



Traffic Impact Study

Oak Tree Apartments
Town of Haverstraw, Rockland County, New York

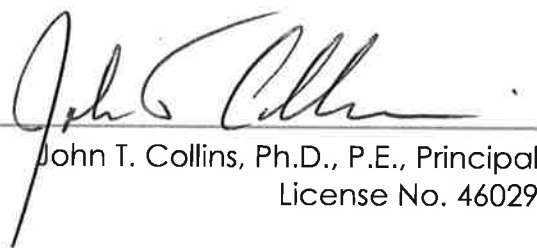
August 1, 2019

Prepared For

Alexander Properties
16 Squadron Boulevard, Suite 106
New City, NY 10956

Prepared By

Maser Consulting P.A.
400 Columbus Avenue, Suite 180E
Valhalla, NY 10595
914.347.7500

A handwritten signature in black ink, appearing to read 'John T. Collins', is written over a horizontal line.

John T. Collins, Ph.D., P.E., Principal
License No. 46029

MC Project No. 19002065A

TABLE OF CONTENTS	PAGE NO.
I. INTRODUCTION.....	1
A. PROJECT DESCRIPTION AND LOCATION	1
B. SCOPE OF STUDY	1
II. EXISTING ROADWAY AND TRAFFIC DESCRIPTIONS.....	3
A. DESCRIPTION OF EXISTING ROADWAYS.....	3
B. YEAR 2019 EXISTING TRAFFIC VOLUMES.....	4
III. EVALUATION OF FUTURE TRAFFIC CONDITIONS.....	5
A. YEAR 2022 NO-BUILD TRAFFIC VOLUMES.....	5
B. SITE GENERATED TRAFFIC VOLUMES	5
C. ARRIVAL/DEPARTURE DISTRIBUTION.....	6
D. YEAR 2022 BUILD CONDITIONS TRAFFIC VOLUMES.....	6
E. DESCRIPTION OF ANALYSIS PROCEDURES.....	6
F. RESULTS OF ANALYSIS	7
IV. SUMMARY AND CONCLUSION	10

APPENDICES

APPENDIX A.....	FIGURES
APPENDIX B.....	TABLES
APPENDIX C.....	LEVEL OF SERVICE STANDARDS
APPENDIX D	CAPACITY ANALYSIS
APPENDIX E.....	TRAFFIC COUNT DATA

I. INTRODUCTION

A. PROJECT DESCRIPTION AND LOCATION

(Figures No. 1)

This report has been prepared to evaluate the potential traffic impacts associated with the proposed redevelopment, herein referred to as the “Oak Tree Apartments”, of the property on the northeast side of Rosman Road, north of the existing ShopRite Plaza, in the Town of Haverstraw, New York. Currently, the property is occupied by numerous single-floor dwelling units, all of which are served by the existing Oak Tree Lane connection to Rosman Road (Figure No. 1). Post-construction of the Oak Tree Apartments, it is proposed that the property consist of a residential apartment complex (totaling 228 total dwelling units) to be served by the existing Oak Tree Lane connection to Rosman Road (Figure No. 1).

In order to evaluate future traffic conditions associated with this proposed development, a Design Year of 2022 has been utilized in completing the traffic analysis contained herein.

B. SCOPE OF STUDY

This study has been prepared to identify current and future traffic operating conditions on the surrounding roadway network and to assess the potential traffic impacts of the proposed Oak Tree Apartments redevelopment.

Turning movement traffic counts were collected by representatives of Maser Consulting, P.A. in July 2019. Since these counts were taken during the summer, they were compared to other available traffic count data in the area. As a result, the turning movement traffic counts taken in July 2019 were increased by a factor of 10% to more accurately represent peak traffic volume conditions in the vicinity of the site during non-summer months (with school in session). These increased volumes form the Year 2019 Existing Traffic Volumes utilized in the analysis contained herein.

The Year 2019 Existing Traffic Volumes were then projected to the Year 2022 to take into account background traffic growth in the area. In addition, traffic anticipated to be generated by other planned/approved developments in the area were estimated and added to the Year 2022 Projected Traffic Volumes to obtain the Year 2022 No-Build Traffic Volumes.

Estimates were then made of the potential traffic that the Oak Tree Apartments redevelopment would generate during each of the peak hours (see Section III.B for further discussion). The resulting Site Generated Traffic Volumes were then added to the roadway system and combined with the Year 2022 No-Build Traffic Volumes (excluding the existing Oak Tree Lane driveway traffic volumes), resulting in the Year 2022 Build Traffic Volumes.

The Existing, No-Build and Build Traffic Volumes were then compared to roadway capacities based on the procedures from the Highway Capacity Manual to determine existing and future Levels of Service and operating conditions.

II. EXISTING ROADWAY AND TRAFFIC DESCRIPTIONS

A. DESCRIPTION OF EXISTING ROADWAYS

As shown on Figure No. 1, the proposed Oak Tree Apartments redevelopment will be accessed by the existing Oak Tree Lane connection to Rosman Road (Figure No. 1). The following is a brief description of the roadways located within the study area. In addition, Section III.F provides a further description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service and any recommended improvements for each of the study area intersections. Appendix “D” contains copies of the capacity analyses which indicate the existing geometrics (including lane widths and grades) and other characteristics for each of the individual intersections studied.

1. U.S. Route 202 (W Ramapo Road)

U.S. Route 202 (W Ramapo Road) is a generally east/west State highway providing a connection between the Palisades Interstate Parkway to the west with U.S. Route 9W to the east. In the vicinity of the site, the roadway has separate turn-lanes at its signalized intersection with Rosman Road, sidewalks on the northern side of the roadway and a posted speed limit of 40 MPH. It should be noted that the New York State Department of Transportation (NYSDOT), as part of an improvement project (PIN No. 848041), is planning to replace/reprogram traffic signals along the U.S. Route 202 corridor for improved efficiency and coordination. These traffic signals include U.S. Route 202’s intersections with Rosman Road, ShopRite Plaza, S Central Highway, Oakley Boulevard and Bridge Street. The coordination of the Rosman Road traffic signal should help reduce queues and improve traffic flow along U.S. Route 202 in the vicinity of the Oak Tree Apartments site. This NYSDOT project is expected to be completed by the Fall of 2019.

2. Rosman Road

Rosman Road is a generally north/south, two-lane Town roadway which provides a connection between U.S. Route 202 to the south with Thiells-Mt. Ivy Road (C.R. 47) to the north. Within the study area, the roadway has a separate right-turn lane at its intersection with U.S. Route 202, sidewalks on both sides of the roadway (south of Oak Tree Lane) and a posted speed limit of 30 MPH.

B. YEAR 2019 EXISTING TRAFFIC VOLUMES

(Figures No. 2 and 3)

Manual traffic counts were collected by representatives of Maser Consulting, P.A. on Wednesday, July 24, 2019 between the hours of 6:30 AM – 9:30 AM and 3:30 PM – 6:30 PM for the Typical Weekday Peak AM and Peak PM hours to determine the existing traffic volume conditions at the study area intersections. Since these counts were taken during the summer, they were compared to other turning movement traffic count data available within the study area. As a result, the July 2019 turning movement traffic counts referenced above were increased by a factor of 10% in order to more accurately represent peak traffic volume conditions within the study area during non-summer months (with school in session). These increased volumes form the Year 2019 Existing Traffic Volumes for the Weekday Peak AM and Weekday Peak PM hours at the following study area intersections.

- U.S. Route 202 (W Ramapo Road) and Rosman Road
- Rosman Road and ShopRite Plaza Driveway
- Rosman Road and Oak Tree Lane

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

- | | |
|------------------------|-------------------|
| ▪ Weekday Peak AM Hour | 8:00 AM – 9:00 AM |
| ▪ Weekday Peak PM Hour | 4:30 PM – 5:30 PM |

The resulting Year 2019 Existing Traffic Volumes are shown on Figures No. 2 and 3 for the Weekday Peak AM and Weekday Peak PM hours, respectively.

III. EVALUATION OF FUTURE TRAFFIC CONDITIONS

A. YEAR 2022 NO-BUILD TRAFFIC VOLUMES

(Figures No. 4 through 9)

The Year 2019 Existing Traffic Volumes were increased by a compounded annual growth factor of 1% to account for general background growth in the area, resulting in the Year 2022 Projected Traffic Volumes which are shown on Figures No. 4 and 5 for the Weekday Peak AM and Weekday Peak PM hours, respectively.

Additionally, the amount of traffic that would be generated by the following planned/approved developments in the area were estimated to form the Other Development Traffic Volumes, shown on Figures No. 6 and 7 for each of the peak hours, respectively:

- W Ramapo Road Assisted Living
- Minisceongo Park
- Hudson Highlands
- Allison Park

The total Other Development Traffic Volumes were combined with the Year 2022 Projected Traffic Volumes to form the Year 2022 No-Build Traffic Volumes, shown on Figures No. 8 and 9 for the Weekday Peak AM and Weekday Peak PM hours, respectively.

B. SITE GENERATED TRAFFIC VOLUMES

(Table No. 1)

As discussed in Section I.A above, post-redevelopment, the site will consist of a residential apartment complex with a total of 228 dwelling units. Estimates of the amount of traffic to be generated by the proposed Oak Tree Apartments redevelopment (228 dwelling units) during each of the peak hours were developed based on information published by the Institute of Transportation Engineers (ITE) as contained in the report entitled “Trip Generation”, 10th Edition, 2017. The anticipated hourly trip generation rates (HTGR) and corresponding site generated traffic volumes for each of the peak hours are summarized on Table No. 1.

C. ARRIVAL/DEPARTURE DISTRIBUTION

(Figures No. 10 and 11)

Based on a review of the Existing Traffic Volumes and traffic patterns on the study area roadway network, the anticipated arrival and departure distributions for the proposed Oak Tree Apartments redevelopment were identified and are shown on Figures No. 10 and 11, respectively.

D. YEAR 2022 BUILD CONDITIONS TRAFFIC VOLUMES

(Figures No. 12 through 15)

The Site Generated Traffic Volumes were assigned to the study area roadway network based on the arrival and departure distributions referenced above and are shown on Figures No. 12 and 13 for the Weekday Peak AM and Weekday Peak PM hours, respectively.

These Site Generated Traffic Volumes were then combined with the Year 2022 No-Build Traffic Volumes (excluding the existing Oak Tree Lane driveway traffic volumes) discussed in Section III.A above to form the Year 2022 Build Traffic Volumes, shown on Figures No. 14 and 15 for the Weekday Peak AM and Weekday Peak PM hours, respectively.

E. DESCRIPTION OF ANALYSIS PROCEDURES

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

- **Signalized Intersection Capacity Analysis**

The capacity analysis for a signalized intersection was performed in accordance with the procedures described in the 6th Edition *Highway Capacity Manual* published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service “A” represents the best condition and a Level of Service “F” represents the worst condition. A Level of Service “C” is generally used as a design standard while a Level of Service “D” is acceptable during peak periods. A Level of Service “E” represents an operation near capacity. In order to identify an intersection’s Level of Service, the average amount

of vehicle delay is computed for each approach to the intersection as well as for the overall intersection.

▪ Unsignalized Intersection Capacity Analysis

The unsignalized intersection capacity analysis method utilized in this report was also performed in accordance with the procedures described in the 6th Edition *Highway Capacity Manual*. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the Level of Service, the average amount of vehicle delay is computed for each critical movement to the intersection.

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

F. RESULTS OF ANALYSIS

(Table No. 2)

Capacity analyses which take into consideration appropriate truck percentages, pedestrian activity, lane widths, roadway grades and other factors were performed at the study area intersections utilizing the procedures described above to determine the Levels of Service and average vehicle delays. Summarized below is a description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service.

Table No. 2 summarizes the results of the capacity analysis for the Year 2019 Existing, Year 2022 No-Build and Year 2022 Build conditions. Appendix “D” contains copies of the capacity analysis that also indicate the existing geometrics and other characteristics for each of the individual intersections studied.

1. U.S. Route 202 (W Ramapo Road) and Rosman Road

U.S. Route 202 and Rosman Road intersect at a signalized, “T” shaped intersection. The northeast-bound U.S. Route 202 approach consists of separate left-turn and through lanes, the southwest-bound U.S. Route 202 approach consists of separate right-turn and through lanes and the southbound Rosman Road approach consists of separate left and right-turn lanes. Additionally, there are crosswalks present on the southbound Rosman Road and northeast-bound U.S. Route 202 approaches.

Capacity analysis conducted at this intersection utilizing the Year 2019 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “A” during the Weekday Peak AM hour and an overall Level of Service “B” during the Weekday Peak PM hour.

The capacity analysis was recomputed using the Year 2022 No-Build Traffic Volumes, which indicates that the intersection is projected to operate at an overall Level of Service “B” during each of the peak hours.

Again, the capacity analysis was recomputed using the Year 2022 Build Traffic Volumes, which indicates that the intersection is projected to operate at the same overall Levels of Service as compared to the Year 2022 No-Build conditions, during each of the peak hours.

It should again be noted that the coordination of the traffic signal at this location as part of the NYSDOT traffic signal replacement/reprogramming project should reduce queues and improve traffic flow along U.S. Route 202 in the vicinity of the site.

2. Rosman Road and ShopRite Driveway

The ShopRite Driveway intersects Rosman Road at an unsignalized, “T” shaped intersection with “Stop” sign control on the westbound ShopRite Driveway approach. Each approach to the intersection consists of a single lane serving all vehicle movements and there is a crosswalk present on the southbound Rosman Road approach.

Capacity analysis conducted at this intersection utilizing the Year 2019 Existing Traffic Volumes indicates that the southbound Rosman Road approach operates at a Level of Service “A” and the westbound ShopRite Driveway approach operates at a Level of Service “B” during each of the peak hours.

The capacity analysis was recomputed using the Year 2023 No-Build Traffic Volumes, which indicates that the southbound Rosman Road approach is projected to operate at a Level of Service “A” during each of the peak hours. These analyses also indicate that under Year 2022 No-Build conditions, the westbound ShopRite Driveway approach is projected to operate at a Level of Service “B” during the Weekday Peak AM Hour and a Level of Service “C” during the Weekday Peak PM Hour.

Again, the capacity analysis was recomputed using the Year 2022 Build Traffic Volumes, which indicates that each of the approaches to the intersection is projected to

operate at the same Levels of Service as compared to the Year 2022 No-Build conditions, during each of the peak hours.

3. Rosman Road and Oak Tree Lane

Oak Tree Lane intersects Rosman Road at an unsignalized, “T” shaped intersection with “Stop” sign control on the southbound Oak Tree Lane approach. Each approach to the intersection consists of a single lane serving all vehicle movements.

Capacity analysis conducted at this intersection utilizing the Year 2019 Existing Traffic Volumes indicates that the southeast-bound Rosman Road approach operates at a Level of Service “A” and the southbound Oak Tree Lane approach operates at a Level of Service “B”, during each of the peak hours.

The capacity analysis was recomputed using the Year 2022 No-Build and Year 2022 Build Traffic Volumes, each of which indicate that the southeast-bound Rosman Road and southbound Oak Tree Lane approaches are projected to operate at the same Levels of Service as compared to the Year 2019 Existing conditions, during each of the peak hours.

IV. SUMMARY AND CONCLUSION

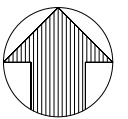
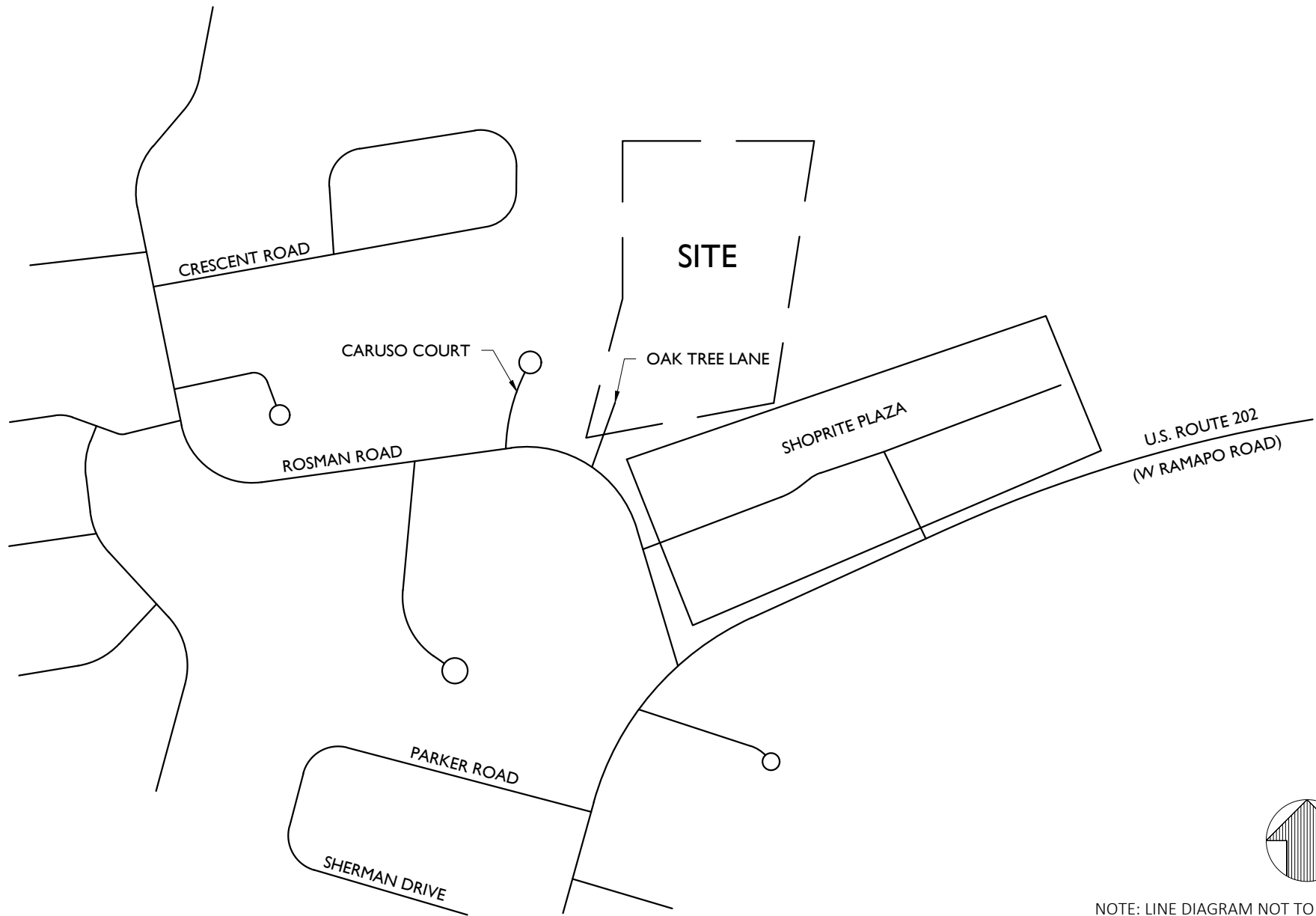
Based on the above analysis, similar Levels of Service and delays will be experienced at the study area intersections under the future No-Build and future Build conditions.

Thus, the traffic expected to be generated by the Oak Tree Apartments redevelopment is not anticipated to have a significant impact in the overall operation of the study area roadway network. It should again be noted that the coordination of the traffic signal at the U.S. Route 202/Rosman Road intersection as part of the NYSDOT traffic signal replacement/reprogramming project should reduce queues and improve traffic flow along U.S. Route 202 in the vicinity of the Oak Tree Apartments site.

OAK TREE APARTMENTS

APPENDIX A

FIGURES



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE

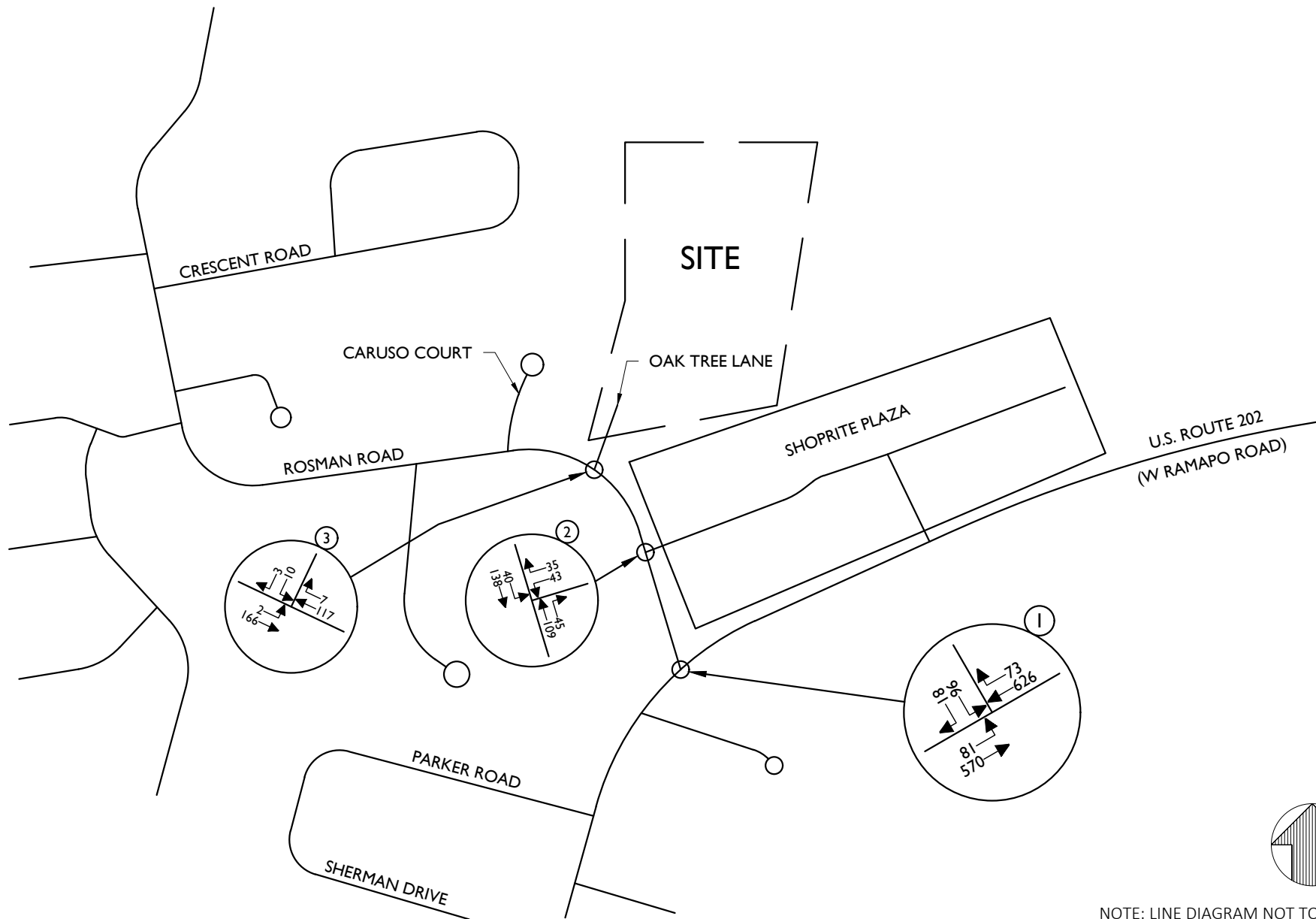


WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE
SITE LOCATION
SHEET NUMBER
FIGURE NO. 1



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



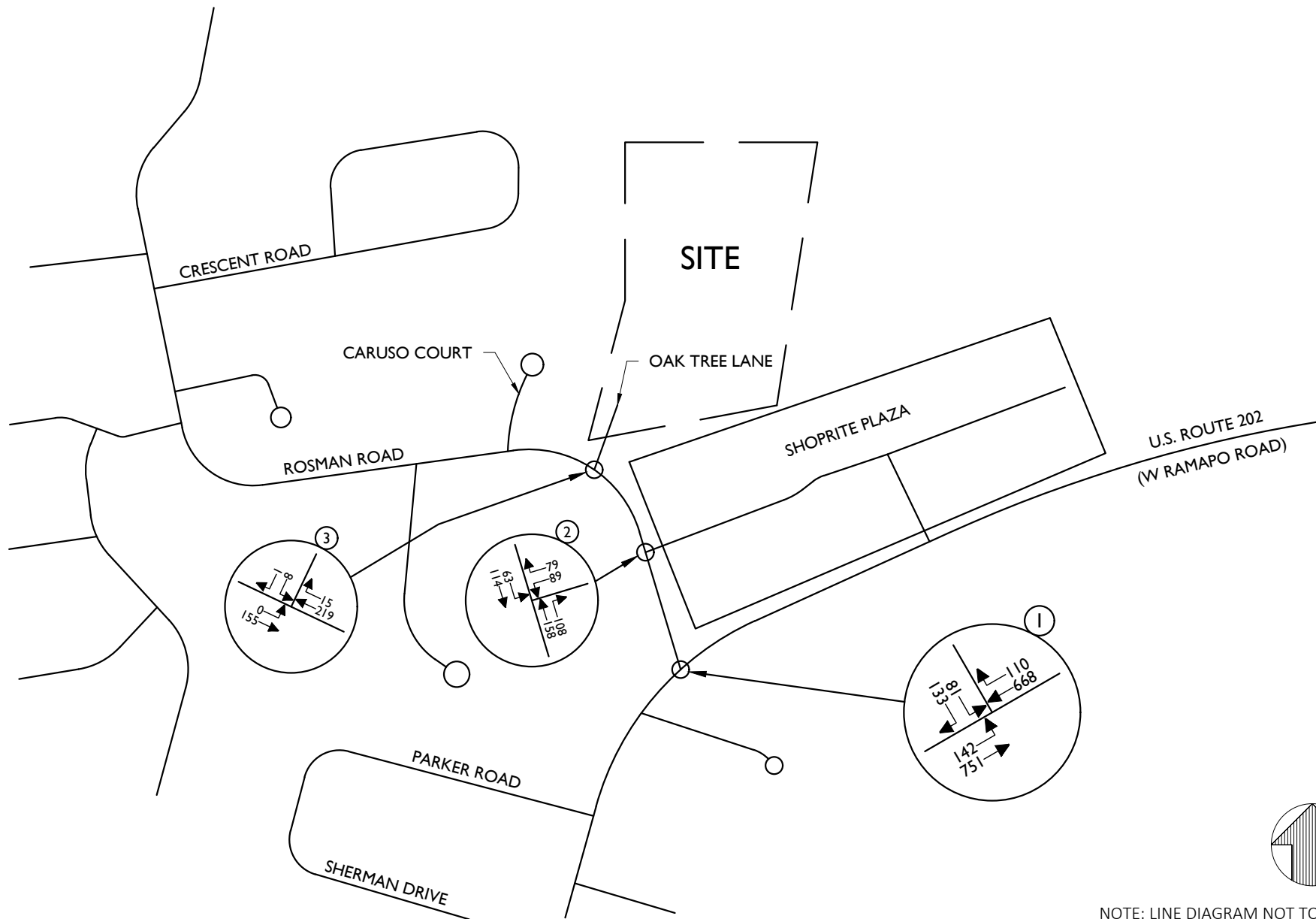
WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
**2019 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR**

SHEET NUMBER:
FIGURE NO. 2



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



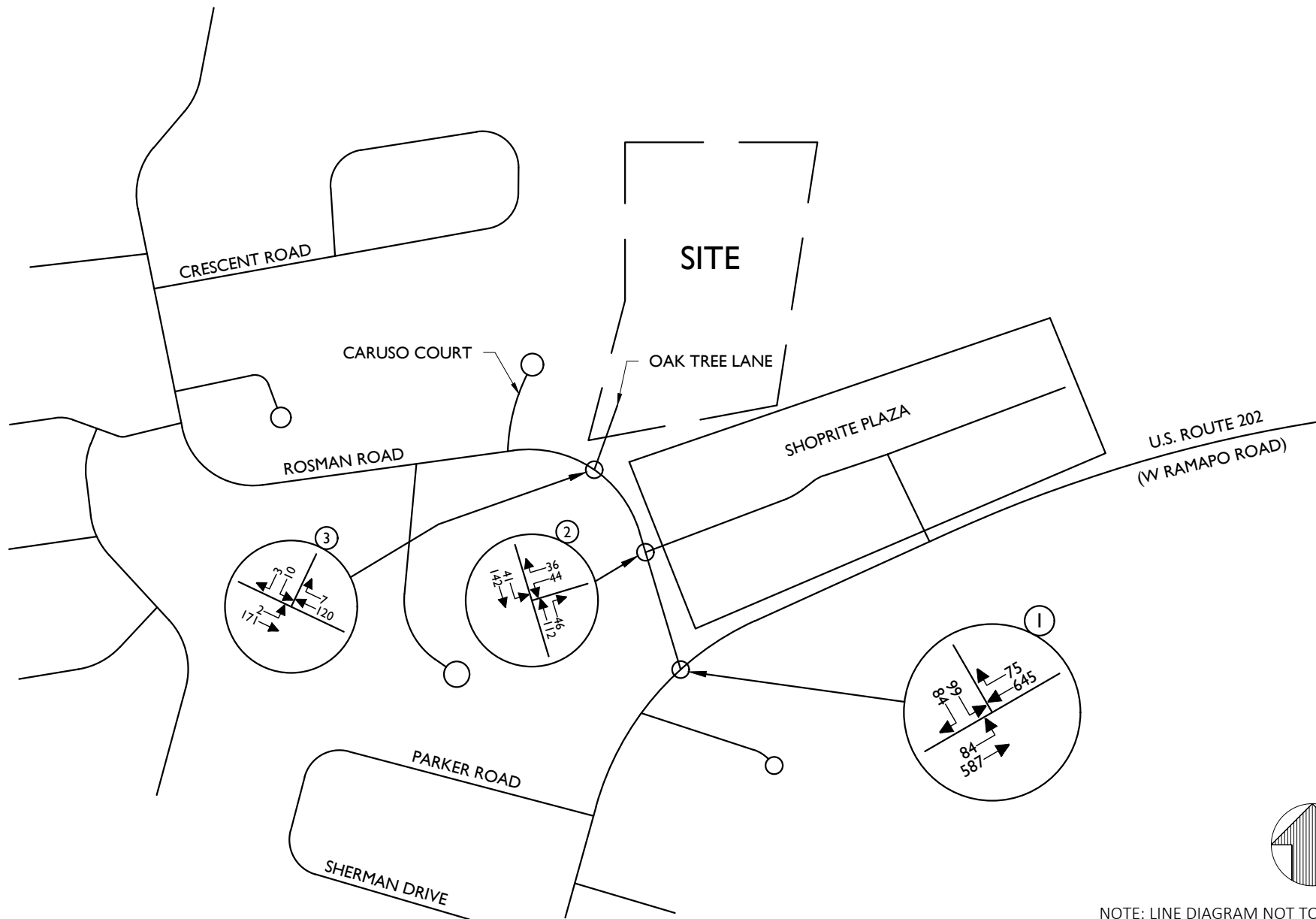
WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
**2019 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR**

SHEET NUMBER:
FIGURE NO. 3



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE: N.T.S.	DATE: 7/29/2019	DRAWN BY: N.S.T.	CHECKED BY: J.T.C.
------------------	--------------------	---------------------	-----------------------

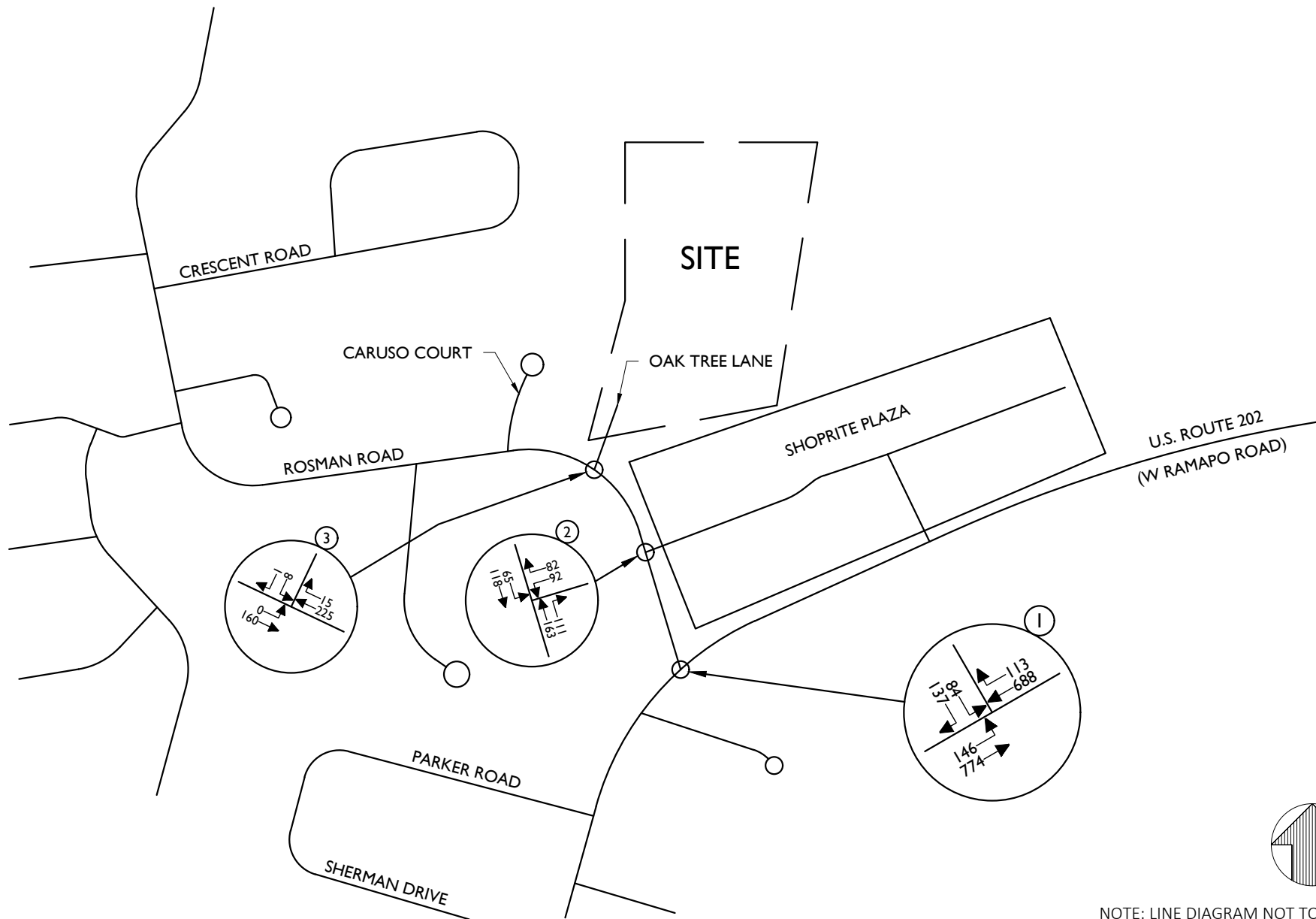
PROJECT NUMBER: 19002065A	DRAWING NAME: 190729_NT_FIGURES
------------------------------	------------------------------------

SHEET TITLE:

2022 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

SHEET NUMBER:

FIGURE NO. 4



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



WESTCHESTER OFFICE

400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE: N.T.S.	DATE: 7/29/2019	DRAWN BY: N.S.T.	CHECKED BY: J.T.C.
------------------	--------------------	---------------------	-----------------------

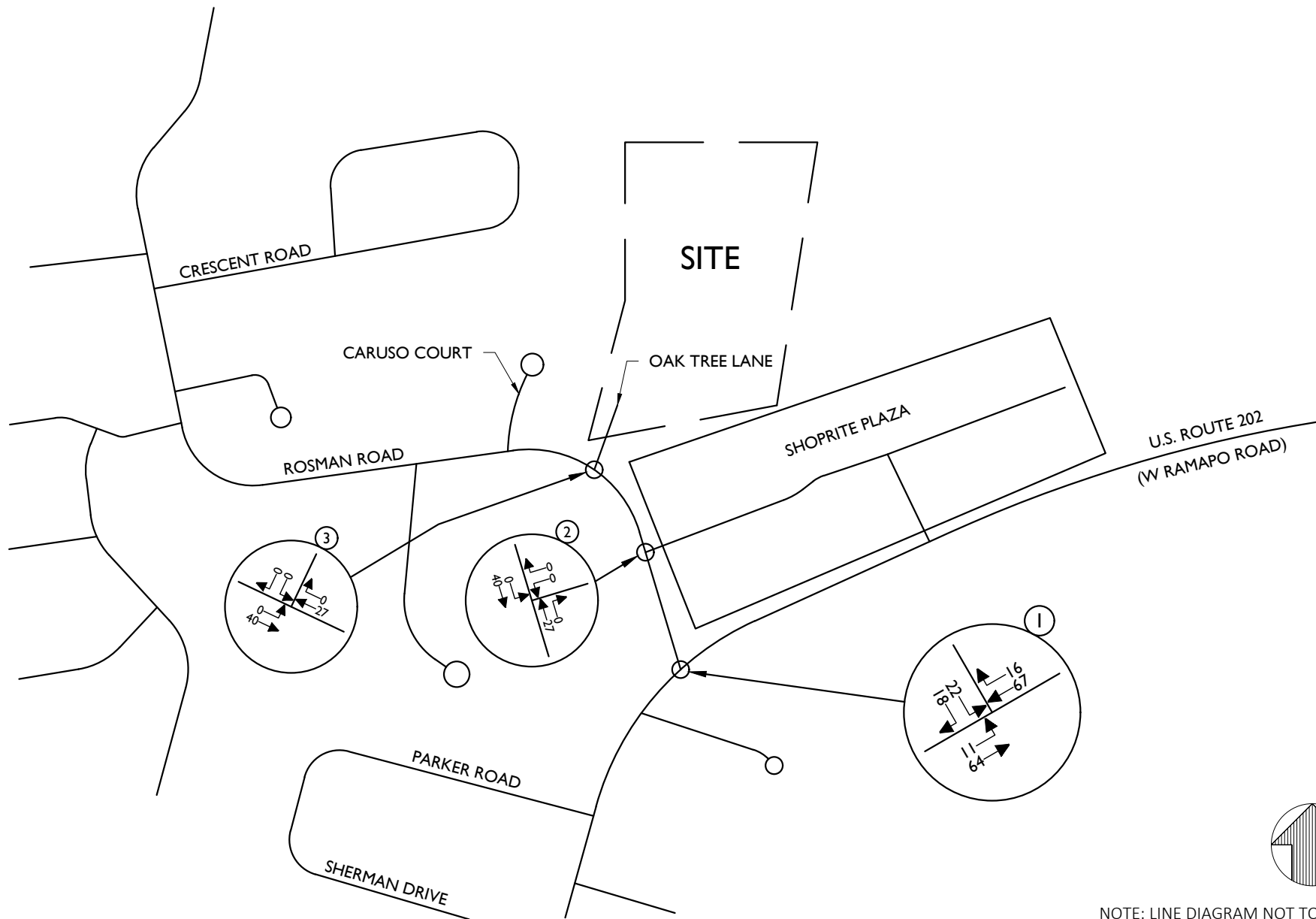
PROJECT NUMBER: 19002065A	DRAWING NAME: 190729_NT_FIGURES
------------------------------	------------------------------------

SHEET TITLE:

2022 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

SHEET NUMBER:

FIGURE NO. 5



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



WESTCHESTER OFFICE

400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

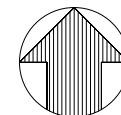
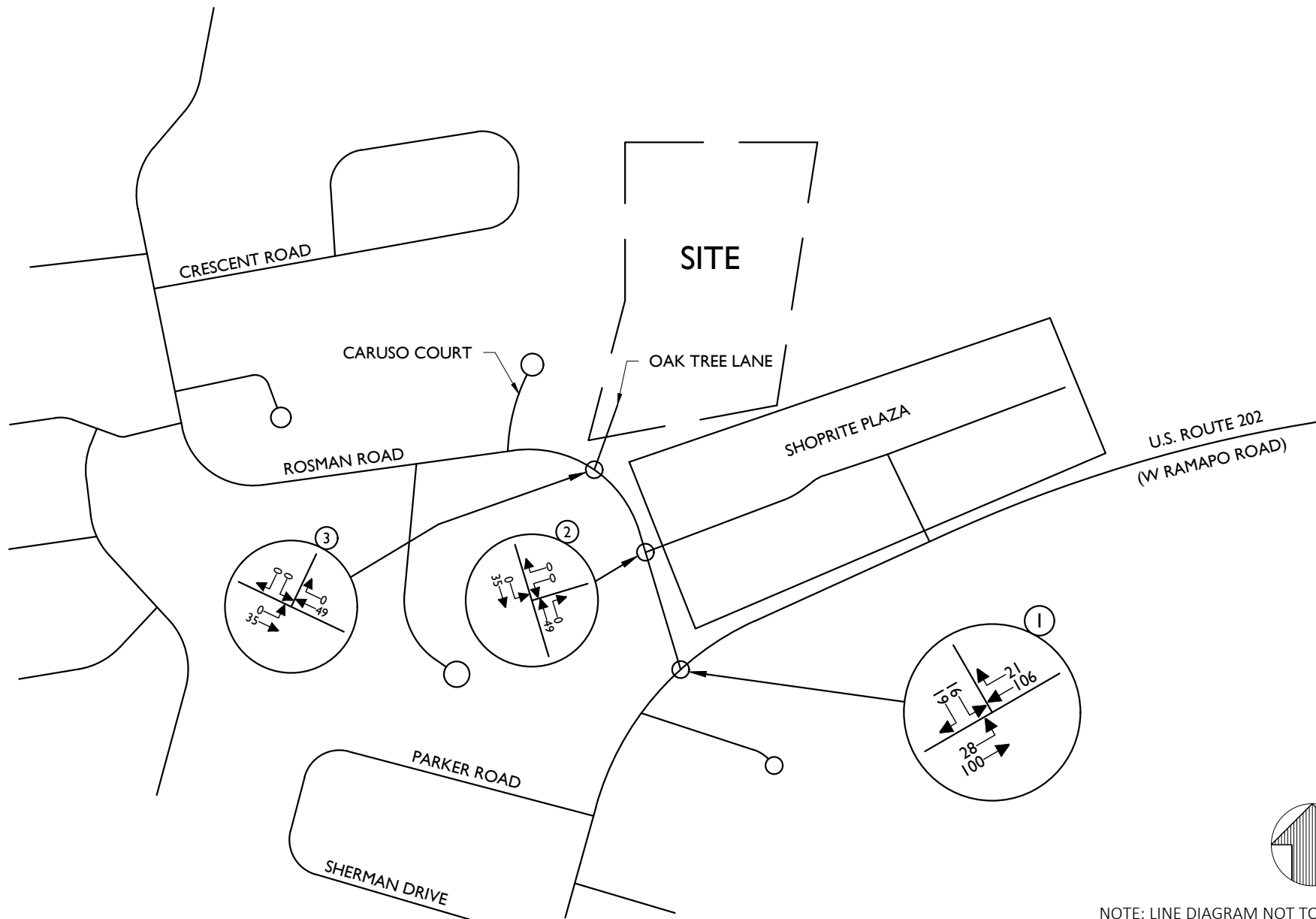
SCALE N.T.S.	DATE 7/29/2019	DRAWN BY N.S.T.	CHECKED BY J.T.C.
-----------------	-------------------	--------------------	----------------------

PROJECT NUMBER 19002065A	DRAWING NAME 190729_NT_FIGURES
-----------------------------	-----------------------------------

SHEET TITLE:

OTHER DEVELOPMENT TRAFFIC VOLUMES
(TOTAL)
WEEKDAY PEAK AM HOUR

SHEET NUMBER:
FIGURE NO. 6



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



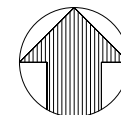
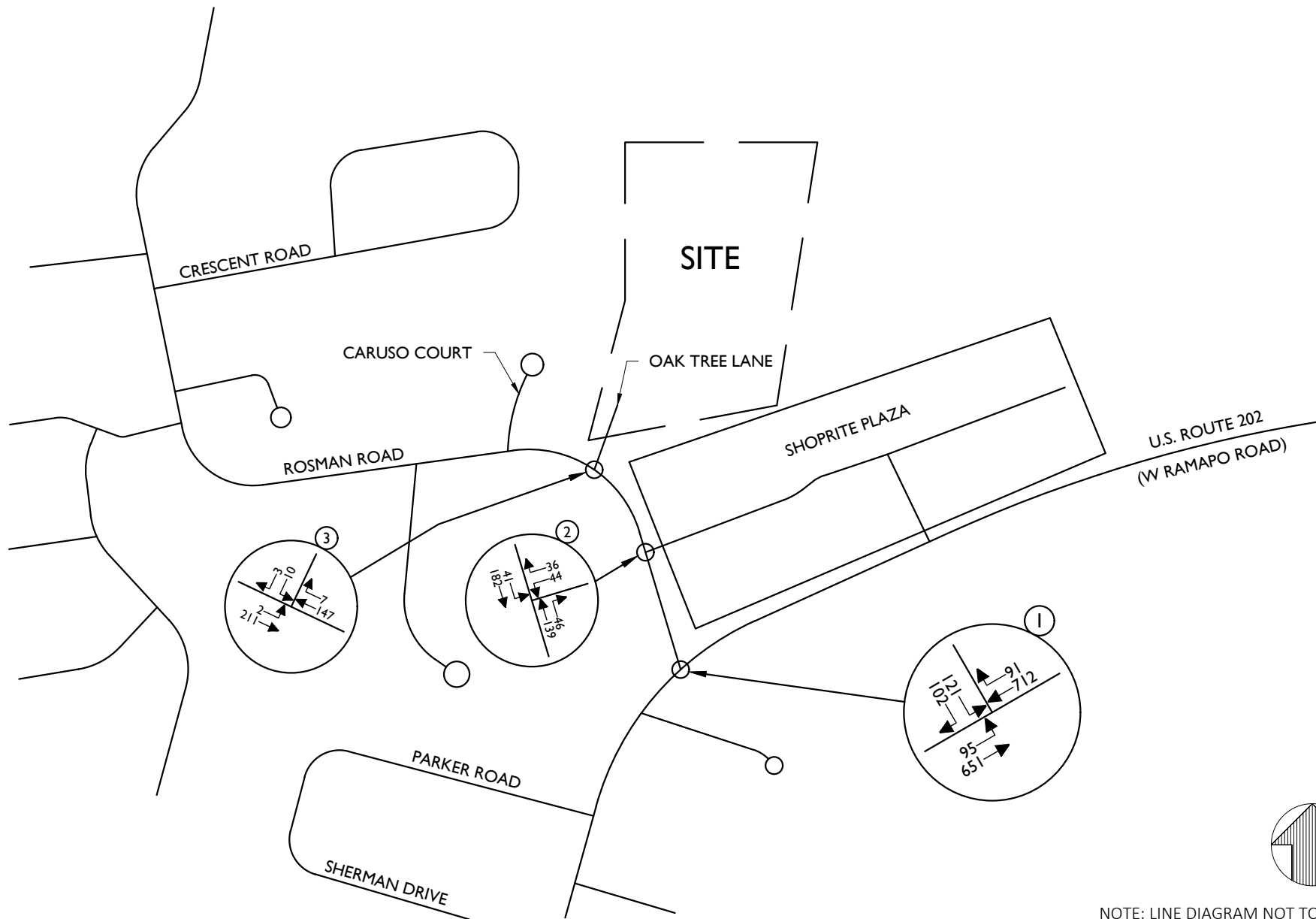
WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
OTHER DEVELOPMENT TRAFFIC VOLUMES
(TOTAL)
WEEKDAY PEAK PM HOUR

SHEET NUMBER:
FIGURE NO. 7



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



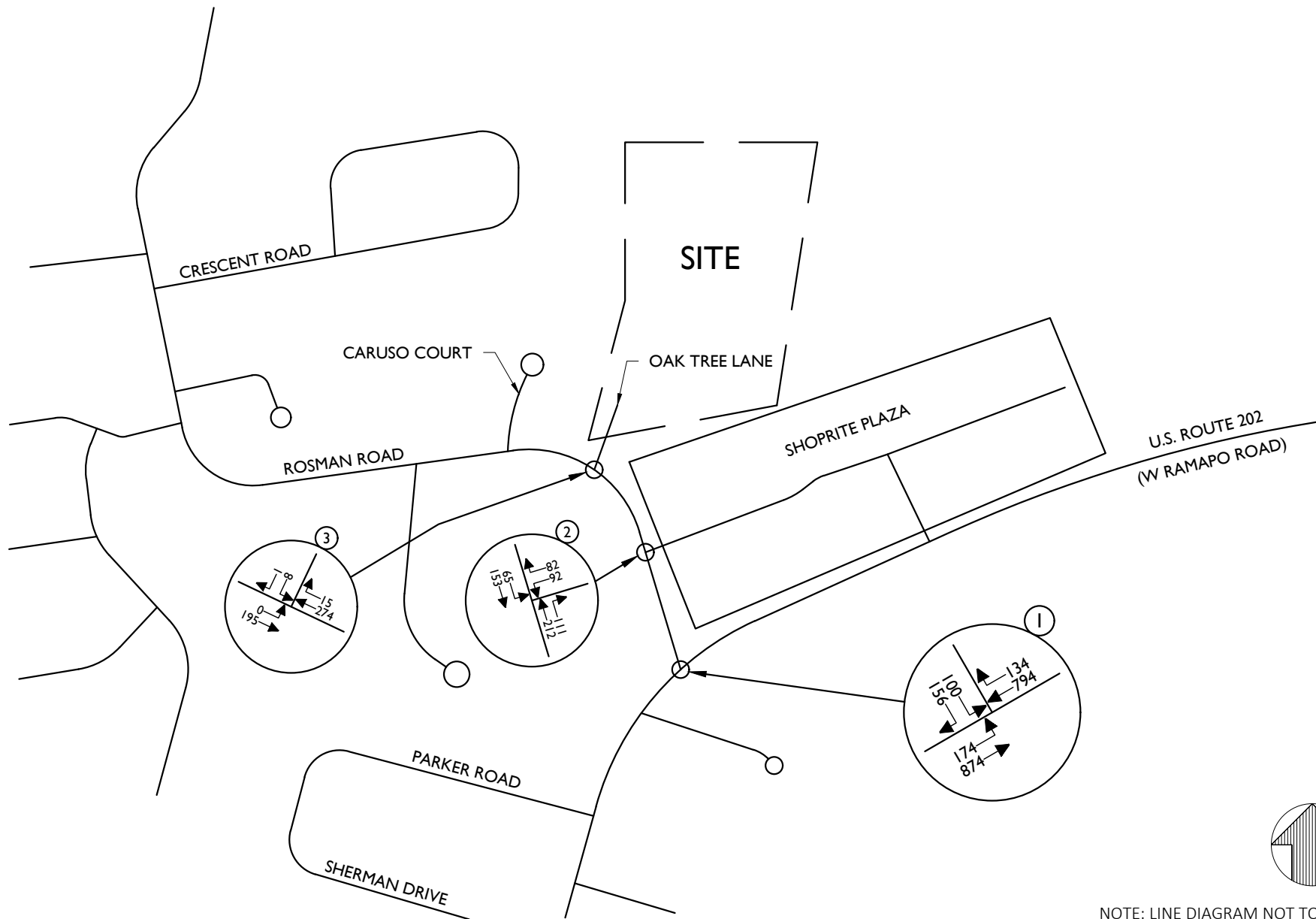
WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
**2022 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR**

SHEET NUMBER:
FIGURE NO. 8



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



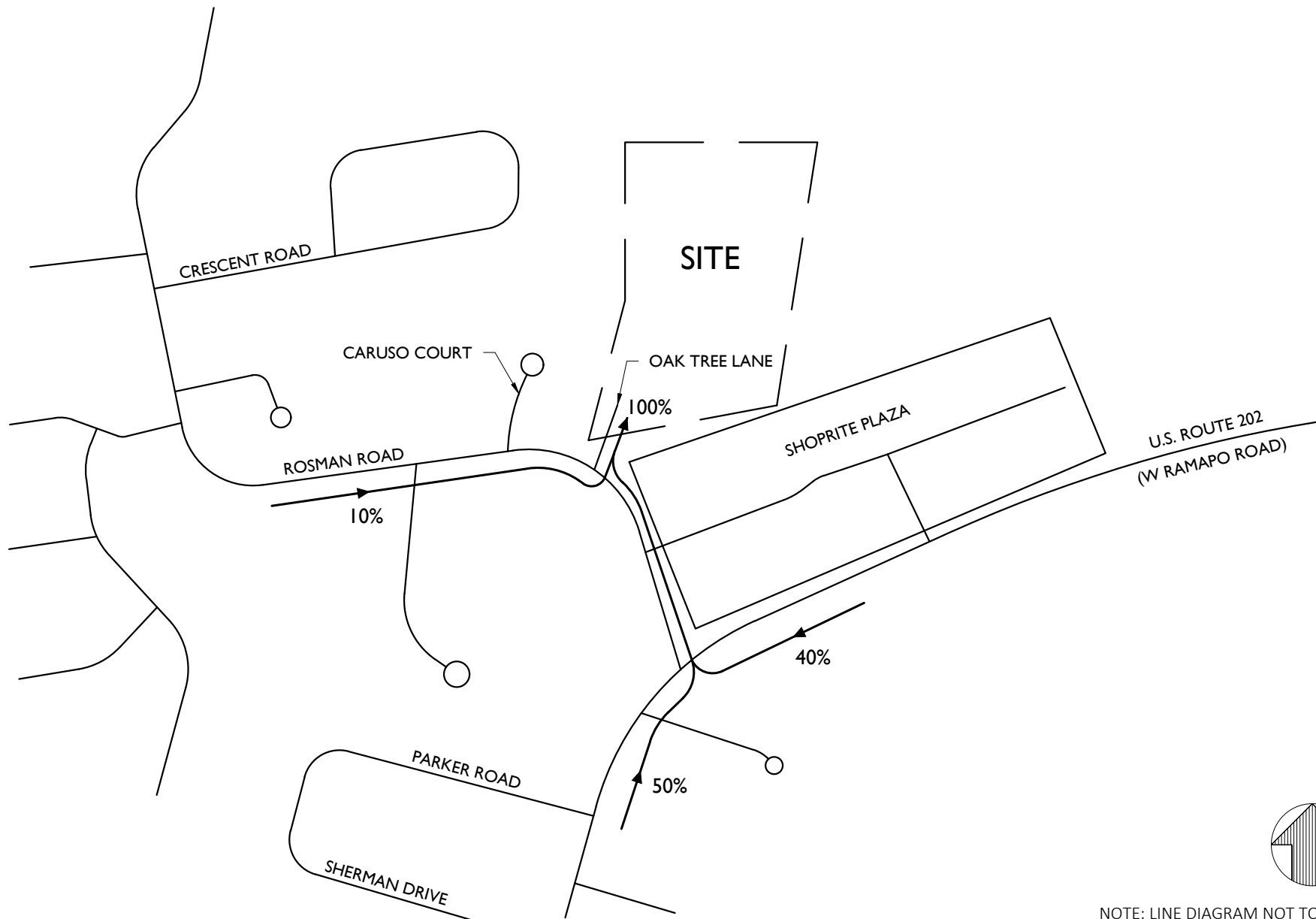
WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
**2022 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR**

SHEET NUMBER:
FIGURE NO. 9



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- | | |
|---------------------|---------------------|
| ■ Red Bank, NJ | ■ Lehigh Valley, PA |
| ■ Clinton, NJ | ■ Exton, PA |
| ■ Hamilton, NJ | ■ Philadelphia, PA |
| ■ Egg Harbor, NJ | ■ Pittsburgh, PA |
| ■ Montvale, NJ | ■ Tampa, FL |
| ■ Mt. Arlington, NJ | ■ Orlando, FL |
| ■ Mt. Laurel, NJ | ■ Miami, FL |
| ■ Albany, NY | ■ Sterling, VA |
| ■ Newburgh, NY | ■ Norfolk, VA |
| ■ Westchester, NY | ■ Albuquerque, NM |
| ■ Columbia, MD | ■ Charlotte, NC |

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



WESTCHESTER OFFICE

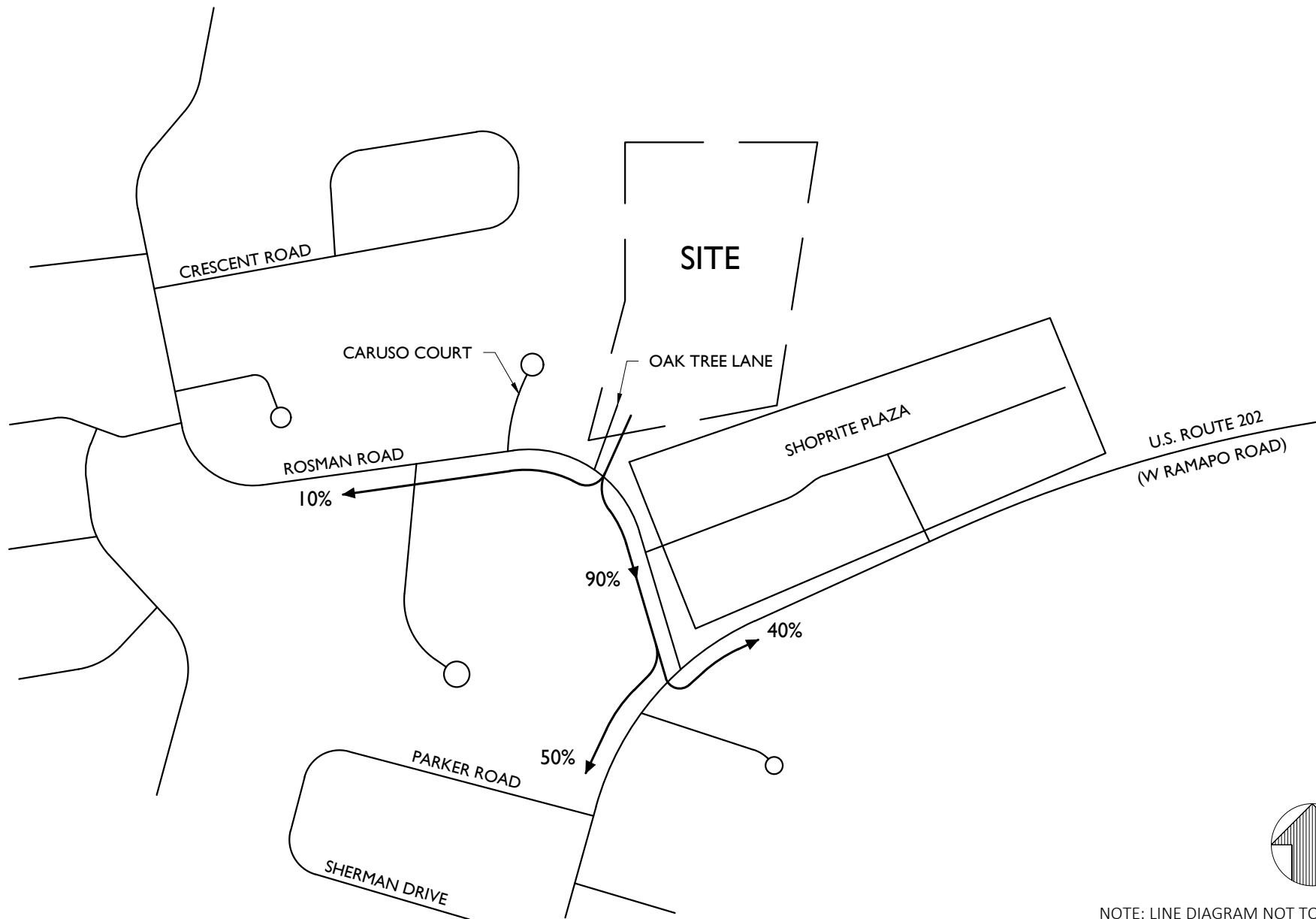
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
**ARRIVAL DISTRIBUTION
(EXPRESSED AS A %)**

SHEET NUMBER:
FIGURE NO. 10



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



WESTCHESTER OFFICE

400 Columbus Avenue
Suite 180E
Valhalla, NY 10595

Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE: N.T.S.	DATE: 7/29/2019	DRAWN BY: N.S.T.	CHECKED BY: J.T.C.
------------------	--------------------	---------------------	-----------------------

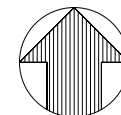
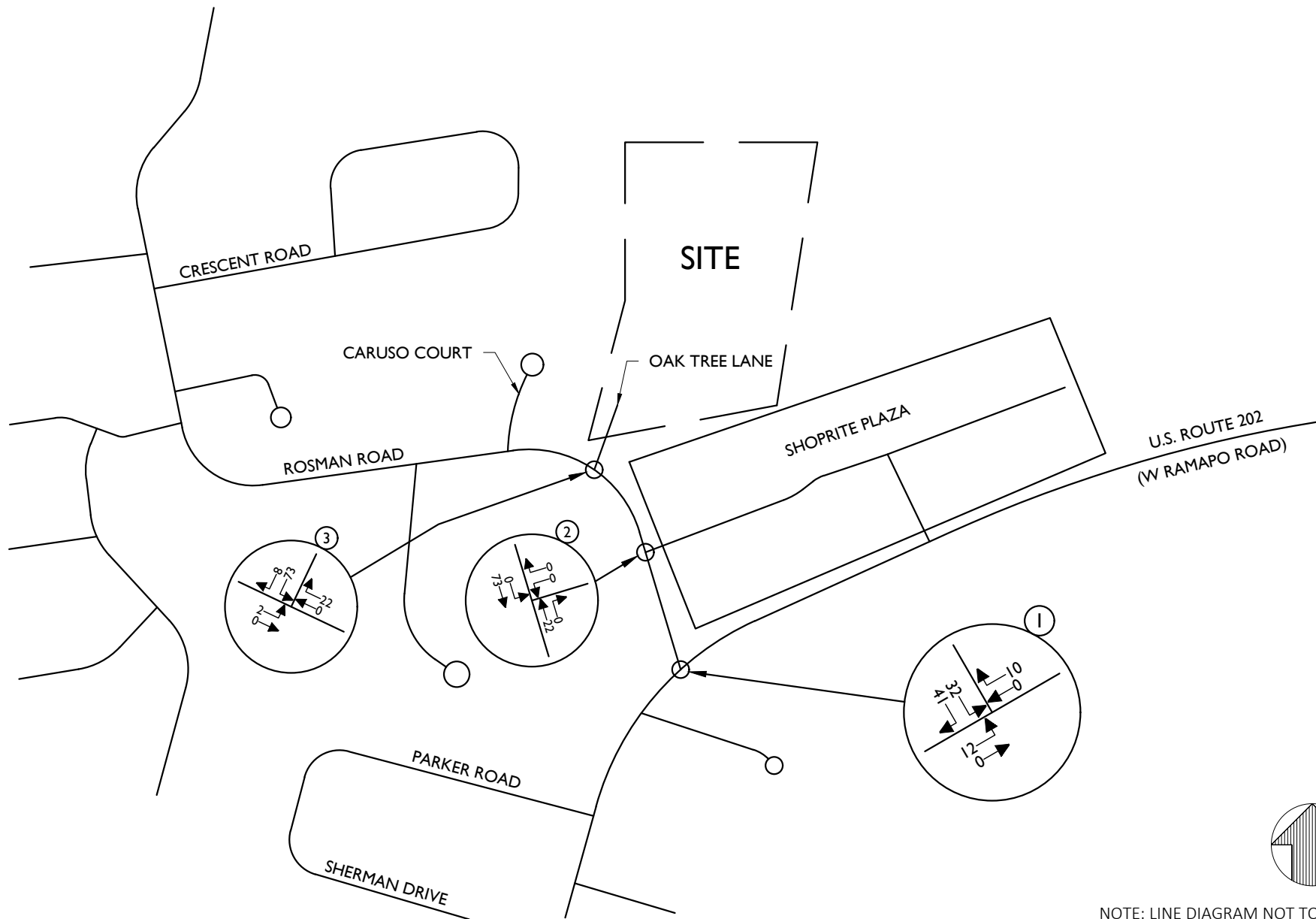
PROJECT NUMBER: 19002065A	DRAWING NAME: 190729_NT_FIGURES
------------------------------	------------------------------------

SHEET TITLE:

DEPARTURE DISTRIBUTION
(EXPRESSED AS A %)

SHEET NUMBER:

FIGURE NO. 11



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



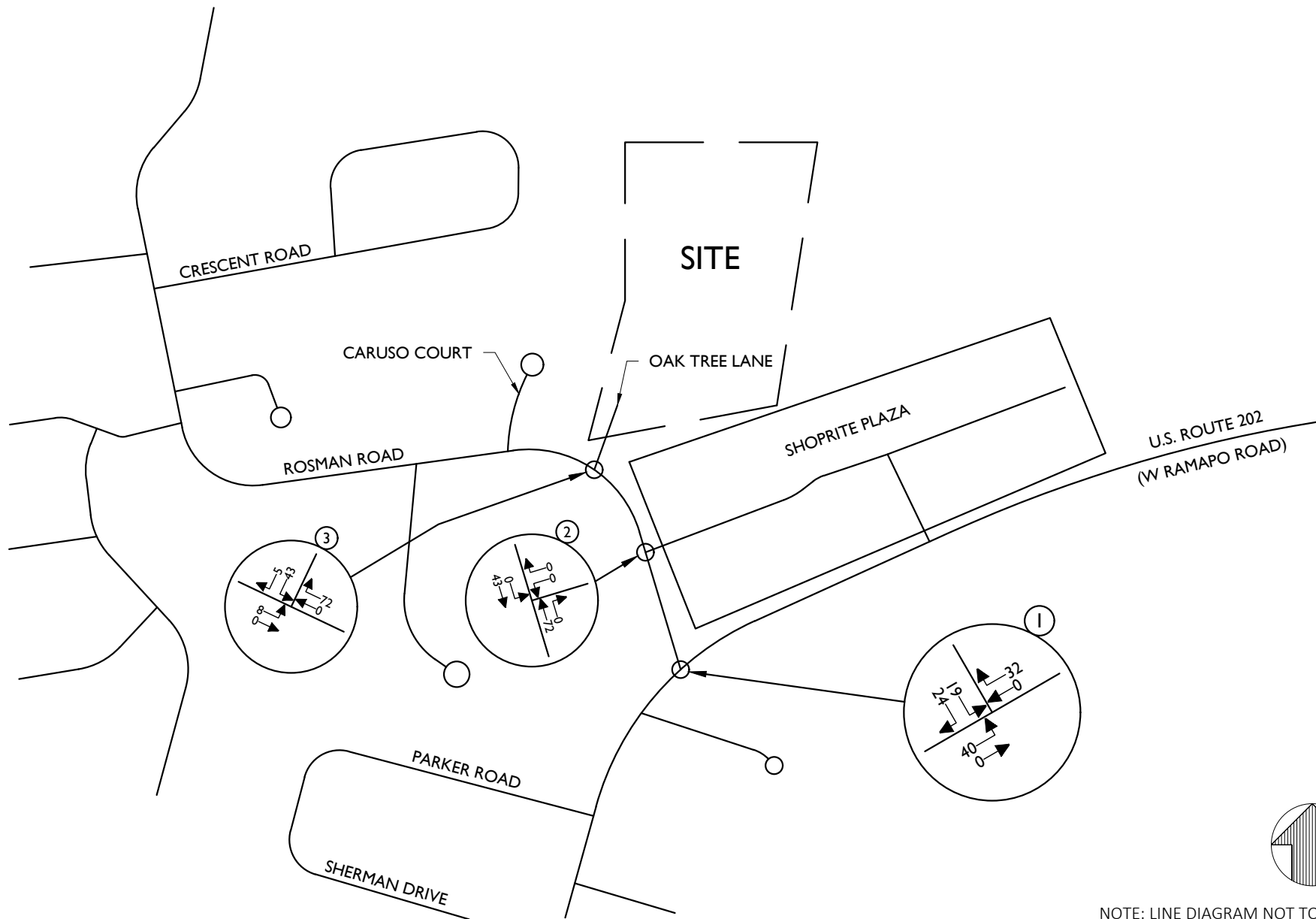
WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

SHEET NUMBER:
FIGURE NO. 12



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Copyright © 2019, Maser Consulting P.A. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting P.A.

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



WESTCHESTER OFFICE

400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE: N.T.S.	DATE: 7/29/2019	DRAWN BY: N.S.T.	CHECKED BY: J.T.C.
------------------	--------------------	---------------------	-----------------------

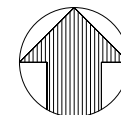
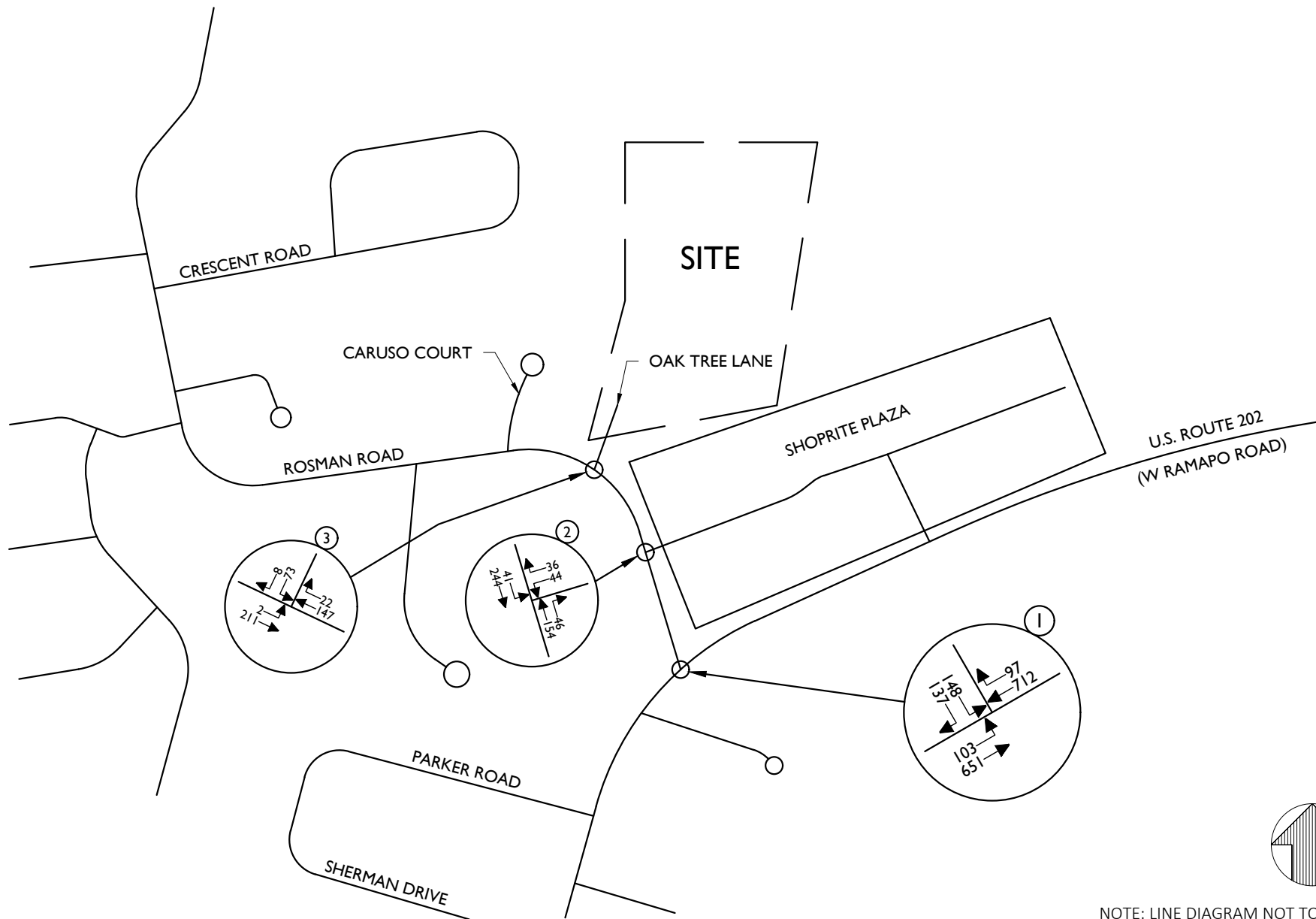
PROJECT NUMBER: 19002065A	DRAWING NAME: 190729_NT_FIGURES
------------------------------	------------------------------------

SHEET TITLE:

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

SHEET NUMBER:

FIGURE NO. 13



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



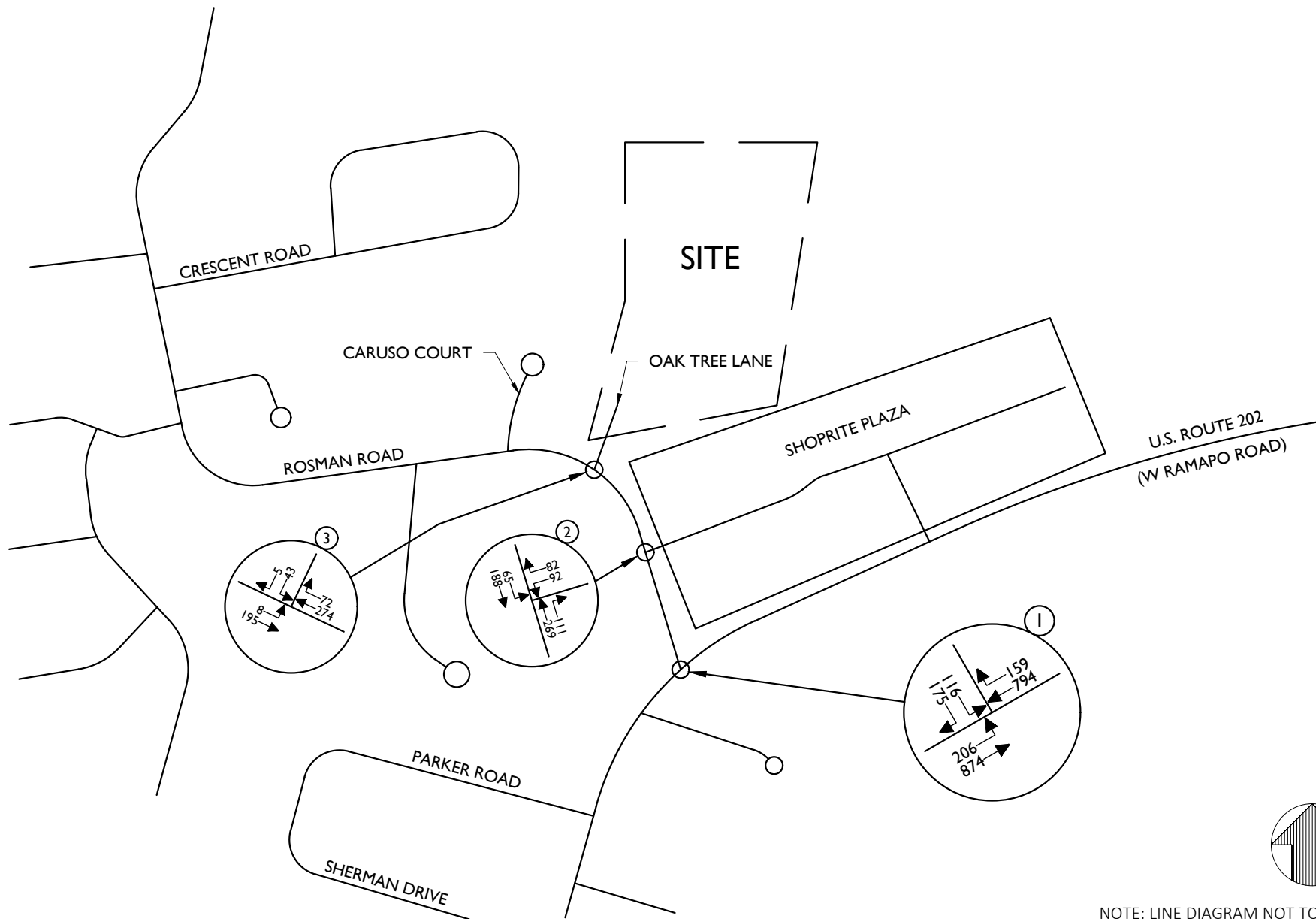
WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
**2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR**

SHEET NUMBER:
FIGURE NO. 14



NOTE: LINE DIAGRAM NOT TO SCALE



Customer Loyalty through Client Satisfaction
www.maserconsulting.com

Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

State of N.Y. Cert. of Authorization: 0008671/0008821

Office Locations:

- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Egg Harbor, NJ
- Montvale, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Albany, NY
- Newburgh, NY
- Westchester, NY
- Columbia, MD
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Pittsburgh, PA
- Tampa, FL
- Orlando, FL
- Miami, FL
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Charlotte, NC

REV	DATE	DRAWN BY	DESCRIPTION

OAK TREE APARTMENTS

TOWN OF HAVERSTRAW
ROCKLAND COUNTY
NEW YORK



Know what's below.
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION
OF EXCAVATORS, DESIGNERS, OR
ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE
ANYWHERE IN ANY STATE



WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
Valhalla, NY 10595
Phone: 914.347.7500
Fax: 914.347.7266

TRAFFIC IMPACT STUDY

SCALE	DATE	DRAWN BY	CHECKED BY
N.T.S.	7/29/2019	N.S.T.	J.T.C.
PROJECT NUMBER	DRAWING NAME		
19002065A	190729_NT_FIGURES		

SHEET TITLE:
**2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR**

SHEET NUMBER:
FIGURE NO. 15

OAK TREE APARTMENTS

APPENDIX B

TABLES

TABLE NO. 1

HOURLY TRIP GENERATION RATES AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

OAK TREE APARTMENTS	ENTRY		EXIT		TOTAL	
	HTGR	VOLUME	HTGR	VOLUME	HTGR	VOLUME
228 DWELLING UNITS (1)						
WEEKDAY PEAK AM HOUR	0.11	24	0.35	81	0.46	105
WEEKDAY PEAK PM HOUR	0.35	80	0.21	48	0.56	128

NOTES:

- (1) HOURLY TRIP GENERATION RATES BASED ON INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) TRIP GENERATION RATES FOR LAND USE 220 - APARTMENTS (LOW-RISE).

TABLE NO. 2

LEVEL OF SERVICE SUMMARY TABLE

LOCATION		YEAR 2019 EXISTING						YEAR 2022 NO-BUILD						YEAR 2022 BUILD					
		WEEKDAY AM			WEEKDAY PM			WEEKDAY AM			WEEKDAY PM			WEEKDAY AM			WEEKDAY PM		
		LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C
1	U.S. ROUTE 202 (W RAMAPO ROAD) & ROSMAN ROAD																		
	<u>SIGNALIZED</u>																		
	ROSMAN ROAD SB L	D	37.0	0.65	C	32.5	0.42	D	37.0	0.69	C	32.4	0.46	D	36.7	0.71	C	32.4	0.49
	ROSMAN ROAD SB R	D	36.9	0.62	D	38.3	0.75	D	36.8	0.66	D	42.2	0.78	D	39.1	0.74	D	46.0	0.80
	SB OVERALL	D	36.9	--	D	36.1	--	D	36.9	--	D	38.4	--	D	37.9	--	D	40.6	--
	U.S. ROUTE 202 NEB L	A	4.8	0.17	A	6.8	0.32	A	6.6	0.23	B	11.3	0.49	A	7.5	0.26	B	14.3	0.59
	U.S. ROUTE 202 NEB T	A	3.7	0.43	A	5.6	0.56	A	4.6	0.49	A	7.6	0.66	A	5.3	0.51	A	8.1	0.67
	NEB OVERALL	A	3.8	--	A	5.8	--	A	4.9	--	A	8.2	--	A	5.6	--	A	9.3	--
	U.S. ROUTE 202 SWB T	A	7.9	0.55	B	10.3	0.60	B	10.1	0.64	B	14.5	0.73	B	11.4	0.65	B	16.1	0.75
	U.S. ROUTE 202 SWB R	A	4.2	0.08	A	5.6	0.12	A	4.9	0.10	A	6.5	0.14	A	5.6	0.11	A	7.4	0.18
	SWB OVERALL	A	7.5	--	A	9.6	--	A	9.5	--	B	13.3	--	B	10.7	--	B	14.7	--
	OVERALL INTERSECTION	A	9.3	--	B	10.8	--	B	11.0	--	B	13.8	--	B	12.8	--	B	15.4	--
2	ROSMAN ROAD & SHOPRITE DRIVEWAY																		
	<u>UNSIGNALIZED</u>																		
	ROSMAN ROAD SB L-T	A	7.6	0.031	A	8.0	0.051	A	7.7	0.033	A	8.1	0.056	A	7.8	0.033	A	8.3	0.058
3	ROSMAN ROAD & OAK TREE LANE																		
	<u>UNSIGNALIZED</u>																		
	ROSMAN ROAD SEB L-T	A	7.5	0.002	A	0.0	0.000	A	7.6	0.002	A	0.0	0.000	A	7.6	0.002	A	8.2	0.008
	OAK TREE LANE SB L-R	B	10.2	0.021	B	11.4	0.019	B	10.7	0.023	B	12.4	0.021	B	12.1	0.153	B	13.8	0.121

NOTES:

- 1) THE ABOVE REPRESENTS THE LEVELS OF SERVICE AND VEHICLE DELAY IN SECONDS, B [13.2] FOR EACH MOVEMENT, FOR EACH APPROACH AS WELL AS FOR THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS AND THE LEVELS OF SERVICE AND AVERAGE TOTAL DELAY IN SECONDS, B[10.9], FOR THE UNSIGNALIZED INTERSECTIONS.

OAK TREE APARTMENTS

APPENDIX C

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

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

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

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

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

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

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

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

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

The Level of Service Criteria for signalized intersections are given in Exhibit 18-4 from the *Highway Capacity Manual, 6th Edition* published by the Transportation Research Board.

Exhibit 18-4

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

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

LEVEL OF SERVICE CRITERIA

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

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

The Level of Service Criteria for TWSC unsignalized intersections are given in Exhibit 19-1 from the *Highway Capacity Manual, 6th Edition* published by the Transportation Research Board.

Exhibit 19-1

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

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

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

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

LEVEL OF SERVICE CRITERIA

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

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

The Level of Service Criteria for AWSC unsignalized intersections are given in Exhibit 20-2 from the *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

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

OAK TREE APARTMENTS

APPENDIX D

CAPACITY ANALYSIS

2019 Existing Traffic Volumes
1: U.S. Route 202 (W Ramapo Road) & Rosman Road

Weekday Peak AM Hour
07/31/2019

						
Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	96	81	81	570	626	73
Future Volume (vph)	96	81	81	570	626	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			0%	1%	
Storage Length (ft)	0	130	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00			0.98
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1761	1561	1719	1792	1767	1435
Flt Permitted	0.950		0.294			
Satd. Flow (perm)	1761	1561	531	1792	1767	1399
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		85				77
Link Speed (mph)	30			40	40	
Link Distance (ft)	330			374	437	
Travel Time (s)	7.5			6.4	7.4	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	4%	5%	6%	7%	12%
Adj. Flow (vph)	101	85	85	600	659	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	85	85	600	659	77
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	2	2	2	1	1	1
Detector Template						
Leading Detector (ft)	83	83	83	35	35	35
Trailing Detector (ft)	-5	-5	-5	-5	-5	-5
Detector 1 Position(ft)	-5	-5	-5	-5	-5	-5
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	43	43	43			
Detector 2 Size(ft)	40	40	40			
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 2 Channel						

2019 Existing Traffic Volumes
1: U.S. Route 202 (W Ramapo Road) & Rosman Road

Weekday Peak AM Hour
07/31/2019



Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Detector 2 Extend (s)	0.0	0.0	0.0			
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3	6			2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	2.0	3.0	3.0	3.0
Minimum Split (s)	8.0	8.0	7.0	60.0	48.0	48.0
Total Split (s)	18.0	18.0	11.0	62.0	51.0	51.0
Total Split (%)	22.5%	22.5%	13.8%	77.5%	63.8%	63.8%
Maximum Green (s)	13.0	13.0	6.0	57.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					18.0	18.0
Pedestrian Calls (#/hr)					3	3
v/c Ratio	0.46	0.32	0.17	0.43	0.55	0.08
Control Delay	37.9	10.9	3.8	5.0	11.8	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	10.9	3.8	5.0	11.8	2.2
Queue Length 50th (ft)	45	0	9	86	182	0
Queue Length 95th (ft)	91	37	22	164	317	17
Internal Link Dist (ft)	250			294	357	
Turn Bay Length (ft)		130	100			
Base Capacity (vph)	295	332	503	1411	1191	968
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.26	0.17	0.43	0.55	0.08

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 77.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: U.S. Route 202 (W Ramapo Road) & Rosman Road



2019 Existing Traffic Volumes
1: U.S. Route 202 (W Ramapo Road) & Rosman Road

Weekday Peak AM Hour

07/31/2019



Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	96	81	81	570	626	73
Future Volume (veh/h)	96	81	81	570	626	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1894	1879	1826	1811	1790	1716
Adj Flow Rate, veh/h	101	85	85	600	659	77
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	4	5	6	7	12
Cap, veh/h	155	137	500	1408	1209	980
Arrive On Green	0.09	0.09	0.03	0.78	0.68	0.68
Sat Flow, veh/h	1804	1593	1739	1811	1790	1451
Grp Volume(v), veh/h	101	85	85	600	659	77
Grp Sat Flow(s),veh/h/ln	1804	1593	1739	1811	1790	1451
Q Serve(g_s), s	4.0	3.8	1.0	8.1	13.9	1.3
Cycle Q Clear(g_c), s	4.0	3.8	1.0	8.1	13.9	1.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	155	137	500	1408	1209	980
V/C Ratio(X)	0.65	0.62	0.17	0.43	0.55	0.08
Avail Cap(c_a), veh/h	320	282	583	1408	1209	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	32.3	4.6	2.7	6.1	4.1
Incr Delay (d2), s/veh	4.6	4.5	0.2	0.9	1.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.6	0.2	1.4	4.0	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.0	36.9	4.8	3.7	7.9	4.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	186			685	736	
Approach Delay, s/veh	36.9			3.8	7.5	
Approach LOS	D			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.5	54.5			62.0	11.3
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	6.0	46.0			57.0	13.0
Max Q Clear Time (g_c+l1), s	3.0	15.9			10.1	6.0
Green Ext Time (p_c), s	0.1	2.9			2.3	0.5
Intersection Summary						
HCM 6th Ctrl Delay			9.3			
HCM 6th LOS			A			

2019 Existing Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak AM Hour
07/31/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	35	109	45	40	138
Future Volume (vph)	43	35	109	45	40	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	16	16	16	16
Grade (%)	3%		1%			6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.940		0.961			
Flt Protected	0.973					0.989
Satd. Flow (prot)	1699	0	1897	0	0	2019
Flt Permitted	0.973					0.989
Satd. Flow (perm)	1699	0	1897	0	0	2019
Link Speed (mph)	30		30			30
Link Distance (ft)	277		330			265
Travel Time (s)	6.3		7.5			6.0
Confl. Peds. (#/hr)	2	4		2	4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	3%	12%	0%	0%	3%
Adj. Flow (vph)	47	38	120	49	44	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	85	0	169	0	0	196
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.85	0.85	0.88	0.88
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2019 Existing Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak AM Hour
07/31/2019

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	35	109	45	40	138
Future Vol, veh/h	43	35	109	45	40	138
Conflicting Peds, #/hr	2	4	0	2	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	1	-	-	6
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	3	12	0	0	3
Mvmt Flow	47	38	120	49	44	152

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	391	153	0
Stage 1	149	-	-
Stage 2	242	-	-
Critical Hdwy	7.05	6.53	-
Critical Hdwy Stg 1	6.05	-	-
Critical Hdwy Stg 2	6.05	-	-
Follow-up Hdwy	3.545	3.327	-
Pot Cap-1 Maneuver	569	879	-
Stage 1	850	-	-
Stage 2	760	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	546	872	-
Mov Cap-2 Maneuver	546	-	-
Stage 1	847	-	-
Stage 2	733	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	656	1411
HCM Lane V/C Ratio	-	-	0.131	0.031
HCM Control Delay (s)	-	-	11.3	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

2019 Existing Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak AM Hour
07/31/2019

						
Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	10	3	2	166	117	7
Future Volume (vph)	10	3	2	166	117	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	13	13	13
Grade (%)	0%			8%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.971				0.992	
Flt Protected	0.962			0.999		
Satd. Flow (prot)	1775	0	0	1829	1840	0
Flt Permitted	0.962			0.999		
Satd. Flow (perm)	1775	0	0	1829	1840	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	216			302	265	
Travel Time (s)	4.9			6.9	6.0	
Confl. Peds. (#/hr)	1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	3%	9%	0%
Adj. Flow (vph)	11	3	2	189	133	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	191	141	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2019 Existing Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak AM Hour
07/31/2019

Intersection

Int Delay, s/veh 0.5

Movement SBL SBR SEL SET NWT NWR

Lane Configurations 

Traffic Vol, veh/h 10 3 2 166 117 7

Future Vol, veh/h 10 3 2 166 117 7

Conflicting Peds, #/hr 1 0 0 0 0 1

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 8 -5 -

Peak Hour Factor 88 88 88 88 88 88

Heavy Vehicles, % 0 0 0 3 9 0

Mvmt Flow 11 3 2 189 133 8

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 332 138 142 0 - 0

Stage 1 138 - - - - -

Stage 2 194 - - - - -

Critical Hdwy 6.4 6.2 4.1 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.2 - - -

Pot Cap-1 Maneuver 667 916 1453 - - -

Stage 1 894 - - - - -

Stage 2 844 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 664 915 1452 - - -

Mov Cap-2 Maneuver 664 - - - - -

Stage 1 891 - - - - -

Stage 2 843 - - - - -

Approach SB SE NW

HCM Control Delay, s 10.2 0.1 0

HCM LOS B

Minor Lane/Major Mvmt NWT NWR SEL SET SBLn1

Capacity (veh/h) - - 1452 - 709

HCM Lane V/C Ratio - - 0.002 - 0.021

HCM Control Delay (s) - - 7.5 0 10.2

HCM Lane LOS - - A A B

HCM 95th %tile Q(veh) - - 0 - 0.1

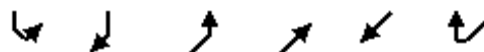
2019 Existing Traffic Volumes
1: U.S. Route 202 (W Ramapo Road) & Rosman Road

Weekday Peak PM Hour
07/31/2019

						
Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	81	133	142	751	668	110
Future Volume (vph)	81	133	142	751	668	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			0%	1%	
Storage Length (ft)	0	130	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98				
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1744	1623	1787	1863	1835	1575
Flt Permitted	0.950		0.248			
Satd. Flow (perm)	1744	1595	467	1863	1835	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		140				116
Link Speed (mph)	30			40	40	
Link Distance (ft)	330			374	437	
Travel Time (s)	7.5			6.4	7.4	
Confl. Peds. (#/hr)		3				
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	0%	1%	2%	3%	2%
Adj. Flow (vph)	85	140	149	791	703	116
Shared Lane Traffic (%)						
Lane Group Flow (vph)	85	140	149	791	703	116
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	2	2	2	1	1	1
Detector Template						
Leading Detector (ft)	83	83	83	35	35	35
Trailing Detector (ft)	-5	-5	-5	-5	-5	-5
Detector 1 Position(ft)	-5	-5	-5	-5	-5	-5
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	43	43	43			
Detector 2 Size(ft)	40	40	40			
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 2 Channel						

2019 Existing Traffic Volumes
1: U.S. Route 202 (W Ramapo Road) & Rosman Road

Weekday Peak PM Hour
07/31/2019



Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Detector 2 Extend (s)	0.0	0.0	0.0			
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3	6			2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	2.0	3.0	3.0	3.0
Minimum Split (s)	8.0	8.0	7.0	60.0	48.0	48.0
Total Split (s)	18.0	18.0	11.0	62.0	51.0	51.0
Total Split (%)	22.5%	22.5%	13.8%	77.5%	63.8%	63.8%
Maximum Green (s)	13.0	13.0	6.0	57.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					18.0	18.0
Pedestrian Calls (#/hr)					0	0
v/c Ratio	0.41	0.45	0.33	0.57	0.63	0.12
Control Delay	36.9	10.8	5.0	6.5	13.4	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	10.8	5.0	6.5	13.4	1.9
Queue Length 50th (ft)	38	0	15	125	191	0
Queue Length 95th (ft)	79	47	35	248	338	20
Internal Link Dist (ft)	250			294	357	
Turn Bay Length (ft)		130	100			
Base Capacity (vph)	297	388	453	1395	1109	998
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.36	0.33	0.57	0.63	0.12

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 76.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: U.S. Route 202 (W Ramapo Road) & Rosman Road



2019 Existing Traffic Volumes
1: U.S. Route 202 (W Ramapo Road) & Rosman Road

Weekday Peak PM Hour
07/31/2019

						
Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	81	133	142	751	668	110
Future Volume (veh/h)	81	133	142	751	668	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1879	1939	1885	1870	1850	1864
Adj Flow Rate, veh/h	85	140	149	791	703	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	0	1	2	3	2
Cap, veh/h	204	187	466	1410	1177	1005
Arrive On Green	0.11	0.11	0.05	0.75	0.64	0.64
Sat Flow, veh/h	1790	1644	1795	1870	1850	1580
Grp Volume(v), veh/h	85	140	149	791	703	116
Grp Sat Flow(s),veh/h/ln	1790	1644	1795	1870	1850	1580
Q Serve(g_s), s	3.3	6.2	2.0	13.6	16.9	2.2
Cycle Q Clear(g_c), s	3.3	6.2	2.0	13.6	16.9	2.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	204	187	466	1410	1177	1005
V/C Ratio(X)	0.42	0.75	0.32	0.56	0.60	0.12
Avail Cap(c_a), veh/h	308	283	516	1410	1177	1005
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	32.4	6.4	4.0	8.1	5.4
Incr Delay (d2), s/veh	1.4	5.8	0.4	1.6	2.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.3	0.5	3.2	5.6	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.5	38.3	6.8	5.6	10.3	5.6
LnGrp LOS	C	D	A	A	B	A
Approach Vol, veh/h	225			940	819	
Approach Delay, s/veh	36.1			5.8	9.6	
Approach LOS	D			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	53.1			62.0	13.6
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	6.0	46.0			57.0	13.0
Max Q Clear Time (g_c+l1), s	4.0	18.9			15.6	8.2
Green Ext Time (p_c), s	0.1	3.3			3.4	0.5
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

2019 Existing Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak PM Hour
07/31/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	89	79	158	108	63	114
Future Volume (vph)	89	79	158	108	63	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	16	16	16	16
Grade (%)	3%		1%			6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.937		0.945			
Flt Protected	0.974					0.982
Satd. Flow (prot)	1765	0	1993	0	0	2025
Flt Permitted	0.974					0.982
Satd. Flow (perm)	1765	0	1993	0	0	2025
Link Speed (mph)	30		30			30
Link Distance (ft)	277		330			265
Travel Time (s)	6.3		7.5			6.0
Confl. Peds. (#/hr)	4	8		4	8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%
Adj. Flow (vph)	93	82	165	113	66	119
Shared Lane Traffic (%)						
Lane Group Flow (vph)	175	0	278	0	0	185
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.85	0.85	0.88	0.88
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2019 Existing Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak PM Hour

07/31/2019

Intersection						
Int Delay, s/veh	4.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	89	79	158	108	63	114
Future Vol, veh/h	89	79	158	108	63	114
Conflicting Peds, #/hr	4	8	0	4	8	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	1	-	-	6
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	1	0	2
Mvmt Flow	93	82	165	113	66	119
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	485	238	0	0	286	0
Stage 1	230	-	-	-	-	-
Stage 2	255	-	-	-	-	-
Critical Hdwy	7	6.5	-	-	4.1	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	502	790	-	-	1288	-
Stage 1	782	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	469	777	-	-	1279	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	14	0		2.8		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	576	1279	-	
HCM Lane V/C Ratio	-	-	0.304	0.051	-	
HCM Control Delay (s)	-	-	14	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1.3	0.2	-	

2019 Existing Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak PM Hour
07/31/2019

						
Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	8	1	0	155	219	15
Future Volume (vph)	8	1	0	155	219	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	13	13	13
Grade (%)	0%			8%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.991	
Flt Protected	0.957					
Satd. Flow (prot)	1630	0	0	1866	1967	0
Flt Permitted	0.957					
Satd. Flow (perm)	1630	0	0	1866	1967	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	216			302	265	
Travel Time (s)	4.9			6.9	6.0	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	100%	0%	1%	1%	7%
Adj. Flow (vph)	9	1	0	182	258	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	0	182	276	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2019 Existing Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak PM Hour
07/31/2019

Intersection

Int Delay, s/veh 0.3

Movement SBL SBR SEL SET NWT NWR

Lane Configurations 

Traffic Vol, veh/h 8 1 0 155 219 15

Future Vol, veh/h 8 1 0 155 219 15

Conflicting Peds, #/hr 1 1 1 0 0 1

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 8 -5 -

Peak Hour Factor 85 85 85 85 85 85

Heavy Vehicles, % 0 100 0 1 1 7

Mvmt Flow 9 1 0 182 258 18

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 451 269 277 0 - 0

Stage 1 268 - - - - -

Stage 2 183 - - - - -

Critical Hdwy 6.4 7.2 4.1 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 4.2 2.2 - - -

Pot Cap-1 Maneuver 570 583 1298 - - -

Stage 1 782 - - - - -

Stage 2 853 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 569 582 1297 - - -

Mov Cap-2 Maneuver 569 - - - - -

Stage 1 781 - - - - -

Stage 2 852 - - - - -

Approach SB SE NW

HCM Control Delay, s 11.4 0 0

HCM LOS B

Minor Lane/Major Mvmt NWT NWR SEL SET SBLn1

Capacity (veh/h) - - 1297 - 570

HCM Lane V/C Ratio - - - - 0.019

HCM Control Delay (s) - - 0 - 11.4

HCM Lane LOS - - A - B

HCM 95th %tile Q(veh) - - 0 - 0.1

2022 No-Build Traffic Volumes

Weekday Peak AM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019

						
Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	121	102	95	651	712	91
Future Volume (vph)	121	102	95	651	712	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			0%	1%	
Storage Length (ft)	0	130	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00			0.98
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1761	1561	1719	1792	1767	1435
Flt Permitted	0.950		0.228			
Satd. Flow (perm)	1761	1561	412	1792	1767	1399
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		107				96
Link Speed (mph)	30			40	40	
Link Distance (ft)	330			374	437	
Travel Time (s)	7.5			6.4	7.4	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	4%	5%	6%	7%	12%
Adj. Flow (vph)	127	107	100	685	749	96
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	107	100	685	749	96
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	2	2	2	1	1	1
Detector Template						
Leading Detector (ft)	83	83	83	35	35	35
Trailing Detector (ft)	-5	-5	-5	-5	-5	-5
Detector 1 Position(ft)	-5	-5	-5	-5	-5	-5
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	43	43	43			
Detector 2 Size(ft)	40	40	40			
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 2 Channel						

2022 No-Build Traffic Volumes

Weekday Peak AM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019



Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Detector 2 Extend (s)	0.0	0.0	0.0			
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3	6			2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	2.0	3.0	3.0	3.0
Minimum Split (s)	8.0	8.0	7.0	60.0	48.0	48.0
Total Split (s)	18.0	18.0	11.0	62.0	51.0	51.0
Total Split (%)	22.5%	22.5%	13.8%	77.5%	63.8%	63.8%
Maximum Green (s)	13.0	13.0	6.0	57.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					18.0	18.0
Pedestrian Calls (#/hr)					3	3
v/c Ratio	0.53	0.35	0.25	0.52	0.68	0.11
Control Delay	39.7	10.2	4.8	6.4	15.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	10.2	4.8	6.4	15.1	2.1
Queue Length 50th (ft)	58	0	11	115	235	0
Queue Length 95th (ft)	110	41	25	203	396	18
Internal Link Dist (ft)	250			294	357	
Turn Bay Length (ft)		130	100			
Base Capacity (vph)	295	351	404	1318	1101	908
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.30	0.25	0.52	0.68	0.11

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 77.6

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: U.S. Route 202 (W Ramapo Road) & Rosman Road



2022 No-Build Traffic Volumes

Weekday Peak AM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019

						
Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	121	102	95	651	712	91
Future Volume (veh/h)	121	102	95	651	712	91
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1894	1879	1826	1811	1790	1716
Adj Flow Rate, veh/h	127	107	100	685	749	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	4	5	6	7	12
Cap, veh/h	183	162	427	1384	1178	955
Arrive On Green	0.10	0.10	0.04	0.76	0.66	0.66
Sat Flow, veh/h	1804	1593	1739	1811	1790	1451
Grp Volume(v), veh/h	127	107	100	685	749	96
Grp Sat Flow(s),veh/h/ln	1804	1593	1739	1811	1790	1451
Q Serve(g_s), s	5.1	4.8	1.3	10.7	18.3	1.8
Cycle Q Clear(g_c), s	5.1	4.8	1.3	10.7	18.3	1.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	183	162	427	1384	1178	955
V/C Ratio(X)	0.69	0.66	0.23	0.49	0.64	0.10
Avail Cap(c_a), veh/h	314	278	499	1384	1178	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	32.3	6.3	3.3	7.5	4.7
Incr Delay (d2), s/veh	4.6	4.6	0.3	1.3	2.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.0	0.3	2.2	5.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.0	36.8	6.6	4.6	10.1	4.9
LnGrp LOS	D	D	A	A	B	A
Approach Vol, veh/h	234			785	845	
Approach Delay, s/veh	36.9			4.9	9.5	
Approach LOS	D			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.9	54.1			62.0	12.6
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	6.0	46.0			57.0	13.0
Max Q Clear Time (g_c+l1), s	3.3	20.3			12.7	7.1
Green Ext Time (p_c), s	0.1	3.5			2.8	0.6
Intersection Summary						
HCM 6th Ctrl Delay			11.0			
HCM 6th LOS			B			

2022 No-Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak AM Hour
07/31/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	36	139	46	41	182
Future Volume (vph)	44	36	139	46	41	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	16	16	16	16
Grade (%)	3%		1%			6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939		0.966			
Flt Protected	0.973					0.991
Satd. Flow (prot)	1697	0	1899	0	0	2020
Flt Permitted	0.973					0.991
Satd. Flow (perm)	1697	0	1899	0	0	2020
Link Speed (mph)	30		30			30
Link Distance (ft)	277		330			265
Travel Time (s)	6.3		7.5			6.0
Confl. Peds. (#/hr)	2	4		2	4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	3%	12%	0%	0%	3%
Adj. Flow (vph)	48	40	153	51	45	200
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	204	0	0	245
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.85	0.85	0.88	0.88
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 No-Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak AM Hour

07/31/2019

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	36	139	46	41	182
Future Vol, veh/h	44	36	139	46	41	182
Conflicting Peds, #/hr	2	4	0	2	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	1	-	-	6
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	3	12	0	0	3
Mvmt Flow	48	40	153	51	45	200
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	475	187	0	0	208	0
Stage 1	183	-	-	-	-	-
Stage 2	292	-	-	-	-	-
Critical Hdwy	7.05	6.53	-	-	4.1	-
Critical Hdwy Stg 1	6.05	-	-	-	-	-
Critical Hdwy Stg 2	6.05	-	-	-	-	-
Follow-up Hdwy	3.545	3.327	-	-	2.2	-
Pot Cap-1 Maneuver	502	839	-	-	1375	-
Stage 1	816	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	480	832	-	-	1370	-
Mov Cap-2 Maneuver	480	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.1	0	1.4			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	593	1370	-	
HCM Lane V/C Ratio	-	-	0.148	0.033	-	
HCM Control Delay (s)	-	-	12.1	7.7	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

2022 No-Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak AM Hour
07/31/2019

						
Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	10	3	2	211	147	7
Future Volume (vph)	10	3	2	211	147	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	13	13	13
Grade (%)	0%			8%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.971				0.994	
Flt Protected	0.962					
Satd. Flow (prot)	1775	0	0	1830	1842	0
Flt Permitted	0.962					
Satd. Flow (perm)	1775	0	0	1830	1842	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	216			302	265	
Travel Time (s)	4.9			6.9	6.0	
Confl. Peds. (#/hr)	1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	3%	9%	0%
Adj. Flow (vph)	11	3	2	240	167	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	242	175	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 No-Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak AM Hour
07/31/2019

Intersection

Int Delay, s/veh 0.4

Movement SBL SBR SEL SET NWT NWR

Lane Configurations 

Traffic Vol, veh/h 10 3 2 211 147 7

Future Vol, veh/h 10 3 2 211 147 7

Conflicting Peds, #/hr 1 0 0 0 0 1

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 8 -5 -

Peak Hour Factor 88 88 88 88 88 88

Heavy Vehicles, % 0 0 0 3 9 0

Mvmt Flow 11 3 2 240 167 8

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 417 172 176 0 - 0

Stage 1 172 - - - - -

Stage 2 245 - - - - -

Critical Hdwy 6.4 6.2 4.1 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.2 - - -

Pot Cap-1 Maneuver 596 877 1412 - - -

Stage 1 863 - - - - -

Stage 2 800 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 594 876 1411 - - -

Mov Cap-2 Maneuver 594 - - - - -

Stage 1 860 - - - - -

Stage 2 799 - - - - -

Approach SB SE NW

HCM Control Delay, s 10.7 0.1 0

HCM LOS B

Minor Lane/Major Mvmt NWT NWR SEL SET SBLn1

Capacity (veh/h) - - 1411 - 642

HCM Lane V/C Ratio - - 0.002 - 0.023

HCM Control Delay (s) - - 7.6 0 10.7

HCM Lane LOS - - A A B

HCM 95th %tile Q(veh) - - 0 - 0.1

2022 No-Build Traffic Volumes
1: U.S. Route 202 (W Ramapo Road) & Rosman Road

Weekday Peak PM Hour

07/31/2019

						
Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	100	156	174	874	794	134
Future Volume (vph)	100	156	174	874	794	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			0%	1%	
Storage Length (ft)	0	130	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98				
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1744	1623	1787	1863	1835	1575
Flt Permitted	0.950		0.168			
Satd. Flow (perm)	1744	1595	316	1863	1835	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		164				141
Link Speed (mph)	30			40	40	
Link Distance (ft)	330			374	437	
Travel Time (s)	7.5			6.4	7.4	
Confl. Peds. (#/hr)		3				
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	0%	1%	2%	3%	2%
Adj. Flow (vph)	105	164	183	920	836	141
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	164	183	920	836	141
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	2	2	2	1	1	1
Detector Template						
Leading Detector (ft)	83	83	83	35	35	35
Trailing Detector (ft)	-5	-5	-5	-5	-5	-5
Detector 1 Position(ft)	-5	-5	-5	-5	-5	-5
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	43	43	43			
Detector 2 Size(ft)	40	40	40			
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 2 Channel						

2022 No-Build Traffic Volumes

Weekday Peak PM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019



Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Detector 2 Extend (s)	0.0	0.0	0.0			
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3	6			2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	2.0	3.0	3.0	3.0
Minimum Split (s)	8.0	8.0	7.0	60.0	48.0	48.0
Total Split (s)	18.0	18.0	11.0	62.0	51.0	51.0
Total Split (%)	22.5%	22.5%	13.8%	77.5%	63.8%	63.8%
Maximum Green (s)	13.0	13.0	6.0	57.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					18.0	18.0
Pedestrian Calls (#/hr)					0	0
v/c Ratio	0.47	0.47	0.52	0.67	0.76	0.14
Control Delay	38.3	10.3	8.8	8.5	17.8	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	10.3	8.8	8.5	17.8	1.9
Queue Length 50th (ft)	47	0	20	177	267	0
Queue Length 95th (ft)	94	51	43	340	468	22
Internal Link Dist (ft)	250			294	357	
Turn Bay Length (ft)		130	100			
Base Capacity (vph)	295	406	349	1383	1099	1000
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.40	0.52	0.67	0.76	0.14

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 76.9

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: U.S. Route 202 (W Ramapo Road) & Rosman Road



2022 No-Build Traffic Volumes

Weekday Peak PM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019

						
Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	100	156	174	874	794	134
Future Volume (veh/h)	100	156	174	874	794	134
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1879	1939	1885	1870	1850	1864
Adj Flow Rate, veh/h	105	164	183	920	836	141
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	0	1	2	3	2
Cap, veh/h	229	211	376	1387	1141	974
Arrive On Green	0.13	0.13	0.06	0.74	0.62	0.62
Sat Flow, veh/h	1790	1644	1795	1870	1850	1580
Grp Volume(v), veh/h	105	164	183	920	836	141
Grp Sat Flow(s),veh/h/ln	1790	1644	1795	1870	1850	1580
Q Serve(g_s), s	4.2	7.4	2.6	19.2	24.3	2.9
Cycle Q Clear(g_c), s	4.2	7.4	2.6	19.2	24.3	2.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	229	211	376	1387	1141	974
V/C Ratio(X)	0.46	0.78	0.49	0.66	0.73	0.14
Avail Cap(c_a), veh/h	303	278	408	1387	1141	974
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	32.4	10.4	5.0	10.3	6.2
Incr Delay (d2), s/veh	1.4	9.8	1.0	2.5	4.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.4	1.2	4.9	8.7	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.4	42.2	11.3	7.6	14.5	6.5
LnGrp LOS	C	D	B	A	B	A
Approach Vol, veh/h	269			1103	977	
Approach Delay, s/veh	38.4			8.2	13.3	
Approach LOS	D			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.6	52.4			62.0	14.9
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	6.0	46.0			57.0	13.0
Max Q Clear Time (g_c+l1), s	4.6	26.3			21.2	9.4
Green Ext Time (p_c), s	0.1	4.0			4.3	0.5
Intersection Summary						
HCM 6th Ctrl Delay			13.8			
HCM 6th LOS			B			

2022 No-Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak PM Hour
07/31/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	92	82	212	111	65	153
Future Volume (vph)	92	82	212	111	65	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	16	16	16	16
Grade (%)	3%		1%			6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.937		0.954			
Flt Protected	0.974					0.985
Satd. Flow (prot)	1765	0	2011	0	0	2029
Flt Permitted	0.974					0.985
Satd. Flow (perm)	1765	0	2011	0	0	2029
Link Speed (mph)	30		30			30
Link Distance (ft)	277		330			265
Travel Time (s)	6.3		7.5			6.0
Confl. Peds. (#/hr)	4	8		4	8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%
Adj. Flow (vph)	96	85	221	116	68	159
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	0	337	0	0	227
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.85	0.85	0.88	0.88
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 No-Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak PM Hour

07/31/2019

Intersection						
Int Delay, s/veh	4.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	92	82	212	111	65	153
Future Vol, veh/h	92	82	212	111	65	153
Conflicting Peds, #/hr	4	8	0	4	8	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	1	-	-	6
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	1	0	2
Mvmt Flow	96	85	221	116	68	159
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	586	295	0	0	345	0
Stage 1	287	-	-	-	-	-
Stage 2	299	-	-	-	-	-
Critical Hdwy	7	6.5	-	-	4.1	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	432	731	-	-	1225	-
Stage 1	731	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	401	719	-	-	1216	-
Mov Cap-2 Maneuver	401	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	16	0		2.4		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	507	1216	-	
HCM Lane V/C Ratio	-	-	0.357	0.056	-	
HCM Control Delay (s)	-	-	16	8.1	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	1.6	0.2	-	

2022 No-Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak PM Hour
07/31/2019

						
Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	8	1	0	195	274	15
Future Volume (vph)	8	1	0	195	274	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	13	13	13
Grade (%)	0%			8%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.993	
Flt Protected	0.957					
Satd. Flow (prot)	1630	0	0	1866	1972	0
Flt Permitted	0.957					
Satd. Flow (perm)	1630	0	0	1866	1972	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	216			302	265	
Travel Time (s)	4.9			6.9	6.0	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	100%	0%	1%	1%	7%
Adj. Flow (vph)	9	1	0	229	322	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	0	229	340	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 No-Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak PM Hour
07/31/2019

Intersection

Int Delay, s/veh 0.2

Movement SBL SBR SEL SET NWT NWR

Lane Configurations 

Traffic Vol, veh/h 8 1 0 195 274 15

Future Vol, veh/h 8 1 0 195 274 15

Conflicting Peds, #/hr 1 1 1 0 0 1

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 8 -5 -

Peak Hour Factor 85 85 85 85 85 85

Heavy Vehicles, % 0 100 0 1 1 7

Mvmt Flow 9 1 0 229 322 18

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 562 333 341 0 - 0

Stage 1 332 - - - - -

Stage 2 230 - - - - -

Critical Hdwy 6.4 7.2 4.1 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 4.2 2.2 - - -

Pot Cap-1 Maneuver 492 531 1229 - - -

Stage 1 731 - - - - -

Stage 2 813 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 491 530 1228 - - -

Mov Cap-2 Maneuver 491 - - - - -

Stage 1 730 - - - - -

Stage 2 812 - - - - -

Approach SB SE NW

HCM Control Delay, s 12.4 0 0

HCM LOS B

Minor Lane/Major Mvmt NWT NWR SEL SET SBLn1

Capacity (veh/h) - - 1228 - 495

HCM Lane V/C Ratio - - - - 0.021

HCM Control Delay (s) - - 0 - 12.4

HCM Lane LOS - - A - B

HCM 95th %tile Q(veh) - - 0 - 0.1

2022 Build Traffic Volumes

Weekday Peak AM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019

						
Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	148	137	103	651	712	97
Future Volume (vph)	148	137	103	651	712	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			0%	1%	
Storage Length (ft)	0	130	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00			0.98
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1761	1561	1719	1792	1767	1435
Flt Permitted	0.950		0.224			
Satd. Flow (perm)	1761	1561	405	1792	1767	1399
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		144				102
Link Speed (mph)	30			40	40	
Link Distance (ft)	330			374	437	
Travel Time (s)	7.5			6.4	7.4	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	4%	5%	6%	7%	12%
Adj. Flow (vph)	156	144	108	685	749	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	144	108	685	749	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	2	2	2	1	1	1
Detector Template						
Leading Detector (ft)	83	83	83	35	35	35
Trailing Detector (ft)	-5	-5	-5	-5	-5	-5
Detector 1 Position(ft)	-5	-5	-5	-5	-5	-5
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	43	43	43			
Detector 2 Size(ft)	40	40	40			
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 2 Channel						

2022 Build Traffic Volumes

Weekday Peak AM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019



Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Detector 2 Extend (s)	0.0	0.0	0.0			
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3	6			2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	2.0	3.0	3.0	3.0
Minimum Split (s)	8.0	8.0	7.0	60.0	48.0	48.0
Total Split (s)	18.0	18.0	11.0	62.0	51.0	51.0
Total Split (%)	22.5%	22.5%	13.8%	77.5%	63.8%	63.8%
Maximum Green (s)	13.0	13.0	6.0	57.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					18.0	18.0
Pedestrian Calls (#/hr)					3	3
v/c Ratio	0.62	0.42	0.27	0.52	0.69	0.11
Control Delay	42.9	9.7	5.1	6.7	15.5	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	9.7	5.1	6.7	15.5	2.1
Queue Length 50th (ft)	73	0	13	125	247	0
Queue Length 95th (ft)	132	47	27	203	396	19
Internal Link Dist (ft)	250			294	357	
Turn Bay Length (ft)		130	100			
Base Capacity (vph)	293	379	396	1306	1092	903
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.38	0.27	0.52	0.69	0.11

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 78.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: U.S. Route 202 (W Ramapo Road) & Rosman Road



2022 Build Traffic Volumes

Weekday Peak AM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019

						
Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	148	137	103	651	712	97
Future Volume (veh/h)	148	137	103	651	712	97
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1894	1879	1826	1811	1790	1716
Adj Flow Rate, veh/h	156	144	108	685	749	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	4	5	6	7	12
Cap, veh/h	219	193	408	1354	1146	929
Arrive On Green	0.12	0.12	0.04	0.75	0.64	0.64
Sat Flow, veh/h	1804	1593	1739	1811	1790	1451
Grp Volume(v), veh/h	156	144	108	685	749	102
Grp Sat Flow(s),veh/h/ln	1804	1593	1739	1811	1790	1451
Q Serve(g_s), s	6.3	6.7	1.5	11.7	19.7	2.1
Cycle Q Clear(g_c), s	6.3	6.7	1.5	11.7	19.7	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	219	193	408	1354	1146	929
V/C Ratio(X)	0.71	0.74	0.26	0.51	0.65	0.11
Avail Cap(c_a), veh/h	308	272	472	1354	1146	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	32.4	7.2	3.9	8.5	5.3
Incr Delay (d2), s/veh	4.5	6.8	0.3	1.4	2.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.9	0.4	2.7	6.4	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.7	39.1	7.5	5.3	11.4	5.6
LnGrp LOS	D	D	A	A	B	A
Approach Vol, veh/h	300			793	851	
Approach Delay, s/veh	37.9			5.6	10.7	
Approach LOS	D			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.2	53.8			62.0	14.3
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	6.0	46.0			57.0	13.0
Max Q Clear Time (g_c+l1), s	3.5	21.7			13.7	8.7
Green Ext Time (p_c), s	0.1	3.5			2.8	0.6
Intersection Summary						
HCM 6th Ctrl Delay			12.8			
HCM 6th LOS			B			

2022 Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak AM Hour
07/31/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	36	154	46	41	244
Future Volume (vph)	44	36	154	46	41	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	16	16	16	16
Grade (%)	3%		1%			6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939		0.969			
Flt Protected	0.973					0.993
Satd. Flow (prot)	1697	0	1901	0	0	2022
Flt Permitted	0.973					0.993
Satd. Flow (perm)	1697	0	1901	0	0	2022
Link Speed (mph)	30		30			30
Link Distance (ft)	277		330			265
Travel Time (s)	6.3		7.5			6.0
Confl. Peds. (#/hr)	2	4		2	4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	3%	12%	0%	0%	3%
Adj. Flow (vph)	48	40	169	51	45	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	220	0	0	313
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.85	0.85	0.88	0.88
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak AM Hour

07/31/2019

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	36	154	46	41	244
Future Vol, veh/h	44	36	154	46	41	244
Conflicting Peds, #/hr	2	4	0	2	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	1	-	-	6
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	3	12	0	0	3
Mvmt Flow	48	40	169	51	45	268
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	559	203	0	0	224	0
Stage 1	199	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	7.05	6.53	-	-	4.1	-
Critical Hdwy Stg 1	6.05	-	-	-	-	-
Critical Hdwy Stg 2	6.05	-	-	-	-	-
Follow-up Hdwy	3.545	3.327	-	-	2.2	-
Pot Cap-1 Maneuver	442	821	-	-	1357	-
Stage 1	800	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	422	814	-	-	1352	-
Mov Cap-2 Maneuver	422	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13	0	1.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	539	1352	-	
HCM Lane V/C Ratio	-	-	0.163	0.033	-	
HCM Control Delay (s)	-	-	13	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-	

2022 Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak AM Hour
07/31/2019

						
Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	73	8	2	211	147	22
Future Volume (vph)	73	8	2	211	147	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	13	13	13
Grade (%)	0%			8%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.987				0.982	
Flt Protected	0.957					
Satd. Flow (prot)	1759	0	0	1830	1828	0
Flt Permitted	0.957					
Satd. Flow (perm)	1759	0	0	1830	1828	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	216			302	265	
Travel Time (s)	4.9			6.9	6.0	
Confl. Peds. (#/hr)	1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	3%	9%	2%
Adj. Flow (vph)	83	9	2	240	167	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	242	192	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak AM Hour
07/31/2019

Intersection

Int Delay, s/veh 2.2

Movement SBL SBR SEL SET NWT NWR

Lane Configurations 

Traffic Vol, veh/h 73 8 2 211 147 22

Future Vol, veh/h 73 8 2 211 147 22

Conflicting Peds, #/hr 1 0 0 0 0 1

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 8 -5 -

Peak Hour Factor 88 88 88 88 88 88

Heavy Vehicles, % 2 2 2 3 9 2

Mvmt Flow 83 9 2 240 167 25

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 426 181 193 0 - 0

Stage 1 181 - - - - -

Stage 2 245 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 585 862 1380 - - -

Stage 1 850 - - - - -

Stage 2 796 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 583 861 1379 - - -

Mov Cap-2 Maneuver 583 - - - - -

Stage 1 847 - - - - -

Stage 2 795 - - - - -

Approach SB SE NW

HCM Control Delay, s 12.1 0.1 0

HCM LOS B

Minor Lane/Major Mvmt NWT NWR SEL SET SBLn1

Capacity (veh/h) - - 1379 - 602

HCM Lane V/C Ratio - - 0.002 - 0.153

HCM Control Delay (s) - - 7.6 0 12.1

HCM Lane LOS - - A A B

HCM 95th %tile Q(veh) - - 0 - 0.5

2022 Build Traffic Volumes

Weekday Peak PM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019

						
Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	116	175	206	874	794	159
Future Volume (vph)	116	175	206	874	794	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			0%	1%	
Storage Length (ft)	0	130	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98				
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1744	1623	1787	1863	1835	1575
Flt Permitted	0.950		0.165			
Satd. Flow (perm)	1744	1595	310	1863	1835	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		184				167
Link Speed (mph)	30			40	40	
Link Distance (ft)	330			374	437	
Travel Time (s)	7.5			6.4	7.4	
Confl. Peds. (#/hr)		3				
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	0%	1%	2%	3%	2%
Adj. Flow (vph)	122	184	217	920	836	167
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	184	217	920	836	167
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	2	2	2	1	1	1
Detector Template						
Leading Detector (ft)	83	83	83	35	35	35
Trailing Detector (ft)	-5	-5	-5	-5	-5	-5
Detector 1 Position(ft)	-5	-5	-5	-5	-5	-5
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	43	43	43			
Detector 2 Size(ft)	40	40	40			
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 2 Channel						

2022 Build Traffic Volumes

Weekday Peak PM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019



Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Detector 2 Extend (s)	0.0	0.0	0.0			
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3	6			2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	2.0	3.0	3.0	3.0
Minimum Split (s)	8.0	8.0	7.0	60.0	48.0	48.0
Total Split (s)	18.0	18.0	11.0	62.0	51.0	51.0
Total Split (%)	22.5%	22.5%	13.8%	77.5%	63.8%	63.8%
Maximum Green (s)	13.0	13.0	6.0	57.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					18.0	18.0
Pedestrian Calls (#/hr)					0	0
v/c Ratio	0.52	0.49	0.63	0.67	0.77	0.17
Control Delay	39.6	10.1	13.4	8.8	18.3	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	10.1	13.4	8.8	18.3	1.8
Queue Length 50th (ft)	56	0	25	187	275	0
Queue Length 95th (ft)	107	54	#55	340	468	23
Internal Link Dist (ft)	250			294	357	
Turn Bay Length (ft)		130	100			
Base Capacity (vph)	293	421	343	1373	1091	1004
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.44	0.63	0.67	0.77	0.17

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 77.4

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: U.S. Route 202 (W Ramapo Road) & Rosman Road



2022 Build Traffic Volumes

Weekday Peak PM Hour

1: U.S. Route 202 (W Ramapo Road) & Rosman Road

07/31/2019

						
Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	116	175	206	874	794	159
Future Volume (veh/h)	116	175	206	874	794	159
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1879	1939	1885	1870	1850	1864
Adj Flow Rate, veh/h	122	184	217	920	836	167
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	0	1	2	3	2
Cap, veh/h	249	229	368	1370	1110	948
Arrive On Green	0.14	0.14	0.07	0.73	0.60	0.60
Sat Flow, veh/h	1790	1644	1795	1870	1850	1580
Grp Volume(v), veh/h	122	184	217	920	836	167
Grp Sat Flow(s),veh/h/ln	1790	1644	1795	1870	1850	1580
Q Serve(g_s), s	4.9	8.4	3.3	20.2	25.7	3.7
Cycle Q Clear(g_c), s	4.9	8.4	3.3	20.2	25.7	3.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	249	229	368	1370	1110	948
V/C Ratio(X)	0.49	0.80	0.59	0.67	0.75	0.18
Avail Cap(c_a), veh/h	299	274	384	1370	1110	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	32.5	12.1	5.5	11.4	7.0
Incr Delay (d2), s/veh	1.5	13.5	2.2	2.6	4.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.1	1.8	5.5	9.6	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.4	46.0	14.3	8.1	16.1	7.4
LnGrp LOS	C	D	B	A	B	A
Approach Vol, veh/h	306			1137	1003	
Approach Delay, s/veh	40.6			9.3	14.7	
Approach LOS	D			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.3	51.7			62.0	15.8
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	6.0	46.0			57.0	13.0
Max Q Clear Time (g_c+l1), s	5.3	27.7			22.2	10.4
Green Ext Time (p_c), s	0.1	4.0			4.3	0.4
Intersection Summary						
HCM 6th Ctrl Delay			15.4			
HCM 6th LOS			B			

2022 Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak PM Hour
07/31/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	92	82	269	111	65	188
Future Volume (vph)	92	82	269	111	65	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	16	16	16	16
Grade (%)	3%		1%			6%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.937		0.960			
Flt Protected	0.974					0.987
Satd. Flow (prot)	1765	0	2022	0	0	2031
Flt Permitted	0.974					0.987
Satd. Flow (perm)	1765	0	2022	0	0	2031
Link Speed (mph)	30		30			30
Link Distance (ft)	277		330			265
Travel Time (s)	6.3		7.5			6.0
Confl. Peds. (#/hr)	4	8		4	8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%
Adj. Flow (vph)	96	85	280	116	68	196
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	0	396	0	0	264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.85	0.85	0.88	0.88
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 Build Traffic Volumes
2: Rosman Road & ShopRite Driveway

Weekday Peak PM Hour
07/31/2019

Intersection						
Int Delay, s/veh	4.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	92	82	269	111	65	188
Future Vol, veh/h	92	82	269	111	65	188
Conflicting Peds, #/hr	4	8	0	4	8	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	1	-	-	6
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	1	0	2
Mvmt Flow	96	85	280	116	68	196
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	682	354	0	0	404	0
Stage 1	346	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	7	6.5	-	-	4.1	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	374	674	-	-	1166	-
Stage 1	680	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	346	663	-	-	1158	-
Mov Cap-2 Maneuver	346	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	18.4	0		2.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	447	1158	-	
HCM Lane V/C Ratio	-	-	0.405	0.058	-	
HCM Control Delay (s)	-	-	18.4	8.3	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile O(veh)	-	-	1.9	0.2	-	

2022 Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak PM Hour
07/31/2019

						
Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	43	5	8	195	274	72
Future Volume (vph)	43	5	8	195	274	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	13	13	13
Grade (%)	0%			8%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.972	
Flt Protected	0.957			0.998		
Satd. Flow (prot)	1758	0	0	1862	1933	0
Flt Permitted	0.957			0.998		
Satd. Flow (perm)	1758	0	0	1862	1933	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	216			302	265	
Travel Time (s)	4.9			6.9	6.0	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	2%	1%	1%	2%
Adj. Flow (vph)	51	6	9	229	322	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	238	407	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2022 Build Traffic Volumes
3: Rosman Road & Oak Tree Lane

Weekday Peak PM Hour
07/31/2019

Intersection

Int Delay, s/veh 1.2

Movement SBL SBR SEL SET NWT NWR

Lane Configurations 

Traffic Vol, veh/h 43 5 8 195 274 72

Future Vol, veh/h 43 5 8 195 274 72

Conflicting Peds, #/hr 1 1 1 0 0 1

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 8 -5 -

Peak Hour Factor 85 85 85 85 85 85

Heavy Vehicles, % 2 2 2 1 1 2

Mvmt Flow 51 6 9 229 322 85

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 614 367 408 0 - 0

Stage 1 366 - - - - -

Stage 2 248 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 455 678 1151 - - -

Stage 1 702 - - - - -

Stage 2 793 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 450 677 1150 - - -

Mov Cap-2 Maneuver 450 - - - - -

Stage 1 695 - - - - -

Stage 2 792 - - - - -

Approach SB SE NW

HCM Control Delay, s 13.8 0.3 0

HCM LOS B

Minor Lane/Major Mvmt NWT NWR SEL SET SBLn1

Capacity (veh/h) - - 1150 - 466

HCM Lane V/C Ratio - - 0.008 - 0.121

HCM Control Delay (s) - - 8.2 0 13.8

HCM Lane LOS - - A A B

HCM 95th %tile Q(veh) - - 0 - 0.4

OAK TREE APARTMENTS

APPENDIX E

TRAFFIC VOLUME DATA

Maser Consulting, P.A.

400 Columbus Avenue - Suite 180E

Valhalla, NY 10595

Customer Loyalty Through Client Satisfaction

File Name : 1._ROSMAN_ROAD_&_U.S_ROUTE_202_WED_680572_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROSMAN RD From North					ROUTE 202 From East					From South					ROUTE 202 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	23	0	11	0	34	5	136	0	0	141	0	0	0	0	0	0	71	6	0	77	252
06:45 AM	9	0	11	0	20	5	128	0	0	133	0	0	0	0	0	0	89	6	0	95	248
Total	32	0	22	0	54	10	264	0	0	274	0	0	0	0	0	0	160	12	0	172	500
07:00 AM	11	0	18	0	29	12	117	0	0	129	0	0	0	0	0	0	100	6	0	106	264
07:15 AM	21	0	17	0	38	10	156	0	0	166	0	0	0	0	0	0	87	13	0	100	304
07:30 AM	23	0	19	0	42	7	154	0	0	161	0	0	0	0	0	0	112	17	0	129	332
07:45 AM	21	0	21	0	42	18	135	0	0	153	0	0	0	0	0	0	135	15	0	150	345
Total	76	0	75	0	151	47	562	0	0	609	0	0	0	0	0	0	434	51	0	485	1245
08:00 AM	24	0	17	2	43	17	147	0	0	164	0	0	0	0	0	0	119	16	0	135	342
08:15 AM	14	0	24	1	39	10	154	0	0	164	0	0	0	0	0	0	125	18	0	143	346
08:30 AM	17	0	20	0	37	14	135	0	0	149	0	0	0	0	0	0	132	20	0	152	338
08:45 AM	19	0	26	0	45	25	133	0	0	158	0	0	0	0	0	0	142	20	0	162	365
Total	74	0	87	3	164	66	569	0	0	635	0	0	0	0	0	0	518	74	0	592	1391
09:00 AM	25	0	29	1	55	13	121	0	0	134	0	0	0	0	0	0	120	13	0	133	322
09:15 AM	17	0	20	3	40	13	125	0	0	138	0	0	0	0	0	0	99	16	1	116	294
Grand Total	224	0	233	7	464	149	1641	0	0	1790	0	0	0	0	0	0	1331	166	1	1498	3752
Apprch %	48.3	0	50.2	1.5		8.3	91.7	0	0		0	0	0	0		0	88.9	11.1	0.1		
Total %	6	0	6.2	0.2	12.4	4	43.7	0	0	47.7	0	0	0	0	0	0	35.5	4.4	0	39.9	
Lights	215	0	226	0	441	133	1552	0	0	1685	0	0	0	0	0	0	1247	156	0	1403	3529
% Lights	96	0	97	0	95	89.3	94.6	0	0	94.1	0	0	0	0	0	0	93.7	94	0	93.7	94.1
Buses	9	0	2	0	11	8	30	0	0	38	0	0	0	0	0	0	40	6	0	46	95
% Buses	4	0	0.9	0	2.4	5.4	1.8	0	0	2.1	0	0	0	0	0	0	3	3.6	0	3.1	2.5
Trucks	0	0	5	0	5	8	59	0	0	67	0	0	0	0	0	0	44	4	0	48	120
% Trucks	0	0	2.1	0	1.1	5.4	3.6	0	0	3.7	0	0	0	0	0	0	3.3	2.4	0	3.2	3.2
Pedestrians	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	8
% Pedestrians	0	0	0	100	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.1	0.2

Maser Consulting, P.A.

400 Columbus Avenue - Suite 180E

Valhalla, NY 10595

Customer Loyalty Through Client Satisfaction

File Name : 1._ROSMAN_ROAD_&_U.S_ROUTE_202_WED_680572_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROSMAN RD From North					ROUTE 202 From East					From South					ROUTE 202 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	25	0	26	1	52	27	144	0	0	171	0	0	0	0	0	0	141	29	1	171	394
03:45 PM	34	0	21	0	55	19	153	0	0	172	0	0	0	0	0	0	148	21	0	169	396
Total	59	0	47	1	107	46	297	0	0	343	0	0	0	0	0	0	289	50	1	340	790
04:00 PM	30	0	26	0	56	26	127	0	0	153	0	0	0	0	0	0	146	20	0	166	375
04:15 PM	27	0	21	0	48	13	162	0	0	175	0	0	0	0	0	0	170	25	0	195	418
04:30 PM	27	0	22	0	49	31	164	0	0	195	0	0	0	0	0	0	175	34	0	209	453
04:45 PM	35	0	14	0	49	26	152	0	0	178	0	0	0	0	0	0	164	29	2	195	422
Total	119	0	83	0	202	96	605	0	0	701	0	0	0	0	0	0	655	108	2	765	1668
05:00 PM	28	0	18	0	46	24	145	0	0	169	0	0	0	0	0	0	161	33	0	194	409
05:15 PM	31	0	20	0	51	19	146	0	0	165	0	0	0	0	0	0	183	33	1	217	433
05:30 PM	36	0	23	0	59	30	149	0	0	179	0	0	0	0	0	0	146	33	0	179	417
05:45 PM	31	0	20	0	51	25	134	0	0	159	0	0	0	0	0	0	151	31	0	182	392
Total	126	0	81	0	207	98	574	0	0	672	0	0	0	0	0	0	641	130	1	772	1651
06:00 PM	29	0	14	2	45	22	140	0	0	162	0	0	0	0	0	0	149	39	0	188	395
06:15 PM	30	0	22	4	56	20	124	0	0	144	0	0	0	0	0	0	175	30	0	205	405
Grand Total	363	0	247	7	617	282	1740	0	0	2022	0	0	0	0	0	0	1909	357	4	2270	4909
Apprch %	58.8	0	40	1.1		13.9	86.1	0	0		0	0	0	0		0	84.1	15.7	0.2		
Total %	7.4	0	5	0.1	12.6	5.7	35.4	0	0	41.2	0	0	0	0	0	0	38.9	7.3	0.1	46.2	
Lights	363	0	239	0	602	277	1683	0	0	1960	0	0	0	0	0	0	1875	355	0	2230	4792
% Lights	100	0	96.8	0	97.6	98.2	96.7	0	0	96.9	0	0	0	0	0	0	98.2	99.4	0	98.2	97.6
Buses	0	0	5	0	5	1	25	0	0	26	0	0	0	0	0	0	14	0	0	14	45
% Buses	0	0	2	0	0.8	0.4	1.4	0	0	1.3	0	0	0	0	0	0	0.7	0	0	0.6	0.9
Trucks	0	0	3	0	3	4	32	0	0	36	0	0	0	0	0	0	20	2	0	22	61
% Trucks	0	0	1.2	0	0.5	1.4	1.8	0	0	1.8	0	0	0	0	0	0	1	0.6	0	1	1.2
Pedestrians	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	11
% Pedestrians	0	0	0	100	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.2	0.2

Maser Consulting, P.A.

400 Columbus Avenue - Suite 180E

Valhalla, NY 10595

Customer Loyalty Through Client Satisfaction

File Name : 1._ROSMAN_ROAD_&_U.S_ROUTE_202_WED_680572_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 2

	ROSMAN RD From North					ROUTE 202 From East					From South					ROUTE 202 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	27	0	22	0	49	31	164	0	0	195	0	0	0	0	0	0	175	34	0	209	453
04:45 PM	35	0	14	0	49	26	152	0	0	178	0	0	0	0	0	0	164	29	2	195	422
05:00 PM	28	0	18	0	46	24	145	0	0	169	0	0	0	0	0	0	161	33	0	194	409
05:15 PM	31	0	20	0	51	19	146	0	0	165	0	0	0	0	0	0	183	33	1	217	433
Total Volume	121	0	74	0	195	100	607	0	0	707	0	0	0	0	0	0	683	129	3	815	1717
% App. Total	62.1	0	37.9	0		14.1	85.9	0	0		0	0	0	0	0	0	83.8	15.8	0.4		
PHF	.864	.000	.841	.000	.956	.806	.925	.000	.000	.906	.000	.000	.000	.000	.000	.000	.933	.949	.375	.939	.948
Lights	121	0	71	0	192	98	587	0	0	685	0	0	0	0	0	0	671	128	0	799	1676
% Lights	100	0	95.9	0	98.5	98.0	96.7	0	0	96.9	0	0	0	0	0	0	98.2	99.2	0	98.0	97.6
Buses	0	0	2	0	2	0	7	0	0	7	0	0	0	0	0	0	7	0	0	7	16
% Buses	0	0	2.7	0	1.0	0	1.2	0	0	1.0	0	0	0	0	0	0	1.0	0	0	0.9	0.9
Trucks	0	0	1	0	1	2	13	0	0	15	0	0	0	0	0	0	5	1	0	6	22
% Trucks	0	0	1.4	0	0.5	2.0	2.1	0	0	2.1	0	0	0	0	0	0	0.7	0.8	0	0.7	1.3
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.4	0.2

Maser Consulting, P.A.

400 Columbus Avenue - Suite 180E

Valhalla, NY 10595

Customer Loyalty Through Client Satisfaction

File Name : 2.ROSMAN_ROAD_&_SHOPRITE_DRIVEWAY_WED_680575_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROSMAN RD From North					SHOPRITE DRIVEWAY From East					ROSMAN RD From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	22	2	0	24	2	0	11	0	13	5	8	0	0	13	0	0	0	0	0	50
06:45 AM	0	17	2	0	19	4	0	1	0	5	2	8	0	0	10	0	0	0	0	0	34
Total	0	39	4	0	43	6	0	12	0	18	7	16	0	0	23	0	0	0	0	0	84
07:00 AM	0	28	2	0	30	3	0	1	0	4	2	13	0	0	15	0	0	0	0	0	49
07:15 AM	0	25	4	0	29	4	0	10	0	14	5	18	0	0	23	0	0	0	0	0	66
07:30 AM	0	33	5	0	38	6	0	8	1	15	12	15	0	0	27	0	0	0	0	0	80
07:45 AM	0	33	12	0	45	8	0	8	2	18	7	22	0	0	29	0	0	0	0	0	92
Total	0	119	23	0	142	21	0	27	3	51	26	68	0	0	94	0	0	0	0	0	287
08:00 AM	0	32	14	0	46	9	0	12	0	21	7	26	0	0	33	0	0	0	0	0	100
08:15 AM	0	29	7	1	37	6	0	7	1	14	9	19	0	0	28	0	0	0	0	0	79
08:30 AM	0	27	10	1	38	8	0	12	0	20	14	21	0	1	36	0	0	0	0	0	94
08:45 AM	0	37	5	1	43	9	0	8	0	17	11	33	0	0	44	0	0	0	0	0	104
Total	0	125	36	3	164	32	0	39	1	72	41	99	0	1	141	0	0	0	0	0	377
09:00 AM	0	44	10	1	55	11	0	13	0	24	6	17	0	0	23	0	0	0	0	0	102
09:15 AM	0	26	9	2	37	13	0	7	0	20	11	22	0	0	33	0	0	0	0	0	90
Grand Total	0	353	82	6	441	83	0	98	4	185	91	222	0	1	314	0	0	0	0	0	940
Apprch %	0	80	18.6	1.4		44.9	0	53	2.2		29	70.7	0	0.3		0	0	0	0		
Total %	0	37.6	8.7	0.6	46.9	8.8	0	10.4	0.4	19.7	9.7	23.6	0	0.1	33.4	0	0	0	0	0	
Lights	0	340	82	0	422	81	0	95	0	176	91	195	0	0	286	0	0	0	0	0	884
% Lights	0	96.3	100	0	95.7	97.6	0	96.9	0	95.1	100	87.8	0	0	91.1	0	0	0	0	0	94
Buses	0	8	0	0	8	0	0	3	0	3	0	14	0	0	14	0	0	0	0	0	25
% Buses	0	2.3	0	0	1.8	0	0	3.1	0	1.6	0	6.3	0	0	4.5	0	0	0	0	0	2.7
Trucks	0	5	0	0	5	2	0	0	0	2	0	13	0	0	13	0	0	0	0	0	20
% Trucks	0	1.4	0	0	1.1	2.4	0	0	0	1.1	0	5.9	0	0	4.1	0	0	0	0	0	2.1
Pedestrians	0	0	0	6	6	0	0	0	4	4	0	0	0	1	1	0	0	0	0	0	11
% Pedestrians	0	0	0	100	1.4	0	0	0	100	2.2	0	0	0	100	0.3	0	0	0	0	0	1.2

Maser Consulting, P.A.

400 Columbus Avenue - Suite 180E

Valhalla, NY 10595

Customer Loyalty Through Client Satisfaction

File Name : 2.ROSMAN_ROAD_&_SHOPRITE_DRIVEWAY_WED_680575_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 2

	ROSMAN RD From North					SHOPRITE DRIVEWAY From East					ROSMAN RD From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	32	14	0	46	9	0	12	0	21	7	26	0	0	33	0	0	0	0	0	100
08:15 AM	0	29	7	1	37	6	0	7	1	14	9	19	0	0	28	0	0	0	0	0	79
08:30 AM	0	27	10	1	38	8	0	12	0	20	14	21	0	1	36	0	0	0	0	0	94
08:45 AM	0	37	5	1	43	9	0	8	0	17	11	33	0	0	44	0	0	0	0	0	104
Total Volume	0	125	36	3	164	32	0	39	1	72	41	99	0	1	141	0	0	0	0	0	377
% App. Total	0	76.2	22	1.8		44.4	0	54.2	1.4		29.1	70.2	0	0.7		0	0	0	0		
PHF	.000	.845	.643	.750	.891	.889	.000	.813	.250	.857	.732	.750	.000	.250	.801	.000	.000	.000	.000	.000	.906
Lights	0	121	36	0	157	31	0	37	0	68	41	87	0	0	128	0	0	0	0	0	353
% Lights	0	96.8	100	0	95.7	96.9	0	94.9	0	94.4	100	87.9	0	0	90.8	0	0	0	0	0	93.6
Buses	0	2	0	0	2	0	0	2	0	2	0	8	0	0	8	0	0	0	0	0	12
% Buses	0	1.6	0	0	1.2	0	0	5.1	0	2.8	0	8.1	0	0	5.7	0	0	0	0	0	3.2
Trucks	0	2	0	0	2	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	7
% Trucks	0	1.6	0	0	1.2	3.1	0	0	0	1.4	0	4.0	0	0	2.8	0	0	0	0	0	1.9
Pedestrians	0	0	0	3	3	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	5
% Pedestrians	0	0	0	100	1.8	0	0	0	100	1.4	0	0	0	100	0.7	0	0	0	0	0	1.3

Maser Consulting, P.A.

400 Columbus Avenue - Suite 180E

Valhalla, NY 10595

Customer Loyalty Through Client Satisfaction

File Name : 2.ROSMAN_ROAD_&_SHOPRITE_DRIVEWAY_WED_680575_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	ROSMAN RD From North					SHOPRITE DRIVEWAY From East					ROSMAN RD From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	0	36	16	0	52	11	0	15	0	26	20	29	0	0	49	0	0	0	0	0	127
03:45 PM	0	25	16	1	42	22	0	30	0	52	20	25	0	0	45	0	0	0	0	0	139
Total	0	61	32	1	94	33	0	45	0	78	40	54	0	0	94	0	0	0	0	0	266
04:00 PM	0	32	13	1	46	12	0	20	0	32	15	33	0	0	48	0	0	0	0	0	126
04:15 PM	0	21	15	0	36	24	0	24	0	48	20	18	0	0	38	0	0	0	0	0	122
04:30 PM	0	27	19	0	46	19	0	16	0	35	23	43	0	0	66	0	0	0	0	0	147
04:45 PM	0	27	7	2	36	21	0	24	1	46	25	35	0	1	61	0	0	0	0	0	143
Total	0	107	54	3	164	76	0	84	1	161	83	129	0	1	213	0	0	0	0	0	538
05:00 PM	0	28	14	0	42	15	0	18	1	34	30	33	0	0	63	0	0	0	0	0	139
05:15 PM	0	22	17	3	42	17	0	23	1	41	20	33	0	0	53	0	0	0	0	0	136
05:30 PM	0	30	20	1	51	29	0	25	1	55	27	34	0	0	61	0	0	0	0	0	167
05:45 PM	0	29	18	0	47	22	0	24	0	46	23	34	0	0	57	0	0	0	0	0	150
Total	0	109	69	4	182	83	0	90	3	176	100	134	0	0	234	0	0	0	0	0	592
06:00 PM	0	20	10	1	31	19	0	21	0	40	23	40	0	0	63	0	0	0	0	0	134
06:15 PM	0	30	12	0	42	23	0	20	3	46	25	31	0	0	56	0	0	0	0	0	144
Grand Total	0	327	177	9	513	234	0	260	7	501	271	388	0	1	660	0	0	0	0	0	1674
Apprch %	0	63.7	34.5	1.8		46.7	0	51.9	1.4		41.1	58.8	0	0.2		0	0	0	0		
Total %	0	19.5	10.6	0.5	30.6	14	0	15.5	0.4	29.9	16.2	23.2	0	0.1	39.4	0	0	0	0	0	
Lights	0	321	177	0	498	234	0	260	0	494	270	380	0	0	650	0	0	0	0	0	1642
% Lights	0	98.2	100	0	97.1	100	0	100	0	98.6	99.6	97.9	0	0	98.5	0	0	0	0	0	98.1
Buses	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
% Buses	0	1.5	0	0	1	0	0	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	0.4
Trucks	0	1	0	0	1	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	9
% Trucks	0	0.3	0	0	0.2	0	0	0	0	0	0.4	1.8	0	0	1.2	0	0	0	0	0	0.5
Pedestrians	0	0	0	9	9	0	0	0	7	7	0	0	0	1	1	0	0	0	0	0	17
% Pedestrians	0	0	0	100	1.8	0	0	0	100	1.4	0	0	0	100	0.2	0	0	0	0	0	1

Maser Consulting, P.A.

400 Columbus Avenue - Suite 180E

Valhalla, NY 10595

Customer Loyalty Through Client Satisfaction

File Name : 2.ROSMAN_ROAD_&_SHOPRITE_DRIVEWAY_WED_680575_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 2

	ROSMAN RD From North					SHOPRITE DRIVEWAY From East					ROSMAN RD From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	27	19	0	46	19	0	16	0	35	23	43	0	0	66	0	0	0	0	0	147
04:45 PM	0	27	7	2	36	21	0	24	1	46	25	35	0	1	61	0	0	0	0	0	143
05:00 PM	0	28	14	0	42	15	0	18	1	34	30	33	0	0	63	0	0	0	0	0	139
05:15 PM	0	22	17	3	42	17	0	23	1	41	20	33	0	0	53	0	0	0	0	0	136
Total Volume	0	104	57	5	166	72	0	81	3	156	98	144	0	1	243	0	0	0	0	0	565
% App. Total	0	62.7	34.3	3		46.2	0	51.9	1.9		40.3	59.3	0	0.4		0	0	0	0		
PHF	.000	.929	.750	.417	.902	.857	.000	.844	.750	.848	.817	.837	.000	.250	.920	.000	.000	.000	.000	.000	.961
Lights	0	102	57	0	159	72	0	81	0	153	97	141	0	0	238	0	0	0	0	0	550
% Lights	0	98.1	100	0	95.8	100	0	100	0	98.1	99.0	97.9	0	0	97.9	0	0	0	0	0	97.3
Buses	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	1.9	0	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4
Trucks	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	4
% Trucks	0	0	0	0	0	0	0	0	0	0	1.0	2.1	0	0	1.6	0	0	0	0	0	0.7
Pedestrians	0	0	0	5	5	0	0	0	3	3	0	0	0	1	1	0	0	0	0	0	9
% Pedestrians	0	0	0	100	3.0	0	0	0	100	1.9	0	0	0	100	0.4	0	0	0	0	0	1.6

400 Columbus Avenue - Suite 180E
Valhalla, NY 10595
Customer Loyalty Through Client Satisfaction

File Name : 3.ROSMAN_ROAD_&_OAK_TREE_LANE_WED_680583_07-24-2019

Site Code :

Start Date : 7/24/2019

Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

[illegible]

[illegible]