout Avenue

Based upon a review of the traffic counts, the peak hours were generally identified as follows:

- | | |
|------------------------|-------------------|
| ▪ Weekday Peak AM Hour | 7:30 AM – 8:30 AM |
| ▪ Weekday Peak PM Hour | 5:00 PM – 6:00 PM |

The resulting Year 2017 Existing Traffic Volumes are shown on Figures No. 2 and 3 for the Weekday Peak AM Hour and Weekday Peak PM Hour, respectively. It should be noted that due to the time of year the counts were collected for the Rombout Avenue intersection, it was necessary to seasonally adjust the traffic volumes for this intersection to be representative of typical conditions when schools are in session. This was done utilizing the March 2017 traffic counts for the Beekman Street/Church Street and Main Street/Municipal Plaza intersections as well as the available NYSDOT traffic volume data for comparison. The volumes shown on the 2017 Existing Traffic Volume figures reflect these adjustments.

III. EVALUATION OF FUTURE TRAFFIC CONDITIONS

A. YEAR 2022 NO-BUILD TRAFFIC VOLUMES (Figure No. 4 through 9)

The Year 2017 Existing Traffic Volumes were increased by a growth factor of 2.0% per year to account for general background growth in the area. The resulting Year 2022 Projected Traffic Volumes are shown on Figures No. 4 and 5 for the Weekday Peak AM and Weekday Peak PM Hours, respectively. In addition, traffic for the proposed 555 South Avenue project, the currently under construction Views development, the proposed Edgewater Development, and the proposed West End Lofts Development, was also accounted for. The traffic volumes associated with these Other Developments are summarized on Figures No. 6 and 7. These Other Development Traffic Volumes were then added to the 2022 Projected Traffic Volumes resulting in the 2022 No-Build Traffic Volumes, which are summarized on Figure No. 8 and 9 for each of the peak hours.

B. SITE GENERATED TRAFFIC VOLUMES (Tables No. 1)

Estimates of the amount of traffic to be generated by the proposed development during each of the peak hours were developed based on information published by the Institute of Transportation Engineers (ITE) as contained in the report entitled “Trip Generation”, 9th Edition, 2012, based on Land Use Category – 230 – Townhome. Table No. 1 summarizes the trip generation rates and corresponding site generated traffic volumes for the Weekday Peak AM and Peak PM Hours. Based on this, the development could generate a total of 15 vehicle trips during the highest peak one hour period.

It should be noted that due to the proximity of the proposed River Ridge residential development to the Beacon Metro North Train Station, it is expected that a portion of the morning and evening peak hour trips generated by the site would actually occur as pedestrian trips to and from the train station. These trips would utilize the existing sidewalk system in order to access the train station. In addition, the provision of a more direct pedestrian connection from the site to Beekman Street in the vicinity of River Street should be explored to further facilitate pedestrian access to the train. Based on the U.S. Census Bureau data, approximately 8.7% of the population in the City of Beacon currently use public transportation as a means of transportation to work, however the percentage of residents using public transportation from this development is expected to

be somewhat higher. Regardless, in order to provide a conservative analysis, no credit for public transportation/walking trips has been taken in the analysis contained herein.

C. ARRIVAL AND DEPARTURE DISTRIBUTIONS (Figures No. 10 and 11)

Arrival and departure distributions were established to assign the site generated traffic volumes to the surrounding roadway network. Based on a review of the Existing Traffic Volumes and the expected travel patterns on the surrounding roadway network and proposed internal roadway layout and access connections, the distributions were identified. The anticipated arrival and departure distributions are shown on Figures No. 10 and 11, respectively.

D. 2022 BUILD CONDITIONS TRAFFIC VOLUMES (Figures No. 12 through 15)

The site generated traffic volumes were assigned to the roadway network based on the arrival and departure distributions referenced above. The resulting site generated traffic volumes for each of the study area intersections are shown on Figures No. 12 and 13 for each of the peak hours, respectively. The site generated traffic volumes were then added to the Year 2022 No-Build Traffic Volumes to obtain the Year 2022 Build Traffic Volumes. The resulting Year 2022 Build Traffic Volumes are shown on Figures No. 14 and 15 for the Weekday Peak AM and Weekday Peak PM Hours, respectively.

E. DESCRIPTION OF ANALYSIS PROCEDURES

It was necessary to perform capacity analyses to determine existing and future traffic operating conditions at the study area intersections. The following is a brief description of the analysis method utilized in this report:

- **Signalized Intersection Capacity Analysis**

The capacity analysis for a signalized intersection was performed in accordance with the procedures described in the *2010 Highway Capacity Manual*, published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service “A” represents the best condition and a Level of Service “F” represents the worst condition. A Level of Service “C” is generally used as a design standard while a Level of Service “D” is

acceptable during peak periods. A Level of Service “E” represents an operation near capacity. In order to identify an intersection’s Level of Service, the average amount of vehicle delay is computed for each approach to the intersection as well as for the overall intersection.

- **Unsignalized Intersection Capacity Analysis**

The unsignalized intersection capacity analysis method utilized in this report was also performed in accordance with the procedures described in the *2010 Highway Capacity Manual*. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the Level of Service, the average amount of vehicle delay is computed for each critical movement to the intersection.

Additional information concerning signalized and unsignalized Levels of Service can be found in Appendix “C” of this report.

F. RESULTS OF ANALYSIS (Table No. 2)

Capacity analyses, which take into consideration appropriate truck percentages, pedestrian activity, roadway grades and other factors, were performed at the study area intersections utilizing the procedures described above and the Synchro Version 8 analysis software to determine the Levels of Service and average vehicle delays. Summarized below are a description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service as well as any recommended improvements.

Table No. 2 summarizes the results of the capacity analysis for the 2017 Existing, 2022 No-Build and 2022 Build Conditions. Appendix “D” contains copies of the capacity analyses which also indicate the existing geometrics (including lane widths) and other characteristics for each of the individual intersections studied.

1. **NYS Route 9D and Beekman Street/West Church Street**

Beekman Street intersects NYS Route 9D at a signalized full movement intersection opposite West Church Street. The eastbound Beekman Street approach consists of a shared left and through lane and also a right turn lane. The westbound West Church Street approach consists of a shared left, through and right turn lane. The northbound

NYS Route 9D approach consists of a left turn lane and a shared through and right turn lane. The southbound NYS Route 9D approach also consists of a left turn lane and a shared through and right turn lane. There are sidewalks on both sides of all approaches with a signalized pedestrian crossing of the southbound approach and unsignalized pedestrian crossings at the eastbound and westbound approaches. Site distances are good for all approaches.

Capacity analysis was conducted for this intersection utilizing the 2017 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at an overall Level of Service “B” during the AM Peak Hour and at an overall Level of Service “C” during the PM Peak Hour.

As part of the Traffic Impact Studies completed for the proposed Edgewater and West End Lofts developments, minor signal timing modifications were proposed for this intersection in order to address future operating conditions with those projects. These signal timing improvements have been included in the analysis of this intersection for No-Build and Build conditions. These capacity analysis results for 2022 No-Build and Build conditions with the timing improvements indicate that the intersection is expected to operate at an overall Level of Service “C” during the AM Peak Hour and at an overall Level of Service “D” during the PM Peak Hour under future conditions both with and without the River Ridge project.

2. NYS Route 9D and Main Street/Municipal Place

Main Street intersects NYS Route 9D at a signalized full movement intersection opposite Municipal Place. The eastbound Municipal Place approach consists of a shared left, through and right turn lane. The westbound Main Street approach consists of a shared left and through lane and a right turn lane. The northbound NYS Route 9D approach consists of a left turn lane and shared through and right turn lane. The southbound NYS Route 9D approach also consists of a left turn lane and shared through and right turn lane. There are sidewalks on the west side of Municipal Place, as well as on both sides of each of the other intersection approaches. Signalized pedestrian crossings are provided on the northbound and westbound approaches while an unsignalized pedestrian crossing is provided on the eastbound approach.

Capacity analysis was conducted for this intersection utilizing the 2017 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at an overall Level of Service “A” during the AM Peak Hour and at an overall Level of Service “B” during the PM Peak Hour.

The capacity analysis was recomputed using the 2022 No-Build and Build Traffic volumes. These results indicate that the intersection is expected to operate at an overall Level of Service “B” during the AM and PM Peak Hours under both the No-Build and Build scenarios.

3. NYS Route 9D and Rombout Avenue/Site Access

Rombout Avenue intersects NYS Route 9D at an unsignalized “T” shaped intersection. The westbound Rombout Avenue approach consists of a shared left and right turn lane and is controlled by a “Stop” sign. The northeast bound NYS Route 9D approach consists of a shared through and right turn lane along with a two-way left turn lane. The southwest bound NYS Route 9D approach consists of a through lane and a two-way left turn lane. There are sidewalks on both sides of the NYS Route 9D approaches along with a crosswalk on the east side of NYS Route 9D crossing Rombout Avenue.

Capacity analysis was conducted for this intersection utilizing the 2017 Existing Traffic volumes. The analysis results indicate that the intersection is currently operating at a Level of Service “A” during the AM Peak Hour and at a Level of Service “B” or better during the PM Peak Hour. The analysis was recomputed with the 2022 No-Build Traffic volumes, which indicates that the intersection would operate at a Level of Service “B” during each of the peak hours without the proposed River Ridge development.

The proposed Site Access will align opposite Rombout Avenue forming a four-way unsignalized intersection. The Site Access driveway will consist of one entry and one exit lane and the driveway will be controlled by a “Stop” sign. It should be noted that there is an existing curb cut on the west side of Route 9D in the vicinity of the proposed driveway location that will be reconstructed to accommodate the proposed driveway connection. The analysis of this intersection was recomputed with the 2022 Build Traffic volumes and proposed intersection configuration. The analysis indicates a Level of Service “B” will be maintained during the AM Peak Hour while a Level of Service “C” will be experienced during the PM Peak Hour.

The sight distances at the proposed driveway location were also analyzed. Based on field measurements, the existing sight distances are approximately 350 feet looking both left (north) and right (south) from the proposed access. Based on American Association of State Highway and Transportation Officials (AASHTO) criteria the stopping sight distance (200 feet) and intersection sight distance (335 feet) for the 30 MPH posted speed limit along Route 9D will be satisfied. Available NYSDOT speed

data for Route 9D in this area indicates that the 85th percentile speeds are approximately 37 to 38 MPH. For a 40 MPH design speed, AASHTO requires a minimum 305 foot stopping sight distance to allow for the safe operation of the intersection. This required stopping sight distance will also be satisfied. It should be noted that some pruning/clearing of vegetation immediately north of the proposed driveway location on the west side of Route 9D should be completed in order to maximize the sight distance looking to the north from the site driveway.

G. POTENTIAL FUTURE AREA TRAFFIC IMPROVEMENTS

According to the City of Beacon Comprehensive Plan adopted by the City on December 17, 2007 and the Beacon Transportation Linkages Program Final Report dated July 2008, there are several potential future area traffic and transportation improvements and recommendations in the study area of this proposed site. These include:

- Developing long-term plans for improvement of Route 9D between Beekman Street and the intersection with Interstate 84 to handle increased traffic capacity.
- Considering the installation of traffic calming features, such as raised crosswalks, on major roads and collector roads, including but not limited to Beekman Street and West Main Street.
- Improving access and capacity to the Waterfront/Train Station area. This may be achieved through additional turning lanes, potential new roads, and improved public transportation.
- Working closely with the County to identify new bus routes and opportunities to increase the frequency of bus service. Bus service should be improved by expanding the transit network throughout the City, more effectively linking the City to the rest of southern Dutchess County. Bus links should target the Waterfront/Train Station area along with other areas.
- Working with Dutchess County to establish funding mechanisms that would enable a free or low-cost trolley to be available at frequent intervals between points along Main Street and the train/bus/ferry station.
- Exploring the potential feasibility of establishing passenger service from the Beacon Train Station at the waterfront to the east end of Main Street via the Fishkill Creek railroad, using vehicles that can travel on both rail and road.
- Actively seeking an advisory role in planning long distance transportation improvements with federal and state organizations. The potential local traffic impact of such improvements should be considered. Such planning may involve transit links to Stewart airport, future Metro-North service, and Amtrak service. In addition, the

- City should encourage Metro-North to consider the feasibility of an additional station in the vicinity to reduce traffic impacts in Beacon.
- Advocating for the development and improvement of satellite commuter parking with bus service to the Beacon station. Improvements include facility location(s), physical site improvements, and improved incentives, such as tickets inclusive of bus and parking service at discounted rates.
 - Considering developing bike lanes on the Route 9D from Interstate 84 to South Avenue and also Beekman Street.
 - The issuance of a Request for Expression of Interest (RFEI) for private developers to signal their interest for Transit Oriented Development (TOD) near the Beacon station.

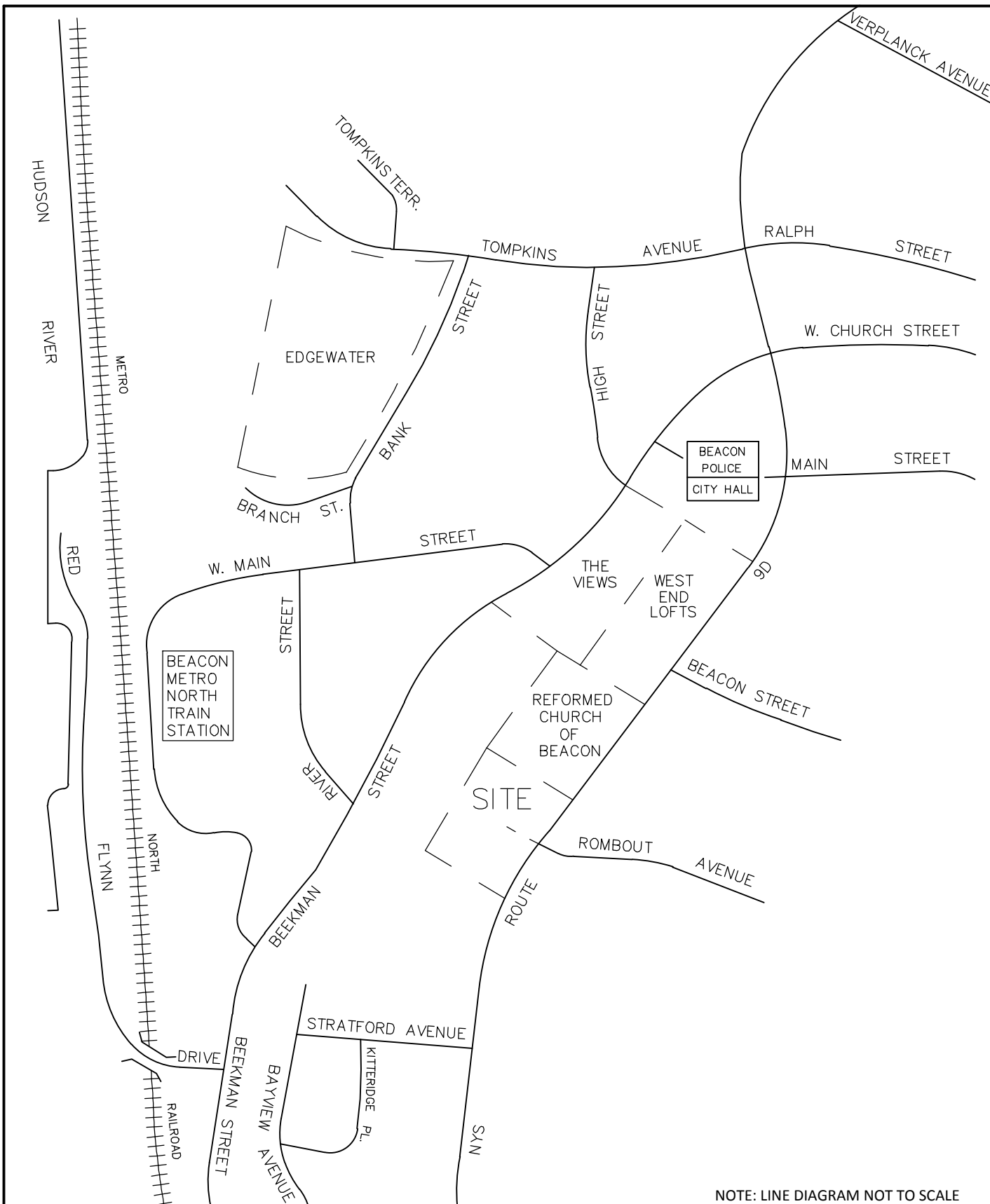
IV. SUMMARY AND CONCLUSION

Similar Levels of Service and delays will be experienced at the area intersections under the future No-Build and Build Conditions as indicated in the above analysis. The River Ridge residential development's traffic is not expected to cause any significant impact in traffic operating conditions in the vicinity of the site. The site access driveway connection should be constructed to maximize sight distances for entering and exiting vehicles with appropriate pruning/clearing of vegetation immediately north of the proposed driveway location. The proximity of the site to the Beacon Metro-North train station makes it likely that actual traffic volumes generated by the project will be less than evaluated in this report as a portion of the trips generated will actually be pedestrian trips to and from the train. The ability to provide a more direct pedestrian connection directly to Beekman Street in the vicinity of River Street should be explored in order to facilitate improved pedestrian access to and from the train station.

RIVER RIDGE RESIDENTIAL DEVELOPMENT

APPENDIX A

FIGURES



NOTE: LINE DIAGRAM NOT TO SCALE



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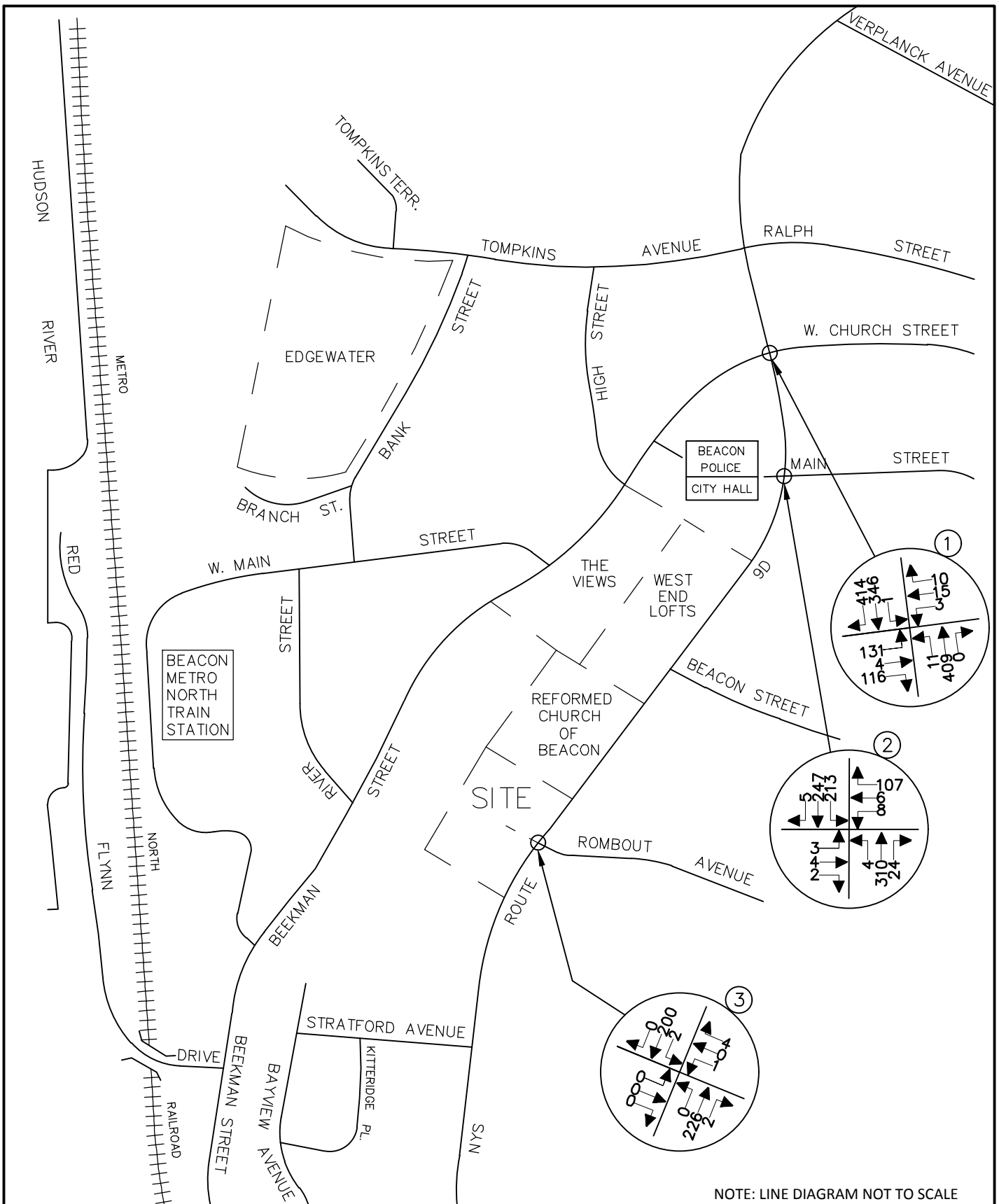
SITE LOCATION MAP



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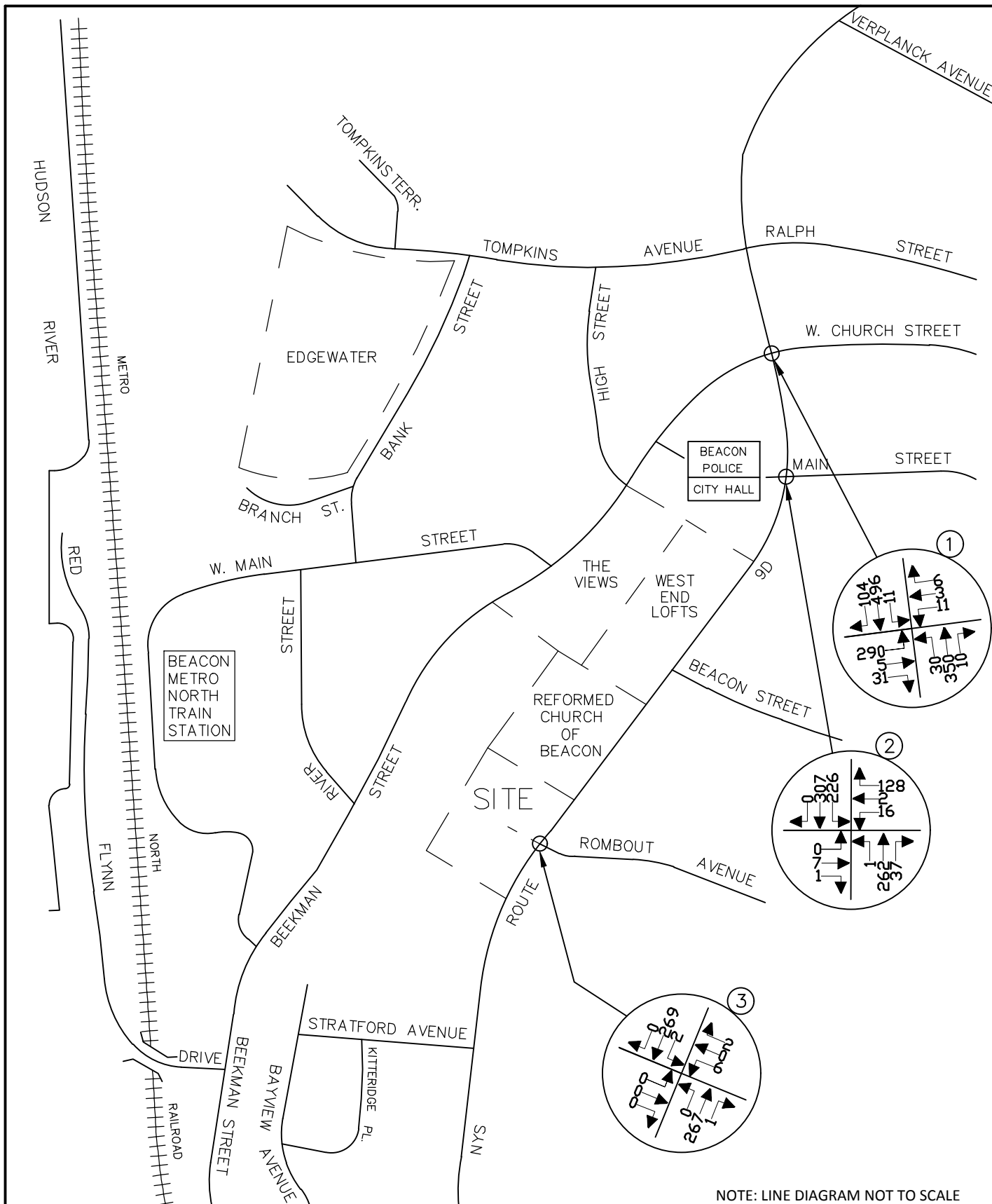
2017 EXISTING TRAFFIC VOLUMES WEEKDAY PEAK AM HOUR



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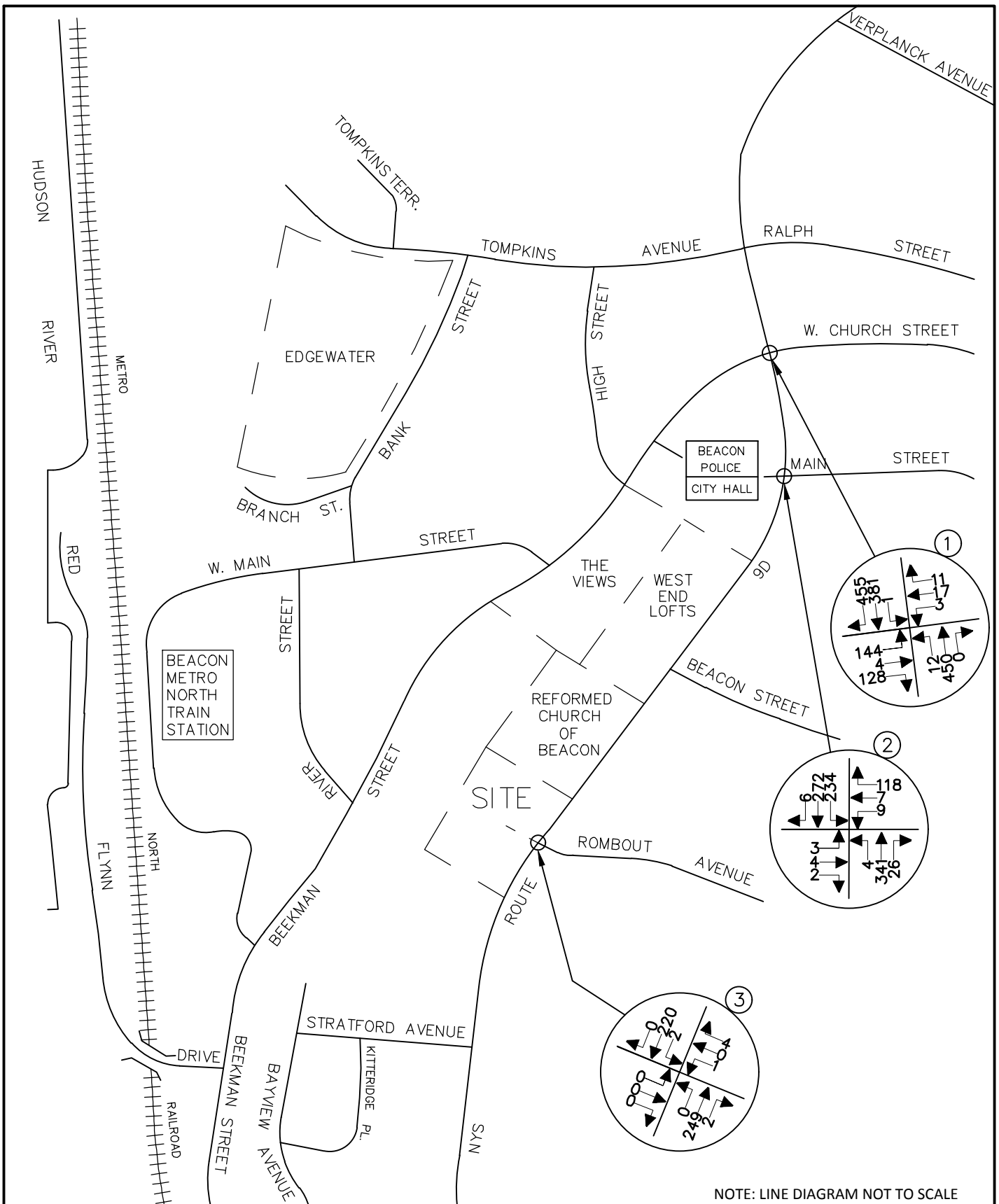
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2017 EXISTING TRAFFIC VOLUMES WEEKDAY PEAK PM HOUR



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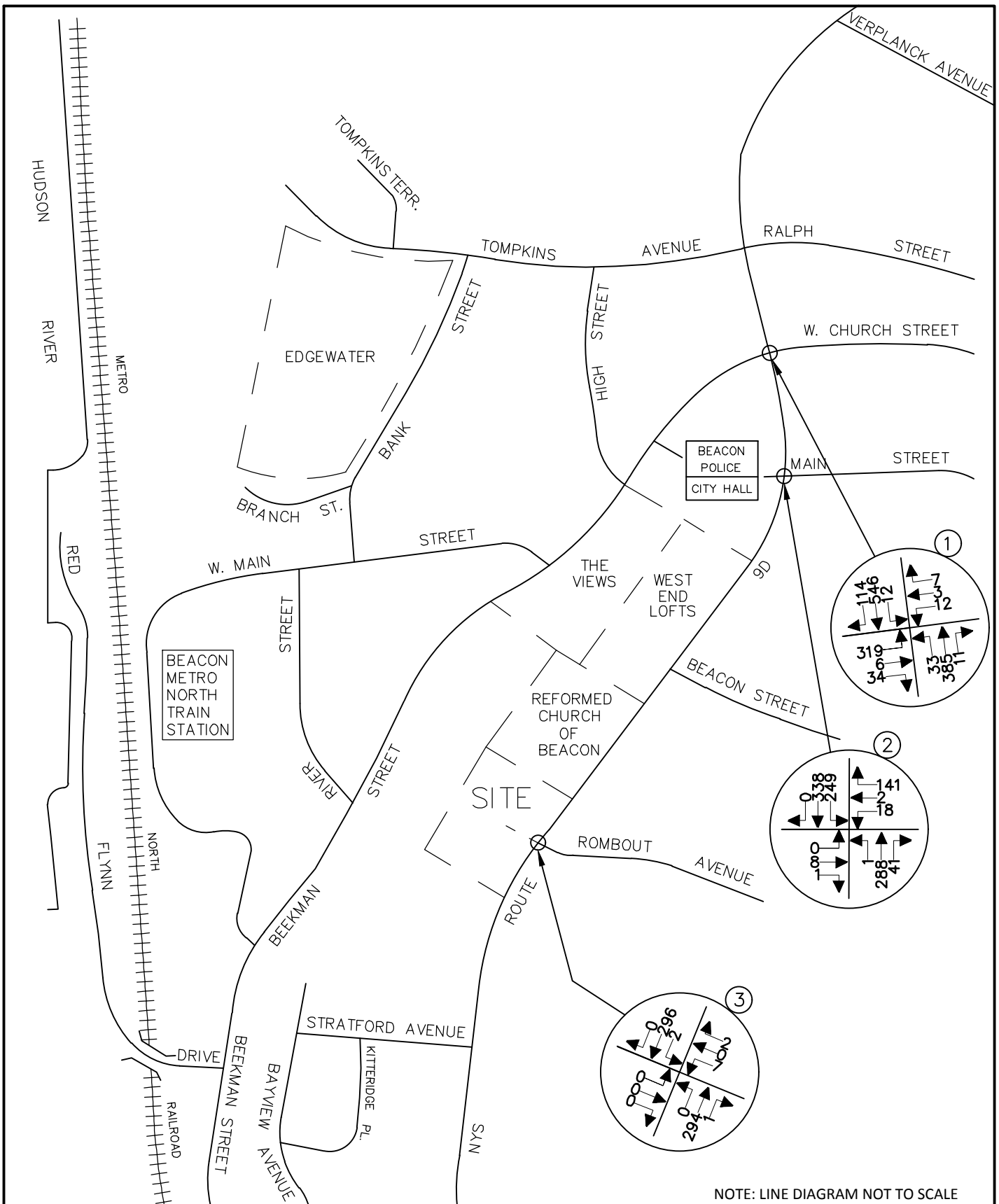
2022 PROJECTED TRAFFIC VOLUMES WEEKDAY PEAK AM HOUR



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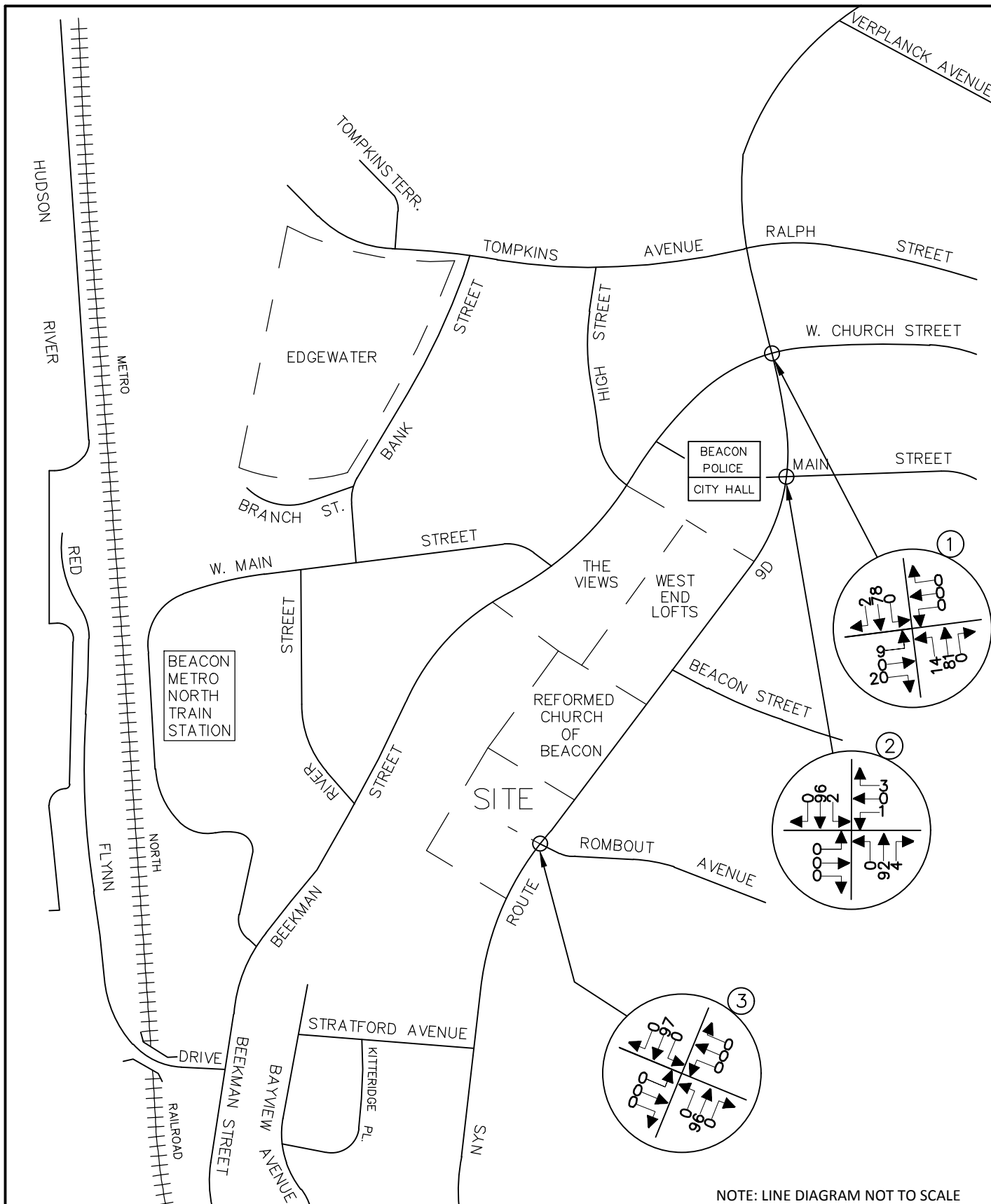
**2022 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR**

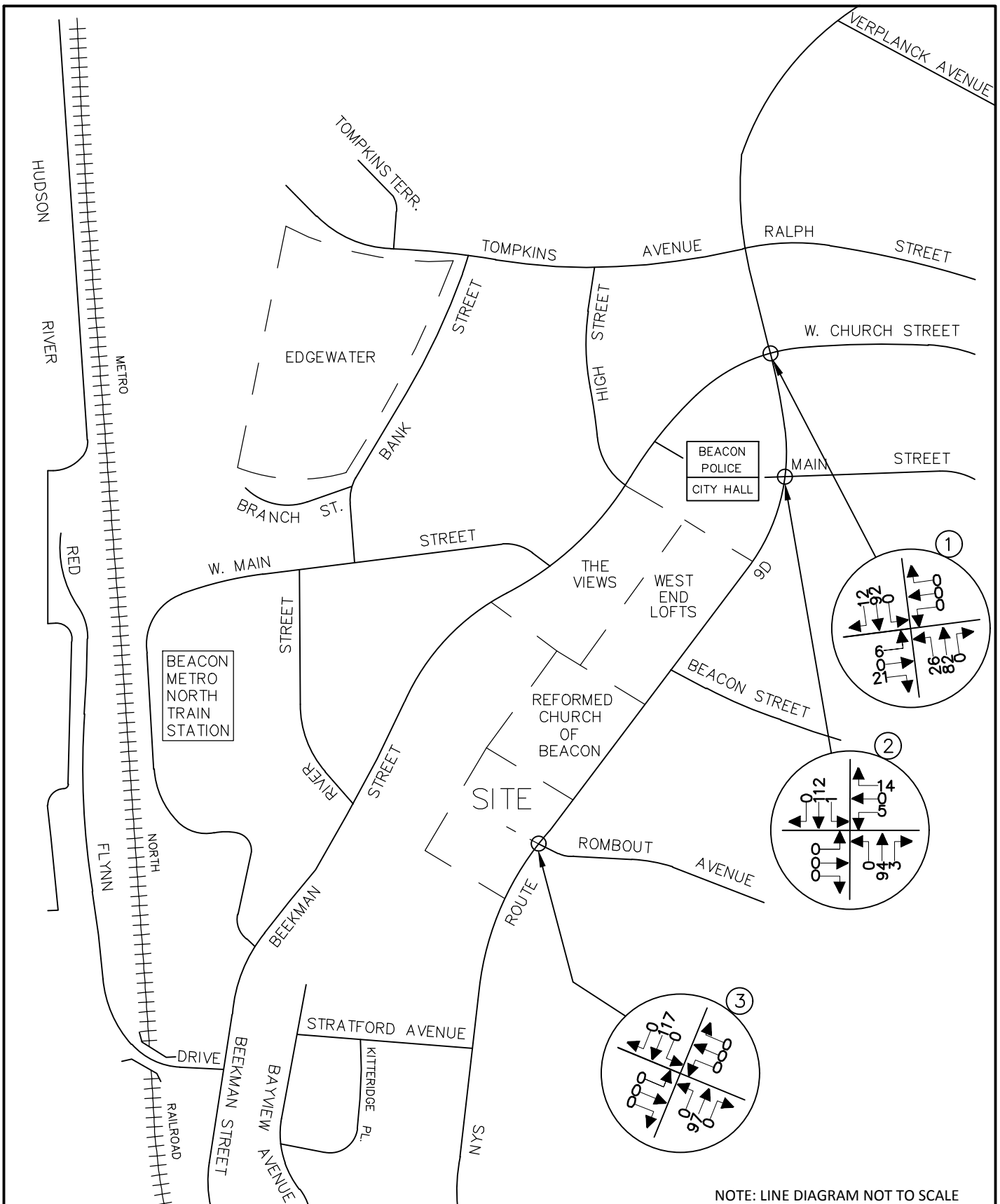


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RIVER RIDGE RESIDENTIAL DEVELOPMENT
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OTHER DEVELOPMENT TRAFFIC VOLUMES WEEKDAY PEAK PM HOUR

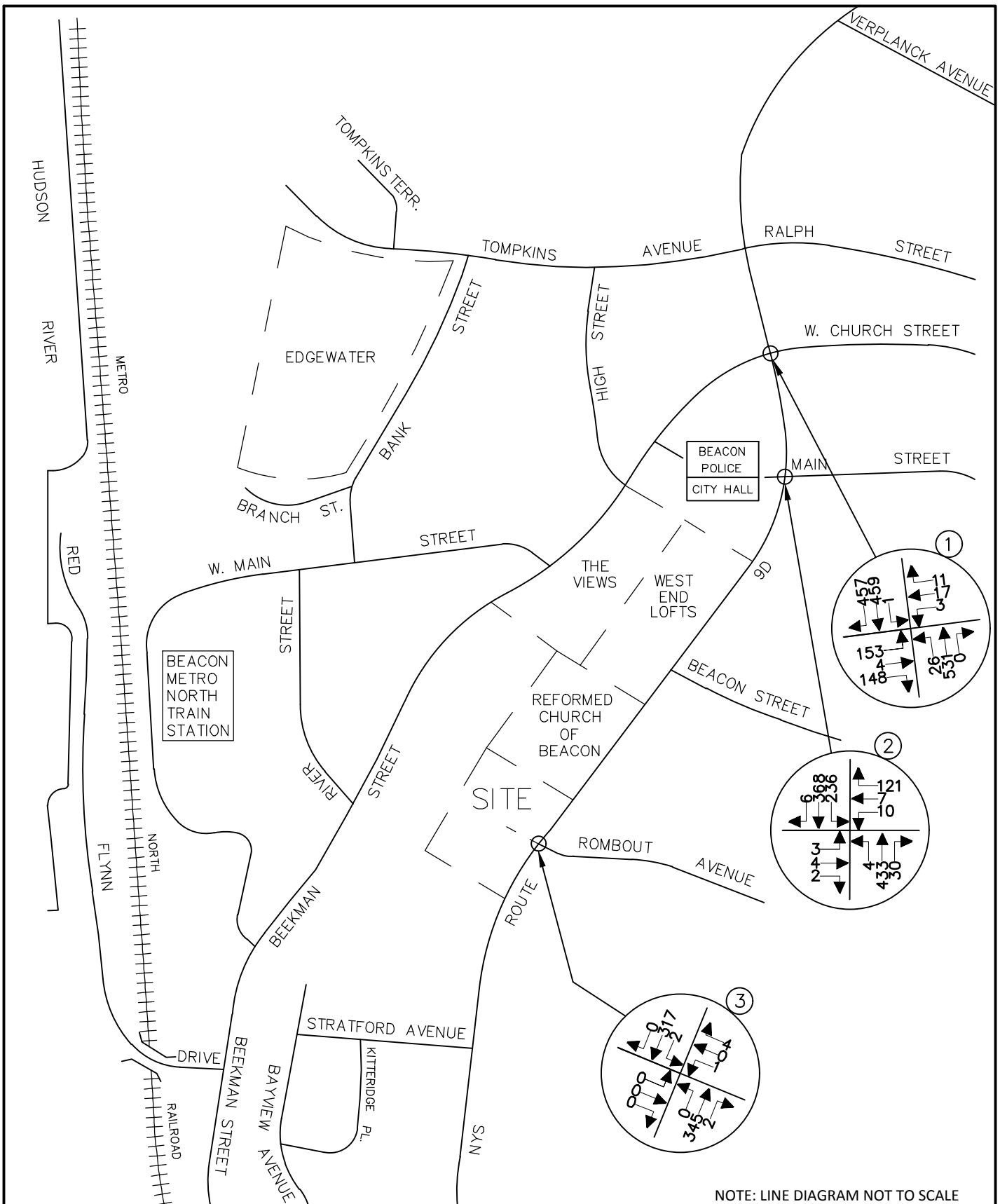


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FIGURE NUMBER:

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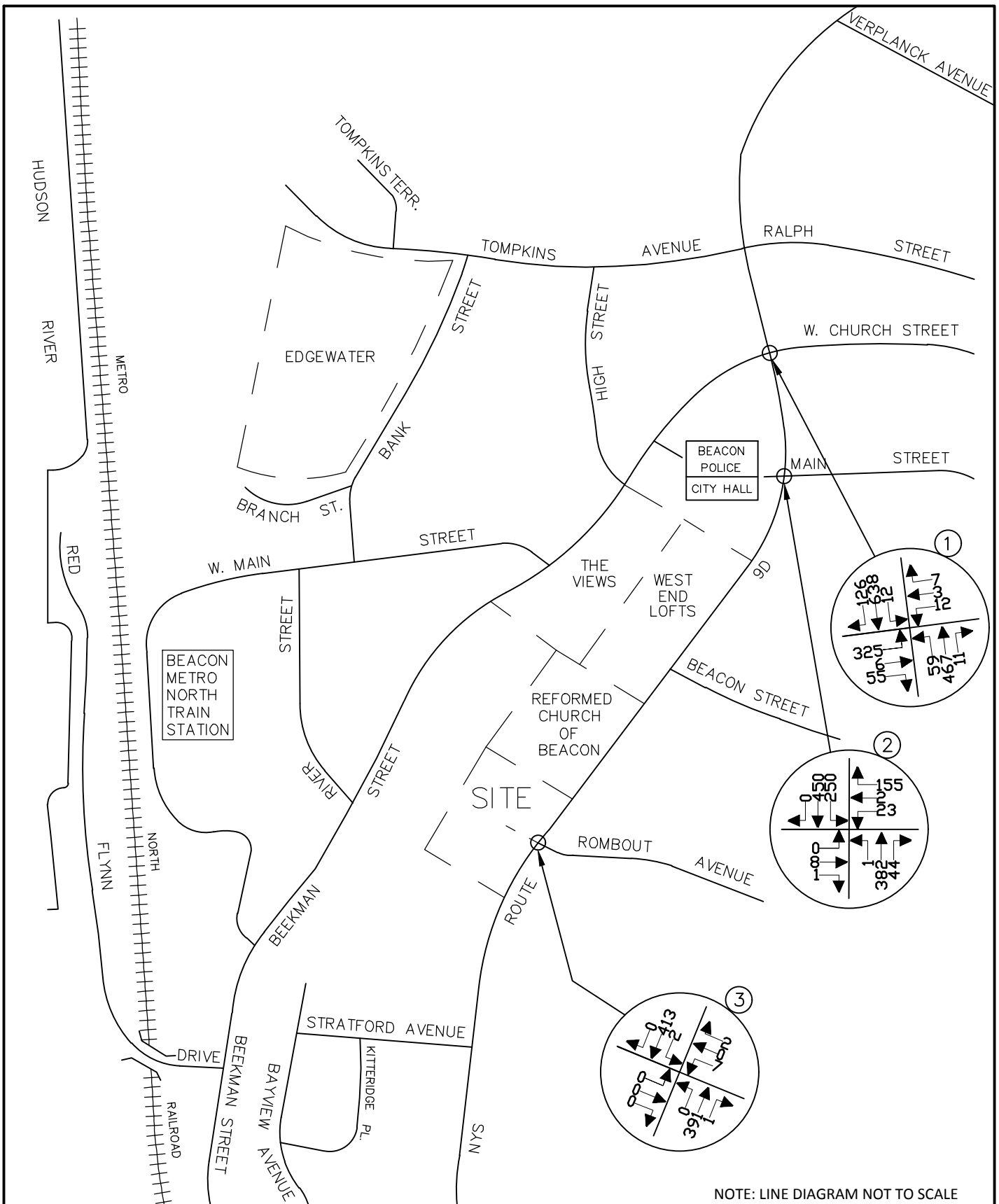
**2022 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR**



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FIGURE NUMBER:

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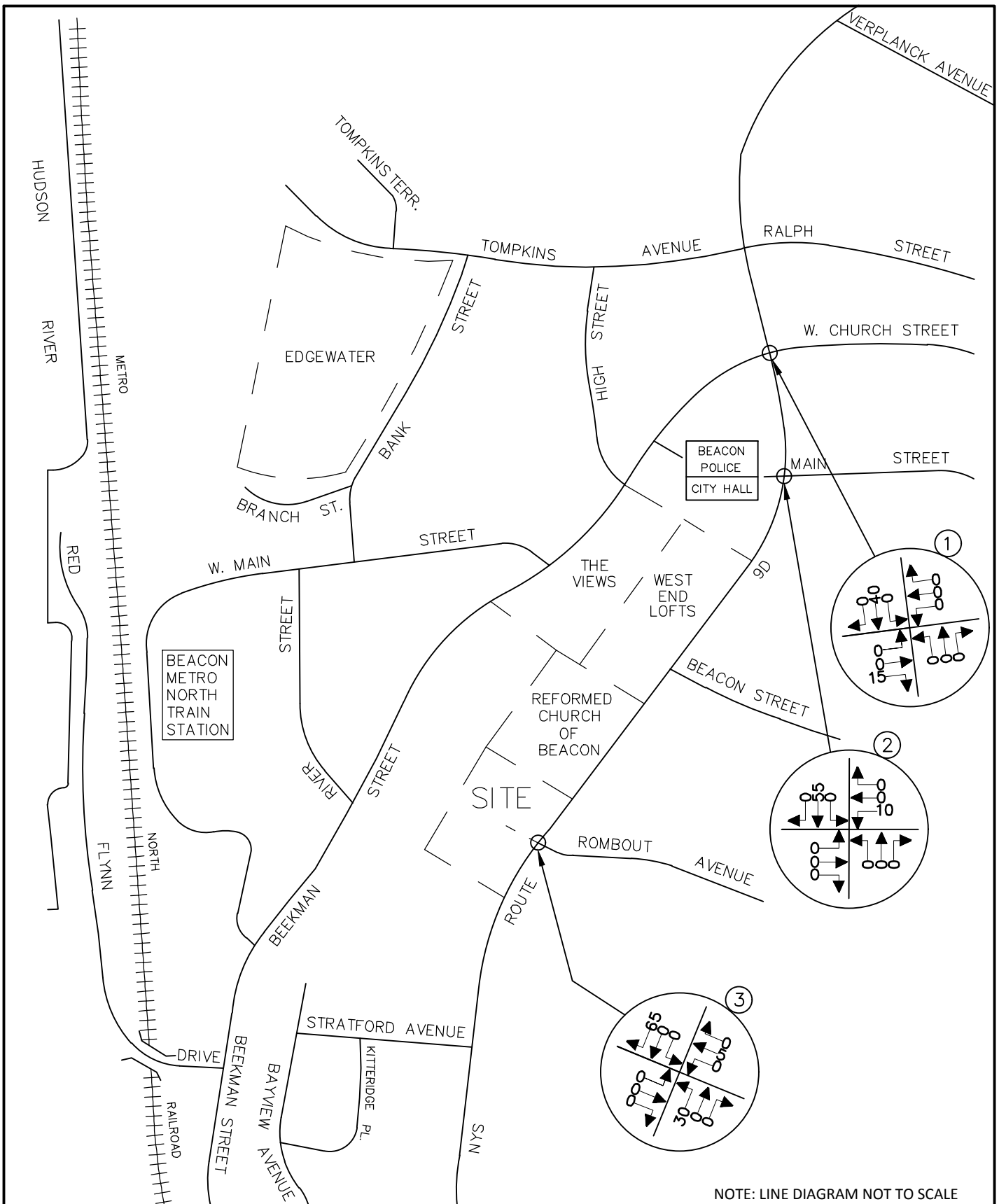
2022 NO-BUILD TRAFFIC VOLUMES WEEKDAY PEAK PM HOUR



JOB NUMBER: DATE:

17004150A 7/19/2017

FIGURE NUMBER:



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New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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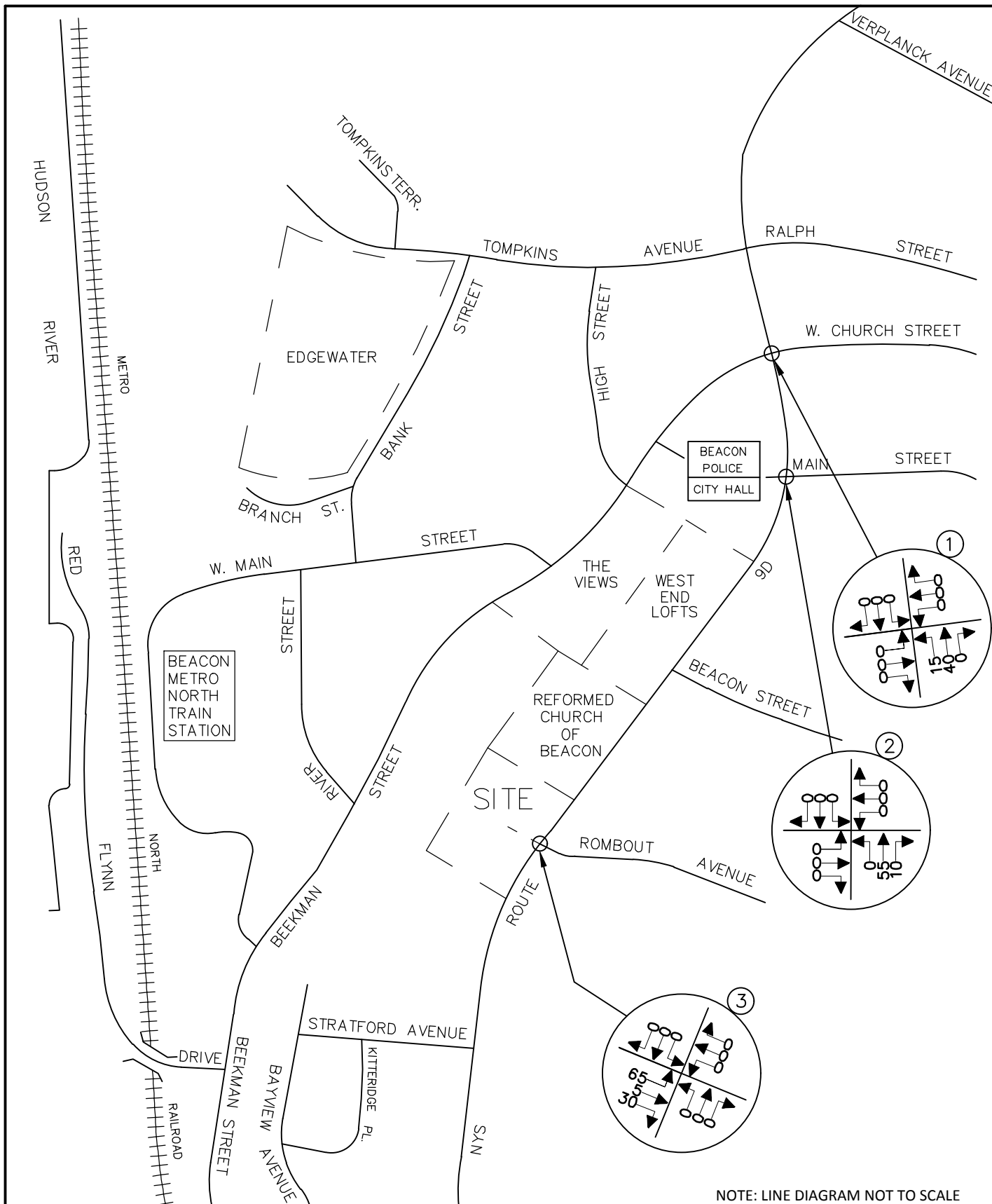


JOB NUMBER: DATE:

17004150A 7/19/2017

FIGURE NUMBER:

10



NOTE: LINE DIAGRAM NOT TO SCALE



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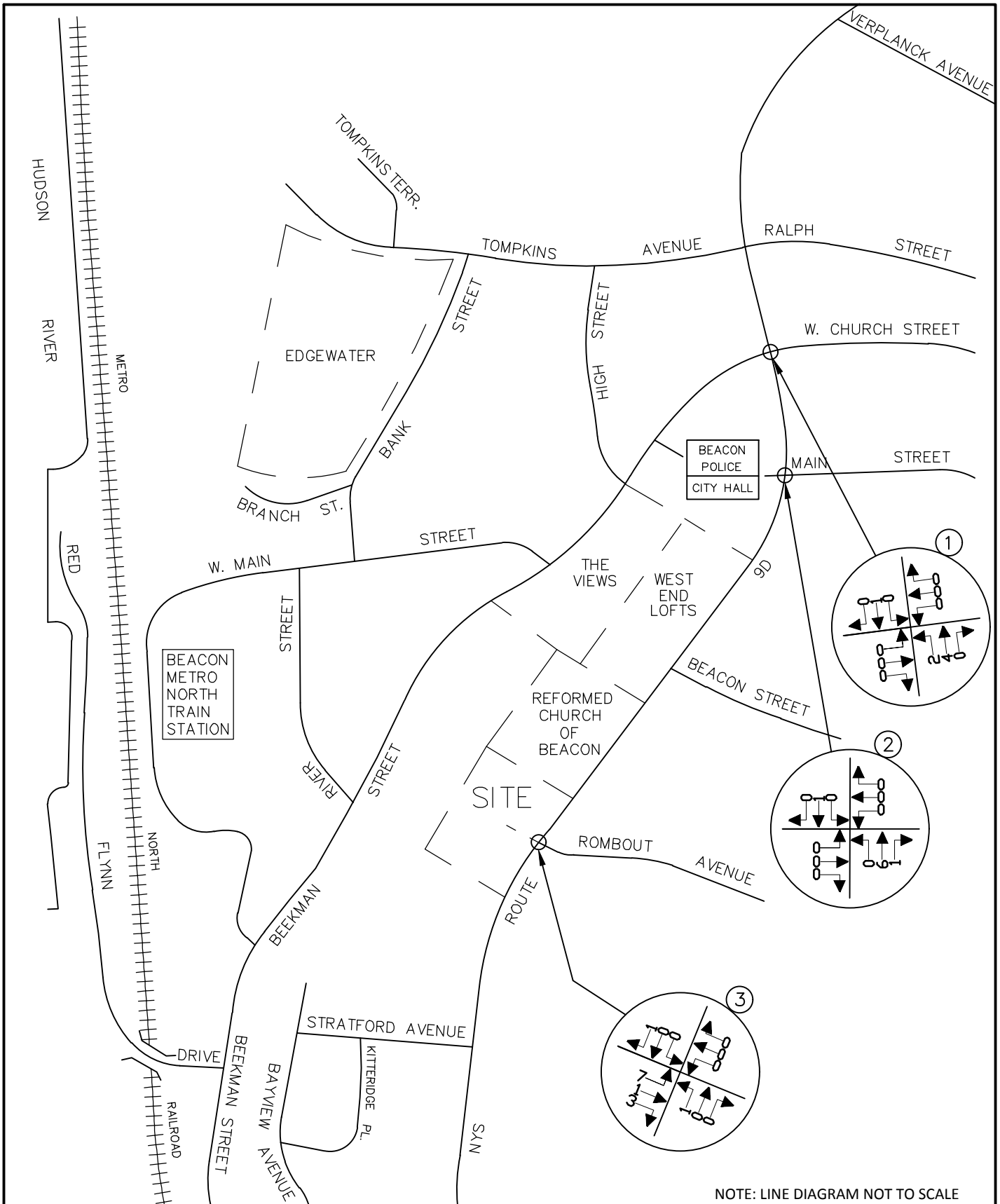


JOB NUMBER: DATE:

17004150A 7/19/2017

FIGURE NUMBER:

11



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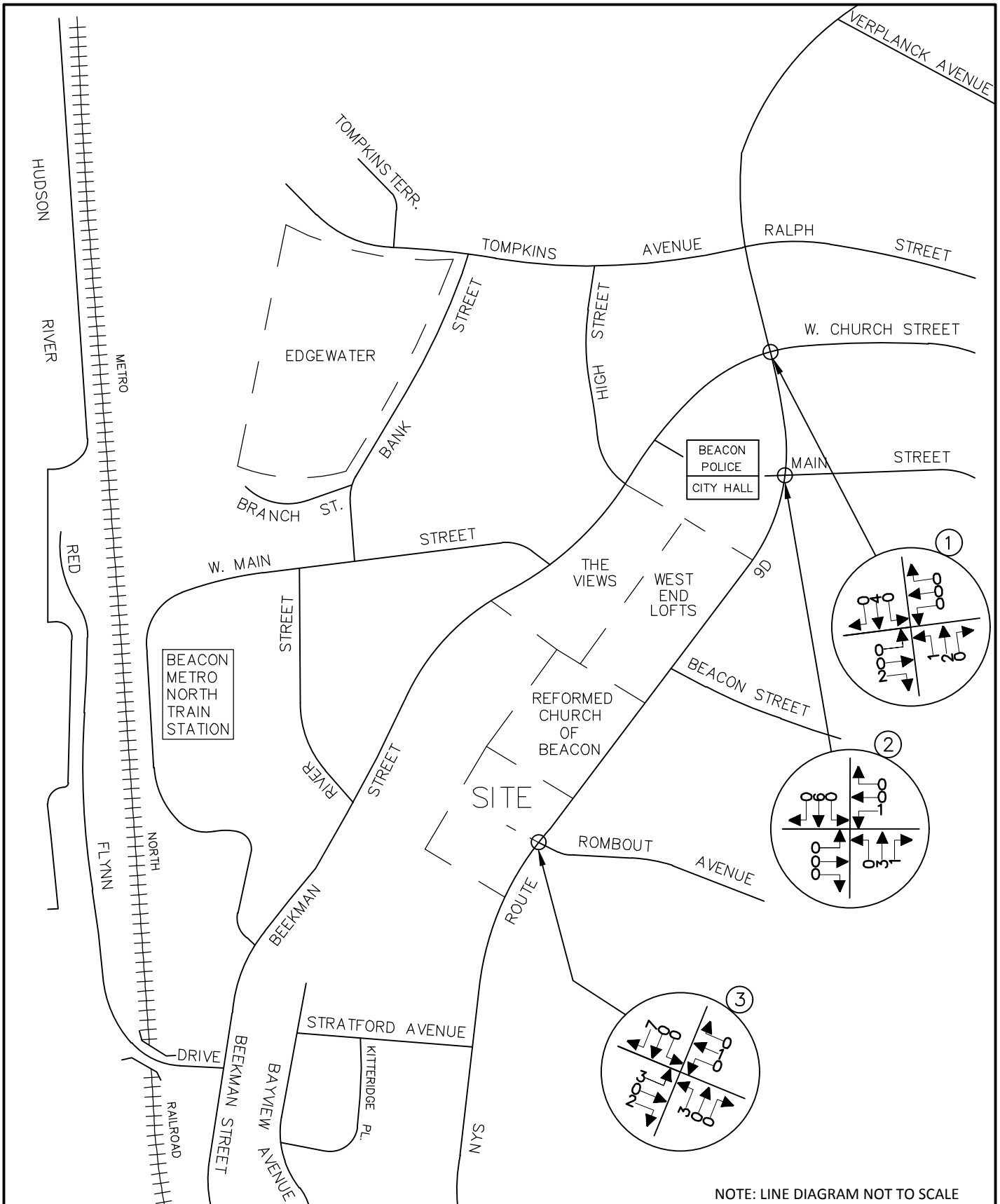
SITE GENERATED TRAFFIC VOLUMES WEEKDAY PEAK AM HOUR



JOB NUMBER: 17004150A DATE: 7/19/2017

FIGURE NUMBER:

12



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RIVER RIDGE RESIDENTIAL DEVELOPMENT
CITY OF BEACON, DUTCHESS COUNTY, NY

SITE GENERATED TRAFFIC VOLUMES WEEKDAY PEAK PM HOUR

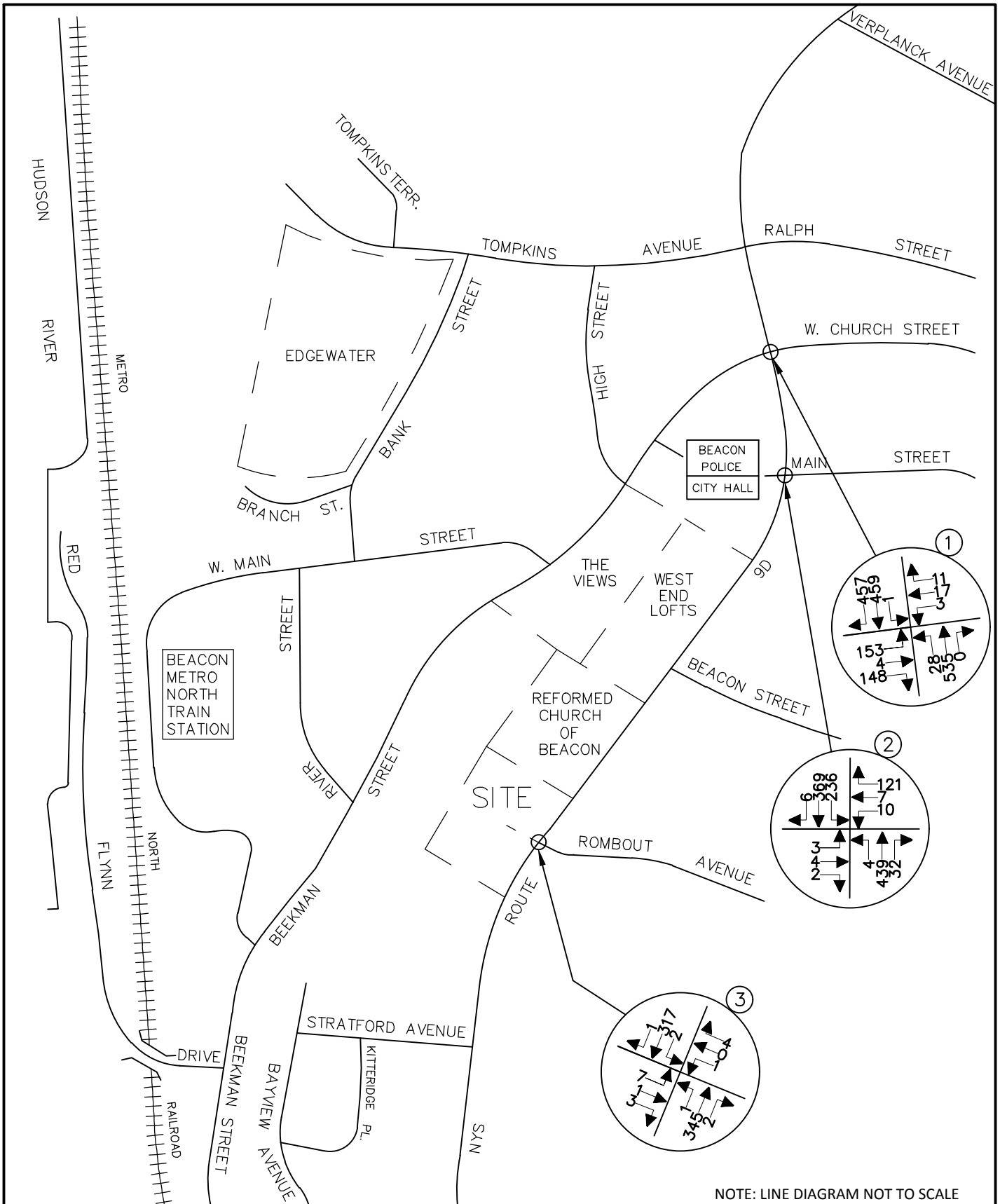


JOB NUMBER: DATE:

17004150A 7/19/2017

FIGURE NUMBER:

13



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RIVER RIDGE RESIDENTIAL DEVELOPMENT
CITY OF BEACON, DUTCHESS COUNTY, NY

2022 BUILD TRAFFIC VOLUMES WEEKDAY PEAK AM HOUR

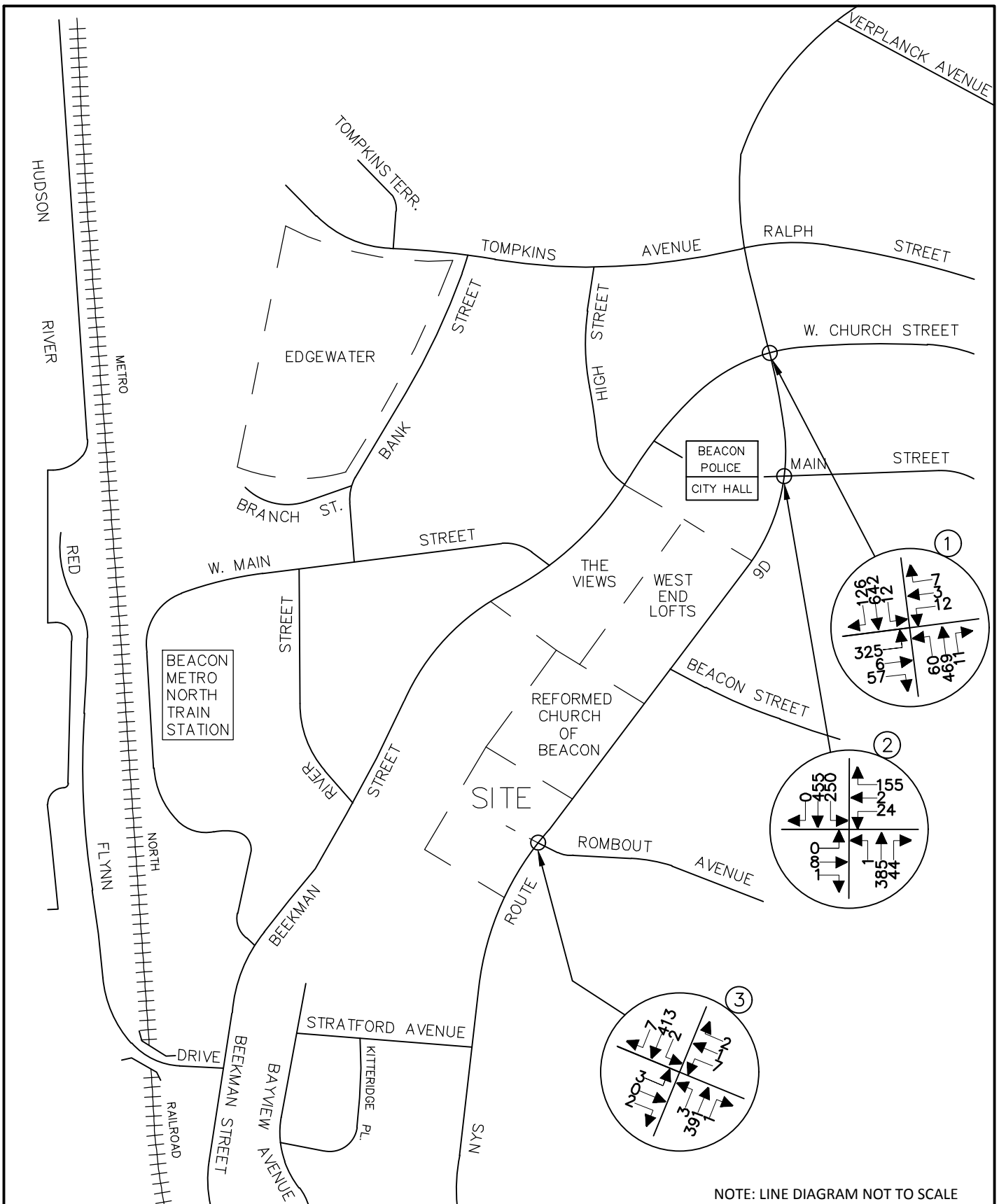


JOB NUMBER: DATE:

17004150A 7/19/2017

FIGURE NUMBER:

14



NOTE: LINE DIAGRAM NOT TO SCALE



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RIVER RIDGE RESIDENTIAL DEVELOPMENT
CITY OF BEACON, DUTCHESS COUNTY, NY

2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR



JOB NUMBER: DATE:

17004150A 7/19/2017

FIGURE NUMBER:

15



RIVER RIDGE RESIDENTIAL DEVELOPMENT

APPENDIX B

TABLES

TABLE NO. 1
HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED
SITE GENERATED TRAFFIC VOLUMES

RIVER RIDGE RESIDENTIAL DEVELOPMENT CITY OF BEACON, DUTCHESS COUNTY, NEW YORK	ENTRY		EXIT	
	HTGR ¹	VOLUME	HTGR ¹	VOLUME
RESIDENTIAL (18 TOWNHOME UNITS)				
PEAK AM HIGHWAY HOUR	0.12	2	0.60	11
PEAK PM HIGHWAY HOUR	0.55	10	0.27	5

NOTES:

- 1) THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 9TH EDITION, 2012. ITE LAND USE CODE - 230 - TOWNHOME.

TABLE NO. 2
LEVEL OF SERVICE SUMMARY TABLE

				2017 EXISTING		2022 NO BUILD		2022 BUILD	
				AM	PM	AM	PM	AM	PM
1	NYS ROUTE 9D & BEEKMAN STREET/W.CHURCH STREET	SIGNALIZED							
	BEEKMAN STREET	EB		C [25.4]	C [28.4]	C [28.1]	D [52.2]	C [28.1]	D [52.2]
	WEST CHURCH STREET	WB		C [22.4]	C [21.3]	C [24.1]	C [25.4]	C [24.1]	C [25.4]
	NYS ROUTE 9D	NB		A [7.4]	B [16.3]	A [9.3]	B [16.9]	A [9.4]	B [17.0]
	NYS ROUTE 9D	SB		B [18.7]	C [28.4]	D [44.1]	D [44.5]	D [44.3]	D [45.6]
		OVERALL		B [16.6]	C [24.8]	C [30.4]	D [37.4]	C [30.4]	D [37.9]
2	NYS ROUTE 9D & MAIN STREET/CITY HALL	SIGNALIZED							
	BEACON CITY HALL	EB		C [24.4]	C [24.3]	C [24.3]	C [24.3]	C [24.3]	C [24.3]
	MAIN STREET	WB		C [23.5]	C [23.9]	C [23.7]	C [24.6]	C [23.7]	C [24.6]
	NYS ROUTE 9D	NB		A [7.7]	A [7.6]	A [9.1]	A [8.9]	A [9.2]	A [8.9]
	NYS ROUTE 9D	SB		A [7.9]	A [8.1]	A [9.8]	B [10.2]	A [9.9]	B [10.2]
		OVERALL		A [10.0]	B [10.4]	B [11.2]	B [11.8]	B [11.3]	B [11.9]
3	NYS ROUTE 9D & ROMBOUT AVENUE/SITE ACCESS	UNSIGNALIZED							
	SITE ACCESS	EB		-	-	-	-	B [13.7]	C [15.6]
	ROMBOUT AVENUE	WB		A [9.7]	B [10.5]	B [10.5]	B [11.6]	B [11.0]	B [14.6]
	NYS ROUTE 9D	NEB		-	-	-	-	A [8.0]	A [8.2]
	NYS ROUTE 9D	SWB		A [7.8]	A [7.8]	A [8.1]	A [8.2]	A [8.1]	A [8.2]

NOTES:

- 1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.



RIVER RIDGE RESIDENTIAL DEVELOPMENT

APPENDIX C

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate.

LOS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long.

LOS E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

The Level of Service Criteria for signalized intersections are given in Exhibit 18-4 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 18-4

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10-20	B	F
> 20-35	C	F
> 35-55	D	F
> 55-80	E	F
> 80	F	F

For approach-based and intersection wide assessments, LOS is defined solely by control delay.

LEVEL OF SERVICE CRITERIA

FOR TWO-WAY STOP-CONTROLLED (TWSC) UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) for a two-way stop-controlled (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. LOS is not defined for the intersection as a whole or for major-street approaches.

The Level of Service Criteria for TWSC unsignalized intersections are given in Exhibit 19-1 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 19-1

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

The LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole.

As Exhibit 19-1 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The Level of Service Criteria for unsignalized intersections are somewhat different from the criteria for signalized intersections.

LEVEL OF SERVICE CRITERIA

FOR ALL-WAY STOP-CONTROLLED (AWSC) UNSIGNALIZED INTERSECTIONS

The Levels of Service (LOS) for all-way stop-controlled (AWSC) intersections are given in Exhibit 20-2. As the exhibit notes, LOS F is assigned if the volume-to-capacity (v/c) ratio of a lane exceeds 1.0, regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

The Level of Service Criteria for AWSC unsignalized intersections are given in Exhibit 20-2 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 20-2

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤1.0	v/c >1.0
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

For approaches and intersection wide assessment, LOS is defined solely by control delay.

***RIVER RIDGE RESIDENTIAL
DEVELOPMENT***

APPENDIX D
CAPACITY ANALYSIS

2017 Existing Traffic Volumes

Weekday Peak AM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	4	116	3	15	10	11	409	1	1	346	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-10%			-6%			3%	
Storage Length (ft)	0		95	0		0	80		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.950						0.918	
Flt Protected		0.954			0.995		0.950			0.950		
Satd. Flow (prot)	0	1759	1567	0	1849	0	1823	1919	0	1743	1684	0
Flt Permitted		0.710			0.969		0.172			0.448		
Satd. Flow (perm)	0	1309	1567	0	1800	0	330	1919	0	822	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126		11						80	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			158			388			167	
Travel Time (s)		6.2			3.6			8.8			3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	142	4	126	3	16	11	12	445	1	1	376	450
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	146	126	0	30	0	12	446	0	1	826	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.94	0.94	0.94	0.96	0.96	0.96	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83	83	20	83		83	6		83	6	
Trailing Detector (ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Position(ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Size(ft)	20	43	43	20	43		43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40	40		40		40			40		
Detector 2 Size(ft)		43	43		43		43			43		
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0		0.0			0.0		
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Synchro 8 Report

Page 1

JFM

2017 Existing Traffic Volumes

Weekday Peak AM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	20.0	20.0	20.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	36.0	36.0	36.0	36.0	36.0		13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				0	0							
v/c Ratio		0.56	0.31		0.08		0.03	0.38		0.00	0.79	
Control Delay		31.2	7.0		15.9		5.5	9.1		5.0	18.2	
Queue Delay		0.0	0.0		0.0		0.0	0.4		0.0	0.0	
Total Delay		31.2	7.0		15.9		5.5	9.5		5.0	18.2	
Queue Length 50th (ft)		46	0		5		1	63		0	152	
Queue Length 95th (ft)		112	39		27		8	215		2	#605	
Internal Link Dist (ft)		193			78			308			87	
Turn Bay Length (ft)			95				80			85		
Base Capacity (vph)		680	875		940		406	1161		637	1048	
Starvation Cap Reductn		0	0		0		0	308		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.21	0.14		0.03		0.03	0.52		0.00	0.79	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 60.6

Natural Cycle: 70

Control Type: Semi Act-Uncoord

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Beekman Street/W. Church Street

		
ø1	ø2	ø4
13 s	41 s	36 s
		
ø5	ø6	ø8
13 s	41 s	36 s

2017 Existing Traffic Volumes
1: NYS Route 9D & Beekman Street/W. Church Street

Weekday Peak AM Hour

7/28/2017



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	146	126	30	12	446	1	826
v/c Ratio	0.56	0.31	0.08	0.03	0.38	0.00	0.79
Control Delay	31.2	7.0	15.9	5.5	9.1	5.0	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	31.2	7.0	15.9	5.5	9.5	5.0	18.2
Queue Length 50th (ft)	46	0	5	1	63	0	152
Queue Length 95th (ft)	112	39	27	8	215	2	#605
Internal Link Dist (ft)	193		78		308		87
Turn Bay Length (ft)		95		80		85	
Base Capacity (vph)	680	875	940	406	1161	637	1048
Starvation Cap Reductn	0	0	0	0	308	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.14	0.03	0.03	0.52	0.00	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

2017 Existing Traffic Volumes
1: NYS Route 9D & Beekman Street/W. Church Street

Weekday Peak AM Hour

7/28/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	131	4	116	3	15	10	11	409	1	1	346	414
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1844	1844	1995	1956	1995	1919	1919	1957	1835	1835	1872
Adj Flow Rate, veh/h	142	4	126	3	16	11	12	445	1	1	376	450
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	6	241	74	167	102	268	1147	3	564	449	537
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.01	0.60	0.60	0.00	0.59	0.59
Sat Flow, veh/h	1370	39	1568	59	1087	664	1827	1914	4	1747	762	912
Grp Volume(v), veh/h	146	0	126	30	0	0	12	0	446	1	0	826
Grp Sat Flow(s),veh/h/ln	1409	0	1568	1810	0	0	1827	0	1918	1747	0	1674
Q Serve(g_s), s	5.0	0.0	4.5	0.0	0.0	0.0	0.2	0.0	7.4	0.0	0.0	24.5
Cycle Q Clear(g_c), s	5.9	0.0	4.5	0.9	0.0	0.0	0.2	0.0	7.4	0.0	0.0	24.5
Prop In Lane	0.97		1.00	0.10		0.37	1.00		0.00	1.00		0.54
Lane Grp Cap(c), veh/h	333	0	241	343	0	0	268	0	1150	564	0	985
V/C Ratio(X)	0.44	0.00	0.52	0.09	0.00	0.00	0.04	0.00	0.39	0.00	0.00	0.84
Avail Cap(c_a), veh/h	818	0	795	964	0	0	485	0	1150	789	0	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	23.8	22.2	0.0	0.0	9.9	0.0	6.4	5.5	0.0	10.2
Incr Delay (d2), s/veh	0.9	0.0	1.7	0.1	0.0	0.0	0.1	0.0	1.0	0.0	0.0	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	2.1	0.4	0.0	0.0	0.1	0.0	4.2	0.0	0.0	13.3
LnGrp Delay(d),s/veh	25.2	0.0	25.5	22.4	0.0	0.0	10.0	0.0	7.4	5.5	0.0	18.7
LnGrp LOS	C		C	C			A		A	A		B
Approach Vol, veh/h		272			30			458			827	
Approach Delay, s/veh		25.4			22.4			7.4			18.7	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	41.7		14.4	5.7	41.0		14.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	36.0		31.0	8.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s	2.0	9.4		7.9	2.2	26.5		2.9				
Green Ext Time (p_c), s	0.0	4.3		1.6	0.0	3.2		1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.6									
HCM 2010 LOS			B									

Two Way Analysis cannot be performed on Signalized Intersection.

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	4	2	8	6	107	4	310	24	213	247	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-8%			-3%			3%	
Storage Length (ft)	0		0	0		70	75		0	120		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970				0.850		0.989			0.997	
Flt Protected		0.984			0.973		0.950			0.950		
Satd. Flow (prot)	0	1769	0	0	1885	1647	1796	1870	0	1743	1829	0
Flt Permitted							0.591			0.517		
Satd. Flow (perm)	0	1798	0	0	1937	1647	1117	1870	0	949	1829	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		2									1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		76			138			1288			388	
Travel Time (s)		1.7			3.1			29.3			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	4	2	9	7	116	4	337	26	232	268	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	16	116	4	363	0	232	273	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.01	1.01	1.01	0.95	0.95	0.95	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	2	2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83		20	83	83	83	6		83	6	
Trailing Detector (ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Position(ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Size(ft)	20	43		20	43	43	43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40			40	40	40			40		
Detector 2 Size(ft)		43			43	43	43			43		
Detector 2 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	0.0	0.0			0.0		
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		8.0	8.0	4.0	4.0	31.0		4.0	36.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	9.0	9.0	36.0		9.0	41.0	
Total Split (s)	36.0	36.0		36.0	36.0	13.0	13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	14.4%	14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0	8.0	8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag						Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
v/c Ratio		0.05			0.06	0.40	0.00	0.30		0.25	0.16	
Control Delay		22.6			23.8	24.1	1.8	6.2		2.2	3.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		22.6			23.8	24.1	1.8	6.2		2.2	3.2	
Queue Length 50th (ft)		2			5	35	0	38		0	0	
Queue Length 95th (ft)		15			22	71	2	130		40	96	
Internal Link Dist (ft)		1			58			1208			308	
Turn Bay Length (ft)						70	75			120		
Base Capacity (vph)		999			1075	300	977	1205		932	1660	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.01			0.01	0.39	0.00	0.30		0.25	0.16	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 56.3

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Splits and Phases: 2: NYS Route 9D & Beacon City Hall/Main Street

 ø2	 ø1	 ø4
41 s	13 s	36 s
 ø6	 ø5	 ø8
41 s	13 s	36 s

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour
7/28/2017



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	9	16	116	4	363	232	273
v/c Ratio	0.05	0.06	0.40	0.00	0.30	0.25	0.16
Control Delay	22.6	23.8	24.1	1.8	6.2	2.2	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	23.8	24.1	1.8	6.2	2.2	3.2
Queue Length 50th (ft)	2	5	35	0	38	0	0
Queue Length 95th (ft)	15	22	71	2	130	40	96
Internal Link Dist (ft)	1	58			1208		308
Turn Bay Length (ft)			70	75		120	
Base Capacity (vph)	999	1075	300	977	1205	932	1660
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.39	0.00	0.30	0.25	0.16
Intersection Summary							

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour

7/28/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	4	2	8	6	107	4	310	24	213	247	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1890	1853	1890	1976	1937	1937	1891	1891	1928	1835	1835	1872
Adj Flow Rate, veh/h	3	4	2	9	7	116	4	337	26	232	268	5
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	115	43	177	113	297	794	1003	77	702	1039	19
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.58	0.58	0.06	0.58	0.58
Sat Flow, veh/h	298	984	366	734	963	1647	1801	1733	134	1747	1795	33
Grp Volume(v), veh/h	9	0	0	16	0	116	4	0	363	232	0	273
Grp Sat Flow(s),veh/h/ln	1648	0	0	1698	0	1647	1801	0	1867	1747	0	1829
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	4.6
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.0	6.3	0.0	0.0	4.6
Prop In Lane	0.33		0.22	0.56		1.00	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	270	0	0	290	0	297	794	0	1080	702	0	1058
V/C Ratio(X)	0.03	0.00	0.00	0.06	0.00	0.39	0.01	0.00	0.34	0.33	0.00	0.26
Avail Cap(c_a), veh/h	860	0	0	913	0	924	911	0	1080	817	0	1058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	0.0	24.4	0.0	22.5	5.8	0.0	6.9	8.6	0.0	6.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.8	0.0	0.0	0.8	0.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.3	0.0	1.8	0.0	0.0	3.5	2.4	0.0	2.4
LnGrp Delay(d),s/veh	24.4	0.0	0.0	24.5	0.0	23.3	5.8	0.0	7.7	8.9	0.0	7.1
LnGrp LOS	C			C		C	A		A	A		A
Approach Vol, veh/h		9			132			367			505	
Approach Delay, s/veh		24.4			23.5			7.7			7.9	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	41.0		12.3	8.9	41.0		12.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	36.0		31.0	8.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s	2.0	8.3		2.3	2.0	6.6		2.5				
Green Ext Time (p_c), s	0.6	0.9		0.7	0.6	0.6		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			10.0									
HCM 2010 LOS			A									

Two Way Analysis cannot be performed on Signalized Intersection.

2017 Existing Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak AM Hour

7/28/2017



Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	1	4	226	2	2	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		4%			-6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.892		0.999			
Flt Protected	0.990					
Satd. Flow (prot)	1686	0	1824	0	0	1919
Flt Permitted	0.990					
Satd. Flow (perm)	1686	0	1824	0	0	1919
Link Speed (mph)	30		30			30
Link Distance (ft)	256		145			1288
Travel Time (s)	5.8		3.3			29.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	1	4	254	2	2	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	256	0	0	227
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.97	0.97	1.03	1.03	0.96	0.96
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

2017 Existing Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak AM Hour
7/28/2017

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NET	NER	SWL	SWT
Vol, veh/h	1	4	226	2	2	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	4	-	-	-6
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	4	254	2	2	225
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	484	255	0	0	256	0
Stage 1	255	-	-	-	-	-
Stage 2	229	-	-	-	-	-
Critical Hdwy	5.42	5.72	-	-	4.12	-
Critical Hdwy Stg 1	4.42	-	-	-	-	-
Critical Hdwy Stg 2	4.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	620	812	-	-	1309	-
Stage 1	845	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	619	812	-	-	1309	-
Mov Cap-2 Maneuver	671	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Approach	WB		NE		SW	
HCM Control Delay, s	9.7		0		0.1	
HCM LOS	A					
Minor Lane/Major Mvmt	NET	NER	WBLn1	SWL	SWT	
Capacity (veh/h)	-	-	779	1309	-	
HCM Lane V/C Ratio	-	-	0.007	0.002	-	
HCM Control Delay (s)	-	-	9.7	7.8	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

2022 No-Build Traffic Volumes

Weekday Peak AM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	153	4	148	3	17	11	26	531	1	1	459	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-10%			-6%			3%	
Storage Length (ft)	0		95	0		0	80		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.951						0.925	
Flt Protected		0.953			0.995		0.950			0.950		
Satd. Flow (prot)	0	1757	1567	0	1851	0	1823	1919	0	1743	1697	0
Flt Permitted		0.707			0.973		0.093			0.361		
Satd. Flow (perm)	0	1304	1567	0	1810	0	178	1919	0	662	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			161		12						72	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			158			388			167	
Travel Time (s)		6.2			3.6			8.8			3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	4	161	3	18	12	28	577	1	1	499	497
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	161	0	33	0	28	578	0	1	996	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.94	0.94	0.94	0.96	0.96	0.96	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83	83	20	83		83	6		83	6	
Trailing Detector (ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Position(ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Size(ft)	20	43	43	20	43		43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40	40		40		40			40		
Detector 2 Size(ft)		43	43		43		43			43		
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0		0.0			0.0		
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Synchro 8 Report

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2022 No-Build Traffic Volumes

Weekday Peak AM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	20.0	20.0	20.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		13.0	45.0		13.0	45.0	
Total Split (%)	35.6%	35.6%	35.6%	35.6%	35.6%		14.4%	50.0%		14.4%	50.0%	
Maximum Green (s)	27.0	27.0	27.0	27.0	27.0		8.0	40.0		8.0	40.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				0	0							
v/c Ratio		0.63	0.36		0.09		0.11	0.49		0.00	0.97	
Control Delay		36.6	6.9		17.5		6.7	11.0		6.0	40.1	
Queue Delay		0.0	0.0		0.0		0.0	0.8		0.0	0.0	
Total Delay		36.6	6.9		17.5		6.7	11.9		6.0	40.1	
Queue Length 50th (ft)		60	0		6		3	100		0	264	
Queue Length 95th (ft)		137	44		30		15	331		2	#880	
Internal Link Dist (ft)		193			78			308			87	
Turn Bay Length (ft)			95				80			85		
Base Capacity (vph)		517	718		725		306	1189		541	1027	
Starvation Cap Reductn		0	0		0		0	329		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.33	0.22		0.05		0.09	0.67		0.00	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 69.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Beekman Street/W. Church Street

		
13 s	45 s	32 s
		
13 s	45 s	32 s

2022 No-Build Traffic Volumes
1: NYS Route 9D & Beekman Street/W. Church Street

Weekday Peak AM Hour

7/31/2017

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	170	161	33	28	578	1	996
v/c Ratio	0.63	0.36	0.09	0.11	0.49	0.00	0.97
Control Delay	36.6	6.9	17.5	6.7	11.0	6.0	40.1
Queue Delay	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Total Delay	36.6	6.9	17.5	6.7	11.9	6.0	40.1
Queue Length 50th (ft)	60	0	6	3	100	0	264
Queue Length 95th (ft)	137	44	30	15	331	2	#880
Internal Link Dist (ft)	193		78		308		87
Turn Bay Length (ft)		95		80		85	
Base Capacity (vph)	517	718	725	306	1189	541	1027
Starvation Cap Reductn	0	0	0	0	329	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.22	0.05	0.09	0.67	0.00	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

2022 No-Build Traffic Volumes
1: NYS Route 9D & Beekman Street/W. Church Street

Weekday Peak AM Hour

7/31/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	153	4	148	3	17	11	26	531	1	1	459	457
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1844	1844	1995	1956	1995	1919	1919	1957	1835	1835	1872
Adj Flow Rate, veh/h	166	4	161	3	18	12	28	577	1	1	499	497
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	6	264	66	186	111	150	1168	2	471	496	494
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.02	0.61	0.61	0.00	0.59	0.59
Sat Flow, veh/h	1371	33	1568	49	1105	659	1827	1915	3	1747	845	841
Grp Volume(v), veh/h	170	0	161	33	0	0	28	0	578	1	0	996
Grp Sat Flow(s),veh/h/ln	1404	0	1568	1813	0	0	1827	0	1918	1747	0	1686
Q Serve(g_s), s	6.7	0.0	6.5	0.0	0.0	0.0	0.4	0.0	11.5	0.0	0.0	40.0
Cycle Q Clear(g_c), s	7.7	0.0	6.5	1.0	0.0	0.0	0.4	0.0	11.5	0.0	0.0	40.0
Prop In Lane	0.98		1.00	0.09		0.36	1.00		0.00	1.00		0.50
Lane Grp Cap(c), veh/h	341	0	264	363	0	0	150	0	1170	471	0	990
V/C Ratio(X)	0.50	0.00	0.61	0.09	0.00	0.00	0.19	0.00	0.49	0.00	0.00	1.01
Avail Cap(c_a), veh/h	653	0	621	764	0	0	320	0	1170	673	0	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	26.2	24.0	0.0	0.0	17.0	0.0	7.4	6.5	0.0	14.1
Incr Delay (d2), s/veh	1.1	0.0	2.3	0.1	0.0	0.0	0.6	0.0	1.5	0.0	0.0	30.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	3.0	0.5	0.0	0.0	0.3	0.0	6.4	0.0	0.0	26.4
LnGrp Delay(d),s/veh	27.8	0.0	28.5	24.1	0.0	0.0	17.6	0.0	8.9	6.5	0.0	44.1
LnGrp LOS	C		C	C			B		A	A		F
Approach Vol, veh/h		331			33			606			997	
Approach Delay, s/veh		28.1			24.1			9.3			44.1	
Approach LOS		C			C			A			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	46.6		16.5	6.6	45.0		16.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	40.0		27.0	8.0	40.0		27.0				
Max Q Clear Time (g_c+I1), s	2.0	13.5		9.7	2.4	42.0		3.0				
Green Ext Time (p_c), s	0.0	6.1		1.8	0.0	0.0		2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			30.4									
HCM 2010 LOS			C									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	4	2	10	7	121	4	433	30	236	368	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-8%			-3%			3%	
Storage Length (ft)	0		0	0		70	75		0	120		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970				0.850		0.990			0.997	
Flt Protected		0.984			0.972		0.950			0.950		
Satd. Flow (prot)	0	1769	0	0	1883	1647	1796	1872	0	1743	1829	0
Flt Permitted							0.521			0.409		
Satd. Flow (perm)	0	1798	0	0	1937	1647	985	1872	0	750	1829	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		2									1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		76			138			1288			388	
Travel Time (s)		1.7			3.1			29.3			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	4	2	11	8	132	4	471	33	257	400	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	19	132	4	504	0	257	407	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.01	1.01	1.01	0.95	0.95	0.95	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	2	2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83		20	83	83	83	6		83	6	
Trailing Detector (ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Position(ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Size(ft)	20	43		20	43	43	43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40			40	40	40			40		
Detector 2 Size(ft)		43			43	43	43			43		
Detector 2 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	0.0	0.0			0.0		
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		8.0	8.0	4.0	4.0	31.0		4.0	36.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	9.0	9.0	36.0		9.0	41.0	
Total Split (s)	36.0	36.0		36.0	36.0	13.0	13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	14.4%	14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0	8.0	8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag						Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
v/c Ratio		0.05			0.07	0.45	0.00	0.42		0.33	0.25	
Control Delay		22.6			23.9	25.3	1.8	7.2		3.2	3.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		22.6			23.9	25.3	1.8	7.2		3.2	3.5	
Queue Length 50th (ft)		2			5	40	0	58		0	0	
Queue Length 95th (ft)		15			25	80	2	194		44	149	
Internal Link Dist (ft)		1			58			1208			308	
Turn Bay Length (ft)						70	75			120		
Base Capacity (vph)		998			1074	300	891	1205		788	1660	
Starvation Cap Reductn		0			0	0	0	0		0	76	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.01			0.02	0.44	0.00	0.42		0.33	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 56.3

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Splits and Phases: 2: NYS Route 9D & Beacon City Hall/Main Street

 ø2	 ø1	 ø4
41 s	13 s	36 s
 ø6	 ø5	 ø8
41 s	13 s	36 s

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour
7/31/2017



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	9	19	132	4	504	257	407
v/c Ratio	0.05	0.07	0.45	0.00	0.42	0.33	0.25
Control Delay	22.6	23.9	25.3	1.8	7.2	3.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	23.9	25.3	1.8	7.2	3.2	3.5
Queue Length 50th (ft)	2	5	40	0	58	0	0
Queue Length 95th (ft)	15	25	80	2	194	44	149
Internal Link Dist (ft)	1	58			1208		308
Turn Bay Length (ft)			70	75		120	
Base Capacity (vph)	998	1074	300	891	1205	788	1660
Starvation Cap Reductn	0	0	0	0	0	0	76
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.44	0.00	0.42	0.33	0.26
Intersection Summary							

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour

7/31/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	4	2	10	7	121	4	433	30	236	368	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1890	1853	1890	1976	1937	1937	1891	1891	1928	1835	1835	1872
Adj Flow Rate, veh/h	3	4	2	11	8	132	4	471	33	257	400	7
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	117	44	183	110	302	679	1007	71	595	1036	18
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.58	0.58	0.06	0.58	0.58
Sat Flow, veh/h	299	977	364	767	919	1647	1801	1747	122	1747	1798	31
Grp Volume(v), veh/h	9	0	0	19	0	132	4	0	504	257	0	407
Grp Sat Flow(s),veh/h/ln	1640	0	0	1687	0	1647	1801	0	1869	1747	0	1829
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	9.8	0.0	0.0	7.6
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.5	0.0	0.5	0.0	0.0	9.8	0.0	0.0	7.6
Prop In Lane	0.33		0.22	0.58		1.00	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	274	0	0	294	0	302	679	0	1077	595	0	1054
V/C Ratio(X)	0.03	0.00	0.00	0.06	0.00	0.44	0.01	0.00	0.47	0.43	0.00	0.39
Avail Cap(c_a), veh/h	853	0	0	907	0	922	796	0	1077	708	0	1054
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	0.0	24.4	0.0	22.6	7.3	0.0	7.7	11.8	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.0	0.0	0.0	1.5	0.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.3	0.0	2.1	0.0	0.0	5.3	3.3	0.0	4.0
LnGrp Delay(d),s/veh	24.3	0.0	0.0	24.5	0.0	23.6	7.3	0.0	9.1	12.3	0.0	8.3
LnGrp LOS	C			C		C	A		A	B		A
Approach Vol, veh/h		9			151			508			664	
Approach Delay, s/veh		24.3			23.7			9.1			9.8	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	41.0		12.5	9.0	41.0		12.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	36.0		31.0	8.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s	2.0	11.8		2.3	2.0	9.6		2.5				
Green Ext Time (p_c), s	0.7	1.3		0.9	0.7	1.0		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			11.2									
HCM 2010 LOS			B									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 No-Build Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak AM Hour

7/31/2017



Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	1	4	345	2	2	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		4%			-6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.892		0.999			
Flt Protected	0.990					
Satd. Flow (prot)	1686	0	1824	0	0	1919
Flt Permitted	0.990					
Satd. Flow (perm)	1686	0	1824	0	0	1919
Link Speed (mph)	30		30			30
Link Distance (ft)	256		145			1288
Travel Time (s)	5.8		3.3			29.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	1	4	388	2	2	356
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	390	0	0	358
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.97	0.97	1.03	1.03	0.96	0.96
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

2022 No-Build Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak AM Hour

7/31/2017

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NET	NER	SWL	SWT
Vol, veh/h	1	4	345	2	2	317
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	4	-	-	-6
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	4	388	2	2	356
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	750	389	0	0	390	0
Stage 1	389	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Critical Hdwy	5.42	5.72	-	-	4.12	-
Critical Hdwy Stg 1	4.42	-	-	-	-	-
Critical Hdwy Stg 2	4.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	467	696	-	-	1169	-
Stage 1	763	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	466	696	-	-	1169	-
Mov Cap-2 Maneuver	564	-	-	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Approach	WB		NE		SW	
HCM Control Delay, s	10.5		0		0.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT		
Capacity (veh/h)	-	- 665	1169	-		
HCM Lane V/C Ratio	-	- 0.008	0.002	-		
HCM Control Delay (s)	-	- 10.5	8.1	0		
HCM Lane LOS	-	- B	A	A		
HCM 95th %tile Q(veh)	-	- 0	0	-		

2022 Build Traffic Volumes

Weekday Peak AM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	153	4	148	3	17	11	26	536	1	1	460	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-10%			-6%			3%	
Storage Length (ft)	0		95	0		0	80		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.951						0.925	
Flt Protected		0.953			0.995		0.950			0.950		
Satd. Flow (prot)	0	1757	1567	0	1851	0	1823	1919	0	1743	1697	0
Flt Permitted		0.707			0.973		0.093			0.357		
Satd. Flow (perm)	0	1304	1567	0	1810	0	178	1919	0	655	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			161		12						72	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			158			388			167	
Travel Time (s)		6.2			3.6			8.8			3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	4	161	3	18	12	28	583	1	1	500	497
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	161	0	33	0	28	584	0	1	997	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.94	0.94	0.94	0.96	0.96	0.96	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83	83	20	83		83	6		83	6	
Trailing Detector (ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Position(ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Size(ft)	20	43	43	20	43		43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40	40		40		40			40		
Detector 2 Size(ft)		43	43		43		43			43		
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0		0.0			0.0		
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Synchro 8 Report

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2022 Build Traffic Volumes

Weekday Peak AM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	20.0	20.0	20.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		13.0	45.0		13.0	45.0	
Total Split (%)	35.6%	35.6%	35.6%	35.6%	35.6%		14.4%	50.0%		14.4%	50.0%	
Maximum Green (s)	27.0	27.0	27.0	27.0	27.0		8.0	40.0		8.0	40.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				0	0							
v/c Ratio		0.63	0.36		0.09		0.11	0.49		0.00	0.97	
Control Delay		36.6	6.9		17.5		6.7	11.1		6.0	40.3	
Queue Delay		0.0	0.0		0.0		0.0	0.9		0.0	0.0	
Total Delay		36.6	6.9		17.5		6.7	12.0		6.0	40.3	
Queue Length 50th (ft)		60	0		6		3	102		0	264	
Queue Length 95th (ft)		137	44		30		15	335		2	#881	
Internal Link Dist (ft)		193			78			308			87	
Turn Bay Length (ft)			95				80			85		
Base Capacity (vph)		517	718		725		306	1189		538	1027	
Starvation Cap Reductn		0	0		0		0	328		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.33	0.22		0.05		0.09	0.68		0.00	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 69.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Beekman Street/W. Church Street

		
13 s	45 s	32 s
		
13 s	45 s	32 s



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	170	161	33	28	584	1	997
v/c Ratio	0.63	0.36	0.09	0.11	0.49	0.00	0.97
Control Delay	36.6	6.9	17.5	6.7	11.1	6.0	40.3
Queue Delay	0.0	0.0	0.0	0.0	0.9	0.0	0.0
Total Delay	36.6	6.9	17.5	6.7	12.0	6.0	40.3
Queue Length 50th (ft)	60	0	6	3	102	0	264
Queue Length 95th (ft)	137	44	30	15	335	2	#881
Internal Link Dist (ft)	193		78		308		87
Turn Bay Length (ft)		95		80		85	
Base Capacity (vph)	517	718	725	306	1189	538	1027
Starvation Cap Reductn	0	0	0	0	328	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.22	0.05	0.09	0.68	0.00	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	153	4	148	3	17	11	26	536	1	1	460	457
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1844	1844	1995	1956	1995	1919	1919	1957	1835	1835	1872
Adj Flow Rate, veh/h	166	4	161	3	18	12	28	583	1	1	500	497
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	6	264	66	186	111	150	1168	2	467	497	494
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.02	0.61	0.61	0.00	0.59	0.59
Sat Flow, veh/h	1371	33	1568	49	1105	659	1827	1915	3	1747	846	841
Grp Volume(v), veh/h	170	0	161	33	0	0	28	0	584	1	0	997
Grp Sat Flow(s),veh/h/ln	1404	0	1568	1813	0	0	1827	0	1918	1747	0	1686
Q Serve(g_s), s	6.7	0.0	6.5	0.0	0.0	0.0	0.4	0.0	11.6	0.0	0.0	40.0
Cycle Q Clear(g_c), s	7.7	0.0	6.5	1.0	0.0	0.0	0.4	0.0	11.6	0.0	0.0	40.0
Prop In Lane	0.98		1.00	0.09		0.36	1.00		0.00	1.00		0.50
Lane Grp Cap(c), veh/h	341	0	264	363	0	0	150	0	1170	467	0	990
V/C Ratio(X)	0.50	0.00	0.61	0.09	0.00	0.00	0.19	0.00	0.50	0.00	0.00	1.01
Avail Cap(c_a), veh/h	653	0	621	764	0	0	320	0	1170	669	0	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	26.2	24.0	0.0	0.0	17.0	0.0	7.4	6.5	0.0	14.1
Incr Delay (d2), s/veh	1.1	0.0	2.3	0.1	0.0	0.0	0.6	0.0	1.5	0.0	0.0	30.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	3.0	0.5	0.0	0.0	0.3	0.0	6.5	0.0	0.0	26.5
LnGrp Delay(d),s/veh	27.8	0.0	28.5	24.1	0.0	0.0	17.6	0.0	9.0	6.5	0.0	44.4
LnGrp LOS	C		C	C			B		A	A		F
Approach Vol, veh/h		331			33			612			998	
Approach Delay, s/veh		28.1			24.1			9.4			44.3	
Approach LOS		C			C			A			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	46.6		16.5	6.6	45.0		16.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	40.0		27.0	8.0	40.0		27.0				
Max Q Clear Time (g_c+I1), s	2.0	13.6		9.7	2.4	42.0		3.0				
Green Ext Time (p_c), s	0.0	6.1		1.8	0.0	0.0		2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			30.4									
HCM 2010 LOS			C									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 Build Traffic Volumes

Weekday Peak AM Hour

2: NYS Route 9D & Beacon City Hall/Main Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	4	2	10	7	121	4	438	32	236	369	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-8%			-3%			3%	
Storage Length (ft)	0		0	0		70	75		0	120		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970				0.850		0.990			0.997	
Flt Protected		0.984			0.972		0.950			0.950		
Satd. Flow (prot)	0	1769	0	0	1883	1647	1796	1872	0	1743	1829	0
Flt Permitted							0.520			0.404		
Satd. Flow (perm)	0	1798	0	0	1937	1647	983	1872	0	741	1829	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		2									1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		76			138			1288			388	
Travel Time (s)		1.7			3.1			29.3			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	4	2	11	8	132	4	476	35	257	401	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	19	132	4	511	0	257	408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.01	1.01	1.01	0.95	0.95	0.95	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	2	2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83		20	83	83	83	6		83	6	
Trailing Detector (ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Position(ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Size(ft)	20	43		20	43	43	43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40			40	40	40			40		
Detector 2 Size(ft)		43			43	43	43			43		
Detector 2 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	0.0	0.0			0.0		
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		

Synchro 8 Report

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2022 Build Traffic Volumes

Weekday Peak AM Hour

2: NYS Route 9D & Beacon City Hall/Main Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		8.0	8.0	4.0	4.0	31.0		4.0	36.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	9.0	9.0	36.0		9.0	41.0	
Total Split (s)	36.0	36.0		36.0	36.0	13.0	13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	14.4%	14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0	8.0	8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag						Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
v/c Ratio		0.05			0.07	0.45	0.00	0.42		0.33	0.25	
Control Delay		22.6			23.9	25.3	1.8	7.3		3.2	3.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		22.6			23.9	25.3	1.8	7.3		3.2	3.5	
Queue Length 50th (ft)		2			5	40	0	59		0	0	
Queue Length 95th (ft)		15			25	80	2	197		44	150	
Internal Link Dist (ft)		1			58			1208			308	
Turn Bay Length (ft)						70	75			120		
Base Capacity (vph)		998			1074	300	890	1205		781	1660	
Starvation Cap Reductn		0			0	0	0	0		0	75	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.01			0.02	0.44	0.00	0.42		0.33	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 56.3

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Splits and Phases: 2: NYS Route 9D & Beacon City Hall/Main Street

 ø2	 ø1	 ø4
41 s	13 s	36 s
 ø6	 ø5	 ø8
41 s	13 s	36 s



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	9	19	132	4	511	257	408
v/c Ratio	0.05	0.07	0.45	0.00	0.42	0.33	0.25
Control Delay	22.6	23.9	25.3	1.8	7.3	3.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	23.9	25.3	1.8	7.3	3.2	3.5
Queue Length 50th (ft)	2	5	40	0	59	0	0
Queue Length 95th (ft)	15	25	80	2	197	44	150
Internal Link Dist (ft)	1	58			1208		308
Turn Bay Length (ft)			70	75		120	
Base Capacity (vph)	998	1074	300	890	1205	781	1660
Starvation Cap Reductn	0	0	0	0	0	0	75
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.44	0.00	0.42	0.33	0.26
Intersection Summary							

2022 Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak AM Hour

7/31/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	4	2	10	7	121	4	438	32	236	369	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1890	1853	1890	1976	1937	1937	1891	1891	1928	1835	1835	1872
Adj Flow Rate, veh/h	3	4	2	11	8	132	4	476	35	257	401	7
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	117	44	183	110	302	679	1003	74	590	1036	18
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.58	0.58	0.06	0.58	0.58
Sat Flow, veh/h	299	977	364	767	919	1647	1801	1740	128	1747	1798	31
Grp Volume(v), veh/h	9	0	0	19	0	132	4	0	511	257	0	408
Grp Sat Flow(s),veh/h/ln	1640	0	0	1687	0	1647	1801	0	1868	1747	0	1829
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	10.0	0.0	0.0	7.6
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.5	0.0	0.5	0.0	0.0	10.0	0.0	0.0	7.6
Prop In Lane	0.33		0.22	0.58		1.00	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	274	0	0	294	0	302	679	0	1077	590	0	1054
V/C Ratio(X)	0.03	0.00	0.00	0.06	0.00	0.44	0.01	0.00	0.47	0.44	0.00	0.39
Avail Cap(c_a), veh/h	853	0	0	907	0	922	795	0	1077	703	0	1054
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	0.0	24.4	0.0	22.6	7.3	0.0	7.7	12.0	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.0	0.0	0.0	1.5	0.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.3	0.0	2.1	0.0	0.0	5.6	3.3	0.0	4.1
LnGrp Delay(d),s/veh	24.3	0.0	0.0	24.5	0.0	23.6	7.3	0.0	9.2	12.5	0.0	8.3
LnGrp LOS	C			C		C	A		A	B		A
Approach Vol, veh/h		9			151			515			665	
Approach Delay, s/veh		24.3			23.7			9.2			9.9	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	41.0		12.5	9.0	41.0		12.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	36.0		31.0	8.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s	2.0	12.0		2.3	2.0	9.6		2.5				
Green Ext Time (p_c), s	0.7	1.3		0.9	0.7	1.0		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			11.3									
HCM 2010 LOS			B									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 Build Traffic Volumes
3: NYS Route 9D & Site Access/Rombout Avenue

Weekday Peak AM Hour

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	6	0	5	1	0	4	1	345	2	2	317	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-5%			4%			-6%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.938			0.892			0.999				
Flt Protected		0.974			0.990							
Satd. Flow (prot)	0	1702	0	0	1686	0	0	1824	0	0	1919	0
Flt Permitted		0.974			0.990							
Satd. Flow (perm)	0	1702	0	0	1686	0	0	1824	0	0	1919	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		204			256			145			1288	
Travel Time (s)		4.6			5.8			3.3			29.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	7	0	6	1	0	4	1	388	2	2	356	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	5	0	0	391	0	0	359	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	0.97	0.97	0.97	1.03	1.03	1.03	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											

2022 Build Traffic Volumes
3: NYS Route 9D & Site Access/Rombout Avenue

Weekday Peak AM Hour

7/31/2017

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	6	0	5	1	0	4	1	345	2	2	317	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-5	-	-	4	-	-	-6	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	6	1	0	4	1	388	2	2	356	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	754	753	357	755	753	389	357	0	0	390	0	0
Stage 1	361	361	-	391	391	-	-	-	-	-	-	-
Stage 2	393	392	-	364	362	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	6.12	5.52	5.72	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	5.12	4.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	5.12	4.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	326	339	687	401	417	696	1202	-	-	1169	-	-
Stage 1	657	626	-	706	677	-	-	-	-	-	-	-
Stage 2	632	606	-	725	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	323	338	687	397	416	696	1202	-	-	1169	-	-
Mov Cap-2 Maneuver	323	338	-	397	416	-	-	-	-	-	-	-
Stage 1	656	625	-	705	676	-	-	-	-	-	-	-
Stage 2	627	605	-	718	690	-	-	-	-	-	-	-
Approach	EB			WB			NE			SW		
HCM Control Delay, s	13.7			11			0			0.1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR				
Capacity (veh/h)	1202	-	-	425	605	1169	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.029	0.009	0.002	-	-				
HCM Control Delay (s)	8	0	-	13.7	11	8.1	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

2017 Existing Traffic Volumes

Weekday Peak PM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	5	31	11	3	6	30	350	10	11	496	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-10%			-6%			3%	
Storage Length (ft)	0		95	0		0	80		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.957			0.996			0.974	
Flt Protected		0.953			0.973		0.950			0.950		
Satd. Flow (prot)	0	1757	1567	0	1821	0	1823	1911	0	1743	1787	0
Flt Permitted		0.713			0.823		0.203			0.486		
Satd. Flow (perm)	0	1315	1567	0	1540	0	389	1911	0	892	1787	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		7			2			14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			158			388			167	
Travel Time (s)		6.2			3.6			8.8			3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	5	34	12	3	7	33	380	11	12	539	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	320	34	0	22	0	33	391	0	12	652	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.94	0.94	0.94	0.96	0.96	0.96	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83	83	20	83		83	6		83	6	
Trailing Detector (ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Position(ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Size(ft)	20	43	43	20	43		43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40	40		40		40			40		
Detector 2 Size(ft)		43	43		43		43			43		
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0		0.0			0.0		
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Synchro 8 Report

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2017 Existing Traffic Volumes

Weekday Peak PM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	20.0	20.0	20.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	36.0	36.0	36.0	36.0	36.0		13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				0	0							
v/c Ratio		0.81	0.06		0.05		0.10	0.38		0.02	0.75	
Control Delay		42.7	0.2		15.9		9.7	13.8		9.5	26.5	
Queue Delay		0.0	0.0		0.0		0.0	0.9		0.0	0.0	
Total Delay		42.7	0.2		15.9		9.7	14.7		9.5	26.5	
Queue Length 50th (ft)		151	0		5		7	99		2	282	
Queue Length 95th (ft)		#255	0		22		21	240		11	#547	
Internal Link Dist (ft)		193			78			308			87	
Turn Bay Length (ft)			95				80			85		
Base Capacity (vph)		547	701		645		371	1034		572	871	
Starvation Cap Reductn		0	0		0		0	377		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.59	0.05		0.03		0.09	0.60		0.02	0.75	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 76.7

Natural Cycle: 60

Control Type: Semi Act-Uncoord

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Beekman Street/W. Church Street

		
ø1	ø2	ø4
13 s	41 s	36 s
		
ø5	ø6	ø8
13 s	41 s	36 s

2017 Existing Traffic Volumes
1: NYS Route 9D & Beekman Street/W. Church Street

Weekday Peak PM Hour

7/28/2017

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	320	34	22	33	391	12	652
v/c Ratio	0.81	0.06	0.05	0.10	0.38	0.02	0.75
Control Delay	42.7	0.2	15.9	9.7	13.8	9.5	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.9	0.0	0.0
Total Delay	42.7	0.2	15.9	9.7	14.7	9.5	26.5
Queue Length 50th (ft)	151	0	5	7	99	2	282
Queue Length 95th (ft)	#255	0	22	21	240	11	#547
Internal Link Dist (ft)	193		78		308		87
Turn Bay Length (ft)		95		80		85	
Base Capacity (vph)	547	701	645	371	1034	572	871
Starvation Cap Reductn	0	0	0	0	377	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.05	0.03	0.09	0.60	0.02	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

2017 Existing Traffic Volumes
1: NYS Route 9D & Beekman Street/W. Church Street

Weekday Peak PM Hour

7/28/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	290	5	31	11	3	6	30	350	10	11	496	104
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1844	1844	1995	1956	1995	1919	1919	1957	1835	1835	1872
Adj Flow Rate, veh/h	315	5	34	12	3	7	33	380	11	12	539	113
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	443	6	534	102	34	31	239	856	25	424	658	138
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.03	0.46	0.46	0.01	0.45	0.45
Sat Flow, veh/h	1039	16	1568	96	101	92	1827	1855	54	1747	1472	309
Grp Volume(v), veh/h	320	0	34	22	0	0	33	0	391	12	0	652
Grp Sat Flow(s),veh/h/ln	1055	0	1568	289	0	0	1827	0	1909	1747	0	1780
Q Serve(g_s), s	0.0	0.0	1.2	0.3	0.0	0.0	0.8	0.0	11.2	0.3	0.0	25.7
Cycle Q Clear(g_c), s	24.4	0.0	1.2	24.7	0.0	0.0	0.8	0.0	11.2	0.3	0.0	25.7
Prop In Lane	0.98		1.00	0.55		0.32	1.00		0.03	1.00		0.17
Lane Grp Cap(c), veh/h	448	0	534	167	0	0	239	0	880	424	0	796
V/C Ratio(X)	0.71	0.00	0.06	0.13	0.00	0.00	0.14	0.00	0.44	0.03	0.00	0.82
Avail Cap(c_a), veh/h	510	0	603	236	0	0	373	0	880	577	0	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.5	0.0	17.9	20.9	0.0	0.0	15.7	0.0	14.7	12.5	0.0	19.4
Incr Delay (d2), s/veh	4.0	0.0	0.0	0.4	0.0	0.0	0.3	0.0	1.6	0.0	0.0	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	0.5	0.3	0.0	0.0	0.4	0.0	6.3	0.1	0.0	14.5
LnGrp Delay(d),s/veh	29.6	0.0	17.9	21.3	0.0	0.0	15.9	0.0	16.3	12.5	0.0	28.7
LnGrp LOS	C		B	C			B		B	B		C
Approach Vol, veh/h	354					22		424		664		
Approach Delay, s/veh	28.4					21.3		16.3		28.4		
Approach LOS	C					C		B		C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.9	42.1	32.5		7.1	41.0	32.5					
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0	5.0	5.0					
Max Green Setting (Gmax), s	8.0	36.0	31.0		8.0	36.0	31.0					
Max Q Clear Time (g_c+I1), s	2.3	13.2	26.4		2.8	27.7	26.7					
Green Ext Time (p_c), s	0.0	3.0	0.8		0.0	2.2	0.8					
Intersection Summary												
HCM 2010 Ctrl Delay			24.8									
HCM 2010 LOS			C									

Two Way Analysis cannot be performed on Signalized Intersection.

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	7	1	16	2	128	1	262	37	226	307	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-8%			-3%			3%	
Storage Length (ft)	0		0	0		70	75		0	120		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986				0.850		0.982				
Flt Protected		0.995			0.957		0.950			0.950		
Satd. Flow (prot)	0	1818	0	0	1854	1647	1796	1857	0	1743	1835	0
Flt Permitted							0.559			0.547		
Satd. Flow (perm)	0	1827	0	0	1937	1647	1057	1857	0	1004	1835	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		1										
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		76			138			1288			388	
Travel Time (s)		1.7			3.1			29.3			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	8	1	17	2	139	1	285	40	246	334	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	0	0	19	139	1	325	0	246	335	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.01	1.01	1.01	0.95	0.95	0.95	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	2	2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83		20	83	83	83	6		83	6	
Trailing Detector (ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Position(ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Size(ft)	20	43		20	43	43	43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40			40	40	40			40		
Detector 2 Size(ft)		43			43	43	43			43		
Detector 2 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	0.0	0.0			0.0		
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		8.0	8.0	4.0	4.0	31.0		4.0	36.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	9.0	9.0	36.0		9.0	41.0	
Total Split (s)	36.0	36.0		36.0	36.0	13.0	13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	14.4%	14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0	8.0	8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag						Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
v/c Ratio		0.05			0.07	0.48	0.00	0.27		0.26	0.20	
Control Delay		23.8			23.9	25.9	2.0	6.0		2.2	3.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		23.8			23.9	25.9	2.0	6.0		2.2	3.3	
Queue Length 50th (ft)		3			5	42	0	33		0	0	
Queue Length 95th (ft)		16			25	83	1	115		42	120	
Internal Link Dist (ft)		1			58			1208			308	
Turn Bay Length (ft)						70	75			120		
Base Capacity (vph)		1013			1073	299	936	1195		970	1665	
Starvation Cap Reductn		0			0	0	0	0		0	82	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.01			0.02	0.46	0.00	0.27		0.25	0.21	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 56.4

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Splits and Phases: 2: NYS Route 9D & Beacon City Hall/Main Street

 ø2	 ø1	 ø4
41 s	13 s	36 s
 ø6	 ø5	 ø8
41 s	13 s	36 s

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour
7/28/2017



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	19	139	1	325	246	335
v/c Ratio	0.05	0.07	0.48	0.00	0.27	0.26	0.20
Control Delay	23.8	23.9	25.9	2.0	6.0	2.2	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	23.9	25.9	2.0	6.0	2.2	3.3
Queue Length 50th (ft)	3	5	42	0	33	0	0
Queue Length 95th (ft)	16	25	83	1	115	42	120
Internal Link Dist (ft)	1	58			1208		308
Turn Bay Length (ft)			70	75		120	
Base Capacity (vph)	1013	1073	299	936	1195	970	1665
Starvation Cap Reductn	0	0	0	0	0	0	82
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.46	0.00	0.27	0.25	0.21
Intersection Summary							

2017 Existing Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/28/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	7	1	16	2	128	1	262	37	226	307	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1890	1853	1890	1976	1937	1937	1891	1891	1928	1835	1835	1872
Adj Flow Rate, veh/h	1	8	1	17	2	139	1	285	40	246	334	1
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	188	22	266	26	303	737	935	131	728	1053	3
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.58	0.58	0.06	0.58	0.58
Sat Flow, veh/h	57	1557	179	1299	213	1647	1801	1623	228	1747	1828	5
Grp Volume(v), veh/h	10	0	0	19	0	139	1	0	325	246	0	335
Grp Sat Flow(s),veh/h/ln	1793	0	0	1512	0	1647	1801	0	1850	1747	0	1834
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.8	0.0	0.0	5.6	0.0	0.0	5.9
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.6	0.0	0.8	0.0	0.0	5.6	0.0	0.0	5.9
Prop In Lane	0.10		0.10	0.89		1.00	1.00		0.12	1.00		0.00
Lane Grp Cap(c), veh/h	280	0	0	292	0	303	737	0	1066	728	0	1056
V/C Ratio(X)	0.04	0.00	0.00	0.07	0.00	0.46	0.00	0.00	0.30	0.34	0.00	0.32
Avail Cap(c_a), veh/h	931	0	0	853	0	920	854	0	1066	841	0	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	0.0	24.4	0.0	22.7	6.5	0.0	6.8	8.4	0.0	6.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	1.1	0.0	0.0	0.7	0.3	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.0	0.4	0.0	0.0	3.1	2.5	0.0	3.2
LnGrp Delay(d),s/veh	24.3	0.0	0.0	24.5	0.0	23.8	6.5	0.0	7.6	8.6	0.0	7.7
LnGrp LOS	C			C		C	A		A	A		A
Approach Vol, veh/h		10			158			326			581	
Approach Delay, s/veh		24.3			23.9			7.6			8.1	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	41.0		12.6	8.9	41.0		12.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	36.0		31.0	8.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s	2.0	7.6		2.3	2.0	7.9		2.8				
Green Ext Time (p_c), s	0.6	0.8		0.9	0.6	0.8		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			10.4									
HCM 2010 LOS			B									

Two Way Analysis cannot be performed on Signalized Intersection.

2017 Existing Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak PM Hour

7/28/2017



Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	6	2	267	1	2	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		4%			-6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966					
Flt Protected	0.964					
Satd. Flow (prot)	1778	0	1825	0	0	1919
Flt Permitted	0.964					
Satd. Flow (perm)	1778	0	1825	0	0	1919
Link Speed (mph)	30		30			30
Link Distance (ft)	256		145			1288
Travel Time (s)	5.8		3.3			29.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	6	2	284	1	2	286
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	285	0	0	288
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.97	0.97	1.03	1.03	0.96	0.96
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

2017 Existing Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak PM Hour
7/28/2017

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NET	NER	SWL	SWT
Vol, veh/h	6	2	267	1	2	269
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	4	-	-	-6
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	2	284	1	2	286
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	575	285	0	0	285	0
Stage 1	285	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	5.42	5.72	-	-	4.12	-
Critical Hdwy Stg 1	4.42	-	-	-	-	-
Critical Hdwy Stg 2	4.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	563	784	-	-	1277	-
Stage 1	826	-	-	-	-	-
Stage 2	823	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	562	784	-	-	1277	-
Mov Cap-2 Maneuver	632	-	-	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Approach	WB	NE		SW		
HCM Control Delay, s	10.5	0		0.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NET	NER	WBLn1	SWL	SWT	
Capacity (veh/h)	-	-	664	1277	-	
HCM Lane V/C Ratio	-	-	0.013	0.002	-	
HCM Control Delay (s)	-	-	10.5	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

2022 No-Build Traffic Volumes

Weekday Peak PM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	325	6	55	12	3	7	59	467	11	12	638	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-10%			-6%			3%	
Storage Length (ft)	0		95	0		0	80		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.955			0.997			0.975	
Flt Protected		0.953			0.974		0.950			0.950		
Satd. Flow (prot)	0	1757	1567	0	1819	0	1823	1913	0	1743	1789	0
Flt Permitted		0.713			0.809		0.082			0.393		
Satd. Flow (perm)	0	1315	1567	0	1511	0	157	1913	0	721	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		8			2			15	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			158			388			167	
Travel Time (s)		6.2			3.6			8.8			3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	353	7	60	13	3	8	64	508	12	13	693	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	360	60	0	24	0	64	520	0	13	830	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.94	0.94	0.94	0.96	0.96	0.96	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83	83	20	83		83	6		83	6	
Trailing Detector (ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Position(ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Size(ft)	20	43	43	20	43		43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40	40		40		40			40		
Detector 2 Size(ft)		43	43		43		43			43		
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0		0.0			0.0		
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Synchro 8 Report

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JFM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	20.0	20.0	20.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	31.0	31.0	31.0	31.0	31.0		13.0	46.0		13.0	46.0	
Total Split (%)	34.4%	34.4%	34.4%	34.4%	34.4%		14.4%	51.1%		14.4%	51.1%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		8.0	41.0		8.0	41.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				0	0							
v/c Ratio		0.94	0.12		0.05		0.28	0.48		0.03	0.96	
Control Delay		65.2	3.5		18.1		10.8	14.0		7.8	46.8	
Queue Delay		0.0	0.0		0.0		0.0	2.2		0.0	0.0	
Total Delay		65.2	3.5		18.1		10.8	16.2		7.8	46.8	
Queue Length 50th (ft)		197	0		6		14	148		3	~447	
Queue Length 95th (ft)		#372	17		25		30	303		10	#724	
Internal Link Dist (ft)		193			78			308			87	
Turn Bay Length (ft)			95				80			85		
Base Capacity (vph)		399	535		464		247	1081		492	864	
Starvation Cap Reductn		0	0		0		0	409		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.90	0.11		0.05		0.26	0.77		0.03	0.96	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 86.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Beekman Street/W. Church Street

					
13 s	46 s		31 s		
					
13 s	46 s		31 s		

2022 No-Build Traffic Volumes
1: NYS Route 9D & Beekman Street/W. Church Street

Weekday Peak PM Hour

7/31/2017



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	360	60	24	64	520	13	830
v/c Ratio	0.94	0.12	0.05	0.28	0.48	0.03	0.96
Control Delay	65.2	3.5	18.1	10.8	14.0	7.8	46.8
Queue Delay	0.0	0.0	0.0	0.0	2.2	0.0	0.0
Total Delay	65.2	3.5	18.1	10.8	16.2	7.8	46.8
Queue Length 50th (ft)	197	0	6	14	148	3	~447
Queue Length 95th (ft)	#372	17	25	30	303	10	#724
Internal Link Dist (ft)	193		78		308		87
Turn Bay Length (ft)		95		80		85	
Base Capacity (vph)	399	535	464	247	1081	492	864
Starvation Cap Reductn	0	0	0	0	409	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.11	0.05	0.26	0.77	0.03	0.96

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

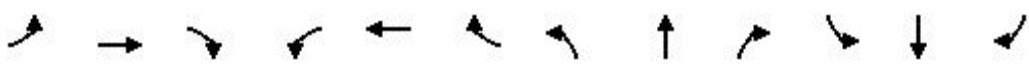
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	325	6	55	12	3	7	59	467	11	12	638	126
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1844	1844	1995	1956	1995	1919	1919	1957	1835	1835	1872
Adj Flow Rate, veh/h	353	7	60	13	3	8	64	508	12	13	693	137
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	6	479	65	24	12	172	944	22	384	717	142
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.51	0.51	0.01	0.48	0.48
Sat Flow, veh/h	992	20	1568	0	80	40	1827	1867	44	1747	1489	294
Grp Volume(v), veh/h	360	0	60	24	0	0	64	0	520	13	0	830
Grp Sat Flow(s),veh/h/ln	1011	0	1568	120	0	0	1827	0	1911	1747	0	1783
Q Serve(g_s), s	0.0	0.0	2.4	0.0	0.0	0.0	1.5	0.0	15.7	0.3	0.0	38.4
Cycle Q Clear(g_c), s	26.0	0.0	2.4	26.0	0.0	0.0	1.5	0.0	15.7	0.3	0.0	38.4
Prop In Lane	0.98		1.00	0.54		0.33	1.00		0.02	1.00		0.17
Lane Grp Cap(c), veh/h	393	0	479	102	0	0	172	0	967	384	0	859
V/C Ratio(X)	0.92	0.00	0.13	0.24	0.00	0.00	0.37	0.00	0.54	0.03	0.00	0.97
Avail Cap(c_a), veh/h	393	0	479	102	0	0	277	0	967	527	0	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	21.3	24.3	0.0	0.0	19.7	0.0	14.3	12.1	0.0	21.4
Incr Delay (d2), s/veh	25.9	0.0	0.1	1.2	0.0	0.0	1.3	0.0	2.1	0.0	0.0	23.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	0.0	1.0	0.4	0.0	0.0	0.8	0.0	8.8	0.2	0.0	24.3
LnGrp Delay(d),s/veh	57.3	0.0	21.5	25.4	0.0	0.0	21.0	0.0	16.4	12.1	0.0	45.0
LnGrp LOS	E		C	C			C		B	B		D
Approach Vol, veh/h		420			24			584			843	
Approach Delay, s/veh		52.2			25.4			16.9			44.5	
Approach LOS		D			C			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	48.1		31.0	8.1	46.0		31.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	41.0		26.0	8.0	41.0		26.0				
Max Q Clear Time (g_c+I1), s	2.3	17.7		28.0	3.5	40.4		28.0				
Green Ext Time (p_c), s	0.0	4.3		0.0	0.1	0.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			37.4									
HCM 2010 LOS			D									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Volume (vph)	0	8	1	23	2	155	1	382	44	250	450	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-8%			-3%			3%	
Storage Length (ft)	0		0	0		70	75		0	120		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986				0.850		0.984				
Flt Protected					0.956		0.950			0.950		
Satd. Flow (prot)	0	1827	0	0	1852	1647	1796	1860	0	1743	1835	0
Flt Permitted							0.455			0.432		
Satd. Flow (perm)	0	1827	0	0	1937	1647	860	1860	0	793	1835	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		1										
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		76			138			1288			388	
Travel Time (s)		1.7			3.1			29.3			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	9	1	25	2	168	1	415	48	272	489	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	0	0	27	168	1	463	0	272	490	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.01	1.01	1.01	0.95	0.95	0.95	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	2	2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83		20	83	83	83	6		83	6	
Trailing Detector (ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Position(ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Size(ft)	20	43		20	43	43	43	6		43	6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40			40	40	40			40		
Detector 2 Size(ft)		43			43	43	43			43		
Detector 2 Type		CI+Ex			CI+Ex	CI+Ex	CI+Ex			CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	0.0	0.0			0.0		
Turn Type		NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/31/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		8.0	8.0	4.0	4.0	31.0		4.0	36.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	9.0	9.0	36.0		9.0	41.0	
Total Split (s)	36.0	36.0		36.0	36.0	13.0	13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	14.4%	14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0	8.0	8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag						Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
v/c Ratio		0.05			0.10	0.48	0.00	0.40		0.35	0.31	
Control Delay		25.1			26.1	24.3	3.0	8.5		4.2	4.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.1			26.1	24.3	3.0	8.5		4.2	4.8	
Queue Length 50th (ft)		3			8	52	0	52		0	0	
Queue Length 95th (ft)		16			31	99	1	176		48	190	
Internal Link Dist (ft)		1			58			1208			308	
Turn Bay Length (ft)						70	75			120		
Base Capacity (vph)		969			1026	354	775	1145		782	1566	
Starvation Cap Reductn		0			0	0	0	0		0	70	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.01			0.03	0.47	0.00	0.40		0.35	0.33	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 59.2

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Splits and Phases: 2: NYS Route 9D & Beacon City Hall/Main Street

41 s	13 s	36 s
41 s	13 s	36 s

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour
7/31/2017



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	27	168	1	463	272	490
v/c Ratio	0.05	0.10	0.48	0.00	0.40	0.35	0.31
Control Delay	25.1	26.1	24.3	3.0	8.5	4.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	26.1	24.3	3.0	8.5	4.2	4.8
Queue Length 50th (ft)	3	8	52	0	52	0	0
Queue Length 95th (ft)	16	31	99	1	176	48	190
Internal Link Dist (ft)	1	58			1208		308
Turn Bay Length (ft)			70	75		120	
Base Capacity (vph)	969	1026	354	775	1145	782	1566
Starvation Cap Reductn	0	0	0	0	0	0	70
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.03	0.47	0.00	0.40	0.35	0.33
Intersection Summary							

2022 No-Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/31/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	8	1	23	2	155	1	382	44	250	450	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1890	1853	1890	1976	1937	1937	1891	1891	1928	1835	1835	1872
Adj Flow Rate, veh/h	0	9	1	25	2	168	1	415	48	272	489	1
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	203	23	274	18	308	612	955	110	619	1050	2
Arrive On Green	0.00	0.12	0.12	0.12	0.12	0.12	0.06	0.57	0.57	0.06	0.57	0.57
Sat Flow, veh/h	0	1639	182	1319	145	1647	1801	1664	192	1747	1830	4
Grp Volume(v), veh/h	0	0	10	27	0	168	1	0	463	272	0	490
Grp Sat Flow(s),veh/h/ln	0	0	1821	1464	0	1647	1801	0	1857	1747	0	1834
Q Serve(g_s), s	0.0	0.0	0.3	0.8	0.0	1.8	0.0	0.0	8.9	0.0	0.0	9.7
Cycle Q Clear(g_c), s	0.0	0.0	0.3	1.1	0.0	1.8	0.0	0.0	8.9	0.0	0.0	9.7
Prop In Lane	0.00		0.10	0.93		1.00	1.00		0.10	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	226	292	0	308	612	0	1065	619	0	1052
V/C Ratio(X)	0.00	0.00	0.04	0.09	0.00	0.55	0.00	0.00	0.43	0.44	0.00	0.47
Avail Cap(c_a), veh/h	0	0	900	841	0	918	728	0	1065	732	0	1052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	24.2	24.6	0.0	23.1	8.4	0.0	7.6	11.4	0.0	7.8
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.1	0.0	1.5	0.0	0.0	1.3	0.5	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.4	0.0	0.9	0.0	0.0	4.9	3.4	0.0	5.3
LnGrp Delay(d),s/veh	0.0	0.0	24.3	24.7	0.0	24.6	8.4	0.0	8.9	11.9	0.0	9.3
LnGrp LOS			C	C		C	A		A	B		A
Approach Vol, veh/h		10			195			464			762	
Approach Delay, s/veh		24.3			24.6			8.9			10.2	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	41.0		12.8	9.0	41.0		12.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	36.0		31.0	8.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s	2.0	10.9		2.3	2.0	11.7		3.8				
Green Ext Time (p_c), s	0.7	1.2		1.1	0.7	1.3		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			11.8									
HCM 2010 LOS			B									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 No-Build Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak PM Hour

7/31/2017



Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	7	2	391	1	2	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		4%			-6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.970					
Flt Protected	0.963					
Satd. Flow (prot)	1784	0	1825	0	0	1919
Flt Permitted	0.963					
Satd. Flow (perm)	1784	0	1825	0	0	1919
Link Speed (mph)	30		30			30
Link Distance (ft)	256		145			1288
Travel Time (s)	5.8		3.3			29.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	7	2	416	1	2	439
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	417	0	0	441
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.97	0.97	1.03	1.03	0.96	0.96
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

2022 No-Build Traffic Volumes
3: NYS Route 9D & Rombout Avenue

Weekday Peak PM Hour

7/31/2017

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NET	NER	SWL	SWT
Vol, veh/h	7	2	391	1	2	413
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	4	-	-	-6
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	2	416	1	2	439
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	860	416	0	0	417	0
Stage 1	416	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	5.42	5.72	-	-	4.12	-
Critical Hdwy Stg 1	4.42	-	-	-	-	-
Critical Hdwy Stg 2	4.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	414	674	-	-	1142	-
Stage 1	747	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	413	674	-	-	1142	-
Mov Cap-2 Maneuver	525	-	-	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Approach	WB		NE		SW	
HCM Control Delay, s	11.6		0		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT		
Capacity (veh/h)	-	- 552	1142	-		
HCM Lane V/C Ratio	-	- 0.017	0.002	-		
HCM Control Delay (s)	-	- 11.6	8.2	0		
HCM Lane LOS	-	- B	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

2022 Build Traffic Volumes

Weekday Peak PM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	325	6	55	12	3	7	59	469	11	12	642	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%			-10%			-6%			3%		
Storage Length (ft)	0		95	0		0	80		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.955			0.997			0.975	
Flt Protected		0.953			0.974		0.950			0.950		
Satd. Flow (prot)	0	1757	1567	0	1819	0	1823	1913	0	1743	1789	0
Flt Permitted		0.713			0.809		0.082			0.392		
Satd. Flow (perm)	0	1315	1567	0	1511	0	157	1913	0	719	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		8			2			14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			158			388			167	
Travel Time (s)		6.2			3.6			8.8			3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	353	7	60	13	3	8	64	510	12	13	698	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	360	60	0	24	0	64	522	0	13	835	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.94	0.94	0.94	0.96	0.96	0.96	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83	83	20	83		83	6		83	6	
Trailing Detector (ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Position(ft)	0	-5	-5	0	-5		-5	0		-5	0	
Detector 1 Size(ft)	20	43	43	20	43		43	6		43	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40	40		40		40			40		
Detector 2 Size(ft)		43	43		43		43			43		
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0		0.0			0.0		
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Synchro 8 Report

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2022 Build Traffic Volumes

Weekday Peak PM Hour

1: NYS Route 9D & Beekman Street/W. Church Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	20.0	20.0	20.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	31.0	31.0	31.0	31.0	31.0		13.0	46.0		13.0	46.0	
Total Split (%)	34.4%	34.4%	34.4%	34.4%	34.4%		14.4%	51.1%		14.4%	51.1%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		8.0	41.0		8.0	41.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				0	0							
v/c Ratio		0.94	0.12		0.05		0.28	0.48		0.03	0.97	
Control Delay		65.2	3.5		18.1		10.8	14.0		7.8	48.2	
Queue Delay		0.0	0.0		0.0		0.0	2.2		0.0	0.0	
Total Delay		65.2	3.5		18.1		10.8	16.2		7.8	48.2	
Queue Length 50th (ft)		197	0		6		14	149		3	~459	
Queue Length 95th (ft)		#372	17		25		30	306		10	#731	
Internal Link Dist (ft)		193			78			308			87	
Turn Bay Length (ft)			95				80			85		
Base Capacity (vph)		399	535		464		247	1081		491	864	
Starvation Cap Reductn		0	0		0		0	408		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.90	0.11		0.05		0.26	0.78		0.03	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 86.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Beekman Street/W. Church Street

		
13 s	46 s	31 s
		
13 s	46 s	31 s



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	360	60	24	64	522	13	835
v/c Ratio	0.94	0.12	0.05	0.28	0.48	0.03	0.97
Control Delay	65.2	3.5	18.1	10.8	14.0	7.8	48.2
Queue Delay	0.0	0.0	0.0	0.0	2.2	0.0	0.0
Total Delay	65.2	3.5	18.1	10.8	16.2	7.8	48.2
Queue Length 50th (ft)	197	0	6	14	149	3	~459
Queue Length 95th (ft)	#372	17	25	30	306	10	#731
Internal Link Dist (ft)	193		78		308		87
Turn Bay Length (ft)		95		80		85	
Base Capacity (vph)	399	535	464	247	1081	491	864
Starvation Cap Reductn	0	0	0	0	408	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.11	0.05	0.26	0.78	0.03	0.97

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	325	6	55	12	3	7	59	469	11	12	642	126
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1844	1844	1995	1956	1995	1919	1919	1957	1835	1835	1872
Adj Flow Rate, veh/h	353	7	60	13	3	8	64	510	12	13	698	137
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	6	479	65	24	12	169	944	22	383	718	141
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.51	0.51	0.01	0.48	0.48
Sat Flow, veh/h	992	20	1568	0	80	40	1827	1867	44	1747	1491	293
Grp Volume(v), veh/h	360	0	60	24	0	0	64	0	522	13	0	835
Grp Sat Flow(s),veh/h/ln	1011	0	1568	120	0	0	1827	0	1911	1747	0	1783
Q Serve(g_s), s	0.0	0.0	2.4	0.0	0.0	0.0	1.5	0.0	15.8	0.3	0.0	38.9
Cycle Q Clear(g_c), s	26.0	0.0	2.4	26.0	0.0	0.0	1.5	0.0	15.8	0.3	0.0	38.9
Prop In Lane	0.98		1.00	0.54		0.33	1.00		0.02	1.00		0.16
Lane Grp Cap(c), veh/h	393	0	479	102	0	0	169	0	967	383	0	859
V/C Ratio(X)	0.92	0.00	0.13	0.24	0.00	0.00	0.38	0.00	0.54	0.03	0.00	0.97
Avail Cap(c_a), veh/h	393	0	479	102	0	0	273	0	967	525	0	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	21.3	24.3	0.0	0.0	19.8	0.0	14.3	12.1	0.0	21.5
Incr Delay (d2), s/veh	25.9	0.0	0.1	1.2	0.0	0.0	1.4	0.0	2.2	0.0	0.0	24.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	0.0	1.0	0.4	0.0	0.0	0.8	0.0	8.8	0.2	0.0	24.9
LnGrp Delay(d),s/veh	57.3	0.0	21.5	25.4	0.0	0.0	21.2	0.0	16.5	12.1	0.0	46.2
LnGrp LOS	E		C	C			C		B	B		D
Approach Vol, veh/h		420			24			586			848	
Approach Delay, s/veh		52.2			25.4			17.0			45.6	
Approach LOS		D			C			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	48.1		31.0	8.1	46.0		31.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	41.0		26.0	8.0	41.0		26.0				
Max Q Clear Time (g_c+I1), s	2.3	17.8		28.0	3.5	40.9		28.0				
Green Ext Time (p_c), s	0.0	4.4		0.0	0.1	0.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			37.9									
HCM 2010 LOS			D									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 Build Traffic Volumes

Weekday Peak PM Hour

2: NYS Route 9D & Beacon City Hall/Main Street

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	8	1	24	2	155	1	384	44	250	454	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-8%			-3%			3%	
Storage Length (ft)	0		0	0		70	75		0	120		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988				0.850		0.985				
Flt Protected		0.995			0.956		0.950			0.950		
Satd. Flow (prot)	0	1822	0	0	1852	1647	1796	1862	0	1743	1835	0
Flt Permitted		0.963					0.452			0.430		
Satd. Flow (perm)	0	1763	0	0	1937	1647	855	1862	0	789	1835	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		1										
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		76			138			1288			388	
Travel Time (s)		1.7			3.1			29.3			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	9	1	26	2	168	1	417	48	272	493	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	28	168	1	465	0	272	494	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.01	1.01	1.01	0.95	0.95	0.95	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	2	2	1		2	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	83		20	83	83	83	6		83	6	
Trailing Detector (ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Position(ft)	0	-5		0	-5	-5	-5	0		-5	0	
Detector 1 Size(ft)	20	43		20	43	43	43	6		43	6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		40			40	40	40			40		
Detector 2 Size(ft)		43			43	43	43			43		
Detector 2 Type		CI+Ex			CI+Ex	CI+Ex	CI+Ex			CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	0.0	0.0			0.0		
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		

Synchro 8 Report

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JFM

2022 Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		8.0	8.0	4.0	4.0	31.0		4.0	36.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	9.0	9.0	36.0		9.0	41.0	
Total Split (s)	36.0	36.0		36.0	36.0	13.0	13.0	41.0		13.0	41.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	14.4%	14.4%	45.6%		14.4%	45.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0	8.0	8.0	36.0		8.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag						Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
v/c Ratio		0.06			0.10	0.48	0.00	0.41		0.35	0.32	
Control Delay		25.3			26.1	24.3	3.0	8.6		4.3	4.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3			26.1	24.3	3.0	8.6		4.3	4.8	
Queue Length 50th (ft)		3			8	52	0	52		0	0	
Queue Length 95th (ft)		17			32	99	1	177		48	193	
Internal Link Dist (ft)		1			58			1208			308	
Turn Bay Length (ft)						70	75			120		
Base Capacity (vph)		934			1026	354	771	1146		779	1565	
Starvation Cap Reductn		0			0	0	0	0		0	70	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.01			0.03	0.47	0.00	0.41		0.35	0.33	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 59.2

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Splits and Phases: 2: NYS Route 9D & Beacon City Hall/Main Street

 ø2	 ø1	 ø4
41 s	13 s	36 s
 ø6	 ø5	 ø8
41 s	13 s	36 s



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	28	168	1	465	272	494
v/c Ratio	0.06	0.10	0.48	0.00	0.41	0.35	0.32
Control Delay	25.3	26.1	24.3	3.0	8.6	4.3	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	26.1	24.3	3.0	8.6	4.3	4.8
Queue Length 50th (ft)	3	8	52	0	52	0	0
Queue Length 95th (ft)	17	32	99	1	177	48	193
Internal Link Dist (ft)	1	58			1208		308
Turn Bay Length (ft)			70	75		120	
Base Capacity (vph)	934	1026	354	771	1146	779	1565
Starvation Cap Reductn	0	0	0	0	0	0	70
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.03	0.47	0.00	0.41	0.35	0.33
Intersection Summary							

2022 Build Traffic Volumes
2: NYS Route 9D & Beacon City Hall/Main Street

Weekday Peak PM Hour

7/31/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	8	1	24	2	155	1	384	44	250	454	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1890	1853	1890	1976	1937	1937	1891	1891	1928	1835	1835	1872
Adj Flow Rate, veh/h	1	9	1	26	2	168	1	417	48	272	493	1
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	196	20	279	18	308	609	955	110	618	1050	2
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.57	0.57	0.06	0.57	0.57
Sat Flow, veh/h	51	1583	163	1356	143	1647	1801	1665	192	1747	1830	4
Grp Volume(v), veh/h	11	0	0	28	0	168	1	0	465	272	0	494
Grp Sat Flow(s),veh/h/ln	1797	0	0	1499	0	1647	1801	0	1857	1747	0	1834
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	1.8	0.0	0.0	8.9	0.0	0.0	9.9
Cycle Q Clear(g_c), s	0.3	0.0	0.0	1.0	0.0	1.8	0.0	0.0	8.9	0.0	0.0	9.9
Prop In Lane	0.09		0.09	0.93		1.00	1.00		0.10	1.00		0.00
Lane Grp Cap(c), veh/h	285	0	0	297	0	308	609	0	1065	618	0	1052
V/C Ratio(X)	0.04	0.00	0.00	0.09	0.00	0.54	0.00	0.00	0.44	0.44	0.00	0.47
Avail Cap(c_a), veh/h	929	0	0	845	0	918	725	0	1065	730	0	1052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	0.0	24.5	0.0	23.1	8.5	0.0	7.6	11.4	0.0	7.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	1.5	0.0	0.0	1.3	0.5	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.4	0.0	0.9	0.0	0.0	4.9	3.4	0.0	5.4
LnGrp Delay(d),s/veh	24.3	0.0	0.0	24.6	0.0	24.6	8.5	0.0	8.9	11.9	0.0	9.3
LnGrp LOS	C			C		C	A		A	B		A
Approach Vol, veh/h		11			196			466			766	
Approach Delay, s/veh		24.3			24.6			8.9			10.2	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	41.0		12.8	9.0	41.0		12.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	8.0	36.0		31.0	8.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s	2.0	10.9		2.3	2.0	11.9		3.8				
Green Ext Time (p_c), s	0.7	1.2		1.2	0.7	1.3		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			11.9									
HCM 2010 LOS			B									

Two Way Analysis cannot be performed on Signalized Intersection.

2022 Build Traffic Volumes
3: NYS Route 9D & Site Access/Rombout Avenue

Weekday Peak PM Hour

7/31/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	3	0	2	7	0	2	5	391	1	2	413	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-5%			4%			-6%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.970						0.998	
Flt Protected		0.971			0.963			0.999				
Satd. Flow (prot)	0	1711	0	0	1784	0	0	1824	0	0	1915	0
Flt Permitted		0.971			0.963			0.999				
Satd. Flow (perm)	0	1711	0	0	1784	0	0	1824	0	0	1915	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		204			256			145			1288	
Travel Time (s)		4.6			5.8			3.3			29.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	3	0	2	7	0	2	5	416	1	2	439	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	9	0	0	422	0	0	447	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	0.97	0.97	0.97	1.03	1.03	1.03	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											

2022 Build Traffic Volumes
3: NYS Route 9D & Site Access/Rombout Avenue

Weekday Peak PM Hour

7/31/2017

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	3	0	2	7	0	2	5	391	1	2	413	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-5	-	-	4	-	-	-6	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	2	7	0	2	5	416	1	2	439	6
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	875	875	443	875	877	416	446	0	0	417	0	0
Stage 1	447	447	-	427	427	-	-	-	-	-	-	-
Stage 2	428	428	-	448	450	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	6.12	5.52	5.72	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	5.12	4.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	5.12	4.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	270	288	615	344	366	674	1114	-	-	1142	-	-
Stage 1	591	573	-	682	659	-	-	-	-	-	-	-
Stage 2	605	585	-	668	648	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	268	286	615	341	363	674	1114	-	-	1142	-	-
Mov Cap-2 Maneuver	268	286	-	341	363	-	-	-	-	-	-	-
Stage 1	587	572	-	678	655	-	-	-	-	-	-	-
Stage 2	599	581	-	664	647	-	-	-	-	-	-	-
Approach	EB			WB			NE			SW		
HCM Control Delay, s	15.6			14.6			0.1			0		
HCM LOS	C			B								
Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR				
Capacity (veh/h)	1114	-	-	346	383	1142	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.015	0.025	0.002	-	-				
HCM Control Delay (s)	8.2	0	-	15.6	14.6	8.2	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-				



***RIVER RIDGE RESIDENTIAL
DEVELOPMENT***

APPENDIX E

TRAFFIC VOLUME DATA

LOCATION:		NYS ROUTE 9D & ROMBOUT AVENUE					PROJECT:		RIVER RIDGE						
DATE OF COUNT:		07/20/17		DAY: Thursday		JCE JOB #:		17004150A		START TIME :		06:45		AM	
ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT															
	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
AM PEAK HOUR	1	2	3	4	5	6	7	8	9	10	11	12	total		
06:45 AM 07:00 AM				0		0		39	1	0	37		77	A	
07:00 AM 07:15 AM				0		0		37	0	2	51		90	A	
07:15 AM 07:30 AM				1		2		40	2	1	35		81	A	
07:30 AM 07:45 AM				0		0		55	0	1	45		101	A	349
07:45 AM 08:00 AM				2		0		47	2	0	45		96	A	368
08:00 AM 08:15 AM				1		1		51	1	1	49		104	X	382
08:15 AM 08:30 AM				0		0		56	0	0	44		100	X	401
08:30 AM 08:45 AM				0		1		39	1	0	55		96	X	396
08:45 AM 09:00 AM				0		2		66	0	0	49		117	X	417
09:00 AM 09:15 AM				0		1		42	1	0	42		86	A	399
09:15 AM 09:30 AM													0	A	299
09:30 AM 09:45 AM													0	A	203
09:45 AM 10:00 AM													0	A	86
10:00 AM 10:15 AM													0	A	0
10:15 AM 10:30 AM													0	A	0
10:30 AM 10:45 AM													0	A	0
CALCULATED PEAK 15-MINUTE VOLUMES															
06:45 AM 07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:00 AM 07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:15 AM 07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:30 AM 07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:45 AM 08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
08:00 AM 08:15 AM	0	0	0	1	0	1	0	51	1	1	49	0	104		
08:15 AM 08:30 AM	0	0	0	0	0	0	0	56	0	0	44	0	100		
08:30 AM 08:45 AM	0	0	0	0	0	1	0	39	1	0	55	0	96		
08:45 AM 09:00 AM	0	0	0	0	0	2	0	66	0	0	49	0	117		
09:00 AM 09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:15 AM 09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:30 AM 09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:45 AM 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:00 AM 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:15 AM 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:30 AM 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
CALCULATED PEAK HOUR VOLUMES															
AM PEAK HOUR	1	2	3	4	5	6	7	8	9	10	11	12	total	PHF	
08:00 AM 09:00 AM	0	0	0	1	0	4	0	212	2	1	197	0	417	0.891026	
PHF BY MOVEMENT	#DIV/0!	#DIV/0!	#DIV/0!	0.25	#DIV/0!	0.50	#DIV/0!	0.80	0.50	0.25	0.90	#DIV/0!			
PHF BY APPROACH	#DIV/0!			0.63			0.81			0.90					

0	197	1	^	6	4
12	11	10	<	5	0
<	v	>	v	4	1
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	212	2

LOCATION:		NYS ROUTE 9D & ROMBOULT AVENUE						PROJECT:		RIVER RIDGE					
DATE OF COUNT:		07/25/17		DAY: Tuesday		JCE JOB #:		17004150A		START TIME :		15:30		PM	
ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT															
	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
PM PEAK HOUR	1	2	3	4	5	6	7	8	9	10	11	12	total		
03:30 PM 03:45 PM				0		0		44	0	0	64		108	A	
03:45 PM 04:00 PM				0		0		63	1	0	47		111	A	
04:00 PM 04:15 PM				0		0		75	0	1	51		127	A	
04:15 PM 04:30 PM				0		1		57	1	2	49		110	A	456
04:30 PM 04:45 PM				0		1		70	0	0	46		117	A	465
04:45 PM 05:00 PM				0		0		58	2	1	59		120	A	474
05:00 PM 05:15 PM				1		1		67	0	0	55		124	X	471
05:15 PM 05:30 PM				3		1		75	1	0	54		134	X	495
05:30 PM 05:45 PM				2		0		52	0	0	65		119	X	497
05:45 PM 06:00 PM				0		0		73	0	2	51		126	X	503
06:00 PM 06:15 PM				0		0		53	0	1	49		103	A	482
06:15 PM 06:30 PM													0	A	348
06:30 PM 06:45 PM													0	A	229
06:45 PM 07:00 PM													0	A	103
07:00 PM 07:15 PM													0	A	0
07:15 PM 07:30 PM													0	A	0
CALCULATED PEAK 15-MINUTE VOLUMES															
03:30 PM 03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:45 PM 04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:00 PM 04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:15 PM 04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:30 PM 04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:45 PM 05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:00 PM 05:15 PM	0	0	0	1	0	1	0	67	0	0	55	0	124		
05:15 PM 05:30 PM	0	0	0	3	0	1	0	75	1	0	54	0	134		
05:30 PM 05:45 PM	0	0	0	2	0	0	0	52	0	0	65	0	119		
05:45 PM 06:00 PM	0	0	0	0	0	0	0	73	0	2	51	0	126		
06:00 PM 06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
06:15 PM 06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
06:30 PM 06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
06:45 PM 07:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:00 PM 07:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:15 PM 07:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
CALCULATED PEAK HOUR VOLUMES															
PM PEAK HOUR	1	2	3	4	5	6	7	8	9	10	11	12	total	PHF	
05:00 PM 06:00 PM	0	0	0	6	0	2	0	267	1	2	225	0	503	0.938433	
PHF BY MOVEMENT	#DIV/0!	#DIV/0!	#DIV/0!	0.50	#DIV/0!	0.50	#DIV/0!	0.89	0.25	0.25	0.87	#DIV/0!			
PHF BY APPROACH	#DIV/0!			0.50			0.88			0.87					

0	225	2	^	6	2
12	11	10	<	5	0
<	v	>	v	4	6
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	267	1

Maser Consulting

11 Bradhurst Avenue

Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_BEEKMAN_ST_W_CHURCH_ST_389048_03-07-2017

Site Code :

Start Date : 3/7/2017

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROUTE 9D From North					W CHURCH ST From East					BEEKMAN ST From South					ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	108	43	0	0	151	0	1	0	2	3	0	47	4	0	51	2	0	26	0	28	233
06:45 AM	126	66	0	0	192	3	5	3	0	11	0	56	3	0	59	6	2	38	0	46	308
Total	234	109	0	0	343	3	6	3	2	14	0	103	7	0	110	8	2	64	0	74	541
07:00 AM	122	60	0	2	184	0	4	0	2	6	0	58	2	0	60	2	2	29	0	33	283
07:15 AM	101	44	0	1	146	6	4	0	1	11	0	77	4	0	81	4	0	45	1	50	288
07:30 AM	65	74	1	3	143	1	2	0	2	5	0	103	2	0	105	2	0	19	1	22	275
07:45 AM	31	100	0	0	131	4	1	1	0	6	0	69	2	0	71	8	1	24	0	33	241
Total	319	278	1	6	604	11	11	1	5	28	0	307	10	0	317	16	3	117	2	138	1087
08:00 AM	52	79	2	1	134	1	1	1	0	3	2	88	7	0	97	3	1	15	0	19	253
08:15 AM	24	107	0	3	134	4	2	4	2	12	1	66	4	0	71	3	1	23	0	27	244
08:30 AM	31	119	0	1	151	4	2	5	0	11	0	123	9	0	132	2	2	17	1	22	316
08:45 AM	36	113	0	0	149	4	0	2	0	6	1	96	4	0	101	1	1	31	0	33	289
Total	143	418	2	5	568	13	5	12	2	32	4	373	24	0	401	9	5	86	1	101	1102
09:00 AM	42	87	1	1	131	0	0	0	2	2	0	91	8	1	100	9	0	20	0	29	262
09:15 AM	13	88	1	1	103	0	0	3	1	4	0	72	4	0	76	2	0	18	0	20	203
Grand Total	751	980	5	13	1749	27	22	19	12	80	4	946	53	1	1004	44	10	305	3	362	3195
Apprch %	42.9	56	0.3	0.7		33.8	27.5	23.8	15		0.4	94.2	5.3	0.1		12.2	2.8	84.3	0.8		
Total %	23.5	30.7	0.2	0.4	54.7	0.8	0.7	0.6	0.4	2.5	0.1	29.6	1.7	0	31.4	1.4	0.3	9.5	0.1	11.3	
Lights	740	917	4	0	1661	27	22	18	0	67	3	891	48	0	942	43	10	289	0	342	3012
% Lights	98.5	93.6	80	0	95	100	100	94.7	0	83.8	75	94.2	90.6	0	93.8	97.7	100	94.8	0	94.5	94.3
Buses	6	27	1	0	34	0	0	1	0	1	0	23	4	0	27	0	0	8	0	8	70
% Buses	0.8	2.8	20	0	1.9	0	0	5.3	0	1.2	0	2.4	7.5	0	2.7	0	0	2.6	0	2.2	2.2
Trucks	5	36	0	0	41	0	0	0	0	0	1	32	1	0	34	1	0	8	0	9	84
% Trucks	0.7	3.7	0	0	2.3	0	0	0	0	0	25	3.4	1.9	0	3.4	2.3	0	2.6	0	2.5	2.6
Pedestrians	0	0	0	13	13	0	0	0	12	12	0	0	0	1	1	0	0	0	3	3	29
% Pedestrians	0	0	0	100	0.7	0	0	0	100	15	0	0	0	100	0.1	0	0	0	100	0.8	0.9

Maser Consulting

11 Bradhurst Avenue

Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_BEEKMAN_ST_W_CHURCH_ST_389048_03-07-2017

Site Code :

Start Date : 3/7/2017

Page No : 2

	ROUTE 9D From North					W CHURCH ST From East					BEEKMAN ST From South					ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45 AM																					
06:45 AM	126	66	0	0	192	3	5	3	0	11	0	56	3	0	59	6	2	38	0	46	308
07:00 AM	122	60	0	2	184	0	4	0	2	6	0	58	2	0	60	2	2	29	0	33	283
07:15 AM	101	44	0	1	146	6	4	0	1	11	0	77	4	0	81	4	0	45	1	50	288
07:30 AM	65	74	1	3	143	1	2	0	2	5	0	103	2	0	105	2	0	19	1	22	275
Total Volume	414	244	1	6	665	10	15	3	5	33	0	294	11	0	305	14	4	131	2	151	1154
% App. Total	62.3	36.7	0.2	0.9		30.3	45.5	9.1	15.2		0	96.4	3.6	0		9.3	2.6	86.8	1.3		
PHF	.821	.824	.250	.500	.866	.417	.750	.250	.625	.750	.000	.714	.688	.000	.726	.583	.500	.728	.500	.755	.937
Lights	410	217	1	0	628	10	15	2	0	27	0	278	10	0	288	14	4	124	0	142	1085
% Lights	99.0	88.9	100	0	94.4	100	100	66.7	0	81.8	0	94.6	90.9	0	94.4	100	100	94.7	0	94.0	94.0
Buses	1	15	0	0	16	0	0	1	0	1	0	8	1	0	9	0	0	6	0	6	32
% Buses	0.2	6.1	0	0	2.4	0	0	33.3	0	3.0	0	2.7	9.1	0	3.0	0	0	4.6	0	4.0	2.8
Trucks	3	12	0	0	15	0	0	0	0	0	0	8	0	0	8	0	0	1	0	1	24
% Trucks	0.7	4.9	0	0	2.3	0	0	0	0	0	0	2.7	0	0	2.6	0	0	0.8	0	0.7	2.1
Pedestrians	0	0	0	6	6	0	0	0	5	5	0	0	0	0	0	0	0	0	2	2	13
% Pedestrians	0	0	0	100	0.9	0	0	0	100	15.2	0	0	0	0	0	0	0	0	100	1.3	1.1

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11 Bradhurst Avenue

Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_BEEKMAN_ST_W_CHURCH_ST_389048_03-07-2017

Site Code :

Start Date : 3/7/2017

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROUTE 9D From North					W CHURCH ST From East					BEEKMAN ST From South					ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	24	90	1	0	115	4	0	1	3	8	1	105	7	0	113	6	1	13	2	22	258
03:45 PM	21	99	1	2	123	1	1	1	5	8	0	72	4	2	78	4	1	19	0	24	233
Total	45	189	2	2	238	5	1	2	8	16	1	177	11	2	191	10	2	32	2	46	491
04:00 PM	29	106	2	0	137	4	3	1	4	12	1	94	3	5	103	5	2	51	3	61	313
04:15 PM	19	87	0	1	107	3	0	1	1	5	0	80	3	1	84	4	2	61	3	70	266
04:30 PM	26	111	1	2	140	2	2	1	2	7	0	117	2	0	119	5	2	55	1	63	329
04:45 PM	29	98	0	5	132	4	1	0	3	8	0	81	5	0	86	10	1	75	2	88	314
Total	103	402	3	8	516	13	6	3	10	32	1	372	13	6	392	24	7	242	9	282	1222
05:00 PM	25	88	0	1	114	1	0	0	2	3	0	89	6	0	95	5	2	63	2	72	284
05:15 PM	17	121	3	0	141	1	0	2	4	7	4	82	2	0	88	11	0	55	0	66	302
05:30 PM	21	132	3	0	156	0	0	4	0	4	6	93	6	0	105	5	2	97	1	105	370
05:45 PM	11	123	2	0	136	6	1	1	1	9	2	81	3	0	86	6	1	21	0	28	259
Total	74	464	8	1	547	8	1	7	7	23	12	345	17	0	374	27	5	236	3	271	1215
Grand Total	222	1055	13	11	1301	26	8	12	25	71	14	894	41	8	957	61	14	510	14	599	2928
Apprch %	17.1	81.1	1	0.8		36.6	11.3	16.9	35.2		1.5	93.4	4.3	0.8		10.2	2.3	85.1	2.3		
Total %	7.6	36	0.4	0.4	44.4	0.9	0.3	0.4	0.9	2.4	0.5	30.5	1.4	0.3	32.7	2.1	0.5	17.4	0.5	20.5	
Lights	214	1032	13	0	1259	24	8	12	0	44	14	864	35	0	913	60	14	499	0	573	2789
% Lights	96.4	97.8	100	0	96.8	92.3	100	100	0	62	100	96.6	85.4	0	95.4	98.4	100	97.8	0	95.7	95.3
Buses	5	16	0	0	21	1	0	0	0	1	0	20	6	0	26	0	0	6	0	6	54
% Buses	2.3	1.5	0	0	1.6	3.8	0	0	0	1.4	0	2.2	14.6	0	2.7	0	0	1.2	0	1	1.8
Trucks	3	7	0	0	10	1	0	0	0	1	0	10	0	0	10	1	0	5	0	6	27
% Trucks	1.4	0.7	0	0	0.8	3.8	0	0	0	1.4	0	1.1	0	0	1	1.6	0	1	0	1	0.9
Pedestrians	0	0	0	11	11	0	0	0	25	25	0	0	0	8	8	0	0	0	14	14	58
% Pedestrians	0	0	0	100	0.8	0	0	0	100	35.2	0	0	0	100	0.8	0	0	0	100	2.3	2

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File Name : NYS_ROUTE_9D_AND_BEEKMAN_ST_W_CHURCH_ST_389048_03-07-2017

Site Code :

Start Date : 3/7/2017

Page No : 2

	ROUTE 9D From North					W CHURCH ST From East					BEEKMAN ST From South					ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	29	98	0	5	132	4	1	0	3	8	0	81	5	0	86	10	1	75	2	88	314
05:00 PM	25	88	0	1	114	1	0	0	2	3	0	89	6	0	95	5	2	63	2	72	284
05:15 PM	17	121	3	0	141	1	0	2	4	7	4	82	2	0	88	11	0	55	0	66	302
05:30 PM	21	132	3	0	156	0	0	4	0	4	6	93	6	0	105	5	2	97	1	105	370
Total Volume	92	439	6	6	543	6	1	6	9	22	10	345	19	0	374	31	5	290	5	331	1270
% App. Total	16.9	80.8	1.1	1.1		27.3	4.5	27.3	40.9		2.7	92.2	5.1	0		9.4	1.5	87.6	1.5		
PHF	.793	.831	.500	.300	.870	.375	.250	.375	.563	.688	.417	.927	.792	.000	.890	.705	.625	.747	.625	.788	.858
Lights	88	435	6	0	529	5	1	6	0	12	10	340	16	0	366	30	5	285	0	320	1227
% Lights	95.7	99.1	100	0	97.4	83.3	100	100	0	54.5	100	98.6	84.2	0	97.9	96.8	100	98.3	0	96.7	96.6
Buses	2	1	0	0	3	1	0	0	0	1	0	3	3	0	6	0	0	3	0	3	13
% Buses	2.2	0.2	0	0	0.6	16.7	0	0	0	4.5	0	0.9	15.8	0	1.6	0	0	1.0	0	0.9	1.0
Trucks	2	3	0	0	5	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	10
% Trucks	2.2	0.7	0	0	0.9	0	0	0	0	0	0	0.6	0	0	0.5	3.2	0	0.7	0	0.9	0.8
Pedestrians	0	0	0	6	6	0	0	0	9	9	0	0	0	0	0	0	0	0	5	5	20
% Pedestrians	0	0	0	100	1.1	0	0	0	100	40.9	0	0	0	0	0	0	0	0	100	1.5	1.6

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Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_BEEKMAN_ST_W_CHURCH_ST_389358_03-09-2017

Site Code :

Start Date : 3/9/2017

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9W From North					W CHURCH ST From East					NYS ROUTE 9W From South					BEEKMAN ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	34	121	2	2	159	2	2	1	2	7	1	89	9	0	99	9	0	59	2	70	335
05:45 PM	15	131	3	0	149	2	0	0	1	3	0	102	12	0	114	5	3	65	5	78	344
Total	49	252	5	2	308	4	2	1	3	10	1	191	21	0	213	14	3	124	7	148	679
06:00 PM	28	93	3	1	125	3	0	0	1	4	1	85	5	0	91	4	0	21	0	25	245
06:15 PM	27	105	3	5	140	4	1	1	2	8	1	82	5	1	89	14	1	147	5	167	404
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	104	450	11	8	573	11	3	2	6	22	3	358	31	1	393	32	4	292	12	340	1328
Apprch %	18.2	78.5	1.9	1.4		50	13.6	9.1	27.3		0.8	91.1	7.9	0.3		9.4	1.2	85.9	3.5		
Total %	7.8	33.9	0.8	0.6	43.1	0.8	0.2	0.2	0.5	1.7	0.2	27	2.3	0.1	29.6	2.4	0.3	22	0.9	25.6	
Lights	99	448	11	0	558	10	3	2	0	15	3	354	29	0	386	31	4	289	0	324	1283
% Lights	95.2	99.6	100	0	97.4	90.9	100	100	0	68.2	100	98.9	93.5	0	98.2	96.9	100	99	0	95.3	96.6
Buses	4	1	0	0	5	0	0	0	0	0	0	2	2	0	4	0	0	2	0	2	11
% Buses	3.8	0.2	0	0	0.9	0	0	0	0	0	0	0.6	6.5	0	1	0	0	0.7	0	0.6	0.8
Trucks	1	1	0	0	2	1	0	0	0	1	0	2	0	0	2	1	0	1	0	2	7
% Trucks	1	0.2	0	0	0.3	9.1	0	0	0	4.5	0	0.6	0	0	0.5	3.1	0	0.3	0	0.6	0.5
Pedestrians	0	0	0	8	8	0	0	0	6	6	0	0	0	1	1	0	0	0	12	12	27
% Pedestrians	0	0	0	100	1.4	0	0	0	100	27.3	0	0	0	100	0.3	0	0	0	100	3.5	2

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11 Bradhurst Avenue

Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_BEEKMAN_ST_W_CHURCH_ST_389358_03-09-2017

Site Code :

Start Date : 3/9/2017

Page No : 2

	NYS ROUTE 9W From North					W CHURCH ST From East					NYS ROUTE 9W From South					BEEKMAN ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:30 PM																					
05:30 PM	34	121	2	2	159	2	2	1	2	7	1	89	9	0	99	9	0	59	2	70	335
05:45 PM	15	131	3	0	149	2	0	0	1	3	0	102	12	0	114	5	3	65	5	78	344
06:00 PM	28	93	3	1	125	3	0	0	1	4	1	85	5	0	91	4	0	21	0	25	245
06:15 PM	27	105	3	5	140	4	1	1	2	8	1	82	5	1	89	14	1	147	5	167	404
Total Volume	104	450	11	8	573	11	3	2	6	22	3	358	31	1	393	32	4	292	12	340	1328
% App. Total	18.2	78.5	1.9	1.4		50	13.6	9.1	27.3		0.8	91.1	7.9	0.3		9.4	1.2	85.9	3.5		
PHF	.765	.859	.917	.400	.901	.688	.375	.500	.750	.688	.750	.877	.646	.250	.862	.571	.333	.497	.600	.509	.822
Lights	99	448	11	0	558	10	3	2	0	15	3	354	29	0	386	31	4	289	0	324	1283
% Lights	95.2	99.6	100	0	97.4	90.9	100	100	0	68.2	100	98.9	93.5	0	98.2	96.9	100	99.0	0	95.3	96.6
Buses	4	1	0	0	5	0	0	0	0	0	0	2	2	0	4	0	0	2	0	2	11
% Buses	3.8	0.2	0	0	0.9	0	0	0	0	0	0	0.6	6.5	0	1.0	0	0	0.7	0	0.6	0.8
Trucks	1	1	0	0	2	1	0	0	0	1	0	2	0	0	2	1	0	1	0	2	7
% Trucks	1.0	0.2	0	0	0.3	9.1	0	0	0	4.5	0	0.6	0	0	0.5	3.1	0	0.3	0	0.6	0.5
Pedestrians	0	0	0	8	8	0	0	0	6	6	0	0	0	1	1	0	0	0	12	12	27
% Pedestrians	0	0	0	100	1.4	0	0	0	100	27.3	0	0	0	100	0.3	0	0	0	100	3.5	2.0

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11 Bradhurst Avenue

Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_MAIN_ST_CITY_HALL_DRIVEWAY_389053_03-07-2017

Site Code :

Start Date : 3/7/2017

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROUTE 9D From North					MAIN ST From East					ROUTE 9D From South					MINICIPAL PLAZA From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	29	16	1	46	10	2	1	3	16	1	42	0	4	47	0	0	0	0	0	109
06:45 AM	0	49	27	0	76	16	0	0	0	16	0	37	0	5	42	0	0	0	0	0	134
Total	0	78	43	1	122	26	2	1	3	32	1	79	0	9	89	0	0	0	0	0	243
07:00 AM	1	51	14	0	66	8	0	0	0	8	3	56	0	4	63	0	0	0	0	0	137
07:15 AM	1	29	22	0	52	23	2	6	0	31	2	67	1	5	75	0	1	0	1	2	160
07:30 AM	1	45	28	0	74	16	1	3	0	20	7	80	2	3	92	1	0	0	0	1	187
07:45 AM	6	65	38	0	109	15	2	2	0	19	3	54	1	1	59	0	0	0	0	0	187
Total	9	190	102	0	301	62	5	11	0	78	15	257	4	13	289	1	1	0	1	3	671
08:00 AM	0	41	39	0	80	31	0	2	1	34	0	65	2	4	71	0	4	1	0	5	190
08:15 AM	0	59	49	0	108	22	3	1	0	26	9	53	3	2	67	0	0	1	0	1	202
08:30 AM	2	78	53	0	133	25	1	1	0	27	6	106	0	4	116	0	2	2	1	5	281
08:45 AM	2	54	61	0	117	24	1	3	0	28	8	79	1	3	91	1	2	0	0	3	239
Total	4	232	202	0	438	102	5	7	1	115	23	303	6	13	345	1	8	4	1	14	912
09:00 AM	1	44	50	0	95	36	1	3	1	41	1	55	0	2	58	1	0	0	0	1	195
09:15 AM	0	44	49	0	93	30	0	1	0	31	4	46	1	3	54	0	1	0	1	2	180
Grand Total	14	588	446	1	1049	256	13	23	5	297	44	740	11	40	835	3	10	4	3	20	2201
Apprch %	1.3	56.1	42.5	0.1		86.2	4.4	7.7	1.7		5.3	88.6	1.3	4.8		15	50	20	15		
Total %	0.6	26.7	20.3	0	47.7	11.6	0.6	1	0.2	13.5	2	33.6	0.5	1.8	37.9	0.1	0.5	0.2	0.1	0.9	
Lights	14	557	411	0	982	242	13	23	0	278	37	697	11	0	745	3	10	4	0	17	2022
% Lights	100	94.7	92.2	0	93.6	94.5	100	100	0	93.6	84.1	94.2	100	0	89.2	100	100	100	0	85	91.9
Buses	0	14	13	0	27	3	0	0	0	3	4	25	0	0	29	0	0	0	0	0	59
% Buses	0	2.4	2.9	0	2.6	1.2	0	0	0	1	9.1	3.4	0	0	3.5	0	0	0	0	0	2.7
Trucks	0	17	22	0	39	11	0	0	0	11	3	18	0	0	21	0	0	0	0	0	71
% Trucks	0	2.9	4.9	0	3.7	4.3	0	0	0	3.7	6.8	2.4	0	0	2.5	0	0	0	0	0	3.2
Pedestrians	0	0	0	1	1	0	0	0	5	5	0	0	0	40	40	0	0	0	3	3	49
% Pedestrians	0	0	0	100	0.1	0	0	0	100	1.7	0	0	0	100	4.8	0	0	0	100	15	2.2

Maser Consulting

11 Bradhurst Avenue

Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_MAIN_ST_CITY_HALL_DRIVEWAY_389053_03-07-2017

Site Code :

Start Date : 3/7/2017

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	ROUTE 9D From North					MAIN ST From East					ROUTE 9D From South					MINICIPAL PLAZA From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	0	59	49	0	108	22	3	1	0	26	9	53	3	2	67	0	0	1	0	1	202
08:30 AM	2	78	53	0	133	25	1	1	0	27	6	106	0	4	116	0	2	2	1	5	281
08:45 AM	2	54	61	0	117	24	1	3	0	28	8	79	1	3	91	1	2	0	0	3	239
09:00 AM	1	44	50	0	95	36	1	3	1	41	1	55	0	2	58	1	0	0	0	1	195
Total Volume	5	235	213	0	453	107	6	8	1	122	24	293	4	11	332	2	4	3	1	10	917
% App. Total	1.1	51.9	47	0		87.7	4.9	6.6	0.8		7.2	88.3	1.2	3.3		20	40	30	10		
PHF	.625	.753	.873	.000	.852	.743	.500	.667	.250	.744	.667	.691	.333	.688	.716	.500	.500	.375	.250	.500	.816
Lights	5	225	200	0	430	104	6	8	0	118	19	271	4	0	294	2	4	3	0	9	851
% Lights	100	95.7	93.9	0	94.9	97.2	100	100	0	96.7	79.2	92.5	100	0	88.6	100	100	100	0	90.0	92.8
Buses	0	2	5	0	7	1	0	0	0	1	3	13	0	0	16	0	0	0	0	0	24
% Buses	0	0.9	2.3	0	1.5	0.9	0	0	0	0.8	12.5	4.4	0	0	4.8	0	0	0	0	0	2.6
Trucks	0	8	8	0	16	2	0	0	0	2	2	9	0	0	11	0	0	0	0	0	29
% Trucks	0	3.4	3.8	0	3.5	1.9	0	0	0	1.6	8.3	3.1	0	0	3.3	0	0	0	0	0	3.2
Pedestrians	0	0	0	0	0	0	0	0	1	1	0	0	0	11	11	0	0	0	1	1	13
% Pedestrians	0	0	0	0	0	0	0	0	100	0.8	0	0	0	100	3.3	0	0	0	100	10.0	1.4

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Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_MAIN_ST_CITY_HALL_DRIVEWAY_389053_03-07-2017

Site Code :

Start Date : 3/7/2017

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Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROUTE 9D From North					MAIN ST From East					ROUTE 9D From South					MINICIPAL PLAZA From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	1	46	53	0	100	25	0	4	0	29	4	76	0	2	82	3	1	1	3	8	219
03:45 PM	1	50	51	0	102	25	0	2	3	30	1	58	0	5	64	1	3	4	0	8	204
Total	2	96	104	0	202	50	0	6	3	59	5	134	0	7	146	4	4	5	3	16	423
04:00 PM	0	58	56	0	114	25	1	4	1	31	3	69	0	0	72	1	2	3	0	6	223
04:15 PM	0	49	45	0	94	18	2	6	0	26	5	61	1	7	74	0	1	1	1	3	197
04:30 PM	0	67	47	0	114	33	0	5	1	39	3	78	0	1	82	0	0	2	0	2	237
04:45 PM	0	48	62	0	110	25	0	0	0	25	9	60	1	3	73	0	0	1	1	2	210
Total	0	222	210	0	432	101	3	15	2	121	20	268	2	11	301	1	3	7	2	13	867
05:00 PM	0	51	43	0	94	34	1	5	2	42	8	66	0	0	74	0	0	0	0	0	210
05:15 PM	0	71	62	0	133	27	0	4	0	31	12	57	0	3	72	1	1	0	0	2	238
05:30 PM	0	79	64	1	144	39	1	3	1	44	14	66	1	6	87	0	5	0	0	5	280
05:45 PM	0	65	57	0	122	28	0	4	0	32	3	52	0	8	63	0	1	0	0	1	218
Total	0	266	226	1	493	128	2	16	3	149	37	241	1	17	296	1	7	0	0	8	946
06:00 PM	0	42	49	0	91	34	0	5	0	39	3	56	1	3	63	0	0	0	0	0	193
06:15 PM	0	52	58	2	112	18	2	2	0	22	18	70	0	3	91	0	1	0	0	1	226
Grand Total	2	678	647	3	1330	331	7	44	8	390	83	769	4	41	897	6	15	12	5	38	2655
Apprch %	0.2	51	48.6	0.2		84.9	1.8	11.3	2.1		9.3	85.7	0.4	4.6		15.8	39.5	31.6	13.2		
Total %	0.1	25.5	24.4	0.1	50.1	12.5	0.3	1.7	0.3	14.7	3.1	29	0.2	1.5	33.8	0.2	0.6	0.5	0.2	1.4	
Lights	2	660	635	0	1297	324	7	42	0	373	75	735	4	0	814	6	15	12	0	33	2517
% Lights	100	97.3	98.1	0	97.5	97.9	100	95.5	0	95.6	90.4	95.6	100	0	90.7	100	100	100	0	86.8	94.8
Buses	0	11	8	0	19	3	0	0	0	3	7	25	0	0	32	0	0	0	0	0	54
% Buses	0	1.6	1.2	0	1.4	0.9	0	0	0	0.8	8.4	3.3	0	0	3.6	0	0	0	0	0	2
Trucks	0	7	4	0	11	4	0	2	0	6	1	9	0	0	10	0	0	0	0	0	27
% Trucks	0	1	0.6	0	0.8	1.2	0	4.5	0	1.5	1.2	1.2	0	0	1.1	0	0	0	0	0	1
Pedestrians	0	0	0	3	3	0	0	0	8	8	0	0	0	41	41	0	0	0	5	5	57
% Pedestrians	0	0	0	100	0.2	0	0	0	100	2.1	0	0	0	100	4.6	0	0	0	100	13.2	2.1

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Hawthorne, NY 1052

Customer Loyalty through Client Satisfaction

File Name : NYS_ROUTE_9D_AND_MAIN_ST_CITY_HALL_DRIVEWAY_389053_03-07-2017

Site Code :

Start Date : 3/7/2017

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	ROUTE 9D From North					MAIN ST From East					ROUTE 9D From South					MINICIPAL PLAZA From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 01:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	51	43	0	94	34	1	5	2	42	8	66	0	0	74	0	0	0	0	0	210
05:15 PM	0	71	62	0	133	27	0	4	0	31	12	57	0	3	72	1	1	0	0	2	238
05:30 PM	0	79	64	1	144	39	1	3	1	44	14	66	1	6	87	0	5	0	0	5	280
05:45 PM	0	65	57	0	122	28	0	4	0	32	3	52	0	8	63	0	1	0	0	1	218
Total Volume	0	266	226	1	493	128	2	16	3	149	37	241	1	17	296	1	7	0	0	8	946
% App. Total	0	54	45.8	0.2		85.9	1.3	10.7	2		12.5	81.4	0.3	5.7		12.5	87.5	0	0		
PHF	.000	.842	.883	.250	.856	.821	.500	.800	.375	.847	.661	.913	.250	.531	.851	.250	.350	.000	.000	.400	.845
Lights	0	263	224	0	487	126	2	16	0	144	34	238	1	0	273	1	7	0	0	8	912
% Lights	0	98.9	99.1	0	98.8	98.4	100	100	0	96.6	91.9	98.8	100	0	92.2	100	100	0	0	100	96.4
Buses	0	1	0	0	1	1	0	0	0	1	3	3	0	0	6	0	0	0	0	0	8
% Buses	0	0.4	0	0	0.2	0.8	0	0	0	0.7	8.1	1.2	0	0	2.0	0	0	0	0	0	0.8
Trucks	0	2	2	0	4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
% Trucks	0	0.8	0.9	0	0.8	0.8	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0	0.5
Pedestrians	0	0	0	1	1	0	0	0	3	3	0	0	0	17	17	0	0	0	0	0	21
% Pedestrians	0	0	0	100	0.2	0	0	0	100	2.0	0	0	0	100	5.7	0	0	0	0	0	2.2