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March 25, 2019

VIA E-MAIL

Mr. Rodney Weber
Weber Projects III, LLC
494 Main Street
Beacon, NY 12508

Re: 23-28 Creek Drive LLC
Churchill Street at Creek Drive
City of Beacon, Dutchess County, New York
MC Project No. 14000477B

Dear Mr. Weber:

This report has been prepared to evaluate the potential traffic impacts associated with the proposed 23-28 Creek Drive development, which is planned to be developed on property located on the south side of Churchill Street west of Creek Drive and east of the Fishkill Creek in the City of Beacon, New York. The site, which was formerly occupied by the City of Beacon Department of Public Works, is proposed to consist of a live/work environment with a total of 8 apartment units and approximately 20,000 square feet of office space that will accommodate a maximum of 80 employees. The proposed project will be incorporated into the previously approved and currently under construction and/or partially occupied 7 Creek Drive (aka Churchill Street Apartments) and 11 Creek Drive (aka Factory Lofts) developments. It should be noted that the 7 Creek Drive development is now planned to have 10 fewer apartment units than what was previously approved.

This report provides a full analysis of the traffic impacts associated with the full development proposed for the site. As shown on Figure No. 1, access to the development is proposed via the driveway connection to Churchill Street constructed as part of the 7 Creek Drive project aligning opposite the driveway to the municipal parking lot on the north side of Churchill Street. Under future conditions Creek Drive will provide emergency access to all three properties.

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.



1. Existing and Future Traffic Conditions Without the Project (Figures No. 2 through 9)

Manual traffic counts were collected by representatives of Maser Consulting, P.A. on Wednesday March 1 and Thursday March 2, 2017 for the AM and PM Peak Hours to determine the existing traffic volume conditions at the intersections of East Main Street at Churchill Street and Churchill Street at Creek Drive. These traffic counts were then compared to traffic volume data from the previous traffic studies conducted by our office for the 7 Creek Drive project. 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. The following provides a description of the study area roadways.

Main Street is a City street that consists of one lane in each direction. The roadway intersects with both Tioronda Avenue and Churchill Street at two unsignalized "T" shaped intersections separated by approximately 75 ft. Sidewalks and on-street parking are provided on both sides of the roadway. In the vicinity of the Tioronda Avenue and Churchill Street intersections Main Street has a sharp horizontal curve where parking is not permitted on the east side of the roadway.

Churchill Street is a City street that consists of one lane in each direction and traverses in a northwest/southeast direction between unsignalized intersections with Main Street and Spring Valley Road. The roadway also has an unsignalized intersection with Creek Drive that is located approximately 150 ft. southeast of the Main Street intersection. Immediately west of the Creek Drive intersection there is also an exempt railroad crossing of Churchill Street. There is a sidewalk on the south side of Churchill Street beginning at Spring Valley Road and continuing for a distance of approximately 265 ft terminating in the area of the 7 Creek Drive site.

Creek Drive is an existing roadway that begins at its unsignalized intersection with Churchill Street. The roadway runs in a southwesterly direction from this intersection to the access of the former City of Beacon Department of Public Works Property where the roadway terminates. The roadway width varies between 18 ft. and 24 ft. This roadway will remain to be utilized as an emergency access only to the 7 Creek Drive, 11 Creek Drive and the proposed 23-28 Creek Drive developments.

In order to assess future traffic conditions both with and without the project, the existing traffic volumes were projected to a 2022 Design Year using a background growth factor of 4.0% per year to account for any additional traffic generated by projects in the area. The 2022 Projected Traffic Volumes are shown on Figures No. 4 and 5. In addition, traffic for the 11 Creek Drive and 7 Creek Drive projects were also accounted for as well as traffic for other proposed or approved projects along Main Street. Traffic associated with these

other nearby developments are summarized on the Figures No. 6 and 7. The Other Development Traffic Volumes were combined with the 2022 Projected Traffic Volumes in order to obtain the future 2022 No-Build Traffic Volumes, which are shown on Figures No. 8 and 9 for each of the peak hours.

2. Future Traffic Conditions with Proposed Project (Figures No. 10 through 15, Tables 1 and 2)

Estimates of the amount of traffic to be generated by the proposed development were made based on data provided by the Institute of Transportation Engineers (ITE) in their publication entitled Trip Generation, 10th Edition dated 2017. These estimates, which are based on ITE Land Use Category 220 – Multifamily Low-Rise Residential and Land Use Category 710 – General Office Building are summarized in Table No. 1. Note that the trip generation estimates for the office use have been based on the 80 employees proposed for the office use. The estimates indicate that the 23-28 Creek Drive development can be expected to generate approximately 45 total trips (35 entering/10 exiting) during the AM Peak Hour and approximately 51 total trips (13 entering/38 exiting) during the PM Peak Hour.

As previously indicated, the 7 Creek Drive project will have 10 fewer apartments than previously planned and approved. The 8 apartments proposed as part of the 23-28 Creek Drive project will replace these 10 previously approved apartments, generally resulting in similar trip generation to the previously approved 7 Creek Drive development. As a result, only the office space traffic generation will be new to the site and the roadway system. However, for the purpose of the capacity analysis, this reduction in the number of apartments in the 7 Creek Drive development has not been considered and therefore provides a somewhat conservative analysis.

It should also be noted that there is potential for employees of the proposed office use to also live at the site in the proposed apartments, which would result in lower total trip generation for the site. However, no “internal-trip” credit has been taken to account for this in the analysis contained here-in resulting in a somewhat conservative analysis of future conditions with the proposed development.

The estimated site generated traffic volumes were applied to the roadway network based on the Arrival and Departure distributions identified on Figures No. 10 and 11. The resulting Site Generated Traffic Volumes, summarized on Figures No. 12 and 13, were added to the No-Build Traffic Volumes to obtain the 2022 Build Traffic Volumes shown on Figures No. 14 and 15 for each of the peak hours.

Capacity analyses were conducted utilizing the Existing, No-Build and Build Traffic Volumes to determine the existing and future operating conditions in the vicinity of the site. The results of these analyses are shown in Table No. 2, which indicates that the site generated traffic can be accommodated on the area roadways without significant impacts to operating conditions at the study area intersections.

3. On-site Circulation and Parking

Access to the proposed 23-28 Creek Drive development will be provided from Churchill Street via the existing driveway connection constructed for the 7 Creek Drive and 11 Creek Drive developments located opposite the Churchill Street municipal parking lot. This will result in all traffic to and from the 23-28 Creek Drive development traveling through the existing parking areas for the 7 & 11 Creek Drive sites in order to access the proposed development. The access roadway through the sites will be a minimum of 25 ft. wide and will sufficiently accommodate all traffic entering and exiting all three sites. Furthermore, this access roadway will be a low speed roadway that will allow for safe and efficient flow of both vehicles and pedestrians through the site. It should also be noted that prior approvals for the 7 & 11 Creek Drive developments required that only a single point of access be provided to these properties via Churchill Street with Creek Drive providing emergency access only because of Creek Drive's proximity to the railroad crossing, the hill approaching Main Street and the Main Street/Churchill Street intersection. Furthermore, it is not unusual to serve a mixed use project, such as is proposed, with a single entrance and exit.

Based on the City Code a total of 113 parking spaces are required for the proposed uses. However, based on the expected uses the proposed 23-28 Creek Drive development will provide a total of 93 parking spaces separate from those parking spaces already present at the 7 & 11 Creek Drive developments. The parking proposed for the site is based on providing one parking space per employee and/or visitor (assuming all drive) of the office use for a total of 80 spaces plus an additional 13 parking spaces for the residential apartments as required by the City Code. It is also noted that in comparison to the nearby CMS District and Linkage District the City Code would only require 48 and 58 spaces respectively, which is a reasonable comparison due to the Project's proximity to Main Street and these districts. Furthermore, it is also anticipated that some of the employees of the office use will also live in the apartments at the site which would further reduce the parking demand. Likewise, the residential and office land uses are complimentary land uses that allow for shared parking between the uses since the peak parking demand for office use will typically occur between the hours of 9:00 AM and 5:00 PM when the

residential uses have lower parking utilization. Based on this, we believe the 93 proposed parking spaces will sufficiently meet the parking needs of the development.

4. Recommendations

Our observations of existing roadway conditions in the vicinity of the site as well as our analysis of existing and future traffic volumes indicate several potential area improvements. Some of these improvements were also recommended as part of the 7 Creek Drive project but have yet to be completed. These include the following.

- Restripe the existing faded double yellow centerline for the length of Churchill Street
- Install an “Intersection Ahead” sign on the westbound Churchill Street approach in advance of Creek Road.
- Restripe the existing faded crosswalk crossing Churchill Street at the Main Street intersection.

5. Other Considerations

In addition to the above recommendations, and not specific to this development, based on observed traffic volumes and operating conditions, other potential future improvements have been identified. The potential exists to create an all-way stop intersection at the intersection of Main Street & Tioronda Avenue since the existing peak hour traffic volumes indicate that the intersection currently meets the requirements provided in the Manual for Uniform Traffic Control Devices (MUTCD). This would be the logical location for an all-way stop intersection since it is the current location of the pedestrian crosswalk crossing Main Street. A new sidewalk bump out, which would require the elimination of 1 to 2 parking spaces, would have to be constructed on the north side of Main Street in order to provide a place to post the new stop sign in the westbound direction and could be used as a landing for a second crosswalk on this westbound intersection approach.

In addition, it should be noted that although right turns are prohibited from Churchill Street onto Main Street, this movement is regularly made by motorists. Based on a review of the intersection there may be some opportunity to modify the northern curb line on Churchill Street in order to formally permit this movement, however the availability of Right-of-Way would have to be determined if such a modification was considered. If the No Right Turn restriction is to remain it should be better enforced with additional signage and pavement markings.



Mr. Rodney Weber
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Regardless of the above recommendations for potential future improvements in the vicinity of the Project, the site generated traffic resulting from the 8 newly proposed apartment units and 20,000 square feet of office space can be accommodated on the area roadways without significant impacts to operating conditions in the vicinity of the site. The minor signing and striping improvements identified in Item 3 above should be completed prior to completion of this development.

Very truly yours,

MASER CONSULTING P.A.

A handwritten signature in black ink, appearing to read "Philip J. Grealy".

Philip J. Grealy, Ph.D., P.E.
Principal Associate/Department Manager

A handwritten signature in black ink, appearing to read "Richard G. D'Andrea".

Richard G. D'Andrea, P.E., PTOE
Project Engineer

PJG/rgd
Enclosures
cc:
R:\Projects\2014\14000477B_13 Creek Drive\Reports\Traffic\Word\190318JFM_Weber_Ltr Rpt.docx

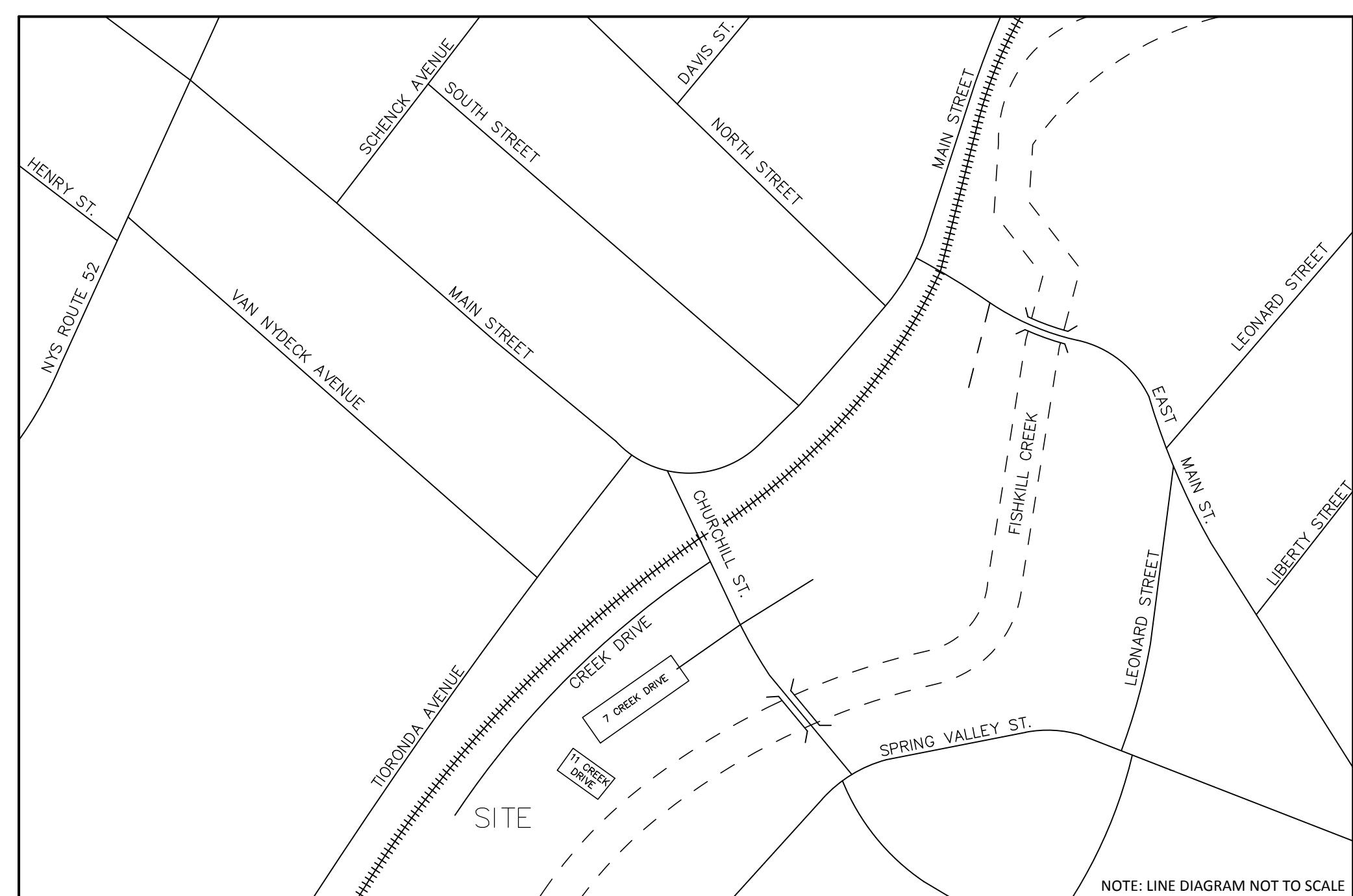


Traffic Impact Study
23-28 Creek Drive
MC Project No.: 14000477B
Appendix

23-28 CREEK DRIVE

APPENDIX A

FIGURES



NOTE: LINE DIAGRAM NOT TO SCALE



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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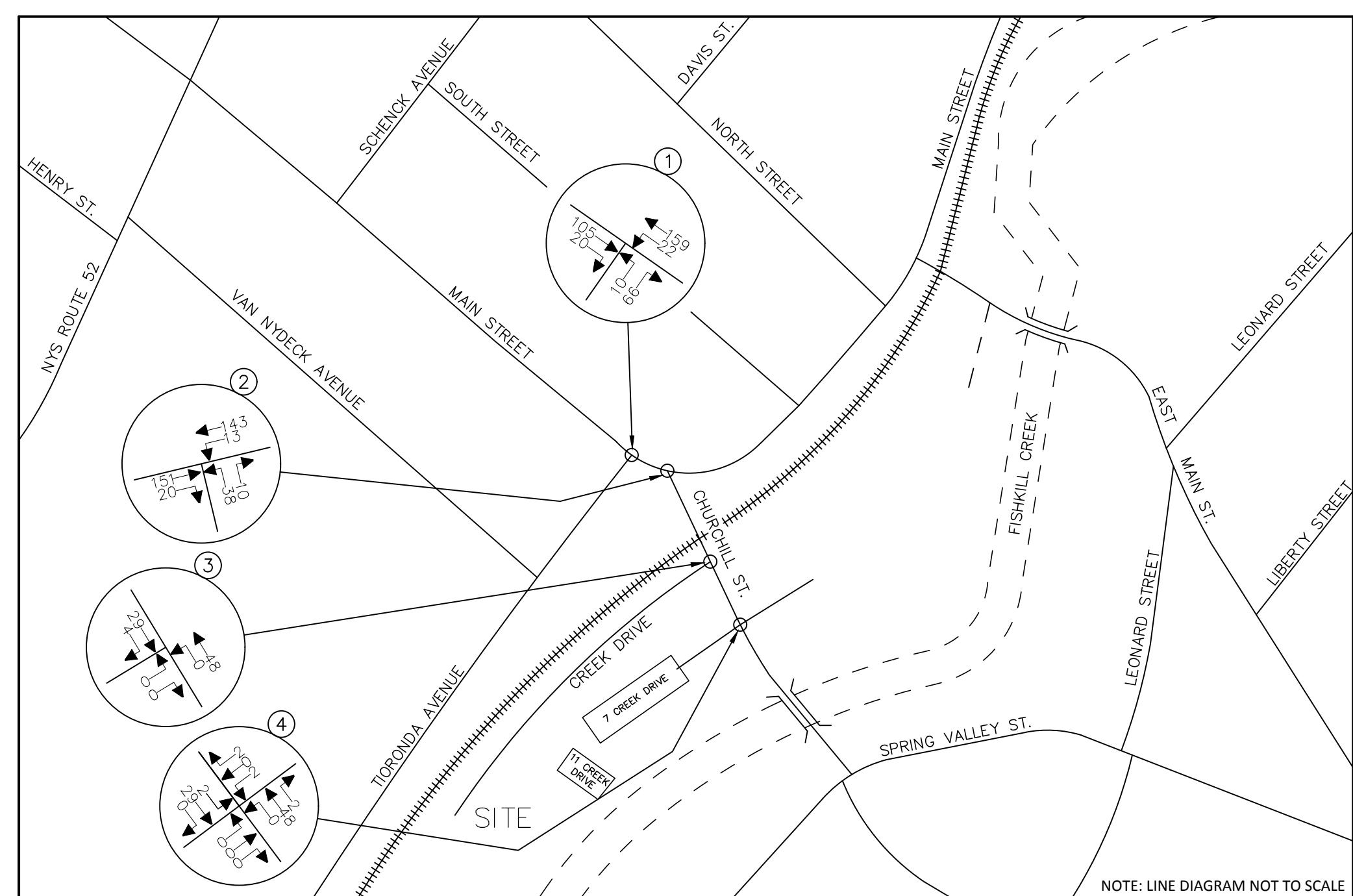
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

SITE LOCATION MAP



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	1



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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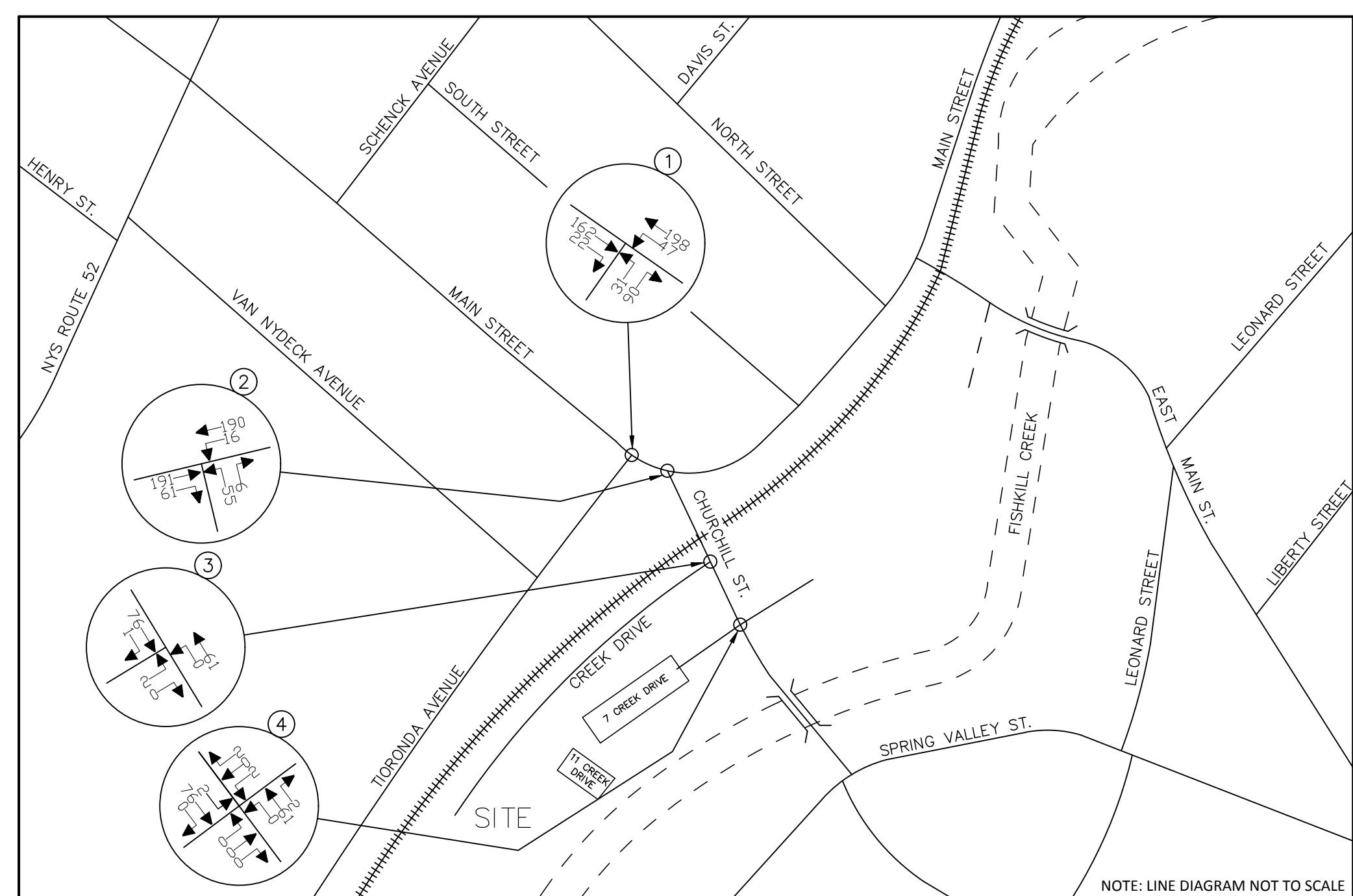
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2017 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



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New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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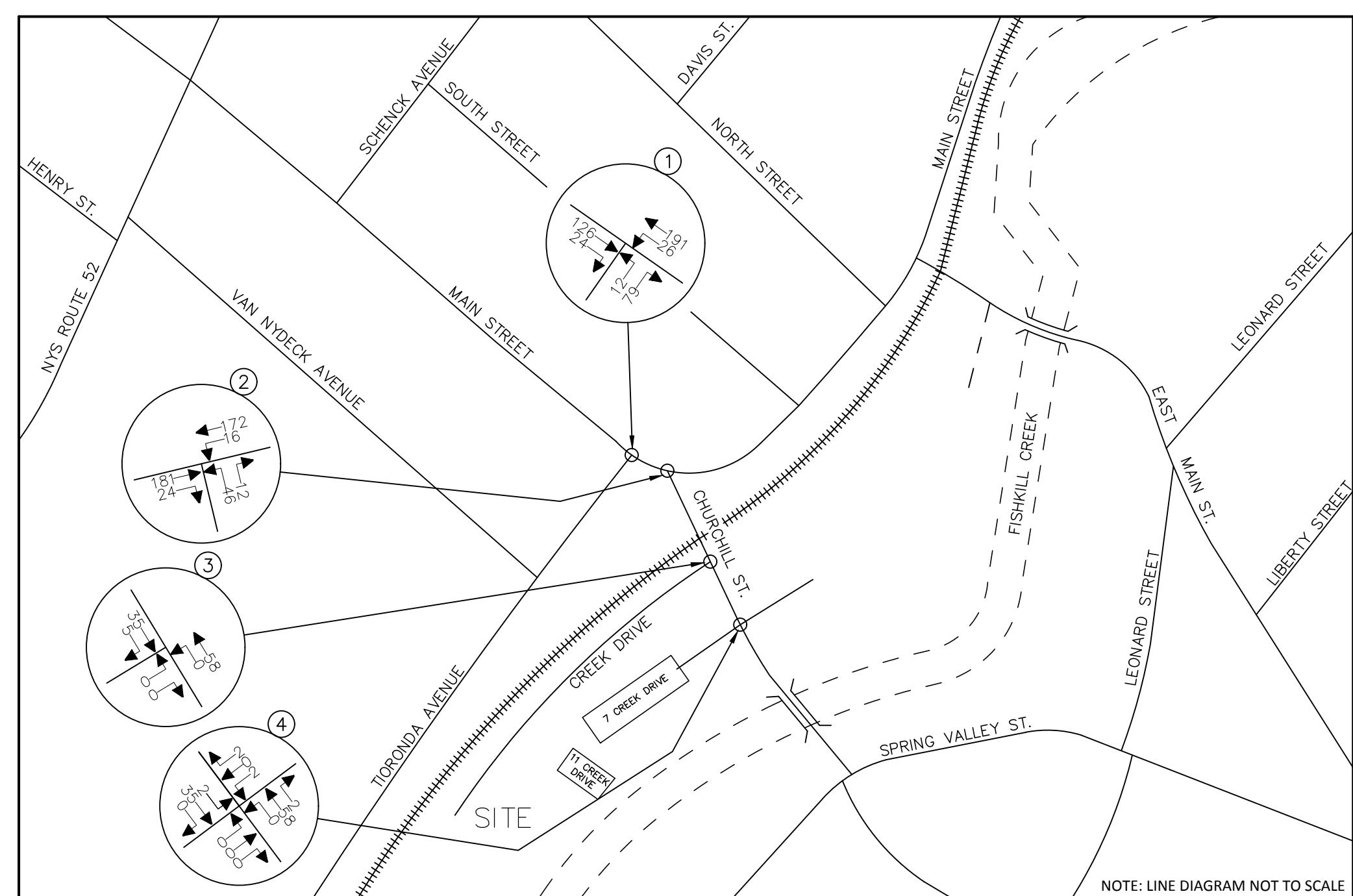
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2017 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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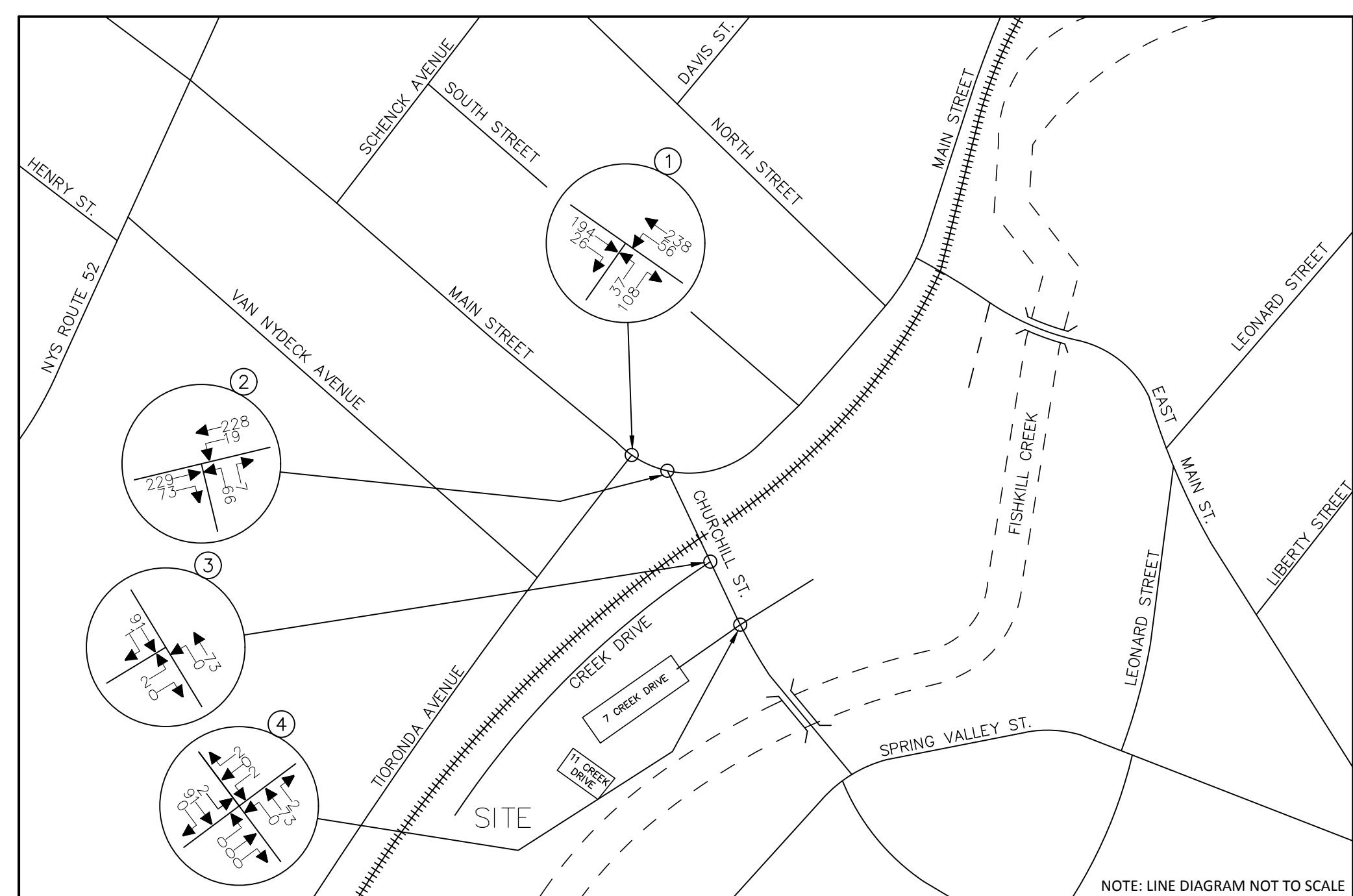
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2022 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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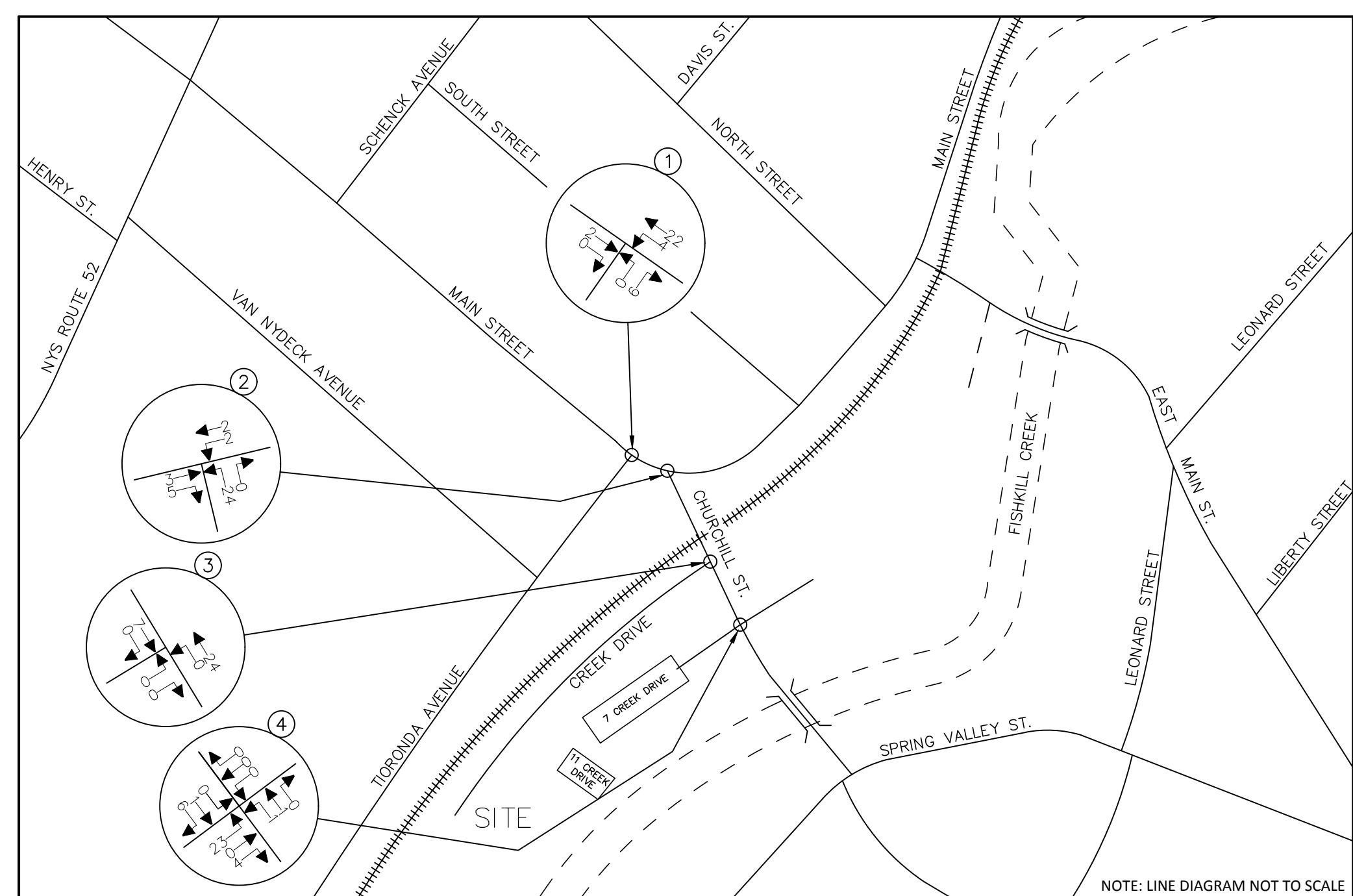
23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2022 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	

5



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

WESTCHESTER OFFICE

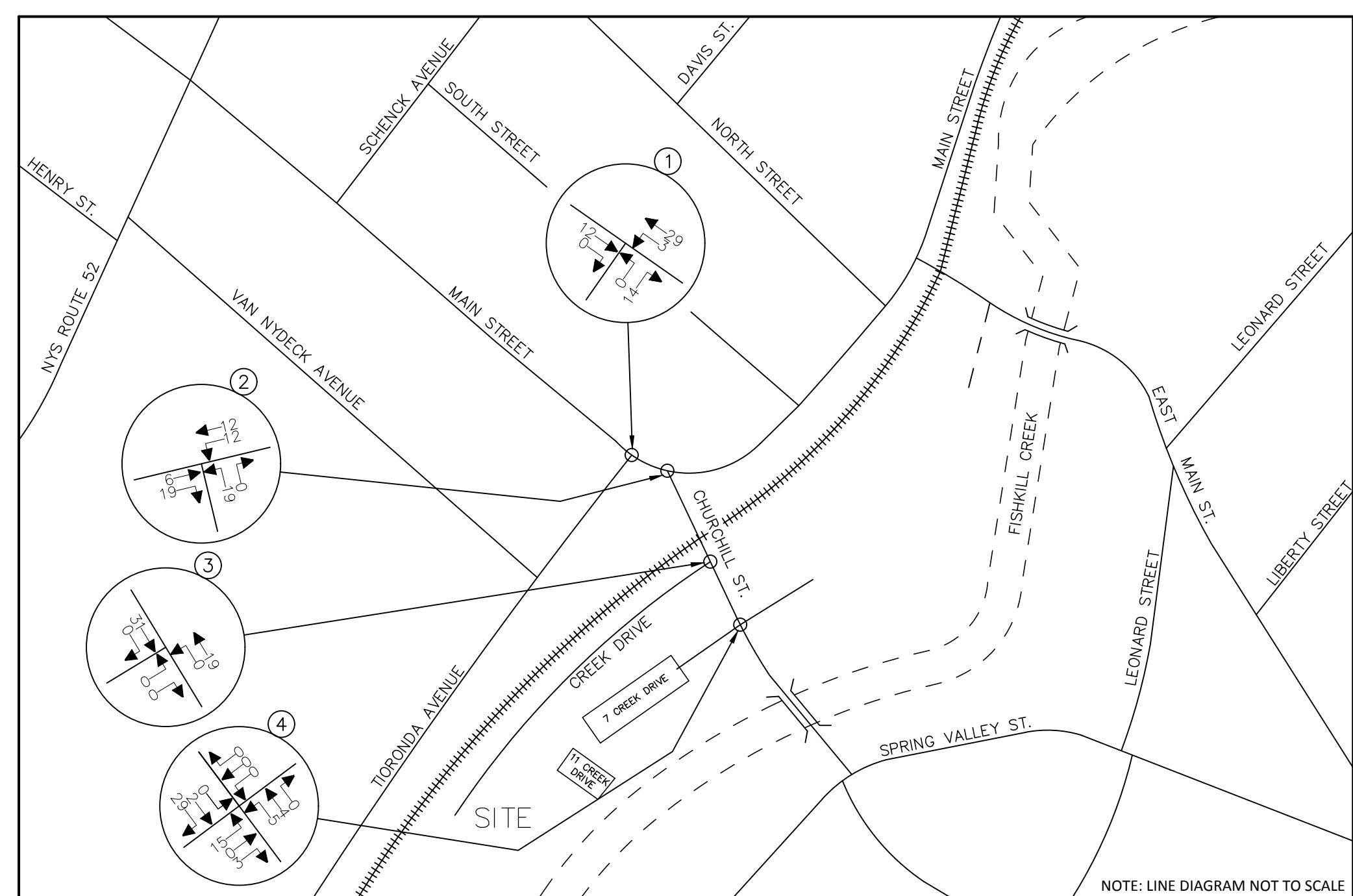
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

TOTAL OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	

6



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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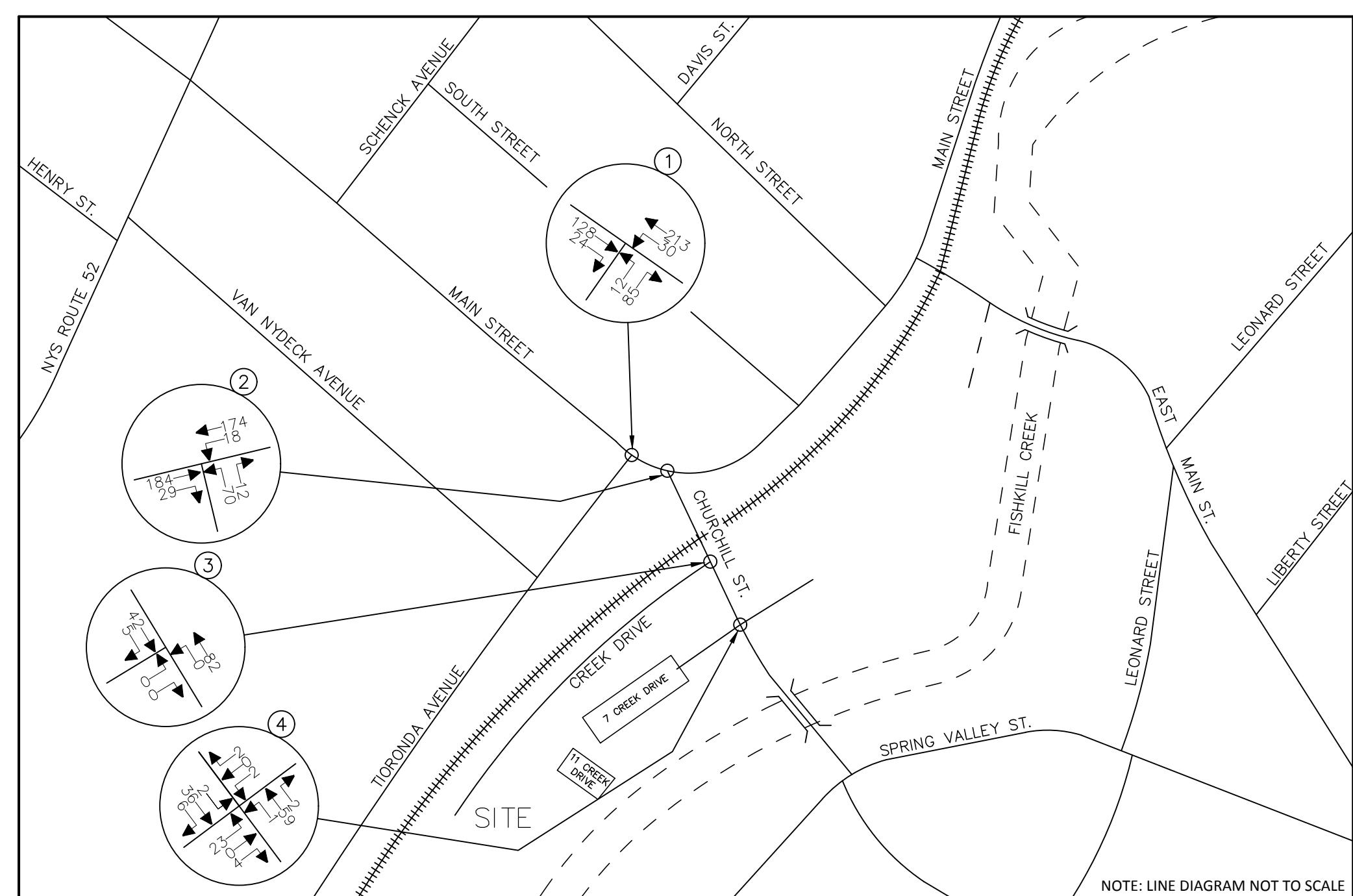
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

TOTAL OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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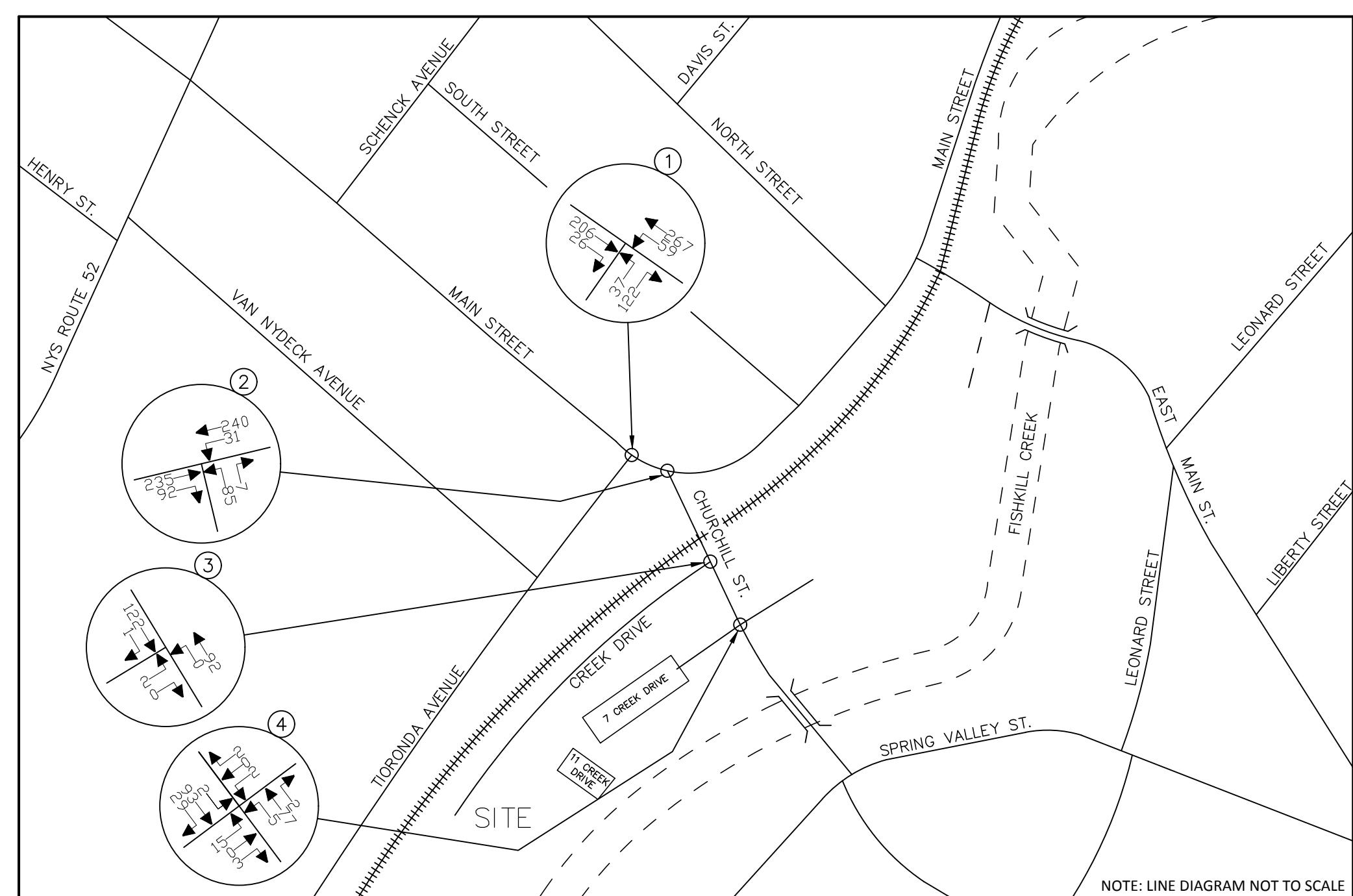
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2022 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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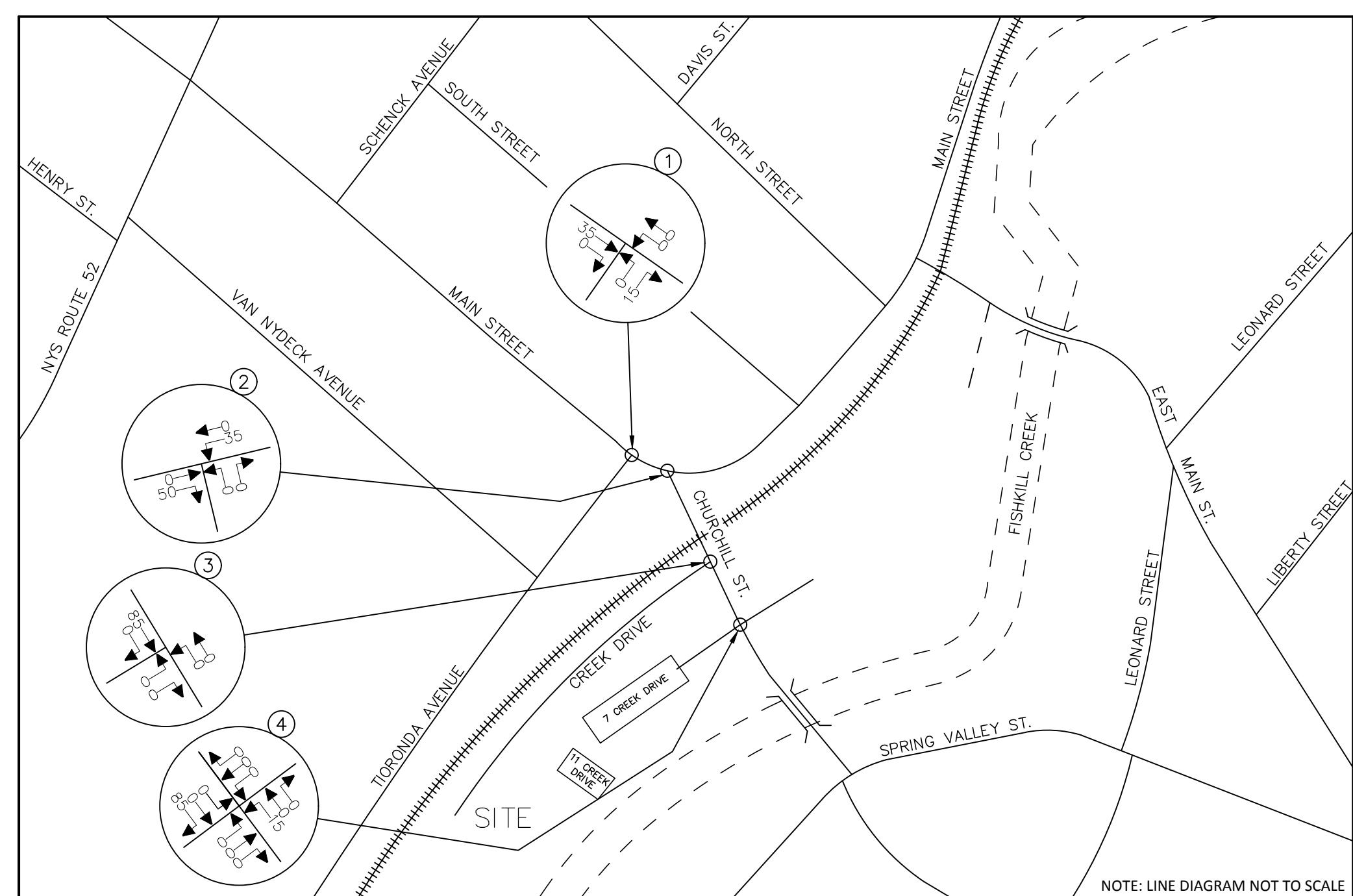
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2022 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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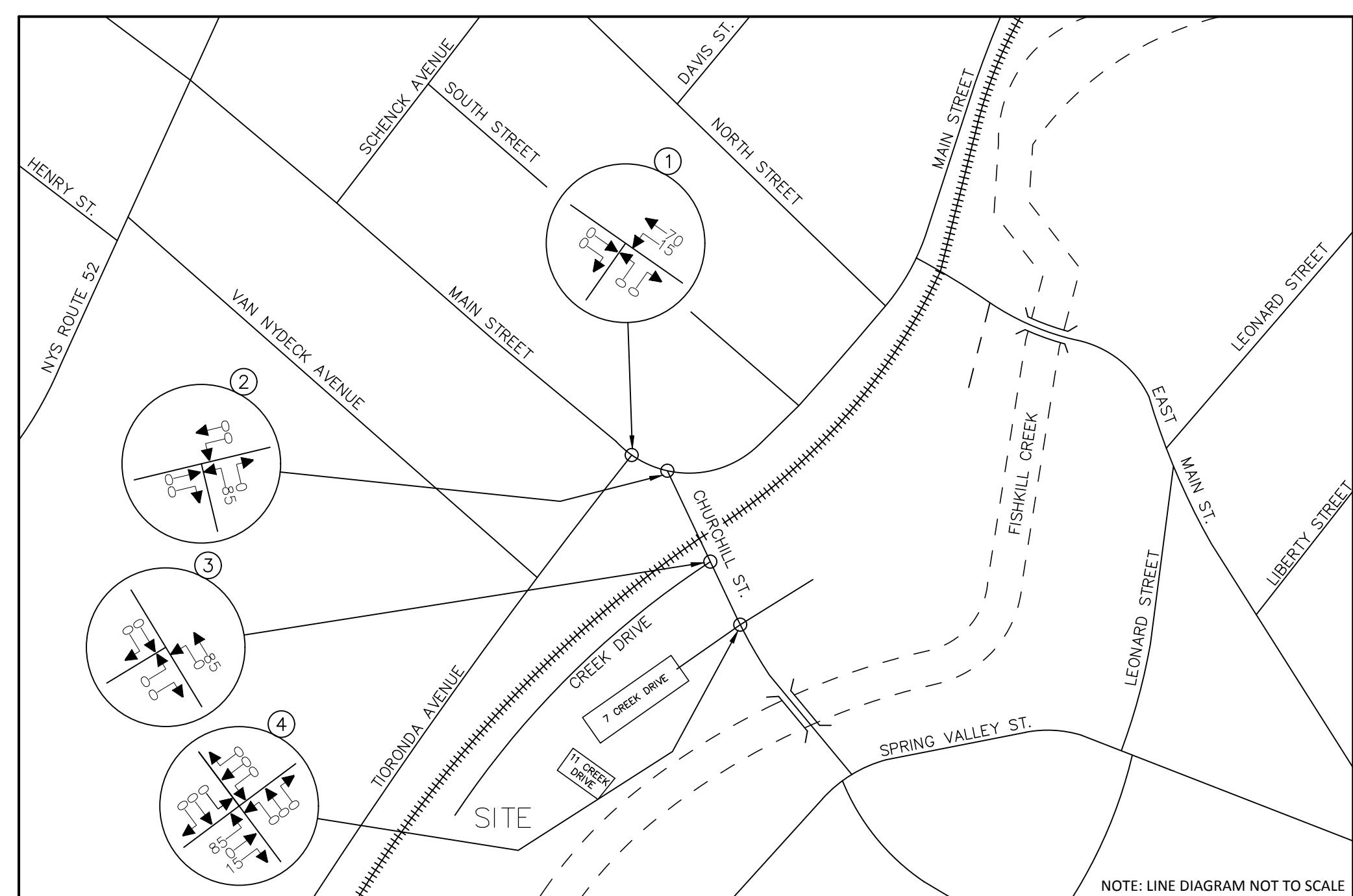
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

ARRIVAL DISTRIBUTION
(EXPRESSED AS A %)



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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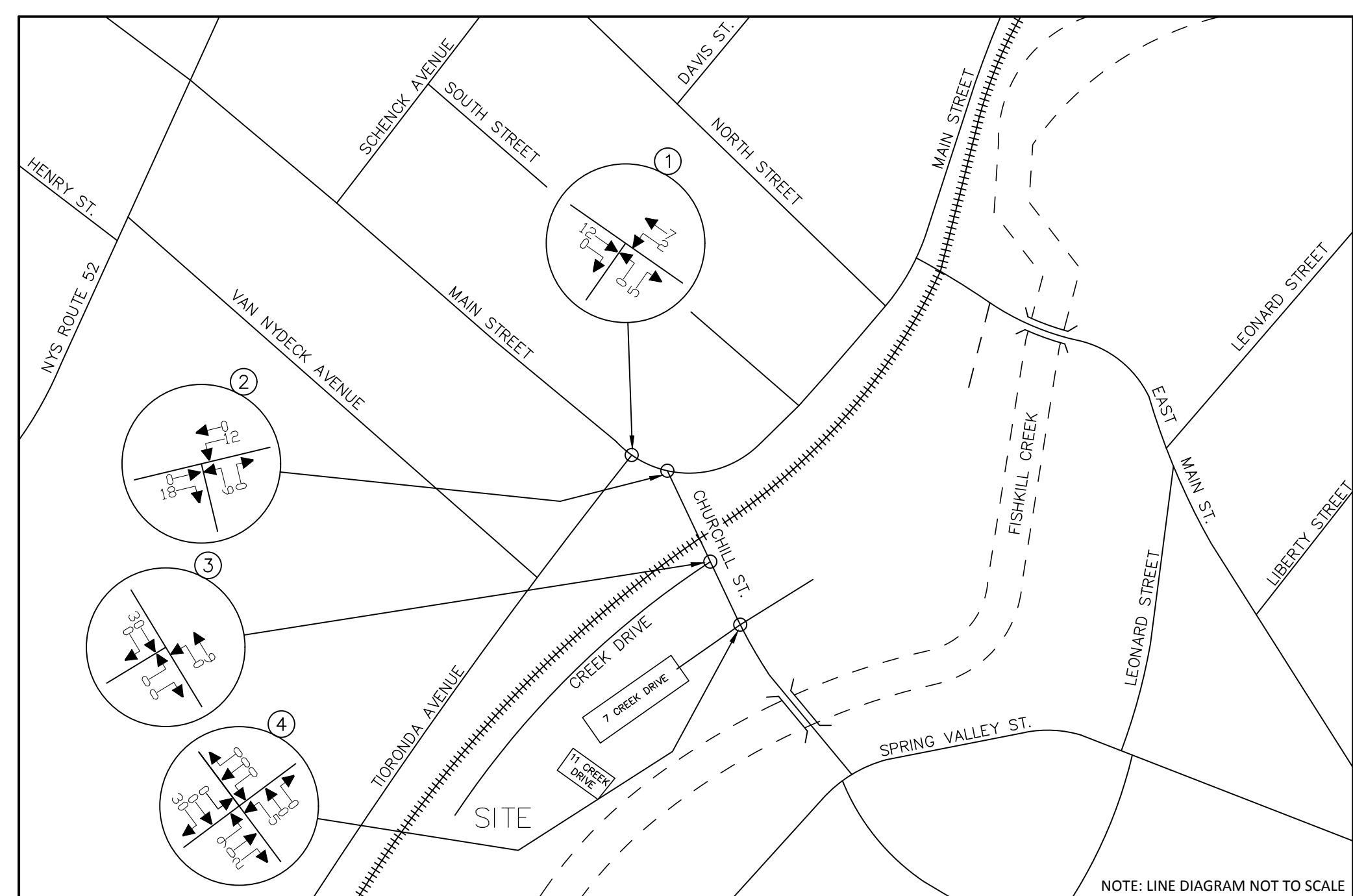
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DEPARTURE DISTRIBUTION
(EXPRESSED AS A %)



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14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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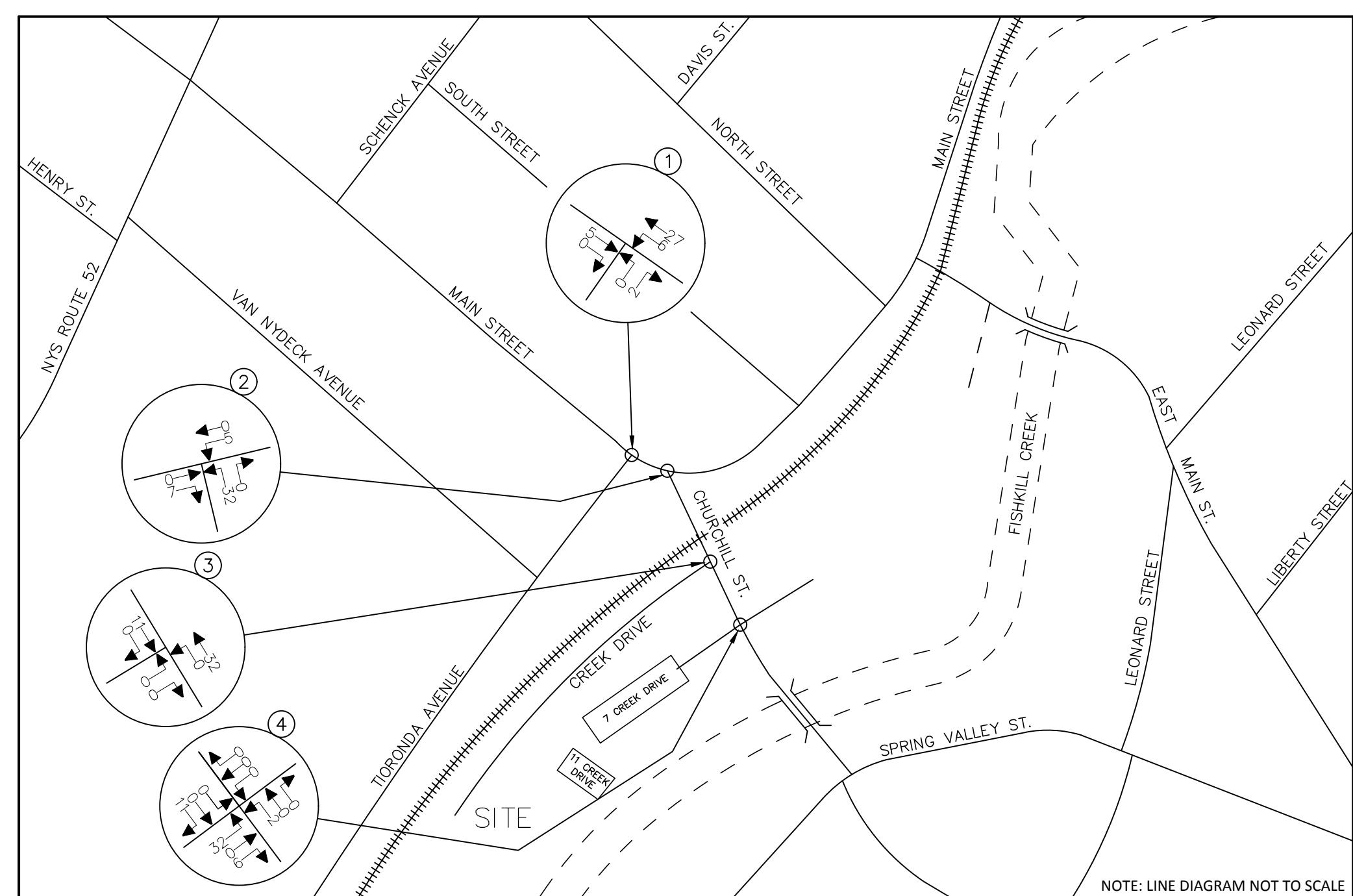
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	12



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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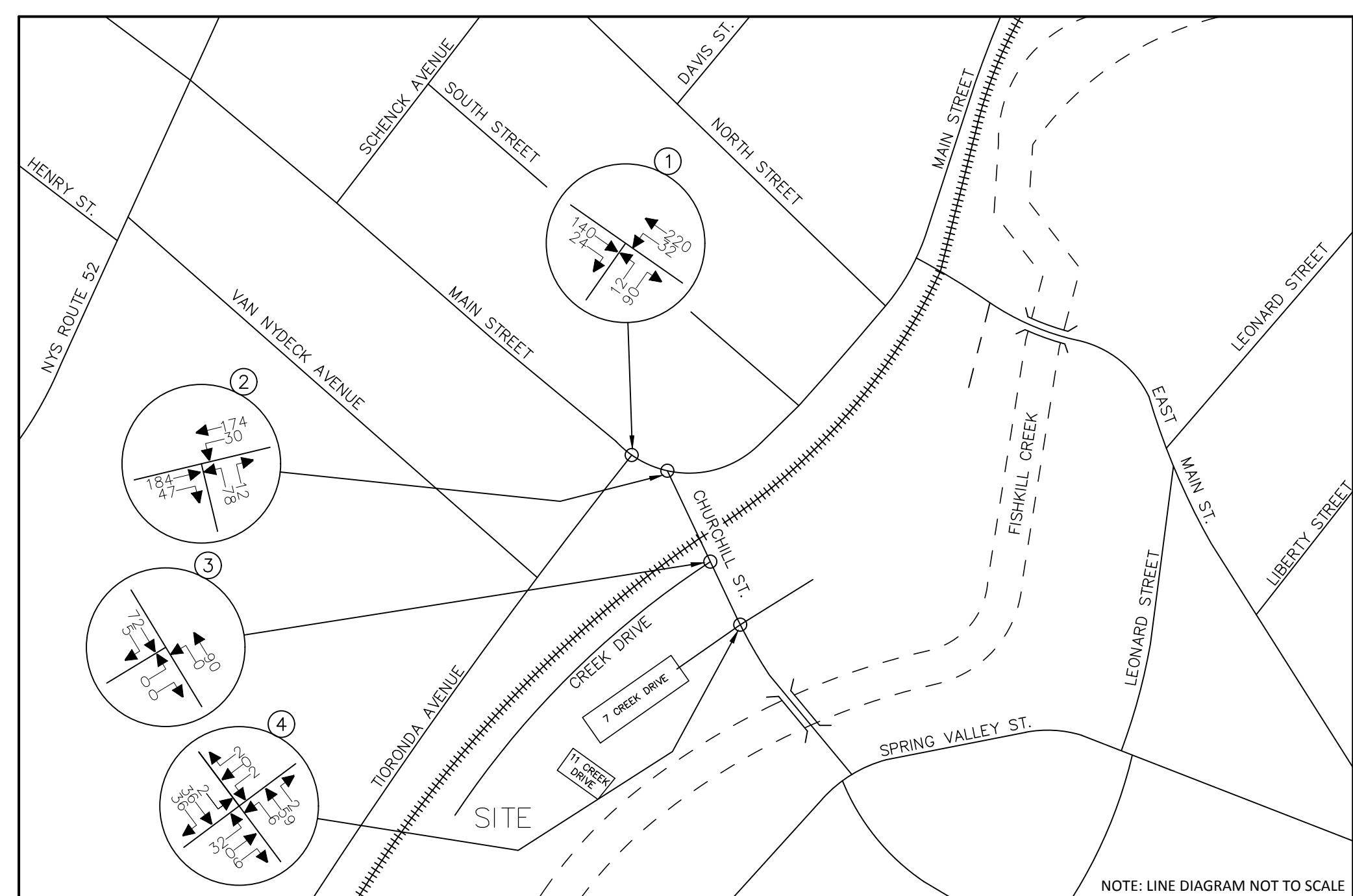
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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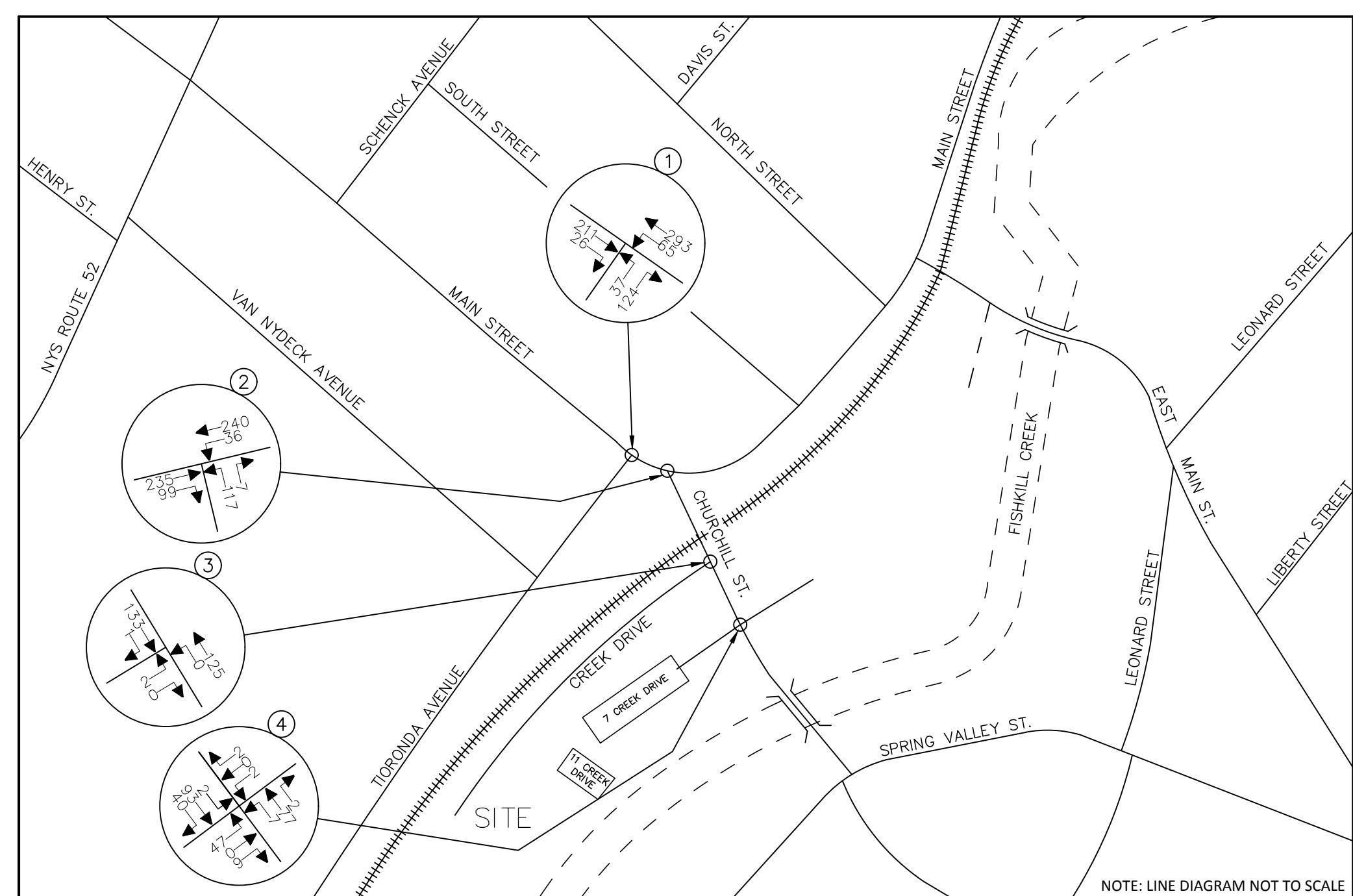
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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



New Jersey New York Pennsylvania Virginia
Customer Loyalty through Client Satisfaction

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23-28 CREEK DRIVE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR



JOB NUMBER:	DATE:
14000477B	3/18/19
FIGURE NUMBER:	



Traffic Impact Study
23-28 Creek Drive
MC Project No.: 14000477B
Appendix

23-28 CREEK DRIVE

APPENDIX B

TABLES

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

23-28 CREEK DRIVE BEACON, NY	ENTRY		EXIT	
	HTGR*	VOLUME	HTGR*	VOLUME
APARTMENT (8 DWELLING UNITS)				
PEAK AM HOUR	0.13	1	0.38	3
PEAK PM HOUR	0.50	4	0.25	2
COMMERCIAL OFFICE (80 EMPLOYEES)				
PEAK AM HOUR	0.43	34	0.09	7
PEAK PM HOUR	0.11	9	0.45	36
TOTAL				
PEAK AM HOUR	-	35	-	10
PEAK PM HOUR	-	13	-	38

NOTES:

1) * HTGR-HOURLY TRIP GENERATION RATES EXPRESSED IN TERMS OF TRIPS PER DWELLING UNIT FOR LAND USE - 220 APARTMENT AND EXPRESSED IN TERM OF TRIPS PER EMPLOYEE FOR LAND USE - 710 GENERAL OFFICE BUILDING BASED ON THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) PUBLICATION ENTITLED "TRIP GENERATION", 10TH EDITION, 2017

TABLE NO. 2
LEVEL OF SERVICE SUMMARY TABLE

				2017 EXISTING		2022 NO BUILD		2022 BUILD	
				AM	PM	AM	PM	AM	PM
1	TIORONDA AVENUE & MAIN STREET	UN SIGNALIZED							
	TIORONDA AVENUE MAIN STREET	NEB WB	LR LT	A [9.8] A [7.6]	B [12.0] A [7.8]	B [10.3] A [7.6]	B [14.3] A [7.9]	B [10.5] A [7.7]	B [14.7] A [8.0]
2	CHURCHILL STREET & MAIN STREET	UN SIGNALIZED							
	CHURCHILL STREET MAIN STREET	NB WB	LR LT	B [12.1] A [7.7]	B [14.7] A [7.9]	B [14.7] A [7.8]	C [21.3] A [8.1]	C [16.1] A [7.9]	D [28.2] A [8.2]
3	CREEK ROAD & CHURCHILL STREET	UN SIGNALIZED							
	CREEK ROAD CHURCHILL STREET	NEB NB	LR LT	A [8.7] A [7.3]	A [9.4] A [7.4]	A [8.9] A [7.3]	B [10.0] A [7.5]	A [9.2] A [7.4]	B [10.3] A [7.5]
4	CHURCHILL STREET & BEACON CITY MUNICIPAL LOT/SITE ACCESS	UN SIGNALIZED							
	SITE ACCESS CHURCHILL STREET CHURCHILL STREET BEACON CITY MUNICIPAL LOT	NEB NB SB SWB	LTR LTR LTR LTR	A [0.0] A [0.0] A [7.3] A [8.8]	A [0.0] A [0.0] A [7.4] A [9.1]	A [9.3] A [7.3] A [7.4] A [9.0]	B [10.1] A [7.5] A [7.4] A [9.5]	A [9.6] A [7.4] A [7.4] A [9.1]	B [10.5] A [7.6] A [7.4] A [9.5]

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. SEE APPENDIX "C" FOR DETAILS OF LEVEL OF SERVICE AND DELAY.



Traffic Impact Study
23-28 Creek Drive
MC Project No.: 14000477B
Appendix

23-28 CREEK DRIVE

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 19-8 from the *Highway Capacity Manual, 6th Edition* published by the Transportation Research Board.

Exhibit 19-8

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 20-2 from the *Highway Capacity Manual, 6th Edition* 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

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 20-2 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 21-8. 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 21-8 from the *Highway Capacity Manual, 6th Edition* published by the Transportation Research Board.

Exhibit 21-8

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio	
	v/c \leq 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.



Traffic Impact Study
23-28 Creek Drive
MC Project No.: 14000477B
Appendix

23-28 CREEK DRIVE

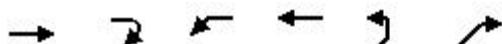
APPENDIX D

CAPACITY ANALYSIS

2017 Existing Traffic Volumes
1: Tioronda Avenue & Main Street

AM Peak Hour

9/20/2017



Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (vph)	105	20	22	159	10	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	13	12
Grade (%)	0%			0%	4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.883	
Flt Protected				0.994	0.993	
Satd. Flow (prot)	1436	0	0	1458	1303	0
Flt Permitted				0.994	0.993	
Satd. Flow (perm)	1436	0	0	1458	1303	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	458			77	419	
Travel Time (s)	10.4			1.8	9.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Parking (#/hr)	5			5	5	
Adj. Flow (vph)	122	23	26	185	12	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	145	0	0	211	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	13	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.35	1.14	1.14	1.35	1.33	1.17
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

2017 Existing Traffic Volumes
1: Tioronda Avenue & Main Street

AM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 2.4

Movement	EBT	EBR	WBL	WBT	NEL	NER
Vol, veh/h	105	20	22	159	10	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	23	26	185	12	77

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	145	0	370 134
Stage 1	-	-	-	-	134 -
Stage 2	-	-	-	-	236 -
Critical Hdwy	-	-	4.12	-	7.22 6.62
Critical Hdwy Stg 1	-	-	-	-	6.22 -
Critical Hdwy Stg 2	-	-	-	-	6.22 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1437	-	581 901
Stage 1	-	-	-	-	866 -
Stage 2	-	-	-	-	762 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1437	-	569 901
Mov Cap-2 Maneuver	-	-	-	-	569 -
Stage 1	-	-	-	-	866 -
Stage 2	-	-	-	-	747 -

Approach	EB	WB	NE
HCM Control Delay, s	0	0.9	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	837	-	-	1437	-
HCM Lane V/C Ratio	0.106	-	-	0.018	-
HCM Control Delay (s)	9.8	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

2017 Existing Traffic Volumes
2: Churchill Street & Main Street

AM Peak Hour
9/20/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↓	↖	↙	↑	↓
Volume (vph)	151	20	13	143	38	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	7%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.984				0.972	
Flt Protected				0.996	0.962	
Satd. Flow (prot)	1650	0	0	1670	1513	0
Flt Permitted				0.996	0.962	
Satd. Flow (perm)	1650	0	0	1670	1513	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	77			535	147	
Travel Time (s)	1.8			12.2	3.3	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	180	24	15	170	45	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	204	0	0	185	57	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.14	1.14	1.14	1.20	1.20
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

2017 Existing Traffic Volumes
2: Churchill Street & Main Street

AM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	151	20	13	143	38	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	7	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	24	15	170	45	12

Major/Minor	Major1	Major2		Minor1	
Conflicting Flow All	0	0	204	0	393 192
Stage 1	-	-	-	-	192 -
Stage 2	-	-	-	-	201 -
Critical Hdwy	-	-	4.12	-	7.82 6.92
Critical Hdwy Stg 1	-	-	-	-	6.82 -
Critical Hdwy Stg 2	-	-	-	-	6.82 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1368	-	525 818
Stage 1	-	-	-	-	780 -
Stage 2	-	-	-	-	770 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1368	-	519 818
Mov Cap-2 Maneuver	-	-	-	-	519 -
Stage 1	-	-	-	-	780 -
Stage 2	-	-	-	-	761 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	562	-	-	1368	-
HCM Lane V/C Ratio	0.102	-	-	0.011	-
HCM Control Delay (s)	12.1	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

2017 Existing Traffic Volumes
3: Creek Road & Churchill Street

AM Peak Hour
9/20/2017



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (vph)	1	48	29	4	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-5%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.983			0.932	
Flt Protected		0.999			0.976	
Satd. Flow (prot)	0	1833	1877	0	1694	0
Flt Permitted		0.999			0.976	
Satd. Flow (perm)	0	1833	1877	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		82	147		244	
Travel Time (s)		1.9	3.3		5.5	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	1	58	35	5	1	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	40	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)	0	0			12	
Link Offset(ft)	0	0			0	
Crosswalk Width(ft)	16	16			16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

2017 Existing Traffic Volumes
3: Creek Road & Churchill Street

AM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 0.3

Movement	NBL	NBT	SBT	SBR	NEL	NER	
Vol, veh/h	1	48		29	4	1	1
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Free	Free		Free	Free	Stop	Stop
RT Channelized	-	None		-	None	-	None
Storage Length	-	-		-	-	0	-
Veh in Median Storage, #	-	0		0	-	0	-
Grade, %	-	3		-5	-	0	-
Peak Hour Factor	83	83		83	83	83	83
Heavy Vehicles, %	2	2		2	2	2	2
Mvmt Flow	1	58		35	5	1	1

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	40	0	-
Stage 1	-	-	-
Stage 2	-	-	60
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1570	-	-
Stage 1	-	-	985
Stage 2	-	-	963
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1570	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	985
Stage 2	-	-	962

Approach	NB	SB	NE
HCM Control Delay, s	0.1	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	963	1570	-	-	-
HCM Lane V/C Ratio	0.003	0.001	-	-	-
HCM Control Delay (s)	8.7	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2017 Existing Traffic Volumes

AM Peak Hour

9/20/2017

4: Site Access/One East Main Street Access & Churchill Street

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	48	2	2	29	0	0	0	0	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-3%				3%			0%			0%	
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
Fr _t		0.995									0.932	
Flt Protected					0.997						0.976	
Satd. Flow (prot)	0	1881	0	0	1829	0	0	1863	0	0	1694	0
Flt Permitted					0.997						0.976	
Satd. Flow (perm)	0	1881	0	0	1829	0	0	1863	0	0	1694	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		233			82			214			133	
Travel Time (s)		5.3			1.9			4.9			3.0	
Peak Hour Factor	0.83	0.83	0.92	0.92	0.83	0.83	0.83	0.92	0.83	0.92	0.92	0.92
Adj. Flow (vph)	0	58	2	2	35	0	0	0	0	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	60	0	0	37	0	0	0	0	0	4	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			0			0	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.98	0.98	0.98	1.02	1.02	1.02	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

2017 Existing Traffic Volumes
4: Site Access/One East Main Street Access & Churchill Street

AM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 0.5

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	48	2	2	29	0	0	0	0	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	3	-	-	0	-	-	0	-
Peak Hour Factor	83	83	92	92	83	83	83	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	58	2	2	35	0	0	0	0	2	0	2

Major/Minor	Major1	Major2			Minor2			Minor1				
Conflicting Flow All	35	0	0	60	0	0	99	99	35	98	98	59
Stage 1	-	-	-	-	-	-	39	39	-	59	59	-
Stage 2	-	-	-	-	-	-	60	60	-	39	39	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1576	-	-	1544	-	-	883	791	1038	884	792	1007
Stage 1	-	-	-	-	-	-	976	862	-	953	846	-
Stage 2	-	-	-	-	-	-	951	845	-	976	862	-
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1576	-	-	1544	-	-	880	790	1038	883	791	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	880	790	-	883	791	-
Stage 1	-	-	-	-	-	-	976	861	-	953	846	-
Stage 2	-	-	-	-	-	-	949	845	-	975	861	-

Approach	NB	SB			NE			SW		
HCM Control Delay, s	0	0.4			0			8.8		
HCM LOS					A			A		

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1	WLn1
Capacity (veh/h)	-	1576	-	-	1544	-	-	941	-
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.005	-
HCM Control Delay (s)	0	0	-	-	7.3	0	-	8.8	-
HCM Lane LOS	A	A	-	-	A	A	-	A	-
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0	-

2022 No-Build Traffic Volumes
1: Tioronda Avenue & Main Street

AM Peak Hour
07/26/2018



Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	128	24	30	213	12	85
Future Volume (vph)	128	24	30	213	12	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	13	12
Grade (%)	0%			0%	4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.882	
Flt Protected				0.994	0.994	
Satd. Flow (prot)	1436	0	0	1458	1302	0
Flt Permitted				0.994	0.994	
Satd. Flow (perm)	1436	0	0	1458	1302	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	458			77	419	
Travel Time (s)	10.4			1.8	9.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Parking (#/hr)	5			5	5	
Adj. Flow (vph)	149	28	35	248	14	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	177	0	0	283	113	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	13	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.35	1.14	1.14	1.35	1.33	1.17
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					
Intersection Capacity Utilization	40.0%			ICU Level of Service	A	
Analysis Period (min)	15					

2022 No-Build Traffic Volumes
1: Tioronda Avenue & Main Street

AM Peak Hour
07/26/2018

Intersection

Int Delay, s/veh 2.5

Movement	EBT	EBR	WBL	WBT	NEL	NER
----------	-----	-----	-----	-----	-----	-----

Lane Configurations						
Traffic Vol, veh/h	128	24	30	213	12	85
Future Vol, veh/h	128	24	30	213	12	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	149	28	35	248	14	99

Major/Minor	Major1	Major2	Minor1			
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Conflicting Flow All	0	0	177	0	481	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	318	-
Critical Hdwy	-	-	4.12	-	7.22	6.62
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1399	-	489	866
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	687	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1399	-	475	866
Mov Cap-2 Maneuver	-	-	-	-	475	-
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	687	-

Approach	EB	WB	NE			
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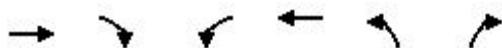
HCM Control Delay, s	0	0.9	10.3			
HCM LOS			B			

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	786	-	-	1399	-		
HCM Lane V/C Ratio	0.143	-	-	0.025	-		
HCM Control Delay (s)	10.3	-	-	7.6	0		
HCM Lane LOS	B	-	-	A	A		
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-		

2022 No-Build Traffic Volumes
2: Churchill Street & Main Street

AM Peak Hour

07/26/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	184	29	18	174	70	12
Future Volume (vph)	184	29	18	174	70	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	7%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981				0.981	
Flt Protected				0.995	0.959	
Satd. Flow (prot)	1645	0	0	1668	1522	0
Flt Permitted				0.995	0.959	
Satd. Flow (perm)	1645	0	0	1668	1522	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	77			535	147	
Travel Time (s)	1.8			12.2	3.3	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	219	35	21	207	83	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	254	0	0	228	97	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.14	1.14	1.14	1.20	1.20
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 38.6%

ICU Level of Service A

Analysis Period (min) 15

2022 No-Build Traffic Volumes
2: Churchill Street & Main Street

AM Peak Hour
07/26/2018

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	184	29	18	174	70	12
Future Vol, veh/h	184	29	18	174	70	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	7	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	219	35	21	207	83	14

Major/Minor	Major1	Major2	Minor1		
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Conflicting Flow All	0	0	254	0	486	237
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	249	-
Critical Hdwy	-	-	4.12	-	7.82	6.92
Critical Hdwy Stg 1	-	-	-	-	6.82	-
Critical Hdwy Stg 2	-	-	-	-	6.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1311	-	447	766
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1311	-	439	766
Mov Cap-2 Maneuver	-	-	-	-	439	-
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	719	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.7	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	468	-	-	1311	-
HCM Lane V/C Ratio	0.209	-	-	0.016	-
HCM Control Delay (s)	14.7	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

2022 No-Build Traffic Volumes
3: Creek Road & Churchill Street

AM Peak Hour
07/26/2018



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	1	82	42	5	1	1
Future Volume (vph)	1	82	42	5	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-5%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.986		0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	1835	1883	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	1835	1883	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		82	147		244	
Travel Time (s)		1.9	3.3		5.5	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	1	99	51	6	1	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	100	57	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.1% ICU Level of Service A

Analysis Period (min) 15

2022 No-Build Traffic Volumes
3: Creek Road & Churchill Street

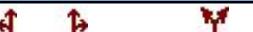
AM Peak Hour
07/26/2018

Intersection

Int Delay, s/veh 0.2

Movement	NBL	NBT	SBT	SBR	NEL	NER
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Lane Configurations



Traffic Vol, veh/h	1	82	42	5	1	1
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Future Vol, veh/h	1	82	42	5	1	1
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Free	Free	Free	Free	Stop	Stop
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RT Channelized	-	None	-	None	-	None
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Storage Length	-	-	-	-	0	-
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Veh in Median Storage, #	-	0	0	-	0	-
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Grade, %	-	3	-5	-	0	-
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Peak Hour Factor	83	83	83	83	83	83
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Heavy Vehicles, %	2	2	2	2	2	2
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Mvmt Flow	1	99	51	6	1	1
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Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	57	0	-	0	155	54
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Stage 1	-	-	-	-	54	-
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Stage 2	-	-	-	-	101	-
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Critical Hdwy	4.12	-	-	-	6.42	6.22
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Critical Hdwy Stg 1	-	-	-	-	5.42	-
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Critical Hdwy Stg 2	-	-	-	-	5.42	-
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Follow-up Hdwy	2.218	-	-	-	3.518	3.318
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Pot Cap-1 Maneuver	1547	-	-	-	836	1013
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Stage 1	-	-	-	-	969	-
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Stage 2	-	-	-	-	923	-
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Platoon blocked, %	-	-	-	-	-	-
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Mov Cap-1 Maneuver	1547	-	-	-	835	1013
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Mov Cap-2 Maneuver	-	-	-	-	835	-
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Stage 1	-	-	-	-	968	-
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Stage 2	-	-	-	-	923	-
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Approach	NB	SB	NE
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HCM Control Delay, s	0.1	0	8.9
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HCM LOS			A
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Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
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Capacity (veh/h)	915	1547	-	-	-
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HCM Lane V/C Ratio	0.003	0.001	-	-	-
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HCM Control Delay (s)	8.9	7.3	0	-	-
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HCM Lane LOS	A	A	A	-	-
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HCM 95th %tile Q(veh)	0	0	-	-	-
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2022 No-Build Traffic Volumes

AM Peak Hour

4: Site Access/One East Mains Street Access & Churchill Street

07/26/2018

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1	59	2	2	36	6	23	0	4	2	0	2
Future Volume (vph)	1	59	2	2	36	6	23	0	4	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-3%				3%			0%			0%	
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		0.996			0.982			0.980			0.932	
Flt Protected		0.999			0.998			0.959			0.976	
Satd. Flow (prot)	0	1881	0	0	1798	0	0	1751	0	0	1694	0
Flt Permitted		0.999			0.998			0.959			0.976	
Satd. Flow (perm)	0	1881	0	0	1798	0	0	1751	0	0	1694	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		233			82			214			159	
Travel Time (s)		5.3			1.9			4.9			3.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	1	71	2	2	43	7	28	0	5	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	52	0	0	33	0	0	4	0
Enter Blocked Intersection	No	No	No									
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.98	0.98	0.98	1.02	1.02	1.02	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.6% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	59	2	2	36	6	23	0	4	2	0	2
Future Vol, veh/h	1	59	2	2	36	6	23	0	4	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	3	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	71	2	2	43	7	28	0	5	2	0	2

Major/Minor	Major1	Major2		Minor2		Minor1						
Conflicting Flow All	50	0	0	73	0	0	126	126	47	127	128	72
Stage 1	-	-	-	-	-	-	51	51	-	74	74	-
Stage 2	-	-	-	-	-	-	75	75	-	53	54	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1557	-	-	1527	-	-	848	764	1022	846	763	990
Stage 1	-	-	-	-	-	-	962	852	-	935	833	-
Stage 2	-	-	-	-	-	-	934	833	-	960	850	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1557	-	-	1527	-	-	845	762	1022	841	761	990
Mov Cap-2 Maneuver	-	-	-	-	-	-	845	762	-	841	761	-
Stage 1	-	-	-	-	-	-	961	851	-	934	832	-
Stage 2	-	-	-	-	-	-	931	832	-	955	849	-

Approach	NB	SB		NE		SW			
HCM Control Delay, s	0.1	0.3		9.3		9			
HCM LOS				A		A			
Minor Lane/Major Mvmt									
Capacity (veh/h)	867	1557	-	-	1527	-	-	-	909
HCM Lane V/C Ratio	0.038	0.001	-	-	0.002	-	-	-	0.005
HCM Control Delay (s)	9.3	7.3	0	-	7.4	0	-	-	9
HCM Lane LOS	A	A	A	-	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-	0

2022 Build Traffic Volumes
1: Tioronda Avenue & Main Street

AM Peak Hour
03/25/2019



Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	1	2	3	4	5	6
Traffic Volume (vph)	140	24	32	220	12	90
Future Volume (vph)	140	24	32	220	12	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	13	12
Grade (%)	0%			0%	4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.881	
Flt Protected				0.994	0.994	
Satd. Flow (prot)	1438	0	0	1458	1301	0
Flt Permitted				0.994	0.994	
Satd. Flow (perm)	1438	0	0	1458	1301	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	458			77	419	
Travel Time (s)	10.4			1.8	9.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Parking (#/hr)	5			5	5	
Adj. Flow (vph)	163	28	37	256	14	105
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	0	0	293	119	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	13	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.35	1.14	1.14	1.35	1.33	1.17
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					

2022 Build Traffic Volumes
1: Tioronda Avenue & Main Street

AM Peak Hour
03/25/2019

Intersection

Int Delay, s/veh 2.6

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑	↓	↔	↔		
Traffic Vol, veh/h	140	24	32	220	12	90
Future Vol, veh/h	140	24	32	220	12	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage #	-	-	-	0	0	-
Grade, %	0	-	-	0	4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	163	28	37	256	14	105

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	191	0	507	177
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	330	-
Critical Hdwy	-	-	4.12	-	7.22	6.62
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1383	-	469	849
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1383	-	454	849
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	796	-
Stage 2	-	-	-	-	677	-

Approach	EB	WB	NE			
HCM Control Delay, s	0	1	10.5			
HCM LOS			B			

Minor Lane/Major Mvm	NELn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	770	-	-	1383	-	
HCM Lane V/C Ratio	0.154	-	-	0.027	-	
HCM Control Delay (s)	10.5	-	-	7.7	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-	

2022 Build Traffic Volumes
2: Churchill Street & Main Street

AM Peak Hour
03/25/2019



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↓	↖	↙	↑	↖
Traffic Volume (vph)	184	47	30	174	78	12
Future Volume (vph)	184	47	30	174	78	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	7%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973				0.982	
Flt Protected				0.993	0.958	
Satd. Flow (prot)	1631	0	0	1665	1522	0
Flt Permitted				0.993	0.958	
Satd. Flow (perm)	1631	0	0	1665	1522	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	77			535	147	
Travel Time (s)	1.8			12.2	3.3	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	219	56	36	207	93	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	275	0	0	243	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.14	1.14	1.14	1.20	1.20
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

2022 Build Traffic Volumes
2: Churchill Street & Main Street

AM Peak Hour
03/25/2019

Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	184	47	30	174	78	12
Future Vol, veh/h	184	47	30	174	78	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage #	-	-	-	0	0	-
Grade, %	0	-	-	0	7	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	219	56	36	207	93	14

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	275	0	526	247
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	279	-
Critical Hdwy	-	-	4.12	-	7.82	6.92
Critical Hdwy Stg 1	-	-	-	-	6.82	-
Critical Hdwy Stg 2	-	-	-	-	6.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	417	755
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1288	-	404	755
Mov Cap-2 Maneuver	-	-	-	-	404	-
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	689	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	1.2	16.1
HCM LOS		C	

Minor Lane/Major Mvm	NBL	Ln1	EBT	EBR	WBL	WBT
Capacity (veh/h)	431	-	-	1288	-	-
HCM Lane V/C Ratio	0.249	-	-	0.028	-	-
HCM Control Delay (s)	16.1	-	-	7.9	0	-
HCM Lane LOS	C	-	-	A	A	-
HCM 95th %tile Q(veh)	1	-	-	0.1	-	-

2022 Build Traffic Volumes
3: Creek Road & Churchill Street

AM Peak Hour
03/25/2019



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	1	90	72	5	1	1
Future Volume (vph)	1	90	72	5	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-5%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991		0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	1835	1892	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	1835	1892	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		82	147		244	
Travel Time (s)		1.9	3.3		5.5	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	1	108	87	6	1	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	109	93	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

2022 Build Traffic Volumes
3: Creek Road & Churchill Street

AM Peak Hour
03/25/2019

Intersection

Int Delay, s/veh 0.2

Movement	NBL	NBT	SBT	SBR	NEL	NER
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Lane Configurations						
Traffic Vol, veh/h	1	90	72	5	1	1
Future Vol, veh/h	1	90	72	5	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	0	-	0	-	-
Grade, %	-	3	-5	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	108	87	6	1	1

Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	93	0	-	0	200	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1501	-	-	-	789	968
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1501	-	-	-	788	968
Mov Cap-2 Maneuver	-	-	-	-	788	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	915	-

Approach	NB	SB	NE
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HCM Control Delay, s	0.1	0	9.2
HCM LOS		A	

Minor Lane/Major Mvm	NEL	NBL	NBT	SBT	SBR
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Capacity (veh/h)	869	1501	-	-	-
HCM Lane V/C Ratio	0.003	0.001	-	-	-
HCM Control Delay (s)	9.2	7.4	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2022 Build Traffic Volumes

AM Peak Hour

4: Site Access/One East Mains Street Access & Churchill Street

03/25/2019



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	6	59	2	2	36	36	32	0	6	2	0	2
Future Volume (vph)	6	59	2	2	36	36	32	0	6	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			0%			0%	
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		0.997			0.934			0.979			0.932	
Flt Protected		0.996			0.999			0.959			0.976	
Satd. Flow (prot)	0	1877	0	0	1712	0	0	1749	0	0	1694	0
Flt Permitted		0.996			0.999			0.959			0.976	
Satd. Flow (perm)	0	1877	0	0	1712	0	0	1749	0	0	1694	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		233			82			214			159	
Travel Time (s)		5.3			1.9			4.9			3.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	7	71	2	2	43	43	39	0	7	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	88	0	0	46	0	0	4	0
Enter Blocked Intersection	No	No	No									
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.98	0.98	0.98	1.02	1.02	1.02	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection

Int Delay, s/veh 2.5

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	6	59	2	2	36	36	32	0	6	2	0	2
Future Vol, veh/h	6	59	2	2	36	36	32	0	6	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	-3	-	-	3	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	71	2	2	43	43	39	0	7	2	0	2

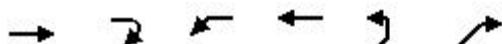
Major/Minor	Major1	Major2			Minor2			Minor1				
Conflicting Flow All	86	0	0	73	0	0	156	156	65	158	176	72
Stage 1	-	-	-	-	-	-	69	69	-	86	86	-
Stage 2	-	-	-	-	-	-	87	87	-	72	90	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1510	-	-	1527	-	-	810	736	999	808	717	990
Stage 1	-	-	-	-	-	-	941	837	-	922	824	-
Stage 2	-	-	-	-	-	-	921	823	-	938	820	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1510	-	-	1527	-	-	804	732	999	798	713	990
Mov Cap-2 Maneuver	-	-	-	-	-	-	804	732	-	798	713	-
Stage 1	-	-	-	-	-	-	936	836	-	917	820	-
Stage 2	-	-	-	-	-	-	914	819	-	930	819	-

Approach	NB	SB	NE	SW			
HCM Control Delay, s	0.7	0.2	9.6	9.1			
HCM LOS		A	A				
Minor Lane/Major Mvm							
NELn1	NBL	NBT	NBR	SBL	SBT	SBR	BWLn1

Capacity (veh/h)	830	1510	-	-	1527	-	-	884
HCM Lane V/C Ratio	0.055	0.005	-	-	0.002	-	-	0.005
HCM Control Delay (s)	9.6	7.4	0	-	7.4	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

2017 Existing Traffic Volumes
1: Tioronda Avenue & Main Street

PM Peak Hour
9/20/2017



Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (vph)	162	22	47	198	31	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	13	12
Grade (%)	0%			0%	4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.984				0.899	
Flt Protected				0.991	0.987	
Satd. Flow (prot)	1443	0	0	1454	1318	0
Flt Permitted				0.991	0.987	
Satd. Flow (perm)	1443	0	0	1454	1318	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	458			77	419	
Travel Time (s)	10.4			1.8	9.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Parking (#/hr)	5			5	5	
Adj. Flow (vph)	191	26	55	233	36	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	217	0	0	288	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	13	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.35	1.14	1.14	1.35	1.33	1.17
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 43.5%

ICU Level of Service A

Analysis Period (min) 15

2017 Existing Traffic Volumes
1: Tioronda Avenue & Main Street

PM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 3.3

Movement	EBT	EBR	WBL	WBT	NEL	NER
Vol, veh/h	162	22	47	198	31	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	4	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	191	26	55	233	36	106

Major/Minor	Major1	Major2	Minor1	
Conflicting Flow All	0	0	216	0
Stage 1	-	-	-	204
Stage 2	-	-	-	344
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	6.22
Critical Hdwy Stg 2	-	-	-	6.22
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1354	-
Stage 1	-	-	-	793
Stage 2	-	-	-	665
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1354	-
Mov Cap-2 Maneuver	-	-	-	419
Stage 1	-	-	-	793
Stage 2	-	-	-	634

Approach	EB	WB	NE
HCM Control Delay, s	0	1.5	12
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	658	-	-	1354	-
HCM Lane V/C Ratio	0.216	-	-	0.041	-
HCM Control Delay (s)	12	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

2017 Existing Traffic Volumes
2: Churchill Street & Main Street

PM Peak Hour

9/20/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↓	↖	↙	↖	↗
Volume (vph)	191	61	16	190	55	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	7%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.967				0.986	
Flt Protected				0.996	0.957	
Satd. Flow (prot)	1621	0	0	1670	1527	0
Flt Permitted				0.996	0.957	
Satd. Flow (perm)	1621	0	0	1670	1527	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	77			535	147	
Travel Time (s)	1.8			12.2	3.3	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	220	70	18	218	63	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	290	0	0	236	70	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.14	1.14	1.14	1.20	1.20
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 36.3%

ICU Level of Service A

Analysis Period (min) 15

2017 Existing Traffic Volumes
2: Churchill Street & Main Street

PM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	191	61	16	190	55	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	7	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	220	70	18	218	63	7

Major/Minor	Major1	Major2		Minor1	
Conflicting Flow All	0	0	290	0	510 255
Stage 1	-	-	-	-	255 -
Stage 2	-	-	-	-	255 -
Critical Hdwy	-	-	4.12	-	7.82 6.92
Critical Hdwy Stg 1	-	-	-	-	6.82 -
Critical Hdwy Stg 2	-	-	-	-	6.82 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1272	-	429 746
Stage 1	-	-	-	-	713 -
Stage 2	-	-	-	-	713 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1272	-	422 746
Mov Cap-2 Maneuver	-	-	-	-	422 -
Stage 1	-	-	-	-	713 -
Stage 2	-	-	-	-	702 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	441	-	-	1272	-
HCM Lane V/C Ratio	0.159	-	-	0.014	-
HCM Control Delay (s)	14.7	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

2017 Existing Traffic Volumes
3: Creek Road & Churchill Street

PM Peak Hour

9/20/2017



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (vph)	1	61	76	1	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-5%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.999				
Flt Protected		0.999			0.950	
Satd. Flow (prot)	0	1833	1907	0	1770	0
Flt Permitted		0.999			0.950	
Satd. Flow (perm)	0	1833	1907	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		82	147		244	
Travel Time (s)		1.9	3.3		5.5	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	1	75	94	1	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	76	95	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 14.1%

ICU Level of Service A

Analysis Period (min) 15

2017 Existing Traffic Volumes
3: Creek Road & Churchill Street

PM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 0.2

Movement	NBL	NBT	SBT	SBR	NEL	NER	
Vol, veh/h	1	61		76	1	2	0
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Free	Free		Free	Free	Stop	Stop
RT Channelized	-	None		-	None	-	None
Storage Length	-	-		-	-	0	-
Veh in Median Storage, #	-	0		0	-	0	-
Grade, %	-	3		-5	-	0	-
Peak Hour Factor	81	81		81	81	81	81
Heavy Vehicles, %	2	2		2	2	2	2
Mvmt Flow	1	75		94	1	2	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	95	0	-
Stage 1	-	-	-
Stage 2	-	-	94
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	6.42
Critical Hdwy Stg 2	-	-	6.22
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1499	-	-
Stage 1	-	-	818
Stage 2	-	-	963
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1499	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	817
Stage 2	-	-	930
Stage 1	-	-	-
Stage 2	-	-	945
Stage 1	-	-	-
Stage 2	-	-	930
Stage 1	-	-	-
Stage 2	-	-	944

Approach	NB	SB	NE
HCM Control Delay, s	0.1	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	817	1499	-	-	-
HCM Lane V/C Ratio	0.003	0.001	-	-	-
HCM Control Delay (s)	9.4	7.4	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2017 Existing Traffic Volumes

PM Peak Hour

9/20/2017

4: Site Access/One East Main Street Access & Churchill Street

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	61	2	2	76	0	0	0	0	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-3%				3%			0%			0%	
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
Fr _t		0.996									0.932	
Flt Protected					0.999						0.976	
Satd. Flow (prot)	0	1883	0	0	1833	0	0	1863	0	0	1694	0
Flt Permitted					0.999						0.976	
Satd. Flow (perm)	0	1883	0	0	1833	0	0	1863	0	0	1694	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		233			82			214			120	
Travel Time (s)		5.3			1.9			4.9			2.7	
Peak Hour Factor	0.81	0.81	0.92	0.92	0.81	0.81	0.81	0.92	0.81	0.92	0.92	0.92
Adj. Flow (vph)	0	75	2	2	94	0	0	0	0	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	96	0	0	0	0	0	4	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			0			0	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.98	0.98	0.98	1.02	1.02	1.02	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.6%

ICU Level of Service A

Analysis Period (min) 15

2017 Existing Traffic Volumes
4: Site Access/One East Main Street Access & Churchill Street

PM Peak Hour
9/20/2017

Intersection

Int Delay, s/veh 0.3

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	61	2	2	76	0	0	0	0	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	3	-	-	0	-	-	0	-
Peak Hour Factor	81	81	92	92	81	81	81	92	81	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	75	2	2	94	0	0	0	0	2	0	2

Major/Minor	Major1	Major2			Minor2			Minor1				
Conflicting Flow All	94	0	0	77	0	0	175	175	94	174	174	76
Stage 1	-	-	-	-	-	-	98	98	-	76	76	-
Stage 2	-	-	-	-	-	-	77	77	-	98	98	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1500	-	-	1522	-	-	788	718	963	789	719	985
Stage 1	-	-	-	-	-	-	908	814	-	933	832	-
Stage 2	-	-	-	-	-	-	932	831	-	908	814	-
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1500	-	-	1522	-	-	786	717	963	788	718	985
Mov Cap-2 Maneuver	-	-	-	-	-	-	786	717	-	788	718	-
Stage 1	-	-	-	-	-	-	908	813	-	933	832	-
Stage 2	-	-	-	-	-	-	930	831	-	907	813	-

Approach	NB	SB			NE			SW		
HCM Control Delay, s	0	0.2			0			9.1		
HCM LOS					A			A		

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1	WLn1
Capacity (veh/h)	-	1500	-	-	1522	-	-	876	
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.005	
HCM Control Delay (s)	0	0	-	-	7.4	0	-	9.1	
HCM Lane LOS	A	A	-	-	A	A	-	A	
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0	

2022 No-Build Traffic Volumes
1: Tioronda Avenue & Main Street

PM Peak Hour
07/26/2018



Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	206	26	59	267	37	122
Future Volume (vph)	206	26	59	267	37	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	13	12
Grade (%)	0%			0%	4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985				0.897	
Flt Protected				0.991	0.988	
Satd. Flow (prot)	1445	0	0	1454	1316	0
Flt Permitted				0.991	0.988	
Satd. Flow (perm)	1445	0	0	1454	1316	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	458			77	419	
Travel Time (s)	10.4			1.8	9.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Parking (#/hr)	5			5	5	
Adj. Flow (vph)	242	31	69	314	44	144
Shared Lane Traffic (%)						
Lane Group Flow (vph)	273	0	0	383	188	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	13	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.35	1.14	1.14	1.35	1.33	1.17
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 53.7%

ICU Level of Service A

Analysis Period (min) 15

2022 No-Build Traffic Volumes
1: Tioronda Avenue & Main Street

PM Peak Hour
07/26/2018

Intersection

Int Delay, s/veh 3.8

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑	↓	↑	↓	Y	Y
Traffic Vol, veh/h	206	26	59	267	37	122
Future Vol, veh/h	206	26	59	267	37	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	4	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	242	31	69	314	44	144

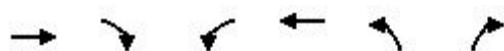
Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	273	0	710 258
Stage 1	-	-	-	-	258 -
Stage 2	-	-	-	-	452 -
Critical Hdwy	-	-	4.12	-	7.22 6.62
Critical Hdwy Stg 1	-	-	-	-	6.22 -
Critical Hdwy Stg 2	-	-	-	-	6.22 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1290	-	342 759
Stage 1	-	-	-	-	741 -
Stage 2	-	-	-	-	580 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1290	-	320 759
Mov Cap-2 Maneuver	-	-	-	-	320 -
Stage 1	-	-	-	-	693 -
Stage 2	-	-	-	-	580 -

Approach	EB	WB	NE
HCM Control Delay, s	0	1.4	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1290	-
HCM Lane V/C Ratio	0.325	-	-	0.054	-
HCM Control Delay (s)	14.3	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

2022 No-Build Traffic Volumes
2: Churchill Street & Main Street

PM Peak Hour
07/26/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Traffic Volume (vph)	235	92	31	240	85	7
Future Volume (vph)	235	92	31	240	85	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	7%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962				0.990	
Flt Protected				0.994	0.956	
Satd. Flow (prot)	1613	0	0	1666	1531	0
Flt Permitted				0.994	0.956	
Satd. Flow (perm)	1613	0	0	1666	1531	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	77			535	147	
Travel Time (s)	1.8			12.2	3.3	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	270	106	36	276	98	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	376	0	0	312	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.14	1.14	1.14	1.20	1.20
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 51.6%

ICU Level of Service A

Analysis Period (min) 15

2022 No-Build Traffic Volumes
2: Churchill Street & Main Street

PM Peak Hour
07/26/2018

Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	235	92	31	240	85	7
Future Vol, veh/h	235	92	31	240	85	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	7	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	270	106	36	276	98	8

Major/Minor	Major1	Major2	Minor1		
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Conflicting Flow All	0	0	376	0	671	323
Stage 1	-	-	-	-	323	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	-	-	4.12	-	7.82	6.92
Critical Hdwy Stg 1	-	-	-	-	6.82	-
Critical Hdwy Stg 2	-	-	-	-	6.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1182	-	325	674
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1182	-	313	674
Mov Cap-2 Maneuver	-	-	-	-	313	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	624	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.9	21.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	326	-	-	1182	-
HCM Lane V/C Ratio	0.324	-	-	0.03	-
HCM Control Delay (s)	21.3	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

2022 No-Build Traffic Volumes
3: Creek Road & Churchill Street

PM Peak Hour
07/26/2018



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	1	92	122	1	2	0
Future Volume (vph)	1	92	122	1	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-5%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected					0.950	
Satd. Flow (prot)	0	1835	1907	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1835	1907	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		82	147		244	
Travel Time (s)		1.9	3.3		5.5	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	1	114	151	1	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	115	152	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 16.5% ICU Level of Service A

Analysis Period (min) 15

2022 No-Build Traffic Volumes
3: Creek Road & Churchill Street

PM Peak Hour
07/26/2018

Intersection

Int Delay, s/veh 0.1

Movement	NBL	NBT	SBT	SBR	NEL	NER
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Lane Configurations						
Traffic Vol, veh/h	1	92	122	1	2	0
Future Vol, veh/h	1	92	122	1	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	3	-5	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	114	151	1	2	0

Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	152	0	-	0	268	152
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1429	-	-	-	721	894
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1429	-	-	-	720	894
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	909	-

Approach	NB	SB	NE
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HCM Control Delay, s	0.1	0	10
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	720	1429	-	-	-
HCM Lane V/C Ratio	0.003	0.001	-	-	-
HCM Control Delay (s)	10	7.5	0	-	-
HCM Lane LOS	B	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2022 No-Build Traffic Volumes

PM Peak Hour

4: Site Access/One East Main Street Access & Churchill Street

07/26/2018

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	77	2	2	93	29	15	0	3	2	0	2
Future Volume (vph)	5	77	2	2	93	29	15	0	3	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-3%				3%			0%			0%	
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		0.997			0.968			0.977			0.932	
Flt Protected		0.997			0.999			0.960			0.976	
Satd. Flow (prot)	0	1879	0	0	1774	0	0	1747	0	0	1694	0
Flt Permitted		0.997			0.999			0.960			0.976	
Satd. Flow (perm)	0	1879	0	0	1774	0	0	1747	0	0	1694	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		233			82			214			165	
Travel Time (s)		5.3			1.9			4.9			3.8	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	6	95	2	2	115	36	19	0	4	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	153	0	0	23	0	0	4	0
Enter Blocked Intersection	No	No	No									
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.98	0.98	0.98	1.02	1.02	1.02	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 17.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	5	77	2	2	93	29	15	0	3	2	0	2
Future Vol, veh/h	5	77	2	2	93	29	15	0	3	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	3	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	95	2	2	115	36	19	0	4	2	0	2

Major/Minor	Major1	Major2			Minor2			Minor1				
Conflicting Flow All	151	0	0	97	0	0	246	246	133	247	263	96
Stage 1	-	-	-	-	-	-	137	137	-	108	108	-
Stage 2	-	-	-	-	-	-	109	109	-	139	155	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1430	-	-	1496	-	-	708	656	916	707	642	960
Stage 1	-	-	-	-	-	-	866	783	-	897	806	-
Stage 2	-	-	-	-	-	-	896	805	-	864	769	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1430	-	-	1496	-	-	704	653	916	701	639	960
Mov Cap-2 Maneuver	-	-	-	-	-	-	704	653	-	701	639	-
Stage 1	-	-	-	-	-	-	863	782	-	893	803	-
Stage 2	-	-	-	-	-	-	890	802	-	860	768	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.4	0.1	10.1	9.5
HCM LOS		B	A	

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1
Capacity (veh/h)	732	1430	-	-	1496	-	-	810
HCM Lane V/C Ratio	0.03	0.004	-	-	0.002	-	-	0.006
HCM Control Delay (s)	10.1	7.5	0	-	7.4	0	-	9.5
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	1	1	1	1	1	1
Traffic Volume (vph)	211	26	65	293	37	124
Future Volume (vph)	211	26	65	293	37	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	13	12
Grade (%)	0%			0%	4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985				0.896	
Flt Protected				0.991	0.989	
Satd. Flow (prot)	1445	0	0	1454	1316	0
Flt Permitted				0.991	0.989	
Satd. Flow (perm)	1445	0	0	1454	1316	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	458			77	419	
Travel Time (s)	10.4			1.8	9.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Parking (#/hr)	5			5	5	
Adj. Flow (vph)	245	30	76	341	43	144
Shared Lane Traffic (%)						
Lane Group Flow (vph)	275	0	0	417	187	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	13	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.35	1.14	1.14	1.35	1.33	1.17
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					

2022 Build Traffic Volumes
1: Tioronda Avenue & Main Street

PM Peak Hour
03/25/2019

Intersection

Int Delay, s/veh 3.8

Movement	EBT	EBR	WBL	WBT	NEL	NER
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Lane Configurations						
Traffic Vol, veh/h	211	26	65	293	37	124
Future Vol, veh/h	211	26	65	293	37	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage #	-	-	-	0	0	-
Grade, %	0	-	-	0	4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	245	30	76	341	43	144

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	275	0	753	260
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	493	-
Critical Hdwy	-	-	4.12	-	7.22	6.62
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	319	756
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	550	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1288	-	296	756
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	550	-

Approach	EB	WB	NE
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HCM Control Delay, s	0	1.4	14.7
HCM LOS		B	

Minor Lane/Major Mvm	NEL	Ln1	EBT	EBR	WBL	WBT
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Capacity (veh/h)	557	-	-	1288	-
HCM Lane V/C Ratio	0.336	-	-	0.059	-
HCM Control Delay (s)	14.7	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.2	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↓	↖	↙	↑	↖
Traffic Volume (vph)	235	99	36	240	117	7
Future Volume (vph)	235	99	36	240	117	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	7%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.960				0.993	
Flt Protected				0.994	0.955	
Satd. Flow (prot)	1609	0	0	1666	1534	0
Flt Permitted				0.994	0.955	
Satd. Flow (perm)	1609	0	0	1666	1534	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	77			535	147	
Travel Time (s)	1.8			12.2	3.3	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	280	118	43	286	139	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	398	0	0	329	147	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.14	1.14	1.14	1.20	1.20
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

2022 Build Traffic Volumes
2: Churchill Street & Main Street

PM Peak Hour
03/25/2019

Intersection

Int Delay, s/veh 5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	235	99	36	240	117	7
Future Vol, veh/h	235	99	36	240	117	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage #	-	-	-	0	0	-
Grade, %	0	-	-	0	7	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	280	118	43	286	139	8

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	398	0	711	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	372	-
Critical Hdwy	-	-	4.12	-	7.82	6.92
Critical Hdwy Stg 1	-	-	-	-	6.82	-
Critical Hdwy Stg 2	-	-	-	-	6.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1161	-	303	658
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	603	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1161	-	290	658
Mov Cap-2 Maneuver	-	-	-	-	290	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	1.1	28.2
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HCM LOS	D		
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Minor Lane/Major Mvm	NBL	Ln1	EBT	EBR	WBL	WBT
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Capacity (veh/h)	299	-	-	1161	-	-
HCM Lane V/C Ratio	0.494	-	-	0.037	-	-
HCM Control Delay (s)	28.2	-	-	8.2	0	-
HCM Lane LOS	D	-	-	A	A	-
HCM 95th %tile Q(veh)	2.6	-	-	0.1	-	-

2022 Build Traffic Volumes
3: Creek Road & Churchill Street

PM Peak Hour
03/25/2019



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	1	125	133	1	2	0
Future Volume (vph)	1	125	133	1	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-5%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected					0.950	
Satd. Flow (prot)	0	1835	1907	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1835	1907	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		82	147		244	
Travel Time (s)		1.9	3.3		5.5	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	1	151	160	1	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	152	161	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection

Int Delay, s/veh 0.1

Movement	NBL	NBT	SBT	SBR	NEL	NER
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Lane Configurations						
Traffic Vol, veh/h	1 125	133	1	2	0	
Future Vol, veh/h	1 125	133	1	2	0	
Conflicting Peds, #/hr	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	0	-	0	-	
Grade, %	-	3	-5	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	151	160	1	2	0

Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	161	0	-	0	314	161
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	153	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1418	-	-	-	679	884
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	875	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1418	-	-	-	678	884
Mov Cap-2 Maneuver	-	-	-	-	678	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	875	-

Approach	NB	SB	NE
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HCM Control Delay, s	0.1	0	10.3
HCM LOS		B	

Minor Lane/Major Mvm	NEL	NBL	NBT	SBT	SBR
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Capacity (veh/h)	678	1418	-	-	-
HCM Lane V/C Ratio	0.004	0.001	-	-	-
HCM Control Delay (s)	10.3	7.5	0	-	-
HCM Lane LOS	B	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2022 Build Traffic Volumes

PM Peak Hour

4: Site Access/One East Mains Street Access & Churchill Street

03/25/2019

	↑	↑	↗	↖	↓	↙	↗	↖	↗	↖	↙	↖	↗
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (vph)	7	77	2	2	93	40	47	0	9	2	0	2	
Future Volume (vph)	7	77	2	2	93	40	47	0	9	2	0	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-3%			3%			0%			0%		
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		0.997			0.960			0.978			0.932		
Flt Protected		0.996			0.999			0.960			0.976		
Satd. Flow (prot)	0	1877	0	0	1760	0	0	1749	0	0	1694	0	
Flt Permitted		0.996			0.999			0.960			0.976		
Satd. Flow (perm)	0	1877	0	0	1760	0	0	1749	0	0	1694	0	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		233			82			214			159		
Travel Time (s)		5.3			1.9			4.9			3.6		
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Adj. Flow (vph)	8	93	2	2	112	48	57	0	11	2	0	2	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	103	0	0	162	0	0	68	0	0	4	0	
Enter Blocked Intersection	No	No	No										
Lane Alignment	Left	Left	Right										
Median Width(ft)		0			0			0			0		
Link Offset(ft)		0			0			0			0		
Crosswalk Width(ft)		16			16			16			16		
Two way Left Turn Lane													
Headway Factor	0.98	0.98	0.98	1.02	1.02	1.02	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Sign Control		Free			Free			Stop			Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection

Int Delay, s/veh 2.5

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	7	77	2	2	93	40	47	0	9	2	0	2
Future Vol, veh/h	7	77	2	2	93	40	47	0	9	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	-3	-	-	3	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	93	2	2	112	48	57	0	11	2	0	2

Major/Minor	Major1	Major2			Minor2			Minor1				
Conflicting Flow All	160	0	0	95	0	0	251	251	136	256	274	94
Stage 1	-	-	-	-	-	-	140	140	-	110	110	-
Stage 2	-	-	-	-	-	-	111	111	-	146	164	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1419	-	-	1499	-	-	702	652	913	697	633	963
Stage 1	-	-	-	-	-	-	863	781	-	895	804	-
Stage 2	-	-	-	-	-	-	894	804	-	857	762	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1419	-	-	1499	-	-	696	647	913	685	629	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	696	647	-	685	629	-
Stage 1	-	-	-	-	-	-	858	780	-	890	799	-
Stage 2	-	-	-	-	-	-	886	799	-	846	761	-

Approach	NB	SB	NE	SW			
HCM Control Delay, s	0.6	0.1	10.5	9.5			
HCM LOS		B	A				
Minor Lane/Major Mvm							
NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1

Capacity (veh/h)	724	1419	-	-	1499	-	-	801
HCM Lane V/C Ratio	0.093	0.006	-	-	0.002	-	-	0.006
HCM Control Delay (s)	10.5	7.6	0	-	7.4	0	-	9.5
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0