

**APPENDIX 16.4**  
**Traffic Impact Study**

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**TRAFFIC IMPACT STUDY**

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**JARDIM ESTATES EAST  
TARRYTOWN, NEW YORK**

**PROJECT 457**

**JANUARY 8, 2009**

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A. INTRODUCTION

This Study has been updated to address comments by the Town's Traffic Consultant (Alder Consulting) as outlined in their May 8, 2009 letter.

This study has been prepared to evaluate the potential traffic impacts of the proposed Jardim Estates East on the surrounding roadway network. The following sections provide a description of the proposed Project and the tasks undertaken in completing our evaluation.

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

Jardim Estates East is proposing a subdivision for an approximately 46-acre parcel of land located on the east side of Browning Lane, south of Sheldon Avenue in Tarrytown, New York. The site currently consists of 5 existing residential structures on the property. The existing 5 structures contain a total of 14 units (11 apartments and 3 single family homes). Of the 5 structures, 3 will remain (11 apartments and 1 single family home) and two structures will be demolished (2 single family homes). The proposed action calls for a total of 13 single family homes (1 existing home to remain, 2 homes to be replaced, and 10 new homes) or a net addition of 10 single family homes. This Study evaluates the proposed traffic impact of the additional 10 single family homes. Access to 9 of the new single family homes is proposed via Gracemere Road (Private Road)/Browning Lane/Lake Drive (site access) with 1 single family home via Sheldon Avenue as shown on Figure No. 1

C. EXISTING TRAFFIC NETWORK (Figure No. 1)

The site is served by U.S. Route 9 and NYS Route 119 with access via a driveway connection to Gracemere Road (Private Road)/Browning Lane/Lake Drive as well as access via Sheldon Avenue.

The following is a general description of each of these roadways.

1. U.S. Route 9

U.S. Route 9 is a four lane, north/south roadway. Between the intersections of Walter Street and Kraft Foods / Gracemere Road (Private Road), at Lakeview Drive U.S. Route 9 changes over from a four lane roadway with a posted speed limit of 30 mph to a two lane roadway with a posted speed limit of 35 mph (this was recently reduced from 40 mph by the NYSDOT at the Village's request). It continues as a two lane roadway, before returning to a four lane roadway just south of Sunnyside Lane. U.S. Route 9 ranges from its intersection with Gracemere Road (Private Road), where U.S. Route 9 consists of some 36 feet of pavement with one through lane in each direction and a separate southbound left turn lane, to its intersection with the I-287 Eastbound ramps, where U.S. Route 9 consists of some 60 feet of pavement with two through lanes in each direction and center turning lane. Parking is prohibited on both sides of U.S. Route 9 while a sidewalk is provided on the west side of the roadway.

2. NYS Route 119

NYS Route 119 is a four lane, east/west State road. At its intersection with Meadow Street and the Garden Apartments, NYS Route 119 consists of some 60 feet of pavement width

consisting of two through lanes in each direction and center turning lane with no shoulders. Parking is prohibited along NYS Route 119 while sidewalks are provided along NYS Route 119. In the vicinity of the site there is a posted speed limit of 30 mph.

3. Walter Street / Sheldon Avenue

Sheldon Avenue is an east/west Town road that originates at I-287 in the west and terminates at Taxter Ridge Park to the east. Sheldon Avenue is an undivided roadway consisting of some 30 feet of roadway. Parking is permitted on both sides of Sheldon Avenue and a sidewalk is provided on the south side of the roadway, with the exception of the stretch of roadway between Stephen Drive and Meadow Street / Browning Lane, where sidewalks are provided on both sides of the roadway. There is a posted speed limit of 25 mph. In the vicinity of its termination at Taxter Ridge Park, Sheldon Avenue intersects with an existing right of way. This existing right of way is a private road which provides access to a private home and Taxter Ridge Park. Access to 2 homes will be provided via this existing right of way.

Near its western boundary Sheldon Avenue connects with Walter Street to provide access to U.S. Route 9. Walter Street is a two lane east/west Town roadway that originates at its unsignalized "T" intersection with U.S. Route 9 and terminates at its intersection with Croton Place. Walter Street consists of some 30 feet of roadway. Parking spaces and sidewalks are provided along both sides of Walter Street.



4. Gracemere Road (Private Road)

Gracemere Road (Private Road) is a two lane east/west private road with no pavement markings that consists of some 18 feet of pavement west of Emerald Woods and consists of some 14 feet of pavement with a two foot paved swale east of Emerald Woods. Gracemere Road (Private Road) originates at its full-movement signalized intersection with U.S. Route 9, opposite the Kraft Foods Driveway. Gracemere Road (Private Road) provides access to private homes along the roadway including Emerald Woods (Jardim Estates West). At its intersection with Browning Lane, Gracemere Road (Private Road) continues eastbound as Lake Drive and will provide access to the site. Parking is prohibited along the roadway and there are no sidewalks provided.

Gracemere Road has posted speed limit 20 mph. As requested, an Automatic Traffic Recorder (ATR) was placed along Gracemere Road in order to obtain the operating speed. A copy of this data is contained in Appendix "J" of this Study. Based on this data, the average speed is 25 mph and the 85<sup>th</sup> percentile speed is 31 mph.

Along Gracemere Road (Private Road) there is adequate sight distance to the west of the Emerald Woods intersection. To the east of the Emerald Woods intersection there is adequate sight distance until the road begins to bend near its intersection with Lake Drive. In this area, the sight distance is restricted due to the existing vertical and horizontal alignment. In addition, there is line of sight restriction due to hedges on the north and south side that restrict sight lines in the curve area as well as over the crest.

5. Meadow Street / Browning Lane

Meadow Street is a two lane north/south Town roadway with pavement markings that originates at its full movement signalized intersection with NYS Route 119, across from the Sleepy Hollow Garden Apartments. Meadow Street consists of some 30 feet of pavement. Parking is permitted in certain areas along Meadow Street between the hours of 6 PM and 10 AM. Sidewalks are not provided along the roadway. South of its full-movement all-way stop controlled intersection with Sheldon Avenue, Meadow Street becomes Browning Lane.

Browning Lane continues southbound as a two lane north/south Town roadway with no pavement markings consisting of some 22 feet of pavement. There are no parking restrictions along the roadway and sidewalks are not provided. Browning Lane continues southbound intersecting with Walnut Street. At the “T” intersection of Browning Lane and Walnut Street, the Browning Lane northbound approach and Walnut Street westbound approach are controlled by “stop” signs, giving the right-of-way to the southbound Browning Lane approach. It should be noted that the Walnut Street westbound approach “stop” sign has recently been installed.

As requested, sight distances at the intersection of Browning Lane and Walnut Street were examined. There is currently a sight distance restriction exiting Walnut Street traveling southbound on Browning Lane (approximately 130 feet looking right) due to vegetation along the fence bordering the corner property (northeast corner of the intersection). This sight distance can be improved by the trimming of the vegetation or the implementation of an “All-Way Stop” intersection.

South of its intersection with Walnut Street, Browning Lane intersects with Gracemere Road (Private Road) where Browning Lane ends and the road becomes Lake Drive. Due to the alignment at the “Y” intersection of Browning Lane/Lake Drive and Gracemere Road (Private Road), left turn movements from Gracemere Road (Private Road) onto Browning Lane and right turn movements from Browning Lane onto Gracemere Road (Private Road), require the driver to “swing wide”, since the intersection is not at 90°.

Browning Lane has posted speed limit 25 mph. As requested, an Automatic Traffic Recorder (ATR) was placed along Browning Lane in order to obtain the operating speed. A copy of this data is contained in Appendix “J” of this Study. Based on this data, the average speed is 22 mph and the 85<sup>th</sup> percentile speed is 26 mph.

6. Lake Drive

As previously discussed, Lake Drive originates at Gracemere Road and Browning Lane and provides access to the site. Lake Drive consists of some 20 feet of pavement.

There is no posted speed limit on Lake Drive. As requested, an Automatic Traffic Recorder (ATR) was placed along Lake Drive in order to obtain the operating speed. A copy of this data is contained in Appendix “J” of this Study. Based on this data, the average speed is 24 mph and the 85<sup>th</sup> percentile speed is 28 mph.

There is adequate sight distance at its intersection with Gracemere Road/Browning Lane.

7. Emerald Woods

Emerald Woods is a two lane north/south road with no pavement markings and consists of some 18 feet of pavement. Emerald Woods originates at a “T” shaped unsignalized intersection with Sheldon Avenue. Emerald Woods continues southbound providing access to the Emerald Woods development before its termination and a “T” shaped unsignalized intersection with Gracemere Road (Private Road).

8. Evaluation of Gracemere Road, Browning Lane and Lake Drive

As outlined above, Gracemere Road has a pavement width of 18 feet west of Emerald Woods and a pavement width of 14 feet with a two foot paved swale east of Emerald Woods, Lake Drive has a pavement width of 20 feet and Browning Lane has a pavement width of 22 feet. These roadway widths are similar to other roadways in the vicinity of the site including Emerald Woods (18 feet), Front Street (18 feet), Woodlawn Street (19 feet), Walnut Street (21 feet) and High Street (22 feet). On-street parking was observed on these latter roadways which reduces the travel way to 10 - 12 feet depending on the roadway. In addition, since most of the roadways are curbed, vehicles tend to travel more towards the center than along the curb line on these low volume narrow roadways.

It should be noted that Gracemere Road, Browning Lane and Lake Drive have relatively low traffic volumes and that the proposed additional 10 single family homes would not have a significant impact on these roadways. Appendix “K” of this Study contains a summary of the Hourly Traffic Volumes along Gracemere Road, Browning Lane and Lake Drive and provides a Project Impact Table for each of these roads. The impact of the additional 10

single family homes would have similar impacts as the Emerald Woods development (15 single family homes).

9. School Bus/School Routes

As requested, school bus/school route information was obtained from Mr. Douglas Carter, Coordinator of Transportation (September 9, 2009 letter). As outlined in this letter, the Irvington School District sends 4 big buses through the Sheldon Avenue neighborhood each school morning between approximately 7:00AM and 8:30AM and 5 buses between 2:30PM and 4:30PM each afternoon. The buses stop at about every other side street along Sheldon Avenue, Browning Lane, Walnut Street, Lincoln Avenue and Meadow Street. In addition, about 5 small school vans make pick-ups and drop-offs at the homes of out-of-district students in the in the Sheldon Avenue neighborhood during these same hours. A copy of this letter is contained in Appendix "H" of this Study. It was observed that children from the Gracemere area (Site) walked to the school bus stop located at Browning Lane and Walnut Street.

D. YEAR 2008/2009 EXISTING TRAFFIC VOLUMES (Figures No. 2 and 3)

In order to establish the existing traffic volumes in the vicinity of the site, manual turning movement traffic counts were conducted by John Collins Engineers, P.C., while school was in session, on Wednesday, June 4, 2008 between the hours of 7:00 AM and 9:30 AM to establish the Weekday Peak AM Highway Hour and on Tuesday, June 3, 2008 between the hours of 4:00 PM to 6:30 PM to determine the Weekday Peak PM Highway Hour and supplemented with counts conducted in 2009.

The following key intersections were evaluated:

1. U.S. Route 9 and I-287 Eastbound Ramps
2. U.S. Route 9 and Walter Street
3. U.S. Route 9 and Kraft Foods driveway / Gracemere Road (Private Road)
4. U.S. Route 9 and Sunnyside Lane
5. NYS Route 119 and Meadow Street / Garden Apartments
6. Meadow Street / Browning Lane and Sheldon Avenue
7. Browning Lane and Gracemere Road (Private Road) / Site Access
8. Sheldon Avenue and Emerald Woods (2009 Counts)
9. Gracemere Road (Private Road) and Emerald Woods (2009 Counts)

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

- Weekday Peak AM Highway Hour - 7:30 AM – 8:30 AM
- Weekday Peak PM Highway Hour - 4:30 PM – 5:30 PM

The resulting Year 2008/2009 Existing Traffic Volumes are shown on Figures No. 2 and 3 for each of the peak hours, respectively.

Appendix “K” contains a summary of the Hourly Traffic Volumes including Vehicle Classification along Gracemere Road, Browning Lane and Lake Drive

E. YEAR 2014/2015 NO-BUILD TRAFFIC VOLUMES (Figures No. 4, 5, 6, 7, 8 and 9)

The Jardim Estates East development is proposed to be constructed within a three to six year period.

For the purpose of analysis, a Design Year of 2014/2015 has been utilized in completing the traffic analysis. In order to account for background growth in the area, the Year 2008/2009 Existing Traffic Volumes were grown by a total background growth of 8% (1.33% per year). The resulting Year 2014/2015 Projected Traffic Volumes are shown on Figures No. 4 and 5 for each of the peak hours, respectively. In addition to normal background growth, traffic for other development in the area was added to the study area intersections. The three other developments that were included were Emerald Woods (Jardim Estates West), Avalon Green II and an approved 250,000 s.f. of office space at 600 Tarrytown Road. The trips generated by these other developments are shown in Appendix "F." The resulting Other Development Traffic Volumes are shown on Figures No. 6 and 7 for each of the peak hours, respectively. The Other Development Traffic Volumes were then combined with the Year 2014/2015 Projected Traffic Volumes to obtain the Year 2014/2015 No-Build Traffic Volumes. The resulting Year 2014/2015 No-Build Traffic Volumes are shown on Figures No. 8 and 9 for each of the peak hours, respectively.

F. SITE GENERATED TRAFFIC VOLUMES (Table No. 1)

As previously discussed, the proposed action calls for a net addition of 10 single family homes (9 homes with access via Lake Drive and 1 home with access via Sheldon Avenue).

In order to estimate the amount of traffic to be generated by the proposed development during each of the peak hours, ITE Trip Generation Rates were compared to actual traffic volumes at various subdivisions (which were compiled by Adler Consulting for the Jardim Estates West (Emerald Woods) development. A copy of this information is contained in Appendix "G". Based on a comparison of this data, the trip generation rates contained in the ITE Trip Generation Manual are higher than the observed volumes. In order to be conservative, the trip generation was calculated using the ITE trip rates as summarized below.

<b>JARDIM ESTATES EAST PROJECTED TRIPS**</b>	<b>Entry</b>		<b>Exit</b>		<b>Total</b>	
	<b>HTGR*</b>	<b>Volume</b>	<b>HTGR*</b>	<b>Volume</b>	<b>HTGR*</b>	<b>Volume</b>
<b><u>1 SINGLE FAMILY HOME</u></b> <b>(OFF SHELDON AVENUE)</b>						
WEEKDAY PEAK AM HIGHWAY HOUR	0.25	0	0.75	1	1.00	1
WEEKDAY PEAK PM HIGHWAY HOUR	0.83	1	0.49	0	1.32	1
<b><u>9 SINGLE FAMILY HOMES</u></b> <b>(OFF LAKE DRIVE)</b>						
WEEKDAY PEAK AM HIGHWAY HOUR	0.25	2	0.75	7	1.00	9
WEEKDAY PEAK PM HIGHWAY HOUR	0.83	7	0.49	5	1.32	12
<b><u>TOTALS</u></b>						
<b>10 SINGLE FAMILY HOMES</b>						
WEEKDAY PEAK AM HIGHWAY HOUR	0.25	2	0.75	8	1.00	10
WEEKDAY PEAK PM HIGHWAY HOUR	0.83	8	0.49	5	1.32	13

\* The above trip rates are based on the ITE Trip Generation Handbook, Land Use 210 – Single Family Detached Housing.

\*\* The Conventional Subdivision Plan is expected to generate one more trip than the Cluster Plan.



G. ARRIVAL/DEPARTURE DISTRIBUTION (Figure No. 10)

Based on a review of the existing travel patterns on the surrounding roadway network and expected travel patterns for this development, an arrival and departure distribution was established and is shown on Figure No. 10. It should be noted that the departure distribution patterns have been updated to reflect the existing patterns utilizing Gracemere Road and Browning Lane.

H. YEAR 2014/2015 BUILD TRAFFIC VOLUMES (Figures No. 11, 12, 13 and 14)

The site generated traffic volumes for the 10 additional single family homes were assigned to the roadway network based on the arrival and departure distribution patterns referenced above. The resulting site generated traffic volumes are shown on Figures No. 11 and 12 for each peak hour, respectively. These volumes were then added to the Year 2014/2015 No-Build Traffic Volumes to obtain the Year 2014/2015 Build Traffic Volumes. The resulting Year 2014/2015 Build Traffic Volumes are shown on Figures No. 13 and 14 for each of the peak hours, respectively.

I. DESCRIPTION OF ANALYSIS

In order to determine existing and future traffic operating conditions at the study area locations, capacity analysis were performed based on the 2000 Highway Capacity Manual. The following is a description of the analysis method utilized in this report.

The un-signalized intersection capacity analysis method utilized in this report was performed in accordance with the procedures described in the 2000 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 un-signalized Levels of Service can be found in Appendix "C".

J. RESULTS OF ANALYSIS (Table No.1)

In order to evaluate current and future traffic operating conditions at the study area intersections, capacity analyses were conducted utilizing the un-signalized intersection procedure described above. Summarized below is a description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service.

Table No. I summarizes the results of the capacity analysis for the Existing, Year 2014/2015 No-Build and Year 2014/2015 Build Conditions. Copies of the capacity analysis are contained in Appendix "D".

As requested in the scope any proposed or potential improvements to U.S. Route 9 or Sheldon Avenue were evaluated. New York State funding has been made available to the Village of Tarrytown for the following improvements; however no plans are currently available and no timetable has been set. Based on earlier estimates, the cost of the Project would be less than \$500,000 with a 20% Village share.

- Upgrade the intersection of U.S. Route 9 and Sunnyside Lane
- Construct an additional northbound lane on U.S. Route 9 at Kraft Foods driveway / Gracemere Road (Private Road)
- Restripe the southbound lanes at U.S. Route 9 and the I-287 eastbound ramps to provide one through and a double left turn lane

No credit has been taken for any of these improvements in the capacity analysis.

A comparative analysis was conducted to show the proportional increase in traffic volumes at each of the study area intersections (Section K.1) as shown on Figures No. 15 and 16. A review of the Figures indicates that the Project would represent approximately 2% of the anticipated growth in the U.S. Route 9 Corridor.

1. U.S. Route 9 and I-287 Eastbound Ramps

U.S. Route 9 intersects the I-287 eastbound ramps at a full movement, signalized intersection. The northbound and southbound approaches of U.S. Route 9 consist of two through lanes in each direction and a center turning lane. The eastbound approach of the Doubletree Hotel Driveway consists of one shared lane for all movements. The westbound approach of the I-287 eastbound ramps consists of one shared lane for left turns and through movements and a separate right turn lane.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “C” during the Weekday Peak AM Highway Hour and is currently operating at an overall Level of Service “D” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “D” during the Weekday Peak AM Highway Hour and is projected to operate at an overall Level of Service “E” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “D” during the Weekday Peak AM Highway Hour and is projected to continue to operate at an overall Level of Service “E” during the Weekday Peak PM Highway Hour.

The following Table summarizes the intersection's Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
U.S. ROUTE 9 & I-287 EASTBOUND RAMP						
SIGNALIZED						
EASTBOUND LEFT /THROUGH / RIGHT	C [21.8]	D [47.9]	C [25.6]	F [83.8]	C [25.6]	F [86.5]
EASTBOUND APPROACH	C [21.8]	D [47.9]	C [25.6]	F [83.8]	C [25.6]	F [86.5]
WESTBOUND LEFT / THROUGH	D [37.3]	E [71.8]	E [76.7]	F [94.5]	E [77.5]	F [97.4]
WESTBOUND RIGHT	D [46.1]	B [15.5]	E [67.7]	B [15.8]	E [67.7]	B [15.8]
WESTBOUND APPROACH	D [43.5]	D [36.9]	E [70.3]	D [46.4]	E [70.6]	D [47.7]
NORTHBOUND LEFT	C [21.3]	B [18.1]	C [21.3]	B [18.1]	C [21.3]	B [18.1]
NORTHBOUND THROUGH / RIGHT	C [27.7]	D [46.8]	C [29.6]	E [70.5]	C [29.7]	E [71.0]
NORTHBOUND APPROACH	C [27.7]	D [46.7]	C [29.6]	E [70.4]	C [29.7]	E [70.9]
SOUTHBOUND LEFT	C [28.5]	F [98.2]	C [27.1]	F [132.3]	C [27.4]	F [132.3]
SOUTHBOUND THROUGH / RIGHT	B [13.9]	A [3.9]	B [11.3]	A [4.1]	B [11.3]	A [4.1]
SOUTHBOUND APPROACH	B [18.0]	D [50.6]	B [15.7]	E [66.1]	B [15.8]	E [66.0]
OVERALL INTERSECTION	C [29.7]	D [47.0]	D [39.0]	E [65.3]	D [39.1]	E [65.8]

## 2. U.S. Route 9 and Walter Street

Walter Street intersects with US Route at a "T" shaped, un-signalized intersection. The U.S. Route 9 northbound approach to the intersection consists of two through lanes. The U.S. Route 9 southbound approach to the intersection consists of two through lanes and a separate left turn lane. The Walter Street westbound approach to the intersection consists of one shared lane for all movements and is "stop" sign controlled.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the U.S. Route 9 southbound approach is currently operating at a Level of Service “A” during the Weekday Peak AM Highway Hour and is currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour. The Walter Street westbound approach is currently operating at a Level of Service “E” during the Weekday Peak AM Highway Hour and is currently operating at a Level of Service “F” during the Weekday Peak PM Highway Hour. It should be noted that during peak hours, vehicles exiting Walter Street to U.S. Route 9 southbound must rely on the courtesy of northbound motorists queuing back from the signal at the I-287 eastbound ramps to not block the intersection and then edge the nose of their vehicle out into traffic to see southbound vehicles before they execute the left turn movement.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that the U.S. Route 9 southbound approach is projected to operate at a Level of Service “A” during the Weekday Peak AM Highway Hour and is projected to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour. The Walter Street westbound approach is projected to operate at a Level of Service “F” during the Weekday Peak AM Highway Hour and is projected to operate at a Level of Service “F” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the U.S. Route 9 southbound approach is projected to continue to operate at a Level of Service “A” during the Weekday Peak AM Highway Hour and is projected to continue to

operate at a Level of Service “B” during the Weekday Peak PM Highway Hour. The Walter Street westbound approach is projected to continue to operate at a Level of Service “F” during the Weekday Peak AM Highway Hour and is projected to continue to operate at a Level of Service “F” during the Weekday Peak PM Highway Hour.

The following Table summarizes the intersection’s Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
U.S. ROUTE 9 & WALTER STREET						
UNIGNALIZED						
MAJOR MOVEMENTS						
SOUTHBOUND LEFT	A (9.3)	B (12.4)	A (9.7)	B (13.4)	A (9.7)	B (13.4)
MINOR APPROACH						
WESTBOUND LEFT* / RIGHT	E (41.5)	F (68.7)	F (58.3)	F (101.9)	F (59.1)	F (101.9)
* The left turn controls the intersection						

### 3. U.S. Route 9 and Kraft Foods Driveway / Gracemere Road (Private Road)

Gracemere Road (Private Road) intersects with U.S. Route 9 at a full movement signalized intersection. The northbound and southbound approaches of U.S. Route 9 consist of one through lane in each direction and a center turning lane. The eastbound approach of the Kraft Foods Driveway consists of one shared lane for left turns and through movements and a

separate right turn lane. The westbound approach of Gracemere Road (Private Road) consists of one shared lane for all movements.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “C” during the Weekday Peak AM Highway Hour and is currently operating at an overall Level of Service “C” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/15 No-Build Traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “C” during the Weekday Peak AM Highway Hour and is projected to operate at an overall Level of Service “C” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “C” during the Weekday Peak AM Highway Hour and is projected to continue to operate at an overall Level of Service “C” during the Weekday Peak PM Highway Hour.

The following Table summarizes the intersection’s Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Tables shows any change in Levels of Service and any increase in delay.



LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
U.S. ROUTE 9 & GRACEMERE ROAD/ KRAFT FOODS DRIVEWAY						
SIGNALIZED						
EASTBOUND LEFT /THROUGH	C [32.6]	F [88.4]	C [32.7]	F [112.1]	C [32.7]	F [112.1]
EASTBOUND RIGHT	C [32.1]	C [32.1]	C [32.1]	C [32.1]	C [32.1]	C [32.1]
EASTBOUND APPROACH	C [32.6]	F [88.0]	C [32.6]	F [111.5]	C [32.6]	F [111.5]
WESTBOUND LEFT/THROUGH/RIGHT	C [33.0]	C [34.2]	C [33.2]	D [35.0]	C [33.3]	D [35.2]
WESTBOUND APPROACH	C [33.0]	C [34.2]	C [33.2]	D [35.0]	C [33.3]	D [35.2]
NORTHBOUND LEFT	A [4.7]	A [4.5]	A [4.7]	A [4.5]	A [4.7]	A [4.5]
NORTHBOUND THROUGH / RIGHT	A [7.4]	B [13.2]	A [8.3]	B [17.1]	A [8.3]	B [17.1]
NORTHBOUND APPROACH	A [7.4]	B [13.2]	A [8.3]	B [17.1]	A [8.3]	B [17.1]
SOUTHBOUND LEFT	A [4.6]	A [4.9]	A [4.6]	A [5.4]	A [4.6]	A [5.5]
SOUTHBOUND THROUGH / RIGHT	C [29.4]	A [8.0]	D [50.9]	A [9.2]	D [50.9]	A [9.2]
SOUTHBOUND APPROACH	C [29.2]	A [8.0]	D [50.4]	A [9.1]	D [50.4]	A [9.1]
OVERALL INTERSECTION	C [21.8]	C [21.0]	C [34.9]	C [25.9]	C [34.9]	C [25.9]

#### 4. U.S. Route 9 and Sunnyside Lane

Sunnyside Lane intersects with U.S. Route 9 at a full movement signalized intersection. The U.S. Route 9 northbound approach to the intersection consists of one through lane, a separate left turn lane and a separate right turn lane. The U.S. Route 9 southbound approach to the intersection consists of one through lane and a separate left turn lane. The Sunnyside Lane eastbound and westbound approaches to the intersection consist of one shared lane for all movements.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “C” during the Weekday Peak AM Highway Hour and is currently operating at an overall Level of Service “D” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “C” during the Weekday Peak AM Highway Hour and is projected to operate at an overall Level of Service “D” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “C” during the Weekday Peak AM Highway Hour and is projected to continue to operate at an overall Level of Service “D” during the Weekday Peak PM Highway Hour.

The following Table summarizes the intersection’s Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
U.S. ROUTE 9 & SUNNYSIDE LANE						
SIGNALIZED						
EASTBOUND LEFT /THROUGH / RIGHT	C [21.4]	C [28.5]	C [21.4]	C [28.5]	C [21.4]	C [28.5]
EASTBOUND APPROACH	C [21.4]	C [28.5]	C [21.4]	C [28.5]	C [21.4]	C [28.5]
WESTBOUND LEFT / THROUGH / RIGHT	D [43.5]	D [52.2]	E [59.2]	E [67.3]	E [59.2]	E [67.3]
WESTBOUND APPROACH	D [43.5]	D [52.2]	E [59.2]	E [67.3]	E [59.2]	E [67.3]
NORTHBOUND LEFT	B [10.5]	B [11.6]	B [10.8]	B [11.7]	B [10.8]	B [11.7]
NORTHBOUND THROUGH	B [15.4]	D [52.1]	B [17.2]	E [79.2]	B [17.2]	E [79.9]
NORTHBOUND RIGHT	B [12.5]	B [13.3]	B [12.8]	B [13.7]	B [12.8]	B [13.7]
NORTHBOUND APPROACH	B [14.4]	D [45.3]	B [15.7]	E [67.1]	B [15.7]	E [67.4]
SOUTHBOUND LEFT	B [10.3]	D [35.9]	B [10.4]	D [36.5]	B [10.4]	D [36.5]
SOUTHBOUND THROUGH / RIGHT	C [21.0]	A [8.6]	C [24.9]	A [9.1]	C [25.0]	A [9.1]
SOUTHBOUND APPROACH	C [20.9]	B [12.2]	C [24.8]	B [12.6]	C [24.8]	B [12.6]
OVERALL INTERSECTION	C [22.7]	D [36.9]	C [27.7]	D [51.2]	C [27.7]	D [51.4]

5. NYS Route 119 and Meadow Street / Sleepy Hollow Garden Apartments

Meadow Street intersects with NYS Route 119 at a full movement signalized intersection.

The eastbound and westbound approaches of NYS Route 119 consist of two through lanes in each direction and a center turning lane. The northbound approach of Meadow Street and the southbound approach of the Sleepy Hollow Garden Apartments consist of one shared lane for all movements.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “B” during the Weekday Peak AM Highway Hour and is currently operating at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “B” during the Weekday Peak AM Highway Hour and is projected to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “B” during the Weekday Peak AM Highway Hour and is projected to continue to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.

The following Table summarizes the intersection’s Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
NYS ROUTE 119 & MEADOW STREET / GARDEN APARTMENTS						
SIGNALIZED						
EASTBOUND LEFT	B [10.9]	B [11.1]	B [10.9]	B [11.3]	B [10.9]	B [11.3]
EASTBOUND THROUGH / RIGHT	B [13.5]	B [12.2]	B [14.1]	B [12.4]	B [14.1]	B [12.4]
EASTBOUND APPROACH	B [13.4]	B [12.2]	B [14.0]	B [12.4]	B [14.1]	B [12.4]
WESTBOUND LEFT	B [11.2]	B [11.2]	B [11.5]	B [11.3]	B [11.5]	B [11.3]
WESTBOUND THROUGH / RIGHT	B [12.2]	B [13.2]	B [12.4]	B [13.8]	B [12.4]	B [13.8]
WESTBOUND APPROACH	B [12.1]	B [13.1]	B [12.3]	B [13.6]	B [12.3]	B [13.6]
NORTHBOUND LEFT / THROUGH / RIGHT	B [14.7]	B [14.4]	B [14.9]	B [14.5]	B [14.9]	B [14.5]
NORTHBOUND APPROACH	B [14.7]	B [14.4]	B [14.9]	B [14.5]	B [14.9]	B [14.5]
SOUTHBOUND LEFT / THROUGH / RIGHT	B [13.8]	B [13.8]	B [13.9]	B [13.8]	B [13.9]	B [13.8]
SOUTHBOUND APPROACH	B [13.8]	B [13.8]	B [13.9]	B [13.8]	B [13.9]	B [13.8]
OVERALL INTERSECTION	B [13.1]	B [12.9]	B [13.5]	B [13.3]	B [13.6]	B [13.3]

6. Meadow Street / Browning Lane and Sheldon Avenue

Meadow Street / Browning Lane intersects with Sheldon Avenue at a full movement unsignalized intersection. All approaches to the intersection consist of one lane and all approaches to the intersection are “stop” sign controlled.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the Sheldon Avenue eastbound approach is currently operating at a Level of Service “A” during each of the peak hours. The Sheldon Avenue westbound approach is currently operating at a Level of Service “A” during the each of the peak hours. The Browning Lane northbound approach is currently operating at a Level of Service “A” for each of the peak hours. The Meadow Street southbound approach is currently operating at a Level of Service

“A” during each of the peak hours. The intersection is currently operating at an overall Level of Service “A” during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that the Sheldon Avenue eastbound approach is projected to operate at a Level of Service “A” during each of the peak hours. The Sheldon Avenue westbound approach is projected to operate at a Level of Service “A” during the each of the peak hours. The Browning Lane northbound approach is projected to operate at a Level of Service “A” for each of the peak hours. The Meadow Street southbound approach is projected to operate at a Level of Service “A” during each of the peak hours. The intersection is projected to operate at an overall Level of Service “A” during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the Sheldon Avenue eastbound approach is projected to continue to operate at a Level of Service “A” during each of the peak hours. The Sheldon Avenue westbound approach is projected to continue to operate at a Level of Service “A” during the each of the peak hours. The Browning Lane northbound approach is projected to continue to operate at a Level of Service “A” for each of the peak hours. The Meadow Street southbound approach is projected to continue to operate at a Level of Service “A” during each of the peak hours. The intersection is projected to continue to operate at an overall Level of Service “A” during each of the peak hours.

The following Table summarizes the intersection's Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
MEADOW STREET / BROWNING LANE & SHELDON AVENUE						
ALL-WAY STOP						
EASTBOUND LEFT / THROUGH / RIGHT	A (8.20)	A (8.18)	A (8.35)	A (8.34)	A (8.38)	A (8.38)
WESTBOUND LEFT / THROUGH / RIGHT	A (7.32)	A (7.54)	A (7.40)	A (7.62)	A (7.44)	A (7.64)
NORTHBOUND LEFT / THROUGH / RIGHT	A (8.00)	A (7.84)	A (8.09)	A (7.93)	A (8.13)	A (7.96)
SOUTHBOUND LEFT / THROUGH / RIGHT	A (7.34)	A (7.93)	A (7.43)	A (8.08)	A (7.47)	A (8.14)
OVERALL INTERSECTION	A (7.78)	A (7.96)	A (7.89)	A (8.10)	A (7.93)	A (8.15)

7. Browning Lane and Gracemere Road (Private Road) / Lake Drive (Site Access)

Browning Lane and Gracemere Road (Private Road) intersects with Lake Drive (site access) at a "Y" shaped, un-signalized intersection. All approaches to the intersection consist of one lane.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the Gracemere Road (Private Road) westbound approach is currently operating at a Level of Service "A" during each of the peak hours. The Browning Lane southbound approach is currently operating at a Level of Service "A" during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that the Gracemere Road (Private Road) westbound approach is projected to operate at a Level of Service "A" during each of the peak hours. The Browning Lane southbound approach is projected to operate at a Level of Service "A" during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the Gracemere Road (Private Road) westbound approach is projected to continue to operate at a Level of Service "A" during each of the peak hours. The Browning Lane southbound approach is projected to continue to operate at a Level of Service "A" during each of the peak hours.

The following Table summarizes the intersection's Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
BROWNING LANE & GRACEMERE ROAD / SITE ACCESS						
UNSIGNALIZED						
<u>MAJOR APPROACH</u> WESTBOUND LEFT / THROUGH	A (7.4)	A (7.3)	A (7.4)	A (7.3)	A (7.4)	A (7.3)
<u>MINOR APPROACH</u> SOUTHBOUND LEFT / RIGHT	A (8.8)	A (8.7)	A (8.8)	A (8.7)	A (8.9)	A (8.8)



8. Sheldon Avenue and Emerald Woods

Emerald Woods intersects with Sheldon Avenue at a “T” shaped, unsignalized intersection. All approaches to the intersection consist of one lane and the Emerald Woods approach is “stop” sign controlled.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that the Sheldon Avenue westbound approach is currently operating at a Level of Service “A” during each of the peak hours. The Emerald Woods northbound approach is currently operating at a Level of Service “A” during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that the Sheldon Avenue westbound approach is projected to operate at a Level of Service “A” during each of the peak hours. The Emerald Woods northbound approach is projected to operate at a Level of Service “A” during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that the Sheldon Avenue westbound approach is projected to continue to operate at a Level of Service “A” during each of the peak hours. The Emerald Woods northbound approach is projected to continue to operate at a Level of Service “A” during each of the peak hours.

The following Table summarizes the intersection's Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
SHELDON AVENUE & EMERALD WOODS						
UNSIGNALIZED						
<u>MAJOR MOVEMENTS</u>						
WESTBOUND LEFT / THROUGH	A (7.5)	A (7.5)	A (7.5)	A (7.5)	A (7.5)	A (7.5)
<u>MINOR APPROACH</u>						
NORTHBOUND LEFT / RIGHT	A (8.7)	A (8.8)	A (9.2)	A (9.0)	A (9.2)	A (9.0)

9. Gracemere Road (Private Road) and Emerald Woods

Emerald Woods intersects with Gracemere Road (Private Road) at a "T" shaped, unsignalized intersection. All approaches to the intersection consist of one lane. All approaches to the intersection are "stop" sign controlled.

Capacity analysis conducted utilizing the Year 2008/2009 Existing Traffic Volumes indicates that all approaches to the intersection are currently operating at a Level of Service "A" during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 No-Build Traffic Volumes indicates that all approaches to the intersection are projected to operate at a Level of Service “A” during each of the peak hours.

Capacity analysis conducted utilizing the Year 2014/2015 Build Traffic Volumes indicates that all approaches to the intersection are projected to continue to operate at a Level of Service “A” during each of the peak hours.

The following Table summarizes the intersection’s Levels of Service and vehicle delay in seconds by movement, by approach as well as for the overall intersection for Existing, No-Build and Build Conditions. The Table shows any change in Level of Service and any increase in delay.

LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
	AM	PM	AM	PM	AM	PM
GRACEMERE ROAD & EMERALD WOODS						
ALL-WAY STOP						
EASTBOUND LEFT / THROUGH	A (7.26)	A (7.38)	A (7.28)	A (7.44)	A (7.29)	A (7.46)
WESTBOUND THROUGH / RIGHT	A (7.12)	A (7.07)	A (7.14)	A (7.09)	A (7.16)	A (7.12)
SOUTHBOUND LEFT / RIGHT	A (6.58)	A (6.66)	A (6.60)	A (6.68)	A (6.61)	A (6.70)
OVERALL INTERSECTION	A (6.99)	A (7.15)	A (6.99)	A (7.20)	A (7.02)	A (7.23)

K. ADDITIONAL TRAFFIC ITEMS

1. Comparative Analysis (Figures No. 15 and 16)

As requested in the scope, a comparative analysis was conducted to show the proportional increase in traffic volumes at each of the evaluated key intersections. The resulting percentages are shown on Figures No. 15 and 16 for each of the peak hours, respectively. Based on this comparative analysis it can be seen that the impact of the 10 additional single family homes (Jardim Estates East project) on the area roadways is minimal with respect to the roadways which provide immediate access to the site. It should be noted that the highest percentage is at the intersection of Browning Lane and Gracemere Road (Private Road) / Site Access. This is due to the low existing volumes.

2. Sight-line Analysis / Safety Analysis

As requested in the scope, the sight lines at all entrances to the project site were evaluated as well as the stopping sight distance for vehicles traveling to and away from the project site. Adequate sight-lines and stopping sight distance are present at the site's driveways.

The latest accident data (January 1, 2007 – January 31, 2009) was obtained from the New York State Department of Transportation for all of Sheldon Avenue. A copy of the NYSDOT Accident Reports is contained in Appendix "E." Based on a review of this data, there was 1 reported accident in 2007 (at E. Meadow Street) and 1 reported accident in 2008 (East of Chestnut Avenue). It is not expected that the additional 10 single family homes will have an impact on the accident rate on the area roadways.

### 3. Jardim Analysis

As part of this revised Traffic Impact Study, the intersections of Sheldon Avenue/Emerald Woods and Gracemere Road/Emerald Woods have been analyzed to determine the effect of traffic from Jardim Estates East on Emerald Woods (Jardim Estates West). As shown in Section J.8 and J.9 and summarized on Table No. 1, the 10 additional single family homes (Jardim Estates East) will have minimal impact at these two locations. These two intersections will continue to operate at a Level of Service "A."

Also requested was to evaluate the potential for cut through traffic from the Kraft building and others from Browning Lane to Broadway via Emerald Woods. Based on a comparison of the exiting traffic volumes (JCE 2009 Counts) and the Jardim Estates West (Emerald Woods) projections (Adler Consulting Study), it is possible that up to 13 trips cut through during the Peak AM Highway Hour and up to 10 trips cut through during the Peak PM Highway Hour. The addition of Emerald Woods provides an opportunity for vehicles to cut through from Sheldon Avenue to U.S. Route 9 avoiding making a left turn from Walter Street to U.S. Route 9 southbound and making it at the signalized U.S. Route 9/Gracemere intersection. It should be noted that it is expected that no traffic from the Jardim Estates East project would cut through Emerald Woods.

#### 4. Pedestrian Impact/Bicycle Activity

As requested, pedestrian and bicycle activity was collected along Sheldon Avenue, Browning Lane, Gracemere Road, Lake Drive and Emerald Woods between the hours of 7:00AM and 7:00PM. This information is summarized in Tables No. 2, 3 and 4 (Appendix "T"). As shown on these Tables, some 24 pedestrians/bicyclists were observed along Gracemere Road (between Emerald Woods and Browning Lane/Lake Drive), some 29 pedestrians/bicyclists were observed along Browning Lane (between Gracemere Road/Lake Drive and Sheldon Avenue), some 23 pedestrians/bicyclists were observed along Sheldon Avenue (between Browning Lane and Emerald Woods), 5 pedestrians/bicyclists were observed along Emerald Woods (between Sheldon Avenue and Gracemere Road), and 6 pedestrian/bicyclists were observed along Lake Drive. It is not expected that the additional 10 single family homes will have a significant impact on pedestrian/bicycle activity on these roads or the surrounding roads.


#### 5. Islamic Cultural Center

As requested in the scope, the effect of the development of the Jardim Estates East project on the future access to the Islamic Cultural Center property to allow development as a permitted use was examined. Upon completion of the Jardim Estates East project, it will surround the Islamic Cultural Center property on three sides. Currently, there is no plan to provide access to the Islamic Cultural Center property via the Jardim Estates East property.

L. SUMMARY AND CONCLUSION

As summarized in this Study, the traffic generated by the additional 10 single family homes (proposed Jardim Estates East project) will not significantly affect the roadway system in the vicinity of the site. As shown on the Level of Service Summary Table (Table No. 1), similar Levels of Service and delays will be experienced under Future No-Build and Future Build Conditions. As indicated in this Study, an “All-Way Stop” is recommended at the intersection of Browning Lane and Walnut Street.

Respectfully submitted,  
JOHN COLLINS ENGINEERS, P.C.



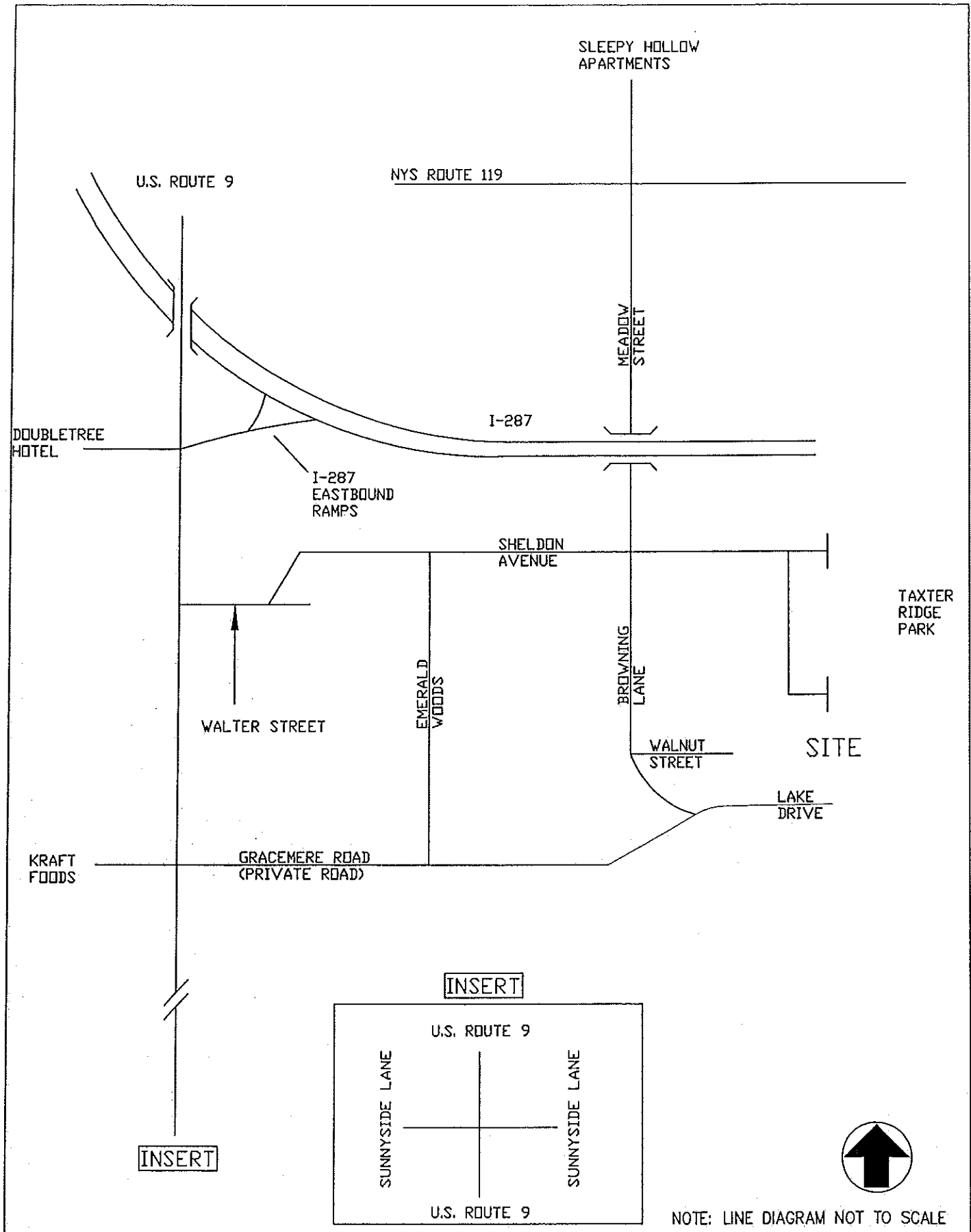
John T. Collins, Ph.D., P.E.

# **APPENDIX “A”**

## **FIGURES**

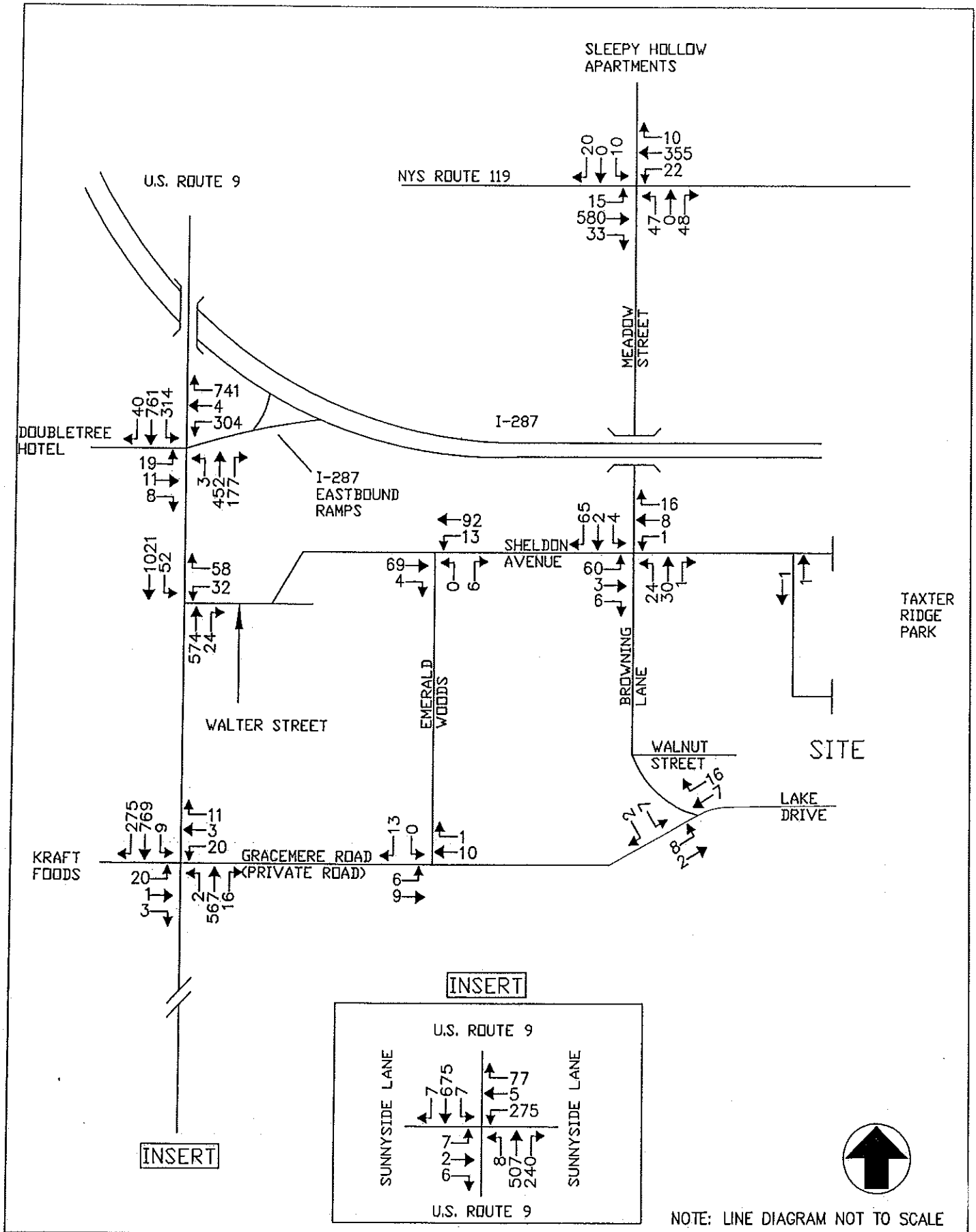






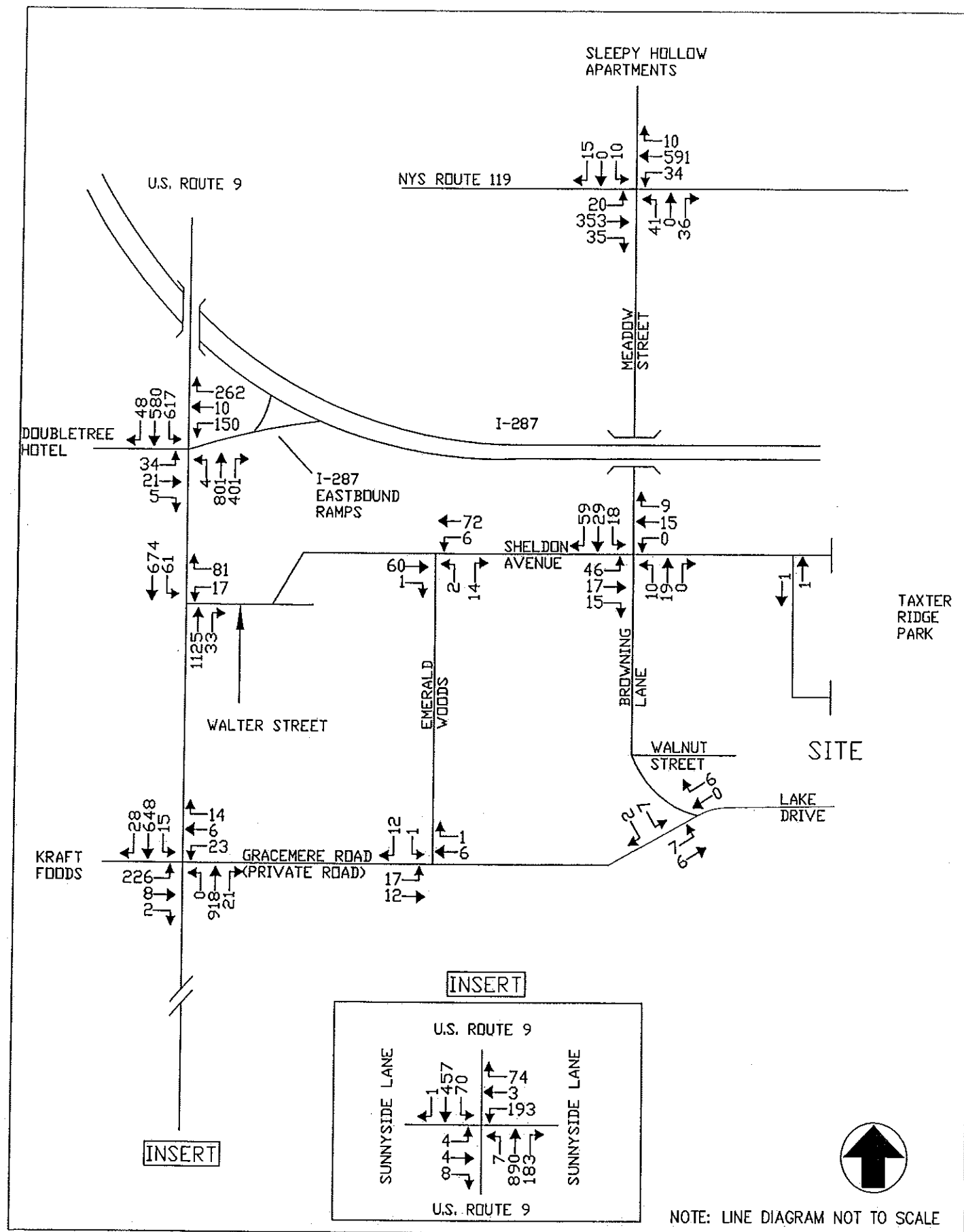
JARDIM ESTATES EAST  
TARRYTOWN, NY

Site Location



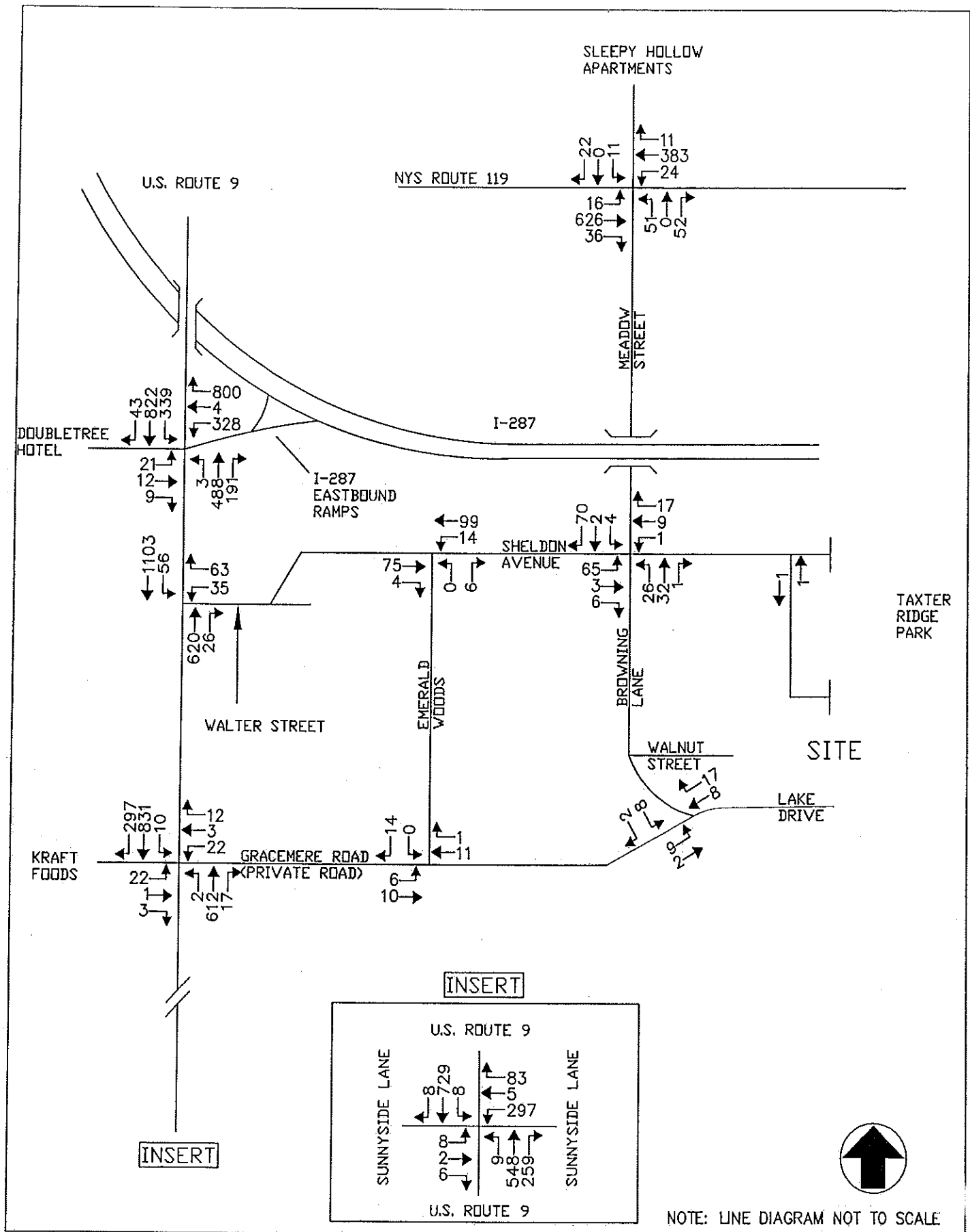
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TARRYTOWN, NY

Year 2008/2009 Existing Traffic Volumes  
Weekday Peak AM Highway Hour



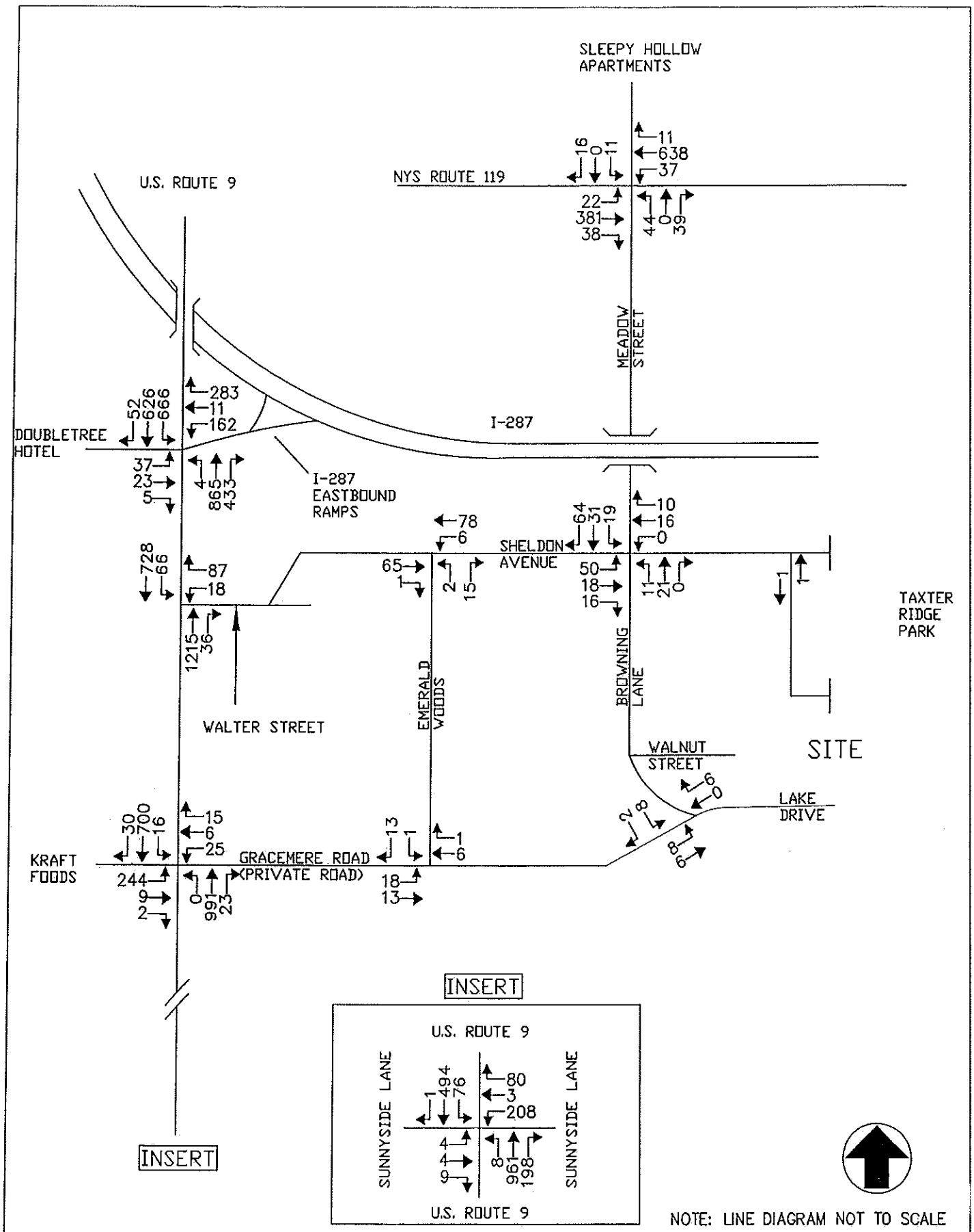
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TARRYTOWN, NY

Year 2008/2009 Existing Traffic Volumes  
Weekday Peak PM Highway Hour



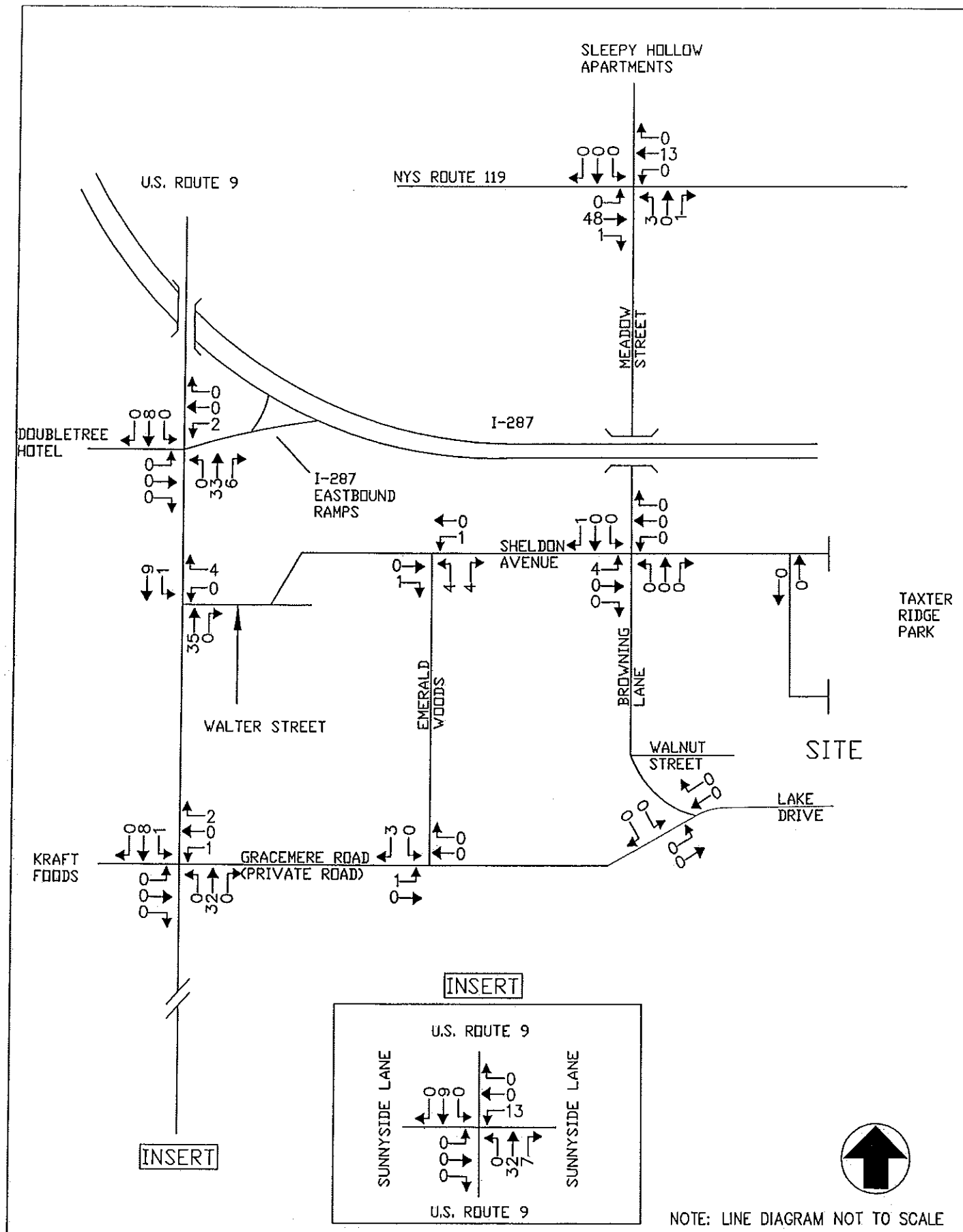
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TARRYTOWN, NY

Year 2014/2015 Projected Traffic Volumes  
Weekday Peak AM Highway Hour



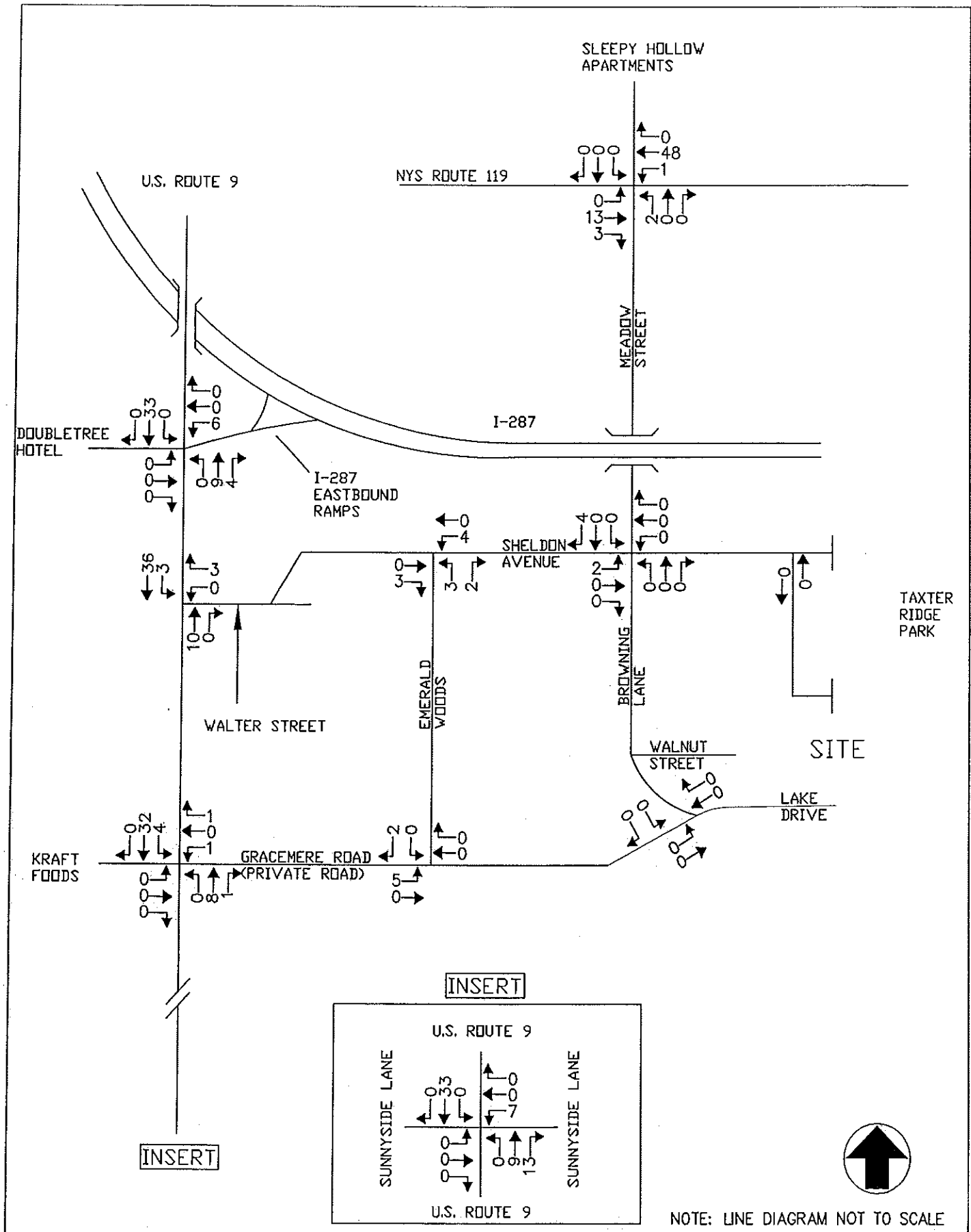
**JARDIM ESTATES EAST  
TARRYTOWN, NY**

**Year 2014/2015 Projected Traffic Volumes  
Weekday Peak PM Highway Hour**



# JARDIM ESTATES EAST TARRYTOWN, NY

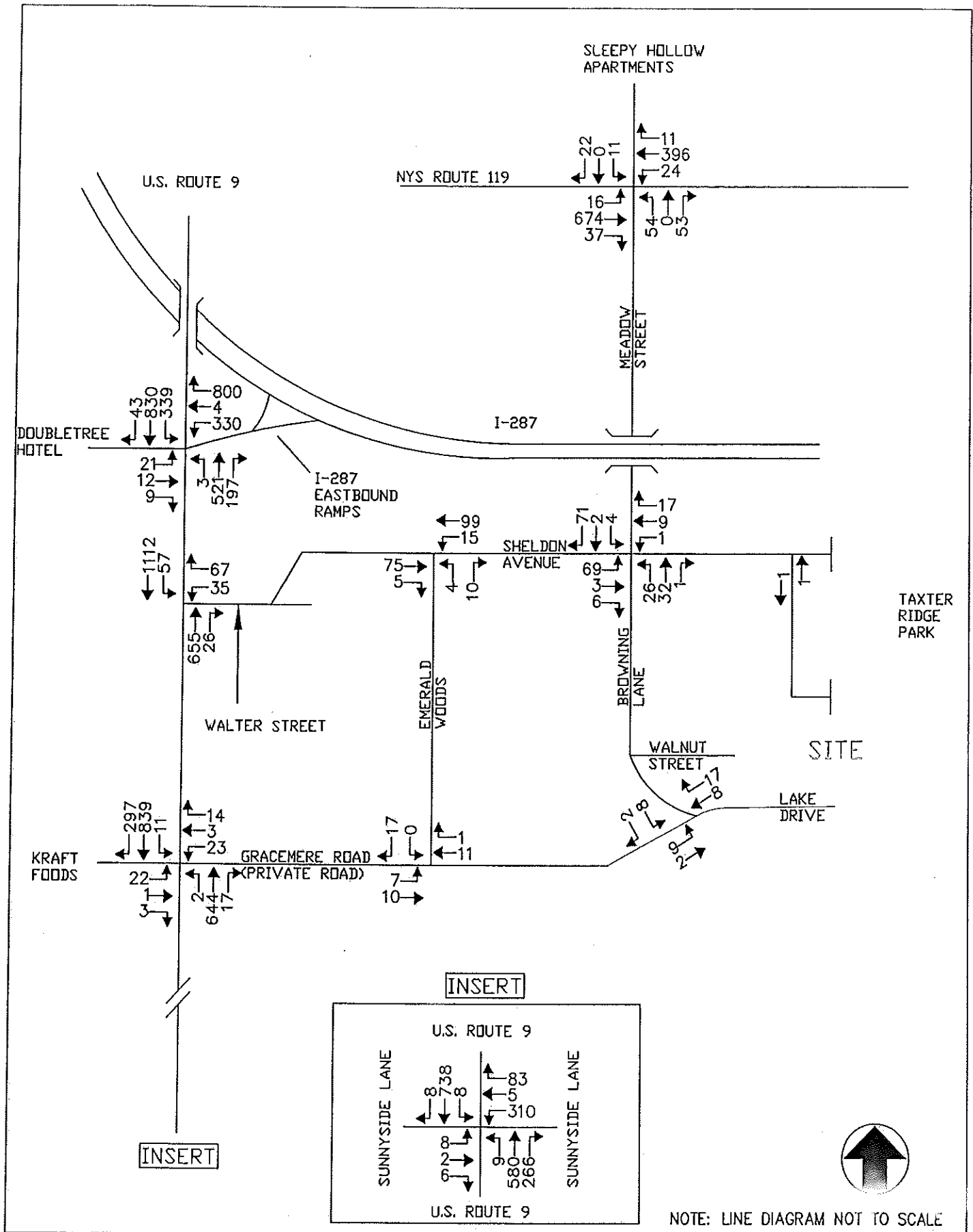
## Other Development Traffic Volumes Weekday Peak AM Highway Hour



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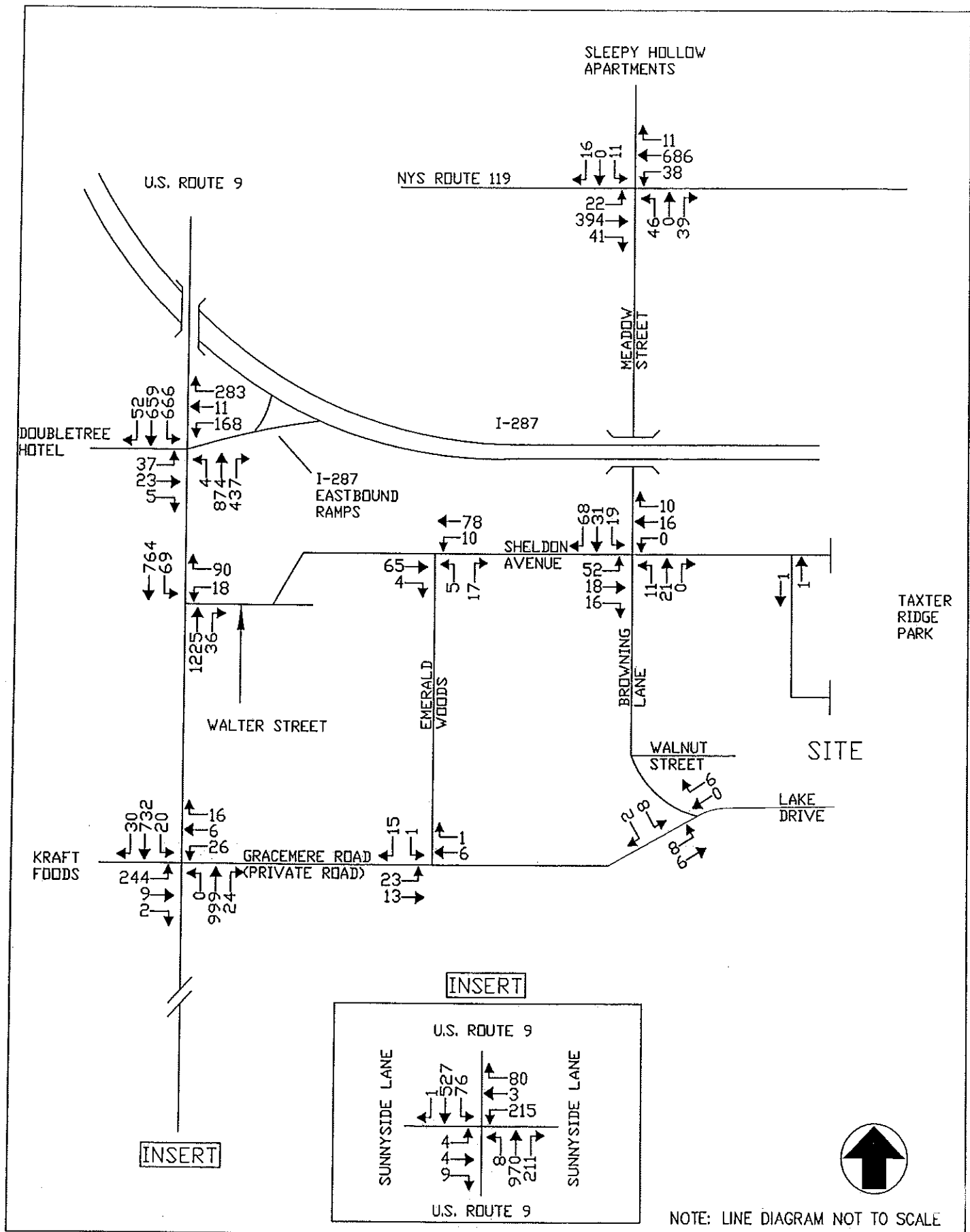
## Other Development Traffic Volumes Weekday Peak PM Highway Hour





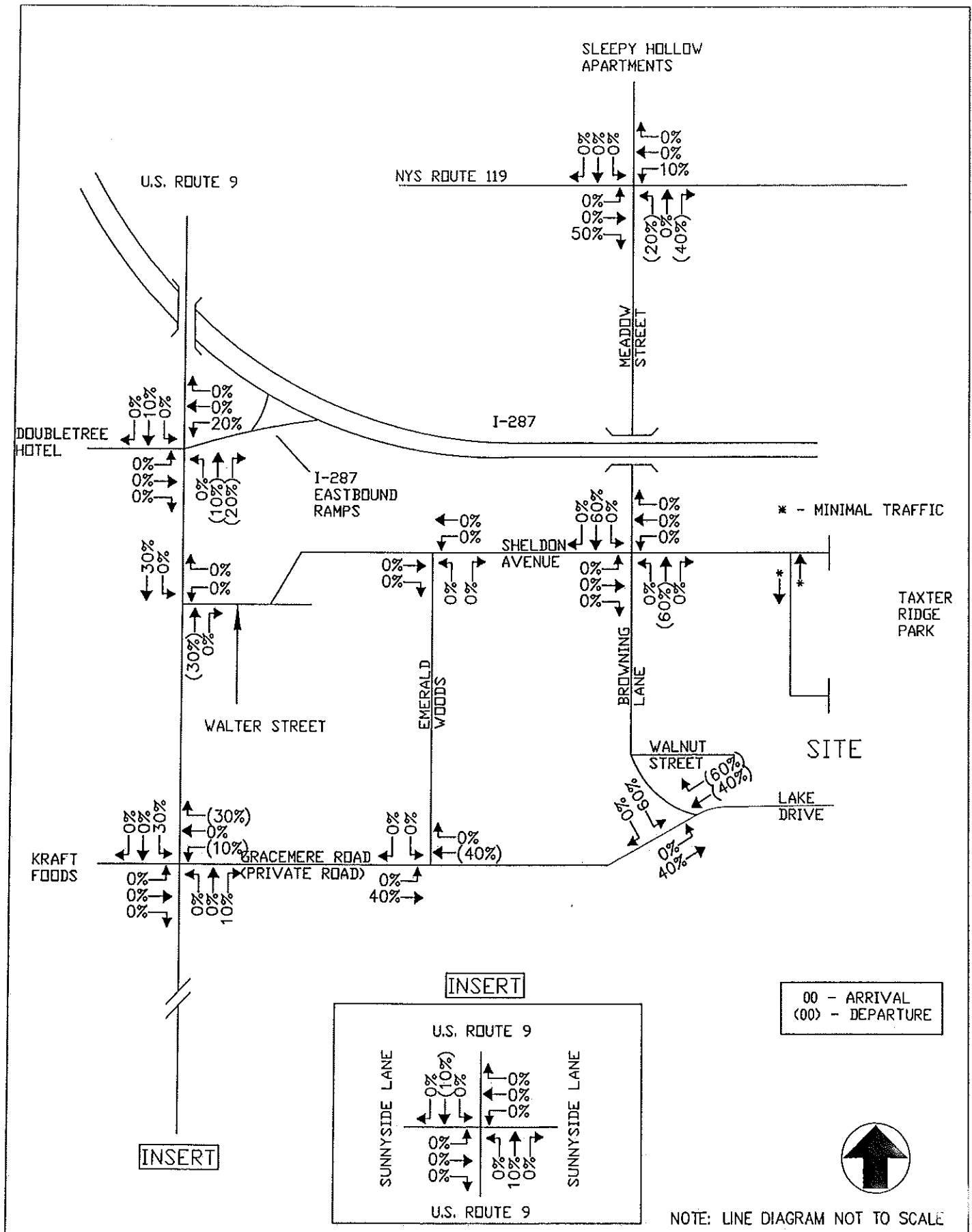
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Year 2014/2015 No-Build Traffic Volumes  
Weekday Peak AM Highway Hour



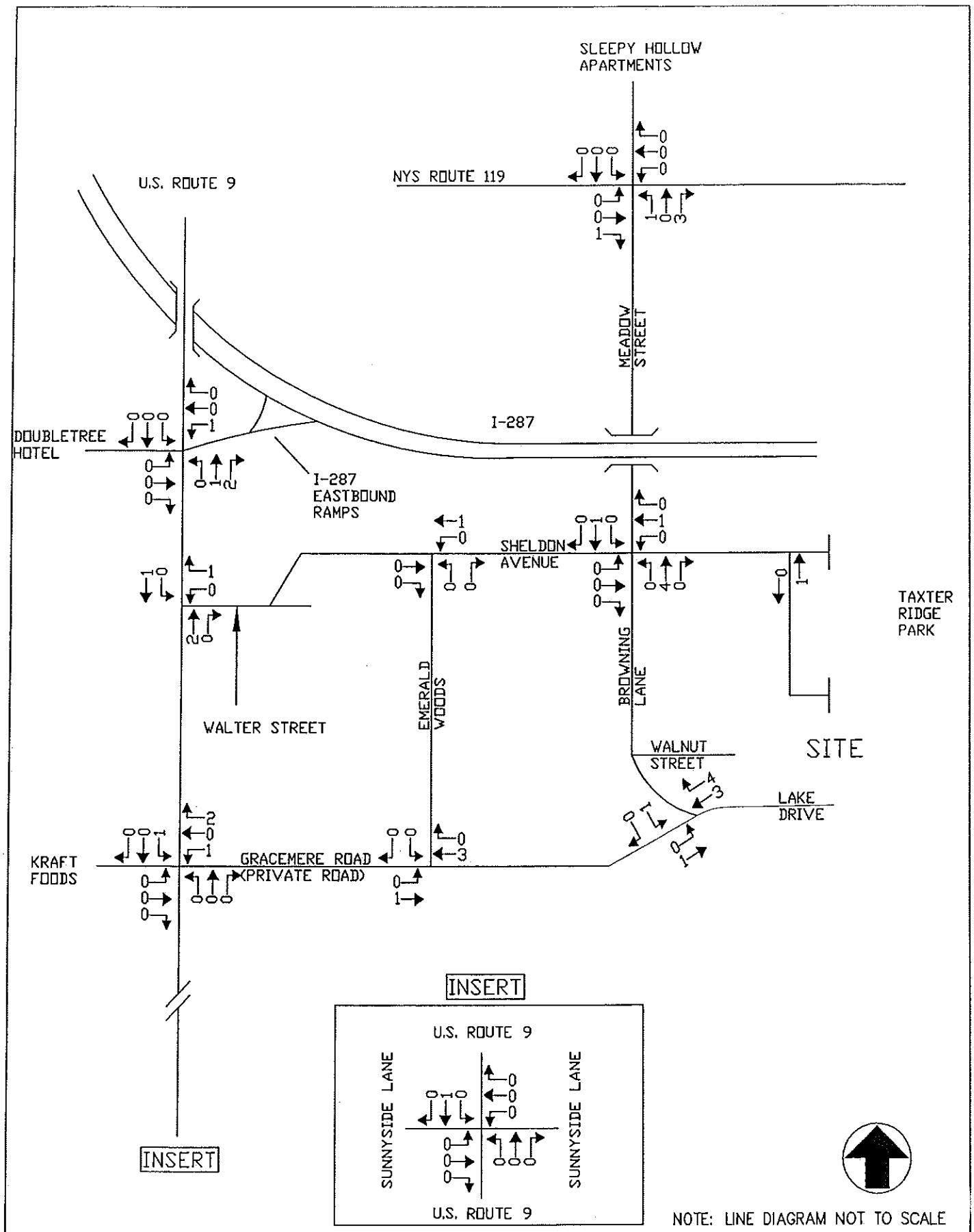
JARDIM ESTATES EAST  
TARRYTOWN, NY

Year 2014/2015 No-Build Traffic Volumes  
Weekday Peak PM Highway Hour



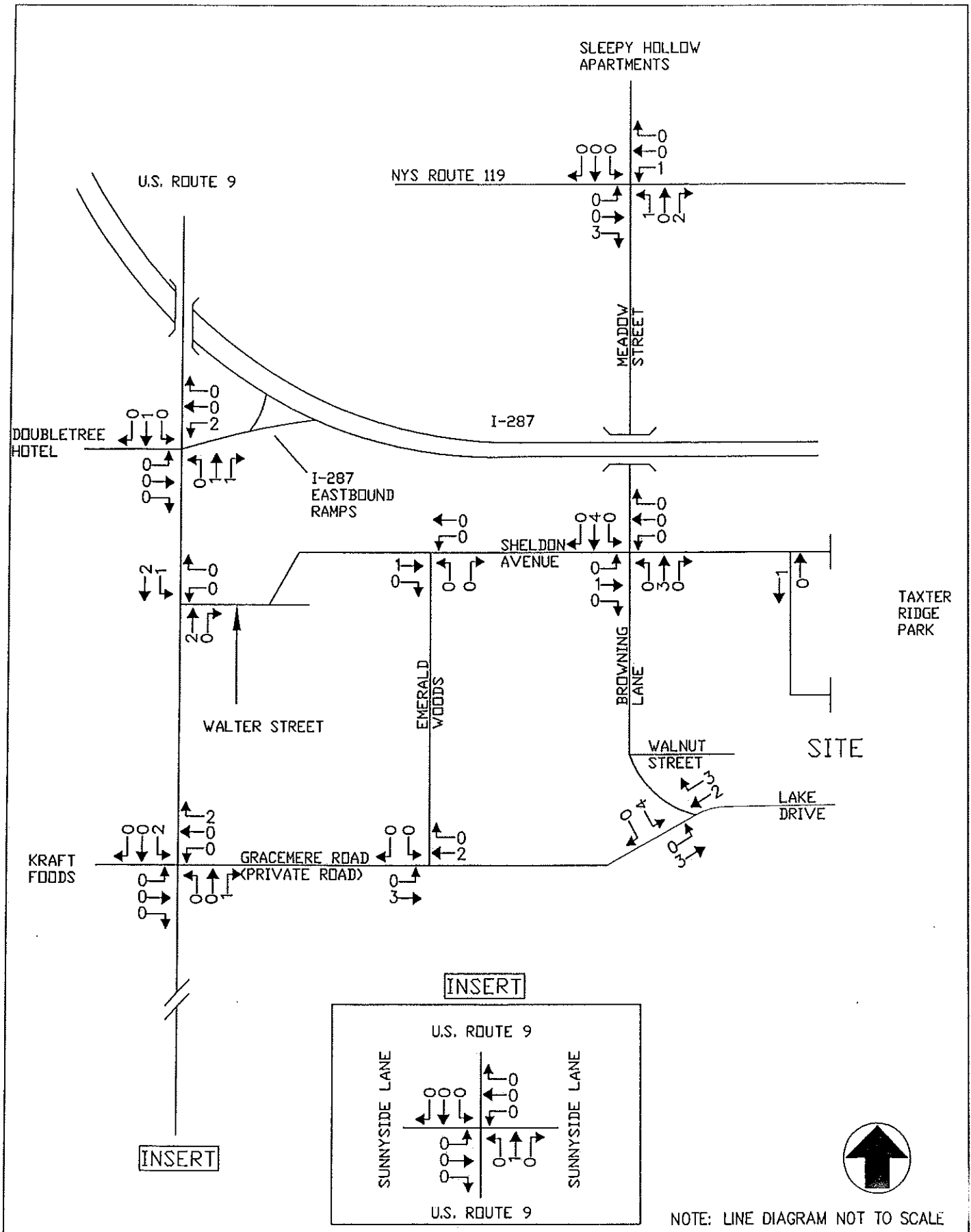
# JARDIM ESTATES EAST TARRYTOWN, NY

## Arrival / Departure Distribution



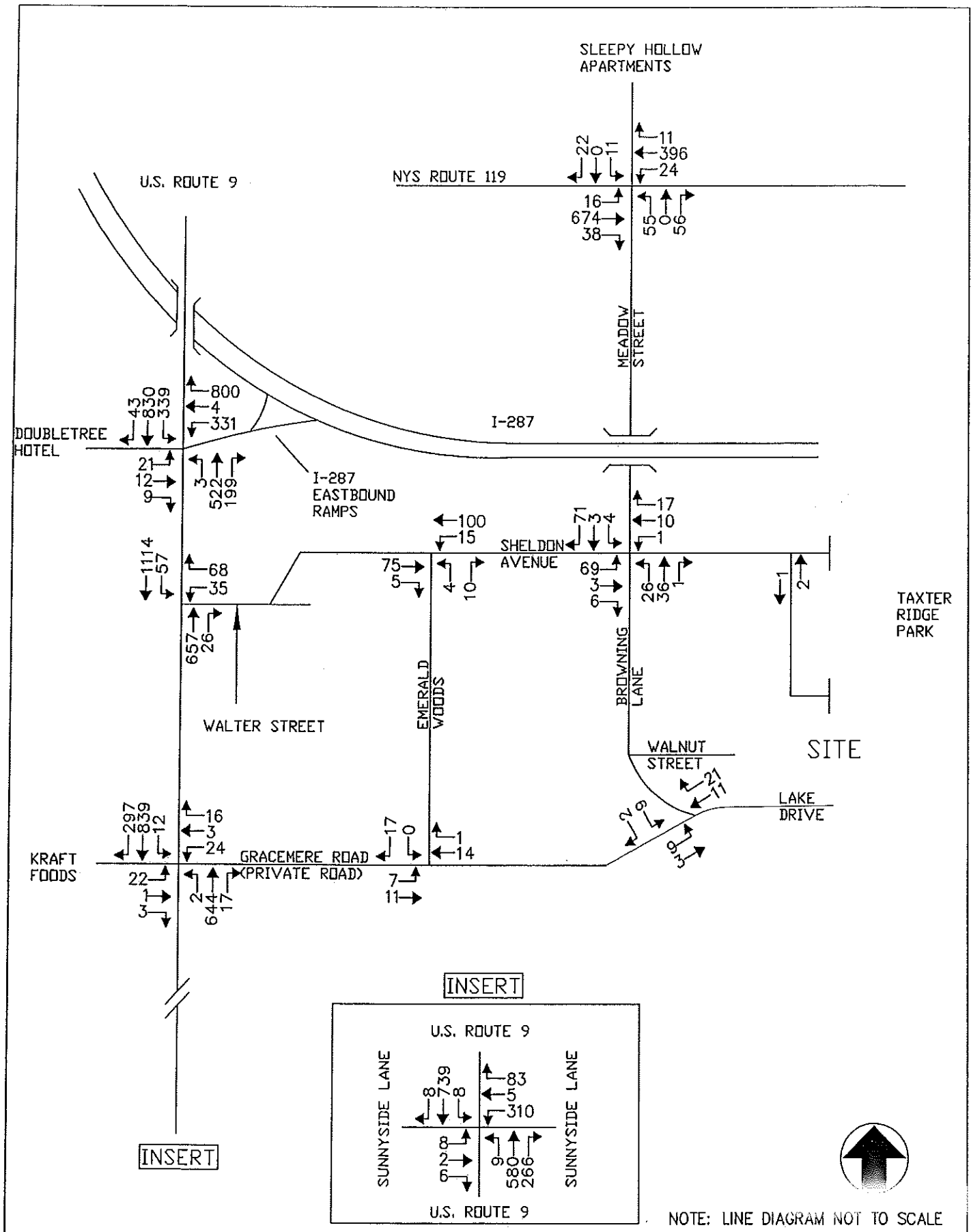
JARDIM ESTATES EAST  
TARRYTOWN, NY

Site Generated Traffic Volumes  
Weekday Peak AM Highway Hour



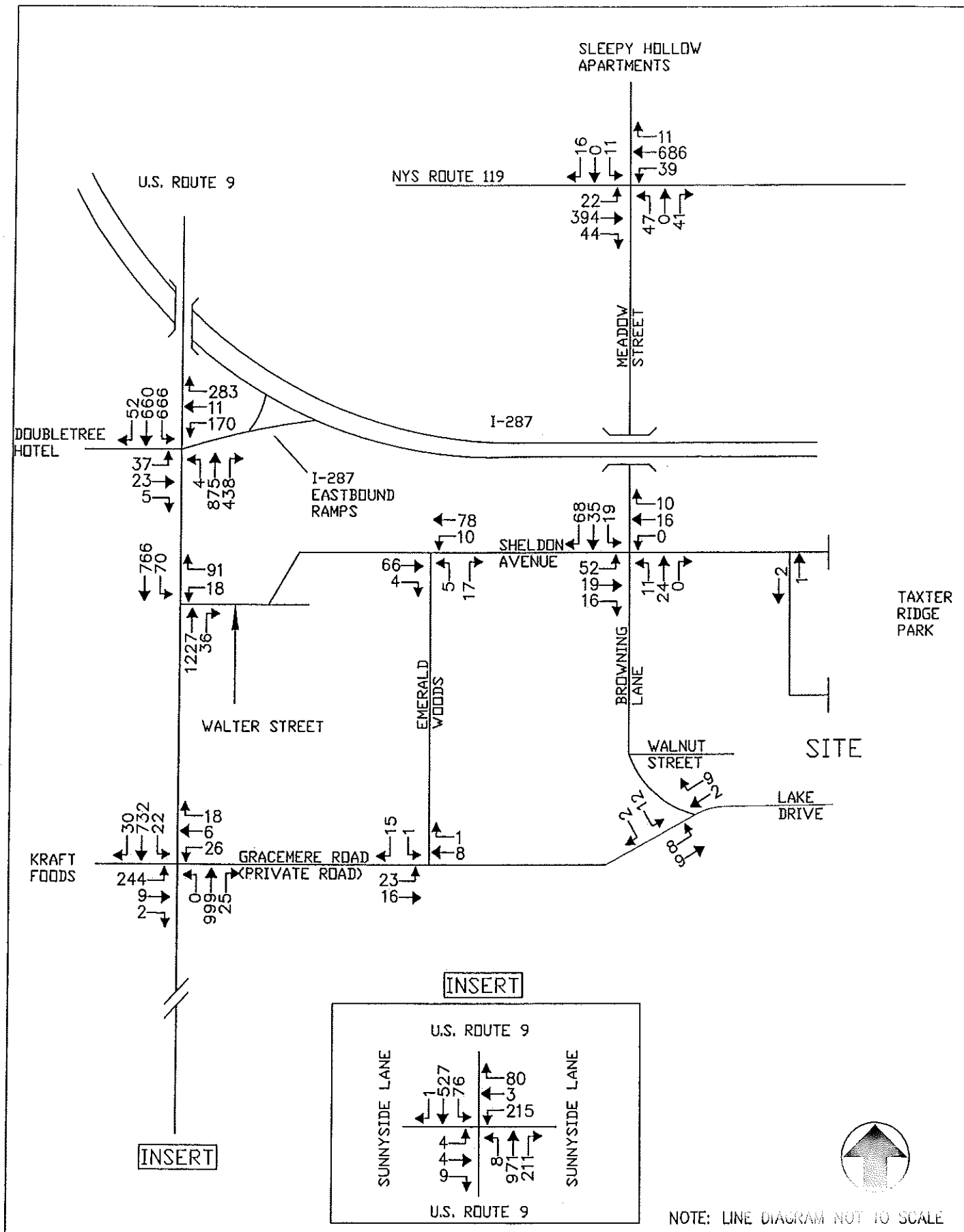
# JARDIM ESTATES EAST TARRYTOWN, NY

## Site Generated Traffic Volumes Weekday Peak PM Highway Hour



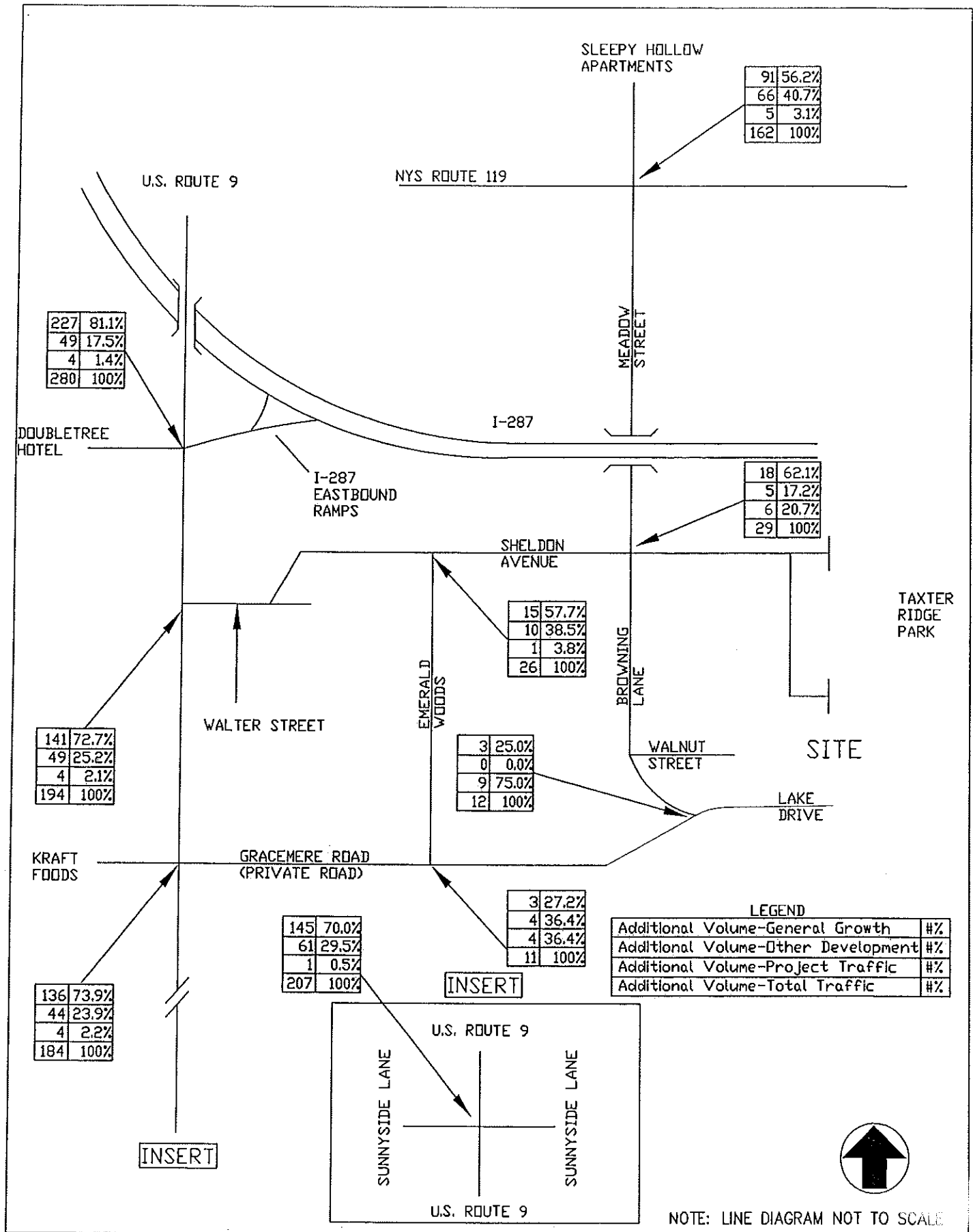
# JARDIM ESTATES EAST TARRYTOWN, NY

## Year 2014/2015 Build Traffic Volumes Weekday Peak AM Highway Hour



JARDIM ESTATES EAST  
TARRYTOWN, NY

Year 2014/2015 Build Traffic Volumes  
Weekday Peak PM Highway Hour



JARDIM ESTATES EAST  
TARRYTOWN, NY

Comparative Analysis  
Weekday Peak AM Highway Hour





## **APPENDIX “B”**

### **TABLES**



TABLE NO. 1  
LEVEL OF SERVICE SUMMARY TABLE

	LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
		AM	PM	AM	PM	AM	PM
1	US ROUTE 9 & I-287 EASTBOUND RAMP						
	SIGNALIZED						
	EASTBOUND LEFT /THROUGH / RIGHT	C [21.8]	D [47.9]	C [25.6]	F [83.8]	C [25.6]	F [86.5]
	EASTBOUND APPROACH	C [21.8]	D [47.9]	C [25.6]	F [83.8]	C [25.6]	F [86.5]
	WESTBOUND LEFT / THROUGH	D [37.3]	E [71.8]	E [76.7]	F [94.5]	E [77.5]	F [97.4]
	WESTBOUND RIGHT	D [46.1]	B [15.5]	E [67.7]	B [15.8]	E [67.7]	B [15.8]
	WESTBOUND APPROACH	D [43.5]	D [38.9]	E [70.3]	D [46.4]	E [70.6]	D [47.7]
	NORTHBOUND LEFT	C [21.3]	B [18.1]	C [21.3]	B [18.1]	C [21.3]	B [18.1]
	NORTHBOUND THROUGH / RIGHT	C [27.7]	D [46.8]	C [29.6]	E [70.5]	C [29.7]	E [71.0]
	NORTHBOUND APPROACH	C [27.7]	D [46.7]	C [29.6]	E [70.4]	C [29.7]	E [70.9]
	SOUTHBOUND LEFT	C [28.5]	F [98.2]	C [27.1]	F [132.3]	C [27.4]	F [132.3]
	SOUTHBOUND THROUGH / RIGHT	B [13.9]	A [3.9]	B [11.3]	A [4.1]	B [11.3]	A [4.1]
	SOUTHBOUND APPROACH	B [18.0]	D [50.6]	B [15.7]	E [65.1]	B [15.8]	E [66.0]
	OVERALL INTERSECTION	C [29.7]	D [47.0]	D [39.0]	E [65.3]	D [39.1]	E [65.8]
2	US ROUTE 9 & WALTER STREET						
	UNSIGNALIZED						
	MAJOR MOVEMENTS SOUTHBOUND LEFT	A (9.3)	B (12.4)	A (9.7)	B (13.4)	A (9.7)	B (13.4)
	MINOR APPROACH WESTBOUND LEFT* / RIGHT	E (41.5)	F (68.7)	F (58.3)	F (101.9)	F (59.1)	F (101.9)
	* THE LEFT TURN CONTROLS THE INTERSECTION						
3	US ROUTE 9 & GRACEMERE ROAD / KRAFT FOODS DRIVEWAY						
	SIGNALIZED						
	EASTBOUND LEFT /THROUGH	C [32.6]	F [88.4]	C [32.7]	F [112.1]	C [32.7]	F [112.1]
	EASTBOUND RIGHT	C [32.1]	C [32.1]	C [32.1]	C [32.1]	C [32.1]	C [32.1]
	EASTBOUND APPROACH	C [32.6]	F [88.0]	C [32.6]	F [111.5]	C [32.6]	F [111.5]
	WESTBOUND LEFT / THROUGH / RIGHT	C [33.0]	C [34.2]	C [33.2]	D [35.0]	C [33.3]	D [35.2]
	WESTBOUND APPROACH	C [33.0]	C [34.2]	C [33.2]	D [35.0]	C [33.3]	D [35.2]
	NORTHBOUND LEFT	A [4.7]	A [4.5]	A [4.7]	A [4.5]	A [4.7]	A [4.5]
	NORTHBOUND THROUGH / RIGHT	A [7.4]	B [13.2]	A [8.3]	B [17.1]	A [8.3]	B [17.1]
	NORTHBOUND APPROACH	A [7.4]	B [13.2]	A [8.3]	B [17.1]	A [8.3]	B [17.1]
	SOUTHBOUND LEFT	A [4.6]	A [4.9]	A [4.6]	A [5.4]	A [4.6]	A [5.5]
	SOUTHBOUND THROUGH / RIGHT	C [29.4]	A [8.0]	D [50.9]	A [9.2]	D [50.9]	A [9.2]
	SOUTHBOUND APPROACH	C [29.2]	A [8.0]	D [50.4]	A [9.1]	D [50.4]	A [9.1]
	OVERALL INTERSECTION	C [21.8]	C [21.0]	C [34.9]	C [25.9]	C [34.9]	C [25.9]
4	US ROUTE 9 & SUNNYSIDE LANE						
	SIGNALIZED						
	EASTBOUND LEFT /THROUGH / RIGHT	C [21.4]	C [28.5]	C [21.4]	C [28.5]	C [21.4]	C [28.5]
	EASTBOUND APPROACH	C [21.4]	C [28.5]	C [21.4]	C [28.5]	C [21.4]	C [28.5]
	WESTBOUND LEFT / THROUGH / RIGHT	D [43.5]	D [52.2]	E [59.2]	E [67.3]	E [59.2]	E [67.3]
	WESTBOUND APPROACH	D [43.5]	D [52.2]	E [59.2]	E [67.3]	E [59.2]	E [67.3]
	NORTHBOUND LEFT	B [10.5]	B [11.6]	B [10.8]	B [11.7]	B [10.8]	B [11.7]
	NORTHBOUND THORUGH	B [15.4]	D [52.1]	B [17.2]	E [79.2]	B [17.2]	E [79.9]
	NORTHBOUND RIGHT	B [12.5]	B [13.3]	B [12.8]	B [13.7]	B [12.8]	B [13.7]
	NORTHBOUND APPROACH	B [14.4]	D [45.3]	B [15.7]	E [67.1]	B [15.7]	E [67.4]
	SOUTHBOUND LEFT	B [10.3]	D [35.9]	B [10.4]	D [36.5]	B [10.4]	D [36.5]
	SOUTHBOUND THROUGH / RIGHT	C [21.0]	A [8.6]	C [24.9]	A [9.1]	C [25.0]	A [9.1]
	SOUTHBOUND APPROACH	C [20.9]	B [12.2]	C [24.8]	B [12.6]	C [24.8]	B [12.6]
	OVERALL INTERSECTION	C [22.7]	D [36.9]	C [27.7]	D [51.2]	C [27.7]	D [51.4]

TABLE NO. 1  
LEVEL OF SERVICE SUMMARY TABLE

	LOCATION	YEAR 2008/2009 EXISTING		YEAR 2014/2015 NO-BUILD		YEAR 2014/2015 BUILD	
		AM	PM	AM	PM	AM	PM
5	NYS ROUTE 119 & MEADOW STREET / GARDEN APARTMENTS						
	SIGNALIZED						
	EASTBOUND LEFT	B [10.9]	B [11.1]	B [10.9]	B [11.3]	B [10.9]	B [11.3]
	EASTBOUND THROUGH / RIGHT	B [13.5]	B [12.2]	B [14.1]	B [12.4]	B [14.1]	B [12.4]
	EASTBOUND APPROACH	B [13.4]	B [12.2]	B [14.0]	B [12.4]	B [14.1]	B [12.4]
	WESTBOUND LEFT	B [11.2]	B [11.2]	B [11.5]	B [11.3]	B [11.5]	B [11.3]
	WESTBOUND THROUGH / RIGHT	B [12.2]	B [13.2]	B [12.4]	B [13.8]	B [12.4]	B [13.8]
	WESTBOUND APPROACH	B [12.1]	B [13.1]	B [12.3]	B [13.6]	B [12.3]	B [13.6]
	NORTHBOUND LEFT / THROUGH / RIGHT	B [14.7]	B [14.4]	B [14.9]	B [14.5]	B [14.9]	B [14.5]
	NORTHBOUND APPROACH	B [14.7]	B [14.4]	B [14.9]	B [14.5]	B [14.9]	B [14.5]
	SOUTHBOUND LEFT / THROUGH / RIGHT	B [13.8]	B [13.8]	B [13.9]	B [13.8]	B [13.9]	B [13.8]
	SOUTHBOUND APPROACH	B [13.8]	B [13.8]	B [13.9]	B [13.8]	B [13.9]	B [13.8]
	OVERALL INTERSECTION	B [13.1]	B [12.9]	B [13.5]	B [13.3]	B [13.6]	B [13.3]
6	MEADOW STREET / BROWNING LANE & SHELDON AVENUE						
	ALL-WAY STOP						
	EASTBOUND LEFT / THROUGH / RIGHT	A (8.20)	A (8.18)	A (8.35)	A (8.34)	A (8.38)	A (8.38)
	WESTBOUND LEFT / THROUGH / RIGHT	A (7.32)	A (7.54)	A (7.40)	A (7.62)	A (7.44)	A (7.64)
	NORTHBOUND LEFT / THROUGH / RIGHT	A (8.00)	A (7.84)	A (8.09)	A (7.93)	A (8.13)	A (7.96)
	SOUTHBOUND LEFT / THROUGH / RIGHT	A (7.34)	A (7.93)	A (7.43)	A (8.08)	A (7.47)	A (8.14)
	OVERALL INTERSECTION	A (7.78)	A (7.96)	A (7.89)	A (8.10)	A (7.93)	A (8.15)
7	BROWNING LANE & GRACEMERE ROAD / SITE ACCESS						
	UNSIGNALIZED						
	MAJOR APPROACH WESTBOUND LEFT / THROUGH	A (7.4)	A (7.3)	A (7.4)	A (7.3)	A (7.4)	A (7.3)
	MINOR APPROACH SOUTHBOUND LEFT / RIGHT	A (8.8)	A (8.7)	A (8.8)	A (8.7)	A (8.9)	A (8.8)
8	SHELDON AVENUE & EMERALD WOODS						
	UNSIGNALIZED						
	MAJOR MOVEMENTS WESTBOUND LEFT / THROUGH	A (7.5)	A (7.5)	A (7.5)	A (7.5)	A (7.5)	A (7.5)
	MINOR APPROACH NORTHBOUND LEFT / RIGHT	A (8.7)	A (8.8)	A (9.2)	A (9.0)	A (9.2)	A (9.0)
9	GRACEMERE ROAD & EMERALD WOODS						
	ALL-WAY STOP						
	EASTBOUND LEFT / THROUGH	A (7.26)	A (7.38)	A (7.28)	A (7.44)	A (7.29)	A (7.46)
	WESTBOUND THROUGH / RIGHT	A (7.12)	A (7.07)	A (7.14)	A (7.09)	A (7.16)	A (7.12)
	SOUTHBOUND LEFT / RIGHT	A (6.58)	A (6.66)	A (6.60)	A (6.68)	A (6.61)	A (6.70)
	OVERALL INTERSECTION	A (6.99)	A (7.15)	A (6.99)	A (7.20)	A (7.02)	A (7.23)

THE ABOVE SUMMARIZES THE LEVELS OF SERVICE AND VEHICLE DELAY IN SECONDS,  
B [12.0], {0.29} FOR THE SIGNALIZED INTERSECTIONS AND THE LEVELS OF SERVICE AND AVERAGE CONTROL DELAY IN SECONDS,  
B (12.0), {0.29} FOR THE CRITICAL MOVEMENTS FOR UNSIGNALIZED INTERSECTIONS.

**APPENDIX “C”**  
**LEVEL OF SERVICE STANDARDS**



### LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. The criteria are given in Exhibit 16-2 from the 2000 Highway Capacity Manual published by the Transportation Research Board.

#### EXHIBIT 16-2

#### LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE (LOS)	CONTROL DELAY PER VEHICLE (S/VEH)
A	≤10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80



LEVEL OF SERVICE A describes operations with low control delay, up to 10 seconds per vehicle (s/veh). This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

LEVEL OF SERVICE B describes operations with control delay greater than 10 and up to 20 seconds per vehicle (s/veh). This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with Level of Service "A", causing higher levels of delay.

LEVEL OF SERVICE C describes operations with control delay greater than 20 and up to 35 seconds per vehicle (s/veh). These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LEVEL OF SERVICE D describes operations with control delay greater than 35 and up to 55 seconds per vehicle (s/veh). At Level of Service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LEVEL OF SERVICE E describes operations with control delay greater than 55 and up to 80 seconds per vehicle (s/veh). This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

LEVEL OF SERVICE F describes operations with control delay in excess of 80 seconds per vehicle (s/veh). This level is considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

### LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

The Level of Service (LOS) for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement. Control delay is defined as the total elapsed time a vehicle stops at the end of the queue to the time the vehicle departs from the stop line. This total elapsed time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to speed of vehicles in queue. Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation. The Level of Service Criteria are given in Exhibit 17-2 from the 2000 Highway Capacity Manual published by the Transportation Research Board.

#### EXHIBIT 17-2

##### LEVEL OF SERVICE FOR CRITERIA FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE (LOS)	AVERAGE CONTROL DELAY (S/VEH)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

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

**APPENDIX "D"**  
**CAPACITY ANALYSIS**



## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK AM HOUR

Project ID: 1457AMEX1

E/W St: I-287 EB RAMP/DOUBLETREE HOTEL N/S St: US ROUTE 9

Inter.: US ROUTE 9 &amp; I-287 RAMPS

Area Type: All other areas

Jurisd:

Year : 2008/2009 EXISTING VOLUME

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	1	2	0	1	2	0
LGConfig	LTR			LT R			L	TR		L	TR	
Volume	19	11	8	304	4	741	3	452	177	314	761	40
Lane Width	12.0			12.0 12.0			12.0	12.0		12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
WB	Left	A				SB	Left	A	A
	Thru	A					Thru	A	A
	Right	A					Right	A	A
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right	A	
Green		35.0					15.0	35.0	
Yellow		3.0					3.0	3.0	
All Red		2.0					2.0	2.0	

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	496	1418	0.08	0.35	21.8	C	21.8	C
Westbound								
LT	442	1262	0.77	0.35	37.3	D	43.5	D
R	846	1538	0.97	0.55	46.1	D		
Northbound								
L	203	579	0.01	0.35	21.3	C		
TR	1155	3300	0.61	0.35	27.7	C	27.7	C
Southbound								
L	421	1719	0.83	0.55	28.5	C		
TR	1881	3420	0.47	0.55	13.9	B	18.0	B

Intersection Delay = 29.7 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF Inter.: US ROUTE 9 & I-287 RAMPS  
 Agency: JCE Area Type: All other areas  
 Date: 9/11/2009 Jurisd:  
 Period: PEAK PM HOUR Year : 2008/2009 EXISTING VOLUMES  
 Project ID: 1457PMEX1  
 E/W St: I-287 EB RAMP/DOUBLETREE HOTEL N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	1	2	0	1	2	0
LGConfig	LTR			LT R			L TR			L TR		
Volume	34	21	5	150	10	262	4	801	401	617	580	48
Lane Width	12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas  
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru	A				Thru	A	A	
Right	A				Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	15.0				30.0	40.0		
Yellow	3.0				3.0	3.0		
All Red	2.0				2.0	2.0		

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	107	710	0.59	0.15	47.9	D	47.9	D
Westbound								
LT	196	1307	0.86	0.15	71.8	E	36.9	D
R	769	1538	0.36	0.50	15.5	B		
Northbound								
L	290	725	0.01	0.40	18.1	B		
TR	1309	3273	0.97	0.40	46.8	D	46.7	D
Southbound								
L	588	1719	1.10	0.75	98.2	F		
TR	2555	3406	0.26	0.75	3.9	A	50.6	D

Intersection Delay = 47.0 (sec/veh) Intersection LOS = D

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK AM HOUR

Project ID: 1457AMNB1

E/W St: I-287 EB RAMP/DOUBLETREE HOTEL N/S St: US ROUTE 9

Inter.: US ROUTE 9 &amp; I-287 RAMPS

Area Type: All other areas

Jurisd:

Year : 2014/2015 NO-BUILD VOLUMES

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	1	2	0	1	2	0
LGConfig	LTR			LT R			L TR			L TR		
Volume	21	12	9	330	4	800	3	521	197	339	830	43
Lane Width	12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

## Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
WB	Left	A				SB	Left	A	A
	Thru	A					Thru	A	A
	Right	A					Right	A	A
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right	A	
Green		30.0					20.0	35.0	
Yellow		3.0					3.0	3.0	
All Red		2.0					2.0	2.0	

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	364	1214	0.13	0.30	25.6	C	25.6	C
Westbound								
LT	377	1257	0.98	0.30	76.7	E	70.3	E
R	846	1538	1.05	0.55	67.7	E		
Northbound								
L	187	535	0.02	0.35	21.3	C		
TR	1156	3304	0.69	0.35	29.6	C	29.6	C
Southbound								
L	473	1719	0.80	0.60	27.1	C		
TR	2052	3420	0.47	0.60	11.3	B	15.7	B

Intersection Delay = 39.0 (sec/veh) Intersection LOS = D



## HCS+: Signalized Intersections Release 5.3

Analyst: APF Inter.: US ROUTE 9 & I-287 RAMPS  
 Agency: JCE Area Type: All other areas  
 Date: 9/11/2009 Jurisd:  
 Period: PEAK PM HOUR Year : 2014/2015 NO-BUILD VOLUMES  
 Project ID: 1457PMNB1  
 E/W St: I-287 EB RAMP/DOUBLETREE HOTEL N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	1	2	0	1	2	0
LGConfig	LTR			LT R			L	TR		L	TR	
Volume	37	23	5	168	11	283	4	874	437	666	659	52
Lane Width	12.0			12.0 12.0			12.0	12.0		12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas  
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru	A				Thru	A	A	
Right	A				Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	15.0				30.0	40.0		
Yellow	3.0				3.0	3.0		
All Red	2.0				2.0	2.0		

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

## Eastbound

LTR	84	561	0.81	0.15	83.8	F	83.8	F
-----	----	-----	------	------	------	---	------	---

## Westbound

LT	197	1315	0.96	0.15	94.5	F	46.4	D
R	769	1538	0.39	0.50	15.8	B		

## Northbound

L	266	666	0.02	0.40	18.1	B		
TR	1309	3273	1.05	0.40	70.5	E	70.4	E

## Southbound

L	588	1719	1.19	0.75	132.3	F		
TR	2555	3407	0.29	0.75	4.1	A	66.1	E

Intersection Delay = 65.3 (sec/veh) Intersection LOS = E

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK AM HOUR

Project ID: 1457AMBD1

E/W St: I-287 EB RAMP/DOUBLETREE HOTEL N/S St: US ROUTE 9

Inter.: US ROUTE 9 &amp; I-287 RAMPS

Area Type: All other areas

Jurisd:

Year : 2014/2015 BUILD VOLUMES

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	1	2	0	1	2	0
LGConfig	LTR			LT R			L	TR		L	TR	
Volume	21	12	9	331	4	800	3	522	199	339	830	43
Lane Width	12.0			12.0 12.0			12.0	12.0		12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

## Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB Left	A		
	Thru	A				Thru	A		
	Right	A				Right	A		
	Peds					Peds			
WB	Left	A				SB Left	A	A	
	Thru	A				Thru	A	A	
	Right	A				Right	A	A	
	Peds					Peds			
NB	Right					EB Right			
SB	Right					WB Right	A		
Green		30.0					20.0	35.0	
Yellow		3.0					3.0	3.0	
All Red		2.0					2.0	2.0	

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	364	1212	0.13	0.30	25.6	C	25.6	C
Westbound								
LT	377	1257	0.99	0.30	77.5	E	70.6	E
R	846	1538	1.05	0.55	67.7	E		
Northbound								
L	187	535	0.02	0.35	21.3	C		
TR	1156	3303	0.69	0.35	29.7	C	29.7	C
Southbound								
L	472	1719	0.80	0.60	27.4	C		
TR	2052	3420	0.47	0.60	11.3	B	15.8	B

Intersection Delay = 39.1 (sec/veh) Intersection LOS = D

## HCS+: Signalized Intersections Release 5.3

Analyst: APF Inter.: US ROUTE 9 & I-287 RAMPS  
 Agency: JCE Area Type: All other areas  
 Date: 9/11/2009 Jurisd:  
 Period: PEAK PM HOUR Year : 2014/2015 BUILD VOLUMES  
 Project ID: 1457PMBD1  
 E/W St: I-287 EB RAMP/DOUBLETREE HOTEL N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	1	2	0	1	2	0
LGConfig	LTR			LT R			L	TR		L	TR	
Volume	37	23	5	170	11	283	4	875	438	666	660	52
Lane Width	12.0			12.0 12.0			12.0	12.0		12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB	Left		A
	Thru	A					Thru		A
	Right	A					Right		A
	Peds						Peds		
WB	Left	A				SB	Left	A	A
	Thru	A					Thru	A	A
	Right	A					Right	A	A
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right	A	
Green		15.0						30.0	40.0
Yellow		3.0						3.0	3.0
All Red		2.0						2.0	2.0

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/c	Delay	LOS	Delay	LOS
Eastbound								
LTR	83	550	0.82	0.15	86.5	F	86.5	F
Westbound								
LT	197	1315	0.97	0.15	97.4	F	47.7	D
R	769	1538	0.39	0.50	15.8	B		
Northbound								
L	266	665	0.02	0.40	18.1	B		
TR	1309	3273	1.06	0.40	71.0	E	70.9	E
Southbound								
L	588	1719	1.19	0.75	132.3	F		
TR	2555	3407	0.29	0.75	4.1	A	66.0	E

Intersection Delay = 65.8 (sec/veh) Intersection LOS = E

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: US ROUTE 9 & WALTER STREET  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2008/2009 EXISTING VOLUMES  
 Project ID: 1457AMEX2  
 East/West Street: WALTER STREET  
 North/South Street: US ROUTE 9  
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments								
Major Street:	Approach	Northbound				Southbound		
	Movement	1	2	3	4	5	6	
		L	T	R	L	T	R	
Volume			574	24	52	1021		
Peak-Hour Factor, PHF			0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR			637	26	57	1134		
Percent Heavy Vehicles			--	--	5	--	--	
Median Type/Storage		Undivided				/		
RT Channelized?								
Lanes			2	0		1	2	
Configuration			T	TR		L	T	
Upstream Signal?			No			No		

Minor Street:	Approach	Westbound				Eastbound		
	Movement	7	8	9	10	11	12	
		L	T	R	L	T	R	
Volume		32		58				
Peak Hour Factor, PHF		0.90		0.90				
Hourly Flow Rate, HFR		35		64				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0			0		
Flared Approach: Exists?/Storage					/		/	
Lanes		1		1				
Configuration		L		R				

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		57	35		64			
C(m) (vph)		902	133		699			
v/c		0.06	0.26		0.09			
95% queue length		0.20	0.99		0.30			
Control Delay		9.3	41.5		10.7			
LOS		A	E		B			
Approach Delay				21.6				
Approach LOS				C				

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: US ROUTE 9 & WALTER STREET  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2008/2009 EXISTING VOLUMES  
 Project ID: 1457PMEX2  
 East/West Street: WALTER STREET  
 North/South Street: US ROUTE 9  
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments								
Major Street:	Approach Movement	Northbound				Southbound		
		1	2	3	4	5	6	
		L	T	R	L	T	R	
Volume			1125	33	61	674		
Peak-Hour Factor, PHF			0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR			1184	34	64	709		
Percent Heavy Vehicles			--	--	5	--	--	
Median Type/Storage		Undivided		/				
RT Channelized?								
Lanes			2	0		1	2	
Configuration			T	TR		L	T	
Upstream Signal?			No			No		

Minor Street:	Approach Movement	Westbound				Eastbound		
		7	8	9	10	11	12	
		L	T	R	L	T	R	
Volume		17		81				
Peak Hour Factor, PHF		0.95		0.95				
Hourly Flow Rate, HFR		17		85				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0			0		
Flared Approach: Exists?/Storage					/		/	
Lanes		1						
Configuration		L		R				

Delay, Queue Length, and Level of Service								
Approach Movement	NB	SB	Westbound			Eastbound		
	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)	64	17			85			
C(m) (vph)	552	73			485			
v/c	0.12	0.23			0.18			
95% queue length	0.39	0.82			0.63			
Control Delay	12.4	68.7			14.0			
LOS	B	F			B			
Approach Delay				23.1				
Approach LOS				C				

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: US ROUTE 9 & WALTER STREET  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 NO-BUILD VOLUMES  
 Project ID: 1457AMNB2  
 East/West Street: WALTER STREET  
 North/South Street: US ROUTE 9  
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments							
Major Street:	Approach	Northbound				Southbound	
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		655	26		57	1112	
Peak-Hour Factor, PHF		0.90	0.90		0.90	0.90	
Hourly Flow Rate, HFR		727	28		63	1235	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage	Undivided				/		
RT Channelized?							
Lanes		2	0			1	2
Configuration		T	TR			L	T
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound				Eastbound	
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		35		67			
Peak Hour Factor, PHF		0.90		0.90			
Hourly Flow Rate, HFR		38		74			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Config		L	L		R		
v (vph)	63	38			74		
C(m) (vph)	832	104			658		
v/c	0.08	0.37			0.11		
95% queue length	0.25	1.47			0.38		
Control Delay	9.7	58.3			11.2		
LOS	A	F			B		
Approach Delay				27.2			
Approach LOS				D			

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: US ROUTE 9 & WALTER STREET  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 NO-BUILD VOLUMES  
 Project ID: 1457PMNB2  
 East/West Street: WALTER STREET  
 North/South Street: US ROUTE 9  
 Intersection Orientation: NS Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound				Southbound	
		1 L	2 T	3 R	4 L	5 T	6 R
Volume			1225	36	69	764	
Peak-Hour Factor, PHF			0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR			1289	37	72	804	
Percent Heavy Vehicles			--	--	5	--	--
Median Type/Storage		Undivided				/	
RT Channelized?							
Lanes			2	0		1	2
Configuration			T	TR		L	T
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound				Eastbound	
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		18		90			
Peak Hour Factor, PHF		0.95		0.95			
Hourly Flow Rate, HFR		18		94			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1		1			
Configuration		L		R			

## Delay, Queue Length, and Level of Service

Approach Movement	NB		SB		Westbound		Eastbound	
	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		72	18		94			
C(m) (vph)		501	54		451			
v/c		0.14	0.33		0.21			
95% queue length		0.50	1.19		0.78			
Control Delay		13.4	101.9		15.1			
LOS		B	F		C			
Approach Delay				29.0				
Approach LOS				D				

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: US ROUTE 9 & WALTER STREET  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 BUILD VOLUMES  
 Project ID: 1457AMBD2  
 East/West Street: WALTER STREET  
 North/South Street: US ROUTE 9  
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments								
Major Street:	Approach Movement	Northbound				Southbound		
		1 L	2 T	3 R	4   L	5 T	6 R	
Volume			657	26		57	1114	
Peak-Hour Factor, PHF			0.90	0.90		0.90	0.90	
Hourly Flow Rate, HFR			730	28		63	1237	
Percent Heavy Vehicles			--	--		5	--	--
Median Type/Storage		Undivided				/		
RT Channelized?								
Lanes			2	0		1	2	
Configuration			T	TR		L	T	
Upstream Signal?			No				No	
Minor Street:	Approach Movement	Westbound				Eastbound		
		7 L	8 T	9 R	10   L	11 T	12 R	
Volume		35		68				
Peak Hour Factor, PHF		0.90		0.90				
Hourly Flow Rate, HFR		38		75				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0			0		
Flared Approach: Exists?/Storage					/			/
Lanes		1		1				
Configuration		L		R				

Delay, Queue Length, and Level of Service								
Approach Movement	NB	SB	Westbound			Eastbound		
	1	4	7   L	8	9 R	10 	11	12
Lane Config		L						
v (vph)	63	38			75			
C(m) (vph)	830	103			657			
v/c	0.08	0.37			0.11			
95% queue length	0.25	1.48			0.38			
Control Delay	9.7	59.1			11.2			
LOS	A	F			B			
Approach Delay				27.3				
Approach LOS				D				



## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: US ROUTE 9 & WALTER STREET  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 BUILD VOLUMES  
 Project ID: 1457PMBD2  
 East/West Street: WALTER STREET  
 North/South Street: US ROUTE 9  
 Intersection Orientation: NS Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound				Southbound	
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume			1227	36	70	766	
Peak-Hour Factor, PHF			0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR			1291	37	73	806	
Percent Heavy Vehicles			--	--	5	--	--
Median Type/Storage		Undivided				/	
RT Channelized?							
Lanes			2	0		1	2
Configuration			T	TR		L	T
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound				Eastbound	
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		18		91			
Peak Hour Factor, PHF		0.95		0.95			
Hourly Flow Rate, HFR		18		95			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1		1			
Configuration		L		R			

## Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound				Eastbound	
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		73	18		95			
C(m) (vph)		500	54		451			
v/c		0.15	0.33		0.21			
95% queue length		0.51	1.19		0.79			
Control Delay		13.4	101.9		15.1			
LOS		B	F		C			
Approach Delay				28.9				
Approach LOS				D				

## HCS+: Signalized Intersections Release 5.3

Analyst: APF Inter.: US ROUTE 9 & GRACEMERE/PRIVATE  
 Agency: JCE Area Type: All other areas  
 Date: 9/11/2009 Jurisd:  
 Period: PEAK AM HOUR Year : 2008/2009 EXISTING VOLUMES  
 Project ID: 1457AMEX3  
 E/W St: GRACEMERE RD/PRIVATE RD N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	20	1	3	20	3	11	2	567	16	9	769	275
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

## Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0				70.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	286	1430	0.08	0.20	32.6	C	32.6	C
R	308	1538	0.01	0.20	32.1	C		
Westbound								
LTR	298	1489	0.12	0.20	33.0	C	33.0	C
Northbound								
L	97	138	0.02	0.70	4.7	A		
TR	1261	1802	0.51	0.70	7.4	A	7.4	A
Southbound								
L	440	629	0.02	0.70	4.6	A		
TR	1217	1738	0.95	0.70	29.4	C	29.2	C

Intersection Delay = 21.8 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK PM HOUR

Project ID: 1457PMEX3

E/W St: GRACEMERE RD/PRIVATE RD

Inter.: US ROUTE 9 &amp; GRACEMERE/PRIVATE

Area Type: All other areas

Jurisd:

Year : 2008/2009 EXISTING VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	0
LGConfig	LT R			LTR			L TR			L TR		
Volume	226	8	2	23	6	14	0	918	21	15	648	28
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
WB	Left	A				SB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		20.0					70.0		
Yellow		3.0					3.0		
All Red		2.0					2.0		

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	253	1267	0.97	0.20	88.4	F	88.0	F
R	308	1538	0.01	0.20	32.1	C		
Westbound								
LTR	191	957	0.24	0.20	34.2	C	34.2	C
Northbound								
L	396	566	0.00	0.70	4.5	A		
TR	1262	1803	0.78	0.70	13.2	B	13.2	B
Southbound								
L	212	303	0.08	0.70	4.9	A		
TR	1259	1798	0.56	0.70	8.0	A	8.0	A

Intersection Delay = 21.0 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK AM HOUR

Project ID: 1457AMNB3

E/W St: GRACEMERE RD/PRIVATE RD

Inter.: US ROUTE 9 &amp; GRACEMERE/PRIVATE

Area Type: All other areas

Jurisd:

Year : 2014/2015 NO-BUILD VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	0
LGConfig	LT R			LTR			L TR			L TR		
Volume	22	1	3	23	3	14	2	644	17	11	839	297
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

## Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
WB	Left	A				SB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		20.0					70.0		
Yellow		3.0					3.0		
All Red		2.0					2.0		

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	282	1412	0.09	0.20	32.7	C	32.6	C
R	308	1538	0.01	0.20	32.1	C		
Westbound								
LTR	295	1473	0.15	0.20	33.2	C	33.2	C
Northbound								
L	72	103	0.03	0.70	4.7	A		
TR	1262	1803	0.58	0.70	8.3	A	8.3	A
Southbound								
L	379	542	0.03	0.70	4.6	A		
TR	1217	1739	1.04	0.70	50.9	D	50.4	D

Intersection Delay = 34.9 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK PM HOUR

Project ID: 1457PMNB3

E/W St: GRACEMERE RD/PRIVATE RD

Inter.: US ROUTE 9 &amp; GRACEMERE/PRIVATE

Area Type: All other areas

Jurisd:

Year : 2014/2015 NO-BUILD VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	244	9	2	26	6	16	0	999	24	20	732	30
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

## Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0				70.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	252	1261	1.06	0.20	112.1	F	111.5	F
R	308	1538	0.01	0.20	32.1	C		
Westbound								
LTR	167	836	0.30	0.20	35.0+	D	35.0+	D
Northbound								
L	333	476	0.00	0.70	4.5	A		
TR	1262	1803	0.85	0.70	17.1	B	17.1	B
Southbound								
L	153	219	0.14	0.70	5.4	A		
TR	1259	1799	0.64	0.70	9.2	A	9.1	A

Intersection Delay = 25.9 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK AM HOUR

Project ID: 1457AMBD3

E/W St: GRACEMERE RD/PRIVATE RD

Inter.: US ROUTE 9 &amp; GRACEMERE/PRIVATE

Area Type: All other areas

Jurisd:

Year : 2014/2015 BUILD VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	0
LGConfig	LT R			LTR			L TR			L TR		
Volume	22	1	3	24	3	16	2	644	17	12	839	297
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0				70.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	282	1409	0.09	0.20	32.7	C	32.6	C
R	308	1538	0.01	0.20	32.1	C		
Westbound								
LTR	294	1471	0.16	0.20	33.3	C	33.3	C
Northbound								
L	72	103	0.03	0.70	4.7	A		
TR	1262	1803	0.58	0.70	8.3	A	8.3	A
Southbound								
L	379	542	0.03	0.70	4.6	A		
TR	1217	1739	1.04	0.70	50.9	D	50.4	D

Intersection Delay = 34.9 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK PM HOUR

Project ID: 1457PMBD3

E/W St: GRACEMERE RD/PRIVATE RD

Inter.: US ROUTE 9 &amp; GRACEMERE/PRIVATE

Area Type: All other areas

Jurisd:

Year : 2014/2015 BUILD VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	0
LGConfig	LT R			LTR			L TR			L TR		
Volume	244	9	2	26	6	18	0	999	25	22	732	30
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	20.0					70.0			
Yellow	3.0					3.0			
All Red	2.0					2.0			

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	252	1262	1.06	0.20	112.1	F	111.5	F
R	308	1538	0.01	0.20	32.1	C		
Westbound								
LTR	168	838	0.31	0.20	35.2	D	35.2	D
Northbound								
L	333	476	0.00	0.70	4.5	A		
TR	1262	1803	0.85	0.70	17.1	B	17.1	B
Southbound								
L	153	218	0.15	0.70	5.5	A		
TR	1259	1799	0.64	0.70	9.2	A	9.1	A

Intersection Delay = 25.9 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK AM HOUR

Project ID: 1457AMEX4

E/W St: SUNNYSIDE LANE

Inter.: US ROUTE 9 &amp; SUNNYSIDE LANE

Area Type: All other areas

Jurisd:

Year : 2008/2009 EXISTING VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	1	1	1	1	1	0
LGConfig	LTR			LTR			L	T	R	L	TR	
Volume	7	2	6	275	5	77	8	507	240	7	675	7
Lane Width	12.0			12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

## Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
WB	Left	A				SB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		35.0					55.0		
Yellow		3.0					3.0		
All Red		2.0					2.0		

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

## Eastbound

LTR	512	1464	0.03	0.35	21.4	C	21.4	C
-----	-----	------	------	------	------	---	------	---

## Westbound

LTR	470	1343	0.85	0.35	43.5	D	43.5	D
-----	-----	------	------	------	------	---	------	---

## Northbound

L	186	339	0.05	0.55	10.5	B		
T	996	1810	0.57	0.55	15.4	B	14.4	B
R	846	1538	0.32	0.55	12.5	B		

## Southbound

L	324	589	0.02	0.55	10.3	B		
TR	994	1807	0.76	0.55	21.0	C	20.9	C

Intersection Delay = 22.7 (sec/veh) Intersection LOS = C



## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK PM HOUR  
 Project ID: 1457PMEX4  
 E/W St: SUNNYSIDE LANE

Inter.: US ROUTE 9 & SUNNYSIDE LANE  
 Area Type: All other areas  
 Jurisd:  
 Year : 2008/2009 EXISTING VOLUMES  
 N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	1	1	1	1	1	0
LGConfig	LTR			LTR			L	T	R	L	TR	
Volume	4	4	8	193	3	74	7	890	183	70	457	1
Lane Width	12.0			12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas  
 Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB Left	A		
	Thru	A				Thru	A		
	Right	A				Right	A		
	Peds					Peds			
WB	Left	A				SB Left	A	A	
	Thru	A				Thru	A	A	
	Right	A				Right	A	A	
	Peds					Peds			
NB	Right					EB Right			
SB	Right					WB Right			
Green		25.0					52.0	8.0	
Yellow		3.0					3.0	3.0	
All Red		2.0					2.0	2.0	

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

## Eastbound

LTR	393	1571	0.04	0.25	28.5	C	28.5	C
-----	-----	------	------	------	------	---	------	---

## Westbound

LTR	339	1356	0.84	0.25	52.2	D	52.2	D
-----	-----	------	------	------	------	---	------	---

## Northbound

L	391	751	0.02	0.52	11.6	B		
T	941	1810	1.00	0.52	52.1	D	45.3	D
R	800	1538	0.24	0.52	13.3	B		

## Southbound

L	295	1719	0.25	0.65	35.9	D		
TR	1176	1809	0.41	0.65	8.6	A	12.2	B

Intersection Delay = 36.9 (sec/veh) Intersection LOS = D

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK AM HOUR

Project ID: 1457AMNB4

E/W St: SUNNYSIDE LANE

Inter.: US ROUTE 9 &amp; SUNNYSIDE LANE

Area Type: All other areas

Jurisd:

Year : 2014/2015 NO-BUILD VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	1	1	1	1	1	0
LGConfig	LTR			LTR			L	T	R	L	TR	
Volume	8	2	6	310	5	83	9	580	266	8	738	8
Lane Width	12.0			12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	35.0				55.0				
Yellow	3.0				3.0				
All Red	2.0				2.0				

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/Lane	Lane Group	Adj Sat Flow Rate	Ratios		Lane Group		Approach	
Grp	Capacity	(s)	v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	502	1433	0.04	0.35	21.4	C	21.4	C
Westbound								
LTR	469	1340	0.94	0.35	59.2	E	59.2	E
Northbound								
L	138	251	0.07	0.55	10.8	B		
T	996	1810	0.65	0.55	17.2	B	15.7	B
R	846	1538	0.35	0.55	12.8	B		
Southbound								
L	266	483	0.03	0.55	10.4	B		
TR	994	1807	0.83	0.55	24.9	C	24.8	C

Intersection Delay = 27.7 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK PM HOUR  
 Project ID: 1457PMNB4  
 E/W St: SUNNYSIDE LANE

Inter.: US ROUTE 9 & SUNNYSIDE LANE  
 Area Type: All other areas  
 Jurisd:  
 Year : 2014/2015 NO-BUILD VOLUMES  
 N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	1	1	1	1	1	0
LGConfig	LTR			LTR			L	T	R	L	TR	
Volume	4	4	9	215	3	80	8	970	211	76	527	1
Lane Width	12.0			12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations												
Phase Combination		1	2	3	4			5	6	7	8	
EB	Left	A					NB	Left	A			
	Thru	A					Thru	A				
	Right	A					Right	A				
	Peds						Peds					
WB	Left	A					SB	Left	A		A	
	Thru	A					Thru	A		A		
	Right	A					Right	A		A		
	Peds						Peds					
NB	Right						EB	Right				
SB	Right						WB	Right				
Green		25.0						52.0	8.0			
Yellow		3.0						3.0	3.0			
All Red		2.0						2.0	2.0			

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	391	1564	0.04	0.25	28.5	C	28.5	C
Westbound								
LTR	338	1353	0.93	0.25	67.3	E	67.3	E
Northbound								
L	341	656	0.02	0.52	11.7	B	67.1	E
T	941	1810	1.09	0.52	79.2	E		
R	800	1538	0.28	0.52	13.7	B		
Southbound								
L	295	1719	0.27	0.65	36.5	D	12.6	B
TR	1176	1809	0.47	0.65	9.1	A		

Intersection Delay = 51.2 (sec/veh) Intersection LOS = D

## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK AM HOUR  
 Project ID: 1457AMBD4  
 E/W St: SUNNYSIDE LANE

Inter.: US ROUTE 9 & SUNNYSIDE LANE  
 Area Type: All other areas  
 Jurisd:  
 Year : 2014/2015 BUILD VOLUMES  
 N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	1	1	1	1	1	0
LGConfig	LTR			LTR			L	T	R	L	TR	
Volume	8	2	6	310	5	83	9	580	266	8	739	8
Lane Width	12.0			12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations											
Phase Combination		1	2	3	4	5	6	7	8		
EB	Left	A				NB	Left	A			
	Thru	A					Thru	A			
	Right	A					Right	A			
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru	A					Thru	A			
	Right	A					Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		35.0						55.0			
Yellow		3.0						3.0			
All Red		2.0						2.0			

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	502	1433	0.04	0.35	21.4	C	21.4	C
Westbound								
LTR	469	1340	0.94	0.35	59.2	E	59.2	E
Northbound								
L	138	250	0.07	0.55	10.8	B	15.7	B
T	996	1810	0.65	0.55	17.2	B		
R	846	1538	0.35	0.55	12.8	B		
Southbound								
L	266	483	0.03	0.55	10.4	B	24.8	C
TR	994	1807	0.84	0.55	25.0	C		

Intersection Delay = 27.7 (sec/veh) Intersection LOS = C

## HCS+: Signalized Intersections Release 5.3

Analyst: APF

Agency: JCE

Date: 9/11/2009

Period: PEAK PM HOUR

Project ID: 1457PMBD4

E/W St: SUNNYSIDE LANE

Inter.: US ROUTE 9 &amp; SUNNYSIDE LANE

Area Type: All other areas

Jurisd:

Year : 2014/2015 BUILD VOLUMES

N/S St: US ROUTE 9

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	1	1	1	1	1	0
LGConfig	LTR			LTR			L	T	R	L	TR	
Volume	4	4	9	215	3	80	8	971	211	76	527	1
Lane Width	12.0			12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru	A				Thru	A	A	
Right	A				Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	25.0				52.0	8.0		
Yellow	3.0				3.0	3.0		
All Red	2.0				2.0	2.0		

Cycle Length: 100.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

## Eastbound

LTR	391	1564	0.04	0.25	28.5	C	28.5	C
-----	-----	------	------	------	------	---	------	---

## Westbound

LTR	338	1353	0.93	0.25	67.3	E	67.3	E
-----	-----	------	------	------	------	---	------	---

## Northbound

L	341	656	0.02	0.52	11.7	B		
T	941	1810	1.09	0.52	79.6	E	67.4	E
R	800	1538	0.28	0.52	13.7	B		

## Southbound

L	295	1719	0.27	0.65	36.5	D		
TR	1176	1809	0.47	0.65	9.1	A	12.6	B

Intersection Delay = 51.4 (sec/veh) Intersection LOS = D

## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK AM HOUR  
 Project ID: 1457AMEX5  
 E/W St: NYS ROUTE 119

Inter.: NYS RTE 119 & MEADOW/APARTMENT  
 Area Type: All other areas  
 Jurisd:  
 Year : 2008/2009 EXISTING VOLUMES  
 N/S St: MEADOW/APARTMENTS

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	1	0	0	1	0
LGConfig	L	TR		L	TR		LTR			LTR		
Volume	15	580	33	22	355	10	47	0	48	10	0	20
Lane Width	12.0	12.0		12.0	12.0		12.0			12.0		
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas  
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	35.0				30.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 75.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	430	921	0.04	0.47	10.9	B		
TR	1595	3417	0.43	0.47	13.5	B	13.4	B
Westbound								
L	286	612	0.08	0.47	11.2	B		
TR	1601	3431	0.25	0.47	12.2	B	12.1	B
Northbound								
LTR	585	1463	0.18	0.40	14.7	B	14.7	B
Southbound								
LTR	613	1533	0.05	0.40	13.8	B	13.8	B

Intersection Delay = 13.1 (sec/veh) Intersection LOS = B

## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK PM HOUR  
 Project ID: 1457PMEX5  
 E/W St: NYS ROUTE 119

Inter.: NYS RTE 119 & MEADOW/APARTMENT  
 Area Type: All other areas  
 Jurisd:  
 Year : 2008/2009 EXISTING VOLUMES  
 N/S St: MEADOW/APARTMENTS

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	1	0	0	1	0
LGConfig	L	TR		L	TR		LTR			LTR		
Volume	20	353	35	34	591	10	41	0	36	10	0	15
Lane Width	12.0	12.0		12.0	12.0		12.0			12.0		
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

## Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A				NB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
WB	Left	A				SB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		35.0					30.0		
Yellow		3.0					3.0		
All Red		2.0					2.0		

Cycle Length: 75.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	308	659	0.07	0.47	11.1	B		
TR	1586	3399	0.26	0.47	12.2	B	12.2	B
Westbound								
L	427	916	0.08	0.47	11.2	B		
TR	1603	3436	0.39	0.47	13.2	B	13.1	B
Northbound								
LTR	590	1475	0.14	0.40	14.4	B	14.4	B
Southbound								
LTR	615	1537	0.04	0.40	13.8	B	13.8	B

Intersection Delay = 12.9 (sec/veh) Intersection LOS = B

## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK AM HOUR  
 Project ID: 1457AMNB5  
 E/W St: NYS ROUTE 119

Inter.: NYS RTE 119 & MEADOW/APARTMENT  
 Area Type: All other areas  
 Jurisd:  
 Year : 2014/2015 NO-BUILD VOLUMES  
 N/S St: MEADOW/APARTMENTS

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	1	0	0	1	0
LGConfig	L	TR		L	TR		LTR			LTR		
Volume	16	674	37	24	396	11	54	0	53	11	0	22
Lane Width	12.0	12.0		12.0	12.0		12.0			12.0		
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	35.0				30.0				
Yellow	3.0				3.0				
All Red	2.0				2.0				

Cycle Length: 75.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	402	862	0.04	0.47	10.9	B		
TR	1596	3419	0.49	0.47	14.1	B	14.0	B
Westbound								
L	239	512	0.11	0.47	11.5	B		
TR	1602	3432	0.28	0.47	12.4	B	12.3	B
Northbound								
LTR	580	1450	0.21	0.40	14.9	B	14.9	B
Southbound								
LTR	610	1525	0.06	0.40	13.9	B	13.9	B

Intersection Delay = 13.5 (sec/veh) Intersection LOS = B



## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK PM HOUR  
 Project ID: 1457PMNB5  
 E/W St: NYS ROUTE 119

Inter.: NYS RTE 119 & MEADOW/APARTMENT  
 Area Type: All other areas  
 Jurisd:  
 Year : 2014/2015 NO-BUILD VOLUMES  
 N/S St: MEADOW/APARTMENTS

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	1	0	0	1	0
LGConfig	L	TR		L	TR		LTR			LTR		
Volume	22	394	41	38	686	11	46	0	39	11	0	16
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations											
Phase Combination		1	2	3	4	5	6	7	8		
EB	Left	A				NB	Left	A			
	Thru	A					Thru	A			
	Right	A					Right	A			
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru	A					Thru	A			
	Right	A					Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		35.0						30.0			
Yellow		3.0						3.0			
All Red		2.0						2.0			

Cycle Length: 75.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	262	562	0.09	0.47	11.3	B		
TR	1585	3397	0.29	0.47	12.4	B	12.4	B
Westbound								
L	399	855	0.10	0.47	11.3	B		
TR	1604	3437	0.46	0.47	13.8	B	13.6	B
Northbound								
LTR	586	1465	0.15	0.40	14.5	B	14.5	B
Southbound								
LTR	612	1530	0.05	0.40	13.8	B	13.8	B

Intersection Delay = 13.3 (sec/veh) Intersection LOS = B

## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK AM HOUR  
 Project ID: 1457AMBD5  
 E/W St: NYS ROUTE 119

Inter.: NYS RTE 119 & MEADOW/APARTMENT  
 Area Type: All other areas  
 Jurisd:  
 Year : 2014/2015 BUILD VOLUMES  
 N/S St: MEADOW/APARTMENTS

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	1	0	0	1	0
LGConfig	L	TR		L	TR		LTR			LTR		
Volume	16	674	38	24	396	11	55	0	56	11	0	22
Lane Width	12.0	12.0		12.0	12.0		12.0			12.0		
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas  
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	35.0				30.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 75.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	402	862	0.04	0.47	10.9	B		
TR	1595	3418	0.50	0.47	14.1	B	14.1	B
Westbound								
L	238	511	0.11	0.47	11.5	B		
TR	1602	3432	0.28	0.47	12.4	B	12.3	B
Northbound								
LTR	580	1450	0.21	0.40	14.9	B	14.9	B
Southbound								
LTR	610	1524	0.06	0.40	13.9	B	13.9	B

Intersection Delay = 13.6 (sec/veh) Intersection LOS = B

## HCS+: Signalized Intersections Release 5.3

Analyst: APF  
 Agency: JCE  
 Date: 9/11/2009  
 Period: PEAK PM HOUR  
 Project ID: 1457PMBD5  
 E/W St: NYS ROUTE 119

Inter.: NYS RTE 119 & MEADOW/APARTMENT  
 Area Type: All other areas  
 Jurisd:  
 Year : 2014/2015 BUILD VOLUMES  
 N/S St: MEADOW/APARTMENTS

## SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	1	0	0	1	0
LGConfig	L	TR		L	TR		LTR			LTR		
Volume	22	394	44	39	686	11	47	0	41	11	0	16
Lane Width	12.0	12.0		12.0	12.0		12.0			12.0		
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	35.0				30.0				
Yellow	3.0				3.0				
All Red	2.0				2.0				

Cycle Length: 75.0 secs

## Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	262	562	0.09	0.47	11.3	B		
TR	1584	3394	0.29	0.47	12.4	B	12.4	B
Westbound								
L	397	851	0.10	0.47	11.3	B		
TR	1604	3437	0.46	0.47	13.8	B	13.6	B
Northbound								
LTR	586	1464	0.16	0.40	14.5	B	14.5	B
Southbound								
LTR	612	1529	0.05	0.40	13.8	B	13.8	B

Intersection Delay = 13.3 (sec/veh) Intersection LOS = B

## HCS+: Unsignalized Intersections Release 5.3

Phone:  
E-Mail:

Fax:

## ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK AM HOUR  
Intersection: SHELDON & MEADOW/BROWNING  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2008/2009 EXISTING VOLUMES  
Project ID: 1457AMEX6  
East/West Street: SHELDON AVENUE  
North/South Street: MEADOW ST/BROWNING LN

## Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	60	3	6	1	8	16	24	30	1	4	2	65
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate	92		32		73		93	
% Heavy Veh	10		10		10		10	
No. Lanes	1		1		1		1	
Opposing-Lanes	1		1		1		1	
Conflicting-lanes	1		1		1		1	
Geometry group	1		1		1		1	
Duration, T	0.25 hrs.							

## Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	92		32		73		93	
Left-Turn	80		1		32		5	
Right-Turn	8		21		1		86	
Prop. Left-Turns	0.9		0.0		0.4		0.1	
Prop. Right-Turns	0.1		0.7		0.0		0.9	
Prop. Heavy Vehicle	0.1		0.1		0.1		0.1	
Geometry Group	1		1		1		1	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.2		0.2	

hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.3	-0.2	0.2	-0.4

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	92		32		73		93	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.03		0.06		0.08	
hd, final value	4.59		4.16		4.54		3.90	
x, final value	0.12		0.04		0.09		0.10	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.6		2.2		2.5		1.9	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	92		32		73		93	
Service Time	2.6		2.2		2.5		1.9	
Utilization, x	0.12		0.04		0.09		0.10	
Dep. headway, hd	4.59		4.16		4.54		3.90	
Capacity	342		282		323		343	
Delay	8.20		7.32		8.00		7.34	
LOS	A		A		A		A	
Approach:								
Delay		8.20		7.32		8.00		7.34
LOS		A		A		A		A
Intersection Delay	7.78							
				Intersection LOS	A			

---

## HCS+: Unsignalized Intersections Release 5.3

Phone:  
E-Mail:

Fax:

## ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK PM HOUR  
Intersection: SHELDON & MEADOW/BROWNING  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2008/2009 EXISTING VOLUMES  
Project ID: 1457PMEX6  
East/West Street: SHELDON AVENUE  
North/South Street: MEADOW ST/BROWNING LN

## Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	46	17	15	0	15	9	10	19	0	18	29	59
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate	103		32		38		140	
% Heavy Veh	10		10		10		10	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	0.25 hrs.							

## Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	103		32		38		140	
Left-Turn	61		0		13		24	
Right-Turn	20		12		0		78	
Prop. Left-Turns	0.6		0.0		0.3		0.2	
Prop. Right-Turns	0.2		0.4		0.0		0.6	
Prop. Heavy Vehicle	0.1		0.1		0.1		0.1	
Geometry Group		1		1		1		1
Adjustments Exhibit 17-33:								
hLT-adj		0.2		0.2		0.2		0.2

hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.2	-0.1	0.2	-0.1

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	103		32		38		140	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.09		0.03		0.03		0.12	
hd, final value	4.51		4.36		4.61		4.14	
x, final value	0.13		0.04		0.05		0.16	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.5		2.4		2.6		2.1	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	103		32		38		140	
Service Time	2.5		2.4		2.6		2.1	
Utilization, x	0.13		0.04		0.05		0.16	
Dep. headway, hd	4.51		4.36		4.61		4.14	
Capacity	353		282		288		390	
Delay	8.18		7.54		7.84		7.93	
LOS	A		A		A		A	
Approach:								
Delay		8.18		7.54		7.84		7.93
LOS		A		A		A		A
Intersection Delay	7.96		Intersection		LOS A			

---

## HCS+: Unsignalized Intersections Release 5.3

Phone:  
E-Mail:

Fax:

### ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK AM HOUR  
Intersection: SHELDON & MEADOW/BROWNING  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2014/2015 NO-BUILD VOLUMES  
Project ID: 1457AMNB6  
East/West Street: SHELDON AVENUE  
North/South Street: MEADOW ST/BROWNING LN

#### Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	69	3	6	1	9	17	26	32	1	4	2	71
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate	104		35		77		101	
% Heavy Veh	10		10		10		10	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	0.25 hrs.							

#### Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	104		35		77		101	
Left-Turn	92		1		34		5	
Right-Turn	8		22		1		94	
Prop. Left-Turns	0.9		0.0		0.4		0.0	
Prop. Right-Turns	0.1		0.6		0.0		0.9	
Prop. Heavy Vehicle	0.1		0.1		0.1		0.1	
Geometry Group		1		1		1		1
Adjustments Exhibit 17-33:								
hLT-adj		0.2		0.2		0.2		0.2



Worksheet 4 - Departure Headway and Service Time

Worksheet 5 - Capacity and Level of Service

Intersection Delay 7.89

## HCS+: Unsignalized Intersections Release 5.3

Phone:  
E-Mail:

Fax:

ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK PM HOUR  
Intersection: SHELDON & MEADOW/BROWNING  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2014/2015 NO-BUILD VOLUMES  
Project ID: 1457PMNB6  
East/West Street: SHELDON AVENUE  
North/South Street: MEADOW ST/BROWNING LN

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	52	18	16	0	16	10	11	21	0	19	31	68
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate	114		34		42		156	
% Heavy Veh	10		10		10		10	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	0.25 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	114		34		42		156	
Left-Turn	69		0		14		25	
Right-Turn	21		13		0		90	
Prop. Left-Turns	0.6		0.0		0.3		0.2	
Prop. Right-Turns	0.2		0.4		0.0		0.6	
Prop. Heavy Vehicle	0.1		0.1		0.1		0.1	
Geometry Group		1		1		1		1
Adjustments Exhibit 17-33:								
hLT-adj		0.2		0.2		0.2		0.2

hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.2	-0.1	0.2	-0.1

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	114		34		42		156	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.10		0.03		0.04		0.14	
hd, final value	4.57		4.42		4.66		4.16	
x, final value	0.14		0.04		0.05		0.18	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.6		2.4		2.7		2.2	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	114		34		42		156	
Service Time	2.6		2.4		2.7		2.2	
Utilization, x	0.14		0.04		0.05		0.18	
Dep. headway, hd	4.57		4.42		4.66		4.16	
Capacity	364		284		292		406	
Delay	8.34		7.62		7.93		8.08	
LOS	A		A		A		A	
Approach:								
Delay		8.34		7.62		7.93		8.08
LOS		A		A		A		A
Intersection Delay	8.10							
Intersection LOS					A			

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# HCS+: Unsignalized Intersections Release 5.3

Phone:  
E-Mail:

Fax:

## ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK AM HOUR  
Intersection: SHELDON & MEADOW/BROWNING  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2014/2015 BUILD VOLUMES  
Project ID: 1457AMBD6  
East/West Street: SHELDON AVENUE  
North/South Street: MEADOW ST/BROWNING LN

### Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	69	3	6	1	10	17	26	36	1	4	3	71
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate	104		36		83		103	
% Heavy Veh	10		10		10		10	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	0.25 hrs.							

### Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	104		36		83		103	
Left-Turn	92		1		34		5	
Right-Turn	8		22		1		94	
Prop. Left-Turns	0.9		0.0		0.4		0.0	
Prop. Right-Turns	0.1		0.6		0.0		0.9	
Prop. Heavy Vehicle	0.1		0.1		0.1		0.1	
Geometry Group	1		1		1		1	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.2		0.2	

hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.3	-0.2	0.2	-0.4

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	104		36		83		103	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.09		0.03		0.07		0.09	
hd, final value	4.66		4.25		4.59		3.97	
x, final value	0.13		0.04		0.11		0.11	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.7		2.3		2.6		2.0	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	104		36		83		103	
Service Time	2.7		2.3		2.6		2.0	
Utilization, x	0.13		0.04		0.11		0.11	
Dep. headway, hd	4.66		4.25		4.59		3.97	
Capacity	354		286		333		353	
Delay	8.38		7.44		8.13		7.47	
LOS	A		A		A		A	
Approach:								
Delay		8.38		7.44		8.13		7.47
LOS		A		A		A		A
Intersection Delay	7.93		Intersection		LOS A			

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## HCS+: Unsignalized Intersections Release 5.3

Phone:  
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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

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Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: SHELDON & MEADOW/BROWNING  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 BUILD VOLUMES  
 Project ID: 1457PMBD6  
 East/West Street: SHELDON AVENUE  
 North/South Street: MEADOW ST/BROWNING LN

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Worksheet 2 - Volume Adjustments and Site Characteristics

---

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	52	19	16	0	16	10	11	24	0	19	35	68
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate	115		34		46		161	
% Heavy Veh	10		10		10		10	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	0.25 hrs.							

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Worksheet 3 - Saturation Headway Adjustment Worksheet

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	115		34		46		161	
Left-Turn	69		0		14		25	
Right-Turn	21		13		0		90	
Prop. Left-Turns	0.6		0.0		0.3		0.2	
Prop. Right-Turns	0.2		0.4		0.0		0.6	
Prop. Heavy Vehicle	0.1		0.1		0.1		0.1	
Geometry Group	1		1		1		1	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.2		0.2	

hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.2	-0.1	0.2	-0.1

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	115		34		46		161	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.10		0.03		0.04		0.14	
hd, final value	4.59		4.45		4.66		4.18	
x, final value	0.15		0.04		0.06		0.19	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.6		2.4		2.7		2.2	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	115		34		46		161	
Service Time	2.6		2.4		2.7		2.2	
Utilization, x	0.15		0.04		0.06		0.19	
Dep. headway, hd	4.59		4.45		4.66		4.18	
Capacity	365		284		296		411	
Delay	8.38		7.64		7.96		8.14	
LOS	A		A		A		A	
Approach:								
Delay		8.38		7.64		7.96		8.14
LOS		A		A		A		A
Intersection Delay	8.15							
Intersection LOS					A			

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## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: BROWNING LN & GRACEMERE/SITE  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2008/2009 EXISTING VOLUMES  
 Project ID: 1457AMEX7  
 East/West Street: GRACEMERE/SITE DRIVEWAY  
 North/South Street: BROWNING LANE  
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments							
Major Street:	Approach	Eastbound				Westbound	
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		8	2			7	16
Peak-Hour Factor, PHF		0.90	0.75			0.75	0.90
Hourly Flow Rate, HFR		8	2			9	17
Percent Heavy Vehicles		10	--	--		--	--
Median Type/Storage		Undivided				/	
RT Channelized?							
Lanes		0	1			1	0
Configuration		LT				TR	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound				Southbound	
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					7		2
Peak Hour Factor, PHF					0.75		0.75
Hourly Flow Rate, HFR					9		2
Percent Heavy Vehicles					10		10
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		No /
Lanes					0	0	
Configuration						LR	

Delay, Queue Length, and Level of Service							
Approach	EB	WB	Northbound			Southbound	
Movement	1	4	7	8	9	10	11 12
Lane Config	LT						LR
v (vph)	8						11
C(m) (vph)	1538						967
v/c	0.01						0.01
95% queue length	0.02						0.03
Control Delay	7.4						8.8
LOS	A						A
Approach Delay							8.8
Approach LOS							A



## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: BROWNING LN & GRACEMERE/SITE  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2008/2009 EXISTING VOLUMES  
 Project ID: 1457PMEX7  
 East/West Street: GRACEMERE/SITE DRIVEWAY  
 North/South Street: BROWNING LANE  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound				Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R	
Volume	7	6			0	6	
Peak-Hour Factor, PHF	0.90	0.75			0.75	0.90	
Hourly Flow Rate, HFR	7	8			0	6	
Percent Heavy Vehicles	10	--	--		--	--	
Median Type/Storage	Undivided				/		
RT Channelized?							
Lanes	0	1			1	0	
Configuration	LT				TR		
Upstream Signal?	No				No		

Minor Street: Approach Movement	Northbound				Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R	
Volume				7		2	
Peak Hour Factor, PHF				0.75		0.75	
Hourly Flow Rate, HFR				9		2	
Percent Heavy Vehicles				10		10	
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage				/		No	/
Lanes				0		0	
Configuration					LR		

## Delay, Queue Length, and Level of Service

Approach Movement Lane Config	EB	WB	Northbound				Southbound	
	1 LT	4 	7 	8 	9 	10 	11 LR	12
v (vph)	7						11	
C(m) (vph)	1564						982	
v/c	0.00						0.01	
95% queue length	0.01						0.03	
Control Delay	7.3						8.7	
LOS	A						A	
Approach Delay							8.7	
Approach LOS							A	

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: BROWNING LN & GRACEMERE/SITE  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 NO-BUILD VOLUMES  
 Project ID: 1457AMNB7  
 East/West Street: GRACEMERE/SITE DRIVEWAY  
 North/South Street: BROWNING LANE  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound				Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R	
Volume	9	2			8	17	
Peak-Hour Factor, PHF	0.90	0.75			0.75	0.90	
Hourly Flow Rate, HFR	10	2			10	18	
Percent Heavy Vehicles	10	--	--		--	--	
Median Type/Storage	Undivided				/		
RT Channelized?							
Lanes	0	1			1	0	
Configuration	LT				TR		
Upstream Signal?	No				No		

Minor Street: Approach Movement	Northbound				Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R	
Volume				8		2	
Peak Hour Factor, PHF				0.75		0.75	
Hourly Flow Rate, HFR				10		2	
Percent Heavy Vehicles				10		10	
Percent Grade (%)	0				0		
Flared Approach: Exists?/Storage	/					No	/
Lanes				0	0		
Configuration					LR		

## Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound				Southbound	
	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	10						12	
C(m) (vph)	1535						958	
v/c	0.01						0.01	
95% queue length	0.02						0.04	
Control Delay	7.4						8.8	
LOS	A						A	
Approach Delay							8.8	
Approach LOS							A	

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK PM HOUR  
Intersection: BROWNING LN & GRACEMERE/SITE  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2014/2015 NO-BUILD VOLUMES  
Project ID: 1457PMNB7  
East/West Street: GRACEMERE/SITE DRIVEWAY  
North/South Street: BROWNING LANE  
Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound	
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		8	6			0	6
Peak-Hour Factor, PHF		0.90	0.75			0.75	0.90
Hourly Flow Rate, HFR		8	8			0	6
Percent Heavy Vehicles		10	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1			1	0
Configuration		LT				TR	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume					8		2
Peak Hour Factor, PHF					0.75		0.75
Hourly Flow Rate, HFR					10		2
Percent Heavy Vehicles					10		10
Percent Grade (%)			0			0	
Flared Approach:	Exists?/Storage				/		No /
Lanes					0		0
Configuration						LR	

### Delay, Queue Length, and Level of Service

[illegible]

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: BROWNING LN & GRACEMERE/SITE  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 BUILD VOLUMES  
 Project ID: 1457AMBD7  
 East/West Street: GRACEMERE/SITE DRIVEWAY  
 North/South Street: BROWNING LANE  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound				Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R	
Volume	9	3			11	21	
Peak-Hour Factor, PHF	0.90	0.75			0.75	0.90	
Hourly Flow Rate, HFR	10	4			14	23	
Percent Heavy Vehicles	10	--	--		--	--	
Median Type/Storage	Undivided			/			
RT Channelized?							
Lanes	0	1			1	0	
Configuration	LT				TR		
Upstream Signal?	No				No		

Minor Street: Approach Movement	Northbound				Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R	
Volume				9		2	
Peak Hour Factor, PHF				0.75		0.75	
Hourly Flow Rate, HFR				12		2	
Percent Heavy Vehicles				10		10	
Percent Grade (%)	0				0		
Flared Approach: Exists?/Storage				/		No	/
Lanes				0		0	
Configuration					LR		

## Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	10						14	
C(m) (vph)	1523						945	
v/c	0.01						0.01	
95% queue length	0.02						0.05	
Control Delay	7.4						8.9	
LOS	A						A	
Approach Delay							8.9	
Approach LOS							A	

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: BROWNING LN & GRACEMERE/SITE  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 BUILD VOLUMES  
 Project ID: 1457PMBD7  
 East/West Street: GRACEMERE/SITE DRIVEWAY  
 North/South Street: BROWNING LANE  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound				Westbound	
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		8	9			2	9
Peak-Hour Factor, PHF		0.90	0.75			0.75	0.90
Hourly Flow Rate, HFR		8	12			2	10
Percent Heavy Vehicles		10	--	--		--	--
Median Type/Storage		Undivided /					
RT Channelized?							
Lanes		0	1			1	0
Configuration		LT				TR	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound				Southbound	
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					12		2
Peak Hour Factor, PHF					0.75		0.75
Hourly Flow Rate, HFR					16		2
Percent Heavy Vehicles					10		10
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/	No	/
Lanes					0	0	
Configuration						LR	

## Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound				Southbound	
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	8						18	
C(m) (vph)	1556						963	
v/c	0.01						0.02	
95% queue length	0.02						0.06	
Control Delay	7.3						8.8	
LOS	A						A	
Approach Delay							8.8	
Approach LOS							A	

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: SHELDON AVENUE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2008/2009 EXISTING VOLUMES  
 Project ID: 1457AMEX8  
 East/West Street: SHELDON AVENUE  
 North/South Street: EMERALD WOODS  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound				Westbound	
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		69	4		13	92	
Peak-Hour Factor, PHF		0.75	0.75		0.75	0.75	
Hourly Flow Rate, HFR		92	5		17	122	
Percent Heavy Vehicles		--	--		10	--	--
Median Type/Storage	Undivided				/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound				Southbound	
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		0		6			
Peak Hour Factor, PHF		0.90		0.90			
Hourly Flow Rate, HFR		0		6			
Percent Heavy Vehicles		0		0			
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

## Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound				Southbound	
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		17		6				
C(m) (vph)		1448		968				
v/c		0.01		0.01				
95% queue length		0.04		0.02				
Control Delay		7.5		8.7				
LOS		A		A				
Approach Delay				8.7				
Approach LOS				A				

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: SHELTON AVENUE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2008/2009 EXISTING VOLUMES  
 Project ID: 1457PMEX8  
 East/West Street: SHELTON AVENUE  
 North/South Street: EMERALD WOODS  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound				Westbound		
	Movement	1	2	3	4	5	6	
		L	T	R	L	T	R	
Volume		60	1		6	72		
Peak-Hour Factor, PHF		0.75	0.75		0.75	0.75		
Hourly Flow Rate, HFR		80	1		8	96		
Percent Heavy Vehicles		--	--		10	--	--	
Median Type/Storage	Undivided				/			
RT Channelized?								
Lanes		1	0			0	1	
Configuration			TR			LT		
Upstream Signal?		No				No		

Minor Street:	Approach	Northbound				Southbound		
	Movement	7	8	9	10	11	12	
		L	T	R	L	T	R	
Volume		2		14				
Peak Hour Factor, PHF		0.90		0.90				
Hourly Flow Rate, HFR		2		15				
Percent Heavy Vehicles		0		0				
Percent Grade (%)		0				0		
Flared Approach: Exists?/Storage				No	/		/	
Lanes		0		0				
Configuration			LR					

## Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound				Southbound		
Movement	1	4	7	8	9	10	11	12	
Lane Config		LT		LR					
v (vph)		8		17					
C(m) (vph)		1467		959					
v/c		0.01		0.02					
95% queue length		0.02		0.05					
Control Delay		7.5		8.8					
LOS		A		A					
Approach Delay				8.8					
Approach LOS				A					

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: SHELDON AVENUE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 NO-BUILD VOLUMES  
 Project ID: 1457AMNB8  
 East/West Street: SHELDON AVENUE  
 North/South Street: EMERALD WOODS  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R	4   L	5 T	6 R	
Volume			75	5		15	99	
Peak-Hour Factor, PHF			0.75	0.75		0.75	0.75	
Hourly Flow Rate, HFR			100	6		20	132	
Percent Heavy Vehicles			--	--		10	--	--
Median Type/Storage		Undivided				/		
RT Channelized?								
Lanes			1	0		0	1	
Configuration				TR		LT		
Upstream Signal?			No			No		

Minor Street:	Approach Movement	Northbound				Southbound		
		7 L	8 T	9 R	10   L	11 T	12 R	
Volume		4		10				
Peak Hour Factor, PHF		0.90		0.90				
Hourly Flow Rate, HFR		4		11				
Percent Heavy Vehicles		0		0				
Percent Grade (%)			0			0		
Flared Approach: Exists?/Storage				No	/			/
Lanes		0		0				
Configuration			LR					

## Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound				Southbound		
			1	4	7	8	9	10	11 12
Movement				LT		LR			
Lane Config									
v (vph)			20			15			
C(m) (vph)			1437			875			
v/c			0.01			0.02			
95% queue length			0.04			0.05			
Control Delay			7.5			9.2			
LOS			A			A			
Approach Delay						9.2			
Approach LOS						A			



## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: SHELDON AVENUE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 NO-BUILD VOLUMES  
 Project ID: 1457PMNB8  
 East/West Street: SHELDON AVENUE  
 North/South Street: EMERALD WOODS  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound				Westbound		
	1 L	2 T	3 R		4 L	5 T	6 R
Volume		65	4		10	78	
Peak-Hour Factor, PHF		0.75	0.75		0.75	0.75	
Hourly Flow Rate, HFR		86	5		13	104	
Percent Heavy Vehicles		--	--		10	--	--
Median Type/Storage	Undivided			/			
RT Channelized?							
Lanes		1	0		0	1	
Configuration		TR			LT		
Upstream Signal?		No			No		

Minor Street: Approach Movement	Northbound				Southbound		
	7 L	8 T	9 R		10 L	11 T	12 R
Volume	5		17				
Peak Hour Factor, PHF	0.90		0.90				
Hourly Flow Rate, HFR	5		18				
Percent Heavy Vehicles	0		0				
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage				No /			
Lanes	0		0				
Configuration	LR						

## Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		13		23				
C(m) (vph)		1455		922				
v/c		0.01		0.02				
95% queue length		0.03		0.08				
Control Delay		7.5		9.0				
LOS		A		A				
Approach Delay				9.0				
Approach LOS				A				

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK AM HOUR  
 Intersection: SHELDON AVENUE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 BUILD VOLUMES  
 Project ID: 1457AMBD8  
 East/West Street: SHELDON AVENUE  
 North/South Street: EMERALD WOODS  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		75	5			15	100	
Peak-Hour Factor, PHF		0.75	0.75			0.75	0.75	
Hourly Flow Rate, HFR		100	6			20	133	
Percent Heavy Vehicles		--	--			10	--	--
Median Type/Storage		Undivided			/			
RT Channelized?								
Lanes		1	0			0	1	
Configuration		TR				LT		
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound				Southbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume		4		10				
Peak Hour Factor, PHF		0.90		0.90				
Hourly Flow Rate, HFR		4		11				
Percent Heavy Vehicles		0		0				
Percent Grade (%)			0				0	
Flared Approach: Exists?/Storage				No	/			/
Lanes		0		0				
Configuration		LR						

## Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound				Southbound		
			1	4	7		10	11	12
Movement				LT					
Lane Config									
v (vph)			20		15				
C(m) (vph)			1437		875				
v/c			0.01		0.02				
95% queue length			0.04		0.05				
Control Delay			7.5		9.2				
LOS			A		A				
Approach Delay					9.2				
Approach LOS					A				

## HCS+: Unsignalized Intersections Release 5.3

## TWO-WAY STOP CONTROL SUMMARY

Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: SHELDON AVENUE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 BUILD VOLUMES  
 Project ID: 1457PMBD8  
 East/West Street: SHELDON AVENUE  
 North/South Street: EMERALD WOODS  
 Intersection Orientation: EW Study period (hrs): 0.25

## Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound				Westbound		
	1 L	2 T	3 R	4   L	5 T	6 R	
Volume		66	4		10	78	
Peak-Hour Factor, PHF		0.75	0.75		0.75	0.75	
Hourly Flow Rate, HFR		88	5		13	104	
Percent Heavy Vehicles		--	--		10	--	--
Median Type/Storage	Undivided				/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No			No		

Minor Street: Approach Movement	Northbound				Southbound		
	7 L	8 T	9 R	10   L	11 T	12 R	
Volume	5		17				
Peak Hour Factor, PHF	0.90		0.90				
Hourly Flow Rate, HFR	5		18				
Percent Heavy Vehicles	0		0				
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage			No	/			/
Lanes	0		0				
Configuration		LR					

## Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		13		23				
C(m) (vph)		1453		919				
v/c		0.01		0.03				
95% queue length		0.03		0.08				
Control Delay		7.5		9.0				
LOS		A		A				
Approach Delay				9.0				
Approach LOS				A				

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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK AM HOUR  
Intersection: GRACEMERE & EMERALD WOODS  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2008/2009 EXISTING VOLUMES  
Project ID: 1457AMEX9  
East/West Street: GRACEMERE ROAD  
North/South Street: EMERALD WOODS

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	6	9	0	0	10	1	0	0	0	0	0	13
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.90		0.90				0.90	
Flow Rate	16		12				14	
% Heavy Veh	10		10				10	
No. Lanes		1		1				1
Opposing-Lanes		1		1				0
Conflicting-lanes		1		1				1
Geometry group		1		1				1
Duration, T	0.25 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	16		12				14	
Left-Turn	6		0				0	
Right-Turn	0		1				14	
Prop. Left-Turns	0.4		0.0				0.0	
Prop. Right-Turns	0.0		0.1				1.0	
Prop. Heavy Vehicle	0.1		0.1				0.1	
Geometry Group	1		1				1	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2				0.2	

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.2	0.1	-0.4

## Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	16		12				14	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.01		0.01				0.01	
hd, final value	4.18		4.06				3.53	
x, final value	0.02		0.01				0.01	
Move-up time, m		2.0		2.0				2.0
Service Time	2.2		2.1				1.5	

## Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	16		12				14	
Service Time	2.2		2.1				1.5	
Utilization, x	0.02		0.01				0.01	
Dep. headway, hd	4.18		4.06				3.53	
Capacity	266		262				264	
Delay	7.26		7.12				6.58	
LOS	A		A				A	
Approach:								
Delay	7.26		7.12				6.58	
LOS	A		A				A	
Intersection Delay	6.99		Intersection		LOS		A	

## HCS+: Unsignalized Intersections Release 5.3

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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

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Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: GRACEMERE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2008/2009 EXISTING VOLUMES  
 Project ID: 1457PMEX9  
 East/West Street: GRACEMERE ROAD  
 North/South Street: EMERALD WOODS

---

Worksheet 2 - Volume Adjustments and Site Characteristics

---

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	17	12	0	0	6	1	0	0	0	1	0	12
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.90		0.90				0.90	
Flow Rate	31		7				14	
% Heavy Veh	10		10				10	
No. Lanes		1		1				1
Opposing-Lanes		1		1				0
Conflicting-lanes		1		1				1
Geometry group		1		1				1
Duration, T	0.25 hrs.							

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Worksheet 3 - Saturation Headway Adjustment Worksheet

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	31		7				14	
Left-Turn	18		0				1	
Right-Turn	0		1				13	
Prop. Left-Turns	0.6		0.0				0.1	
Prop. Right-Turns	0.0		0.1				0.9	
Prop. Heavy Vehicle	0.1		0.1				0.1	
Geometry Group		1		1				1
Adjustments Exhibit 17-33:								
hLT-adj		0.2		0.2				0.2

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.3	0.1	-0.4

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	31		7				14	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.03		0.01				0.01	
hd, final value	4.22		4.04				3.61	
x, final value	0.04		0.01				0.01	
Move-up time, m		2.0		2.0				2.0
Service Time	2.2		2.0				1.6	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	31		7				14	
Service Time	2.2		2.0				1.6	
Utilization, x	0.04		0.01				0.01	
Dep. headway, hd	4.22		4.04				3.61	
Capacity	281		257				264	
Delay	7.38		7.07				6.66	
LOS	A		A				A	
Approach:								
Delay		7.38		7.07				6.66
LOS		A		A				A
Intersection Delay	7.15						Intersection LOS A	

---

## HCS+: Unsignalized Intersections Release 5.3

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## ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK AM HOUR  
Intersection: GRACEMERE & EMERALD WOODS  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2014/2015 NO-BUILD VOLUMES  
Project ID: 1457AMNB9  
East/West Street: GRACEMERE ROAD  
North/South Street: EMERALD WOODS

## Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	7	10	0	0	11	1	0	0	0	0	0	17
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.90		0.90				0.90	
Flow Rate	18		13				18	
% Heavy Veh	10		10				10	
No. Lanes		1		1				1
Opposing-Lanes		1		1				0
Conflicting-lanes		1		1				1
Geometry group		1		1				1
Duration, T	0.25 hrs.							

## Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	18		13				18	
Left-Turn	7		0				0	
Right-Turn	0		1				18	
Prop. Left-Turns	0.4		0.0				0.0	
Prop. Right-Turns	0.0		0.1				1.0	
Prop. Heavy Vehicle	0.1		0.1				0.1	
Geometry Group	1		1				1	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2				0.2	



Worksheet 4 - Departure Headway and Service Time\_\_\_\_\_

Worksheet 5 - Capacity and Level of Service\_\_\_\_\_

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	18		13				18	
Service Time	2.2		2.1				1.5	
Utilization, x	0.02		0.01				0.02	
Dep. headway, hd	4.19		4.08				3.54	
Capacity	268		263				268	
Delay	7.28		7.14				6.60	
LOS	A		A				A	
Approach:								
Delay	7.28		7.14				6.60	
LOS	A		A				A	
Intersection Delay	6.99				Intersection LOS		A	

## HCS+: Unsignalized Intersections Release 5.3

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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

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Analyst: APF  
 Agency/Co.: JCE  
 Date Performed: 9/11/2009  
 Analysis Time Period: PEAK PM HOUR  
 Intersection: GRACEMERE & EMERALD WOODS  
 Jurisdiction:  
 Units: U. S. Customary  
 Analysis Year: 2014/2015 NO-BUILD VOLUMES  
 Project ID: 1457PMNB9  
 East/West Street: GRACEMERE ROAD  
 North/South Street: EMERALD WOODS

---

Worksheet 2 - Volume Adjustments and Site Characteristics

---

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	23	13	0	0	6	1	0	0	0	1	0	15
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.90		0.90				0.90	
Flow Rate	39		7				17	
% Heavy Veh	10		10				10	
No. Lanes		1		1				1
Opposing-Lanes		1		1				0
Conflicting-lanes		1		1				1
Geometry group		1		1				1
Duration, T	0.25 hrs.							

---

Worksheet 3 - Saturation Headway Adjustment Worksheet

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	39		7				17	
Left-Turn	25		0				1	
Right-Turn	0		1				16	
Prop. Left-Turns	0.6		0.0				0.1	
Prop. Right-Turns	0.0		0.1				0.9	
Prop. Heavy Vehicle	0.1		0.1				0.1	
Geometry Group	1		1				1	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2				0.2	

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.3	0.1	-0.4

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	39		7				17	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.03		0.01				0.02	
hd, final value	4.24		4.06				3.62	
x, final value	0.05		0.01				0.02	
Move-up time, m		2.0		2.0				2.0
Service Time	2.2		2.1				1.6	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	39		7				17	
Service Time	2.2		2.1				1.6	
Utilization, x	0.05		0.01				0.02	
Dep. headway, hd	4.24		4.06				3.62	
Capacity	289		257				267	
Delay	7.44		7.09				6.68	
LOS	A		A				A	
Approach:								
Delay		7.44		7.09				6.68
LOS		A		A				A
Intersection Delay	7.20							
				Intersection LOS	A			

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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK AM HOUR  
Intersection: GRACEMERE & EMERALD WOODS  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2014/2015 BUILD VOLUMES  
Project ID: 1457AMBD9  
East/West Street: GRACEMERE ROAD  
North/South Street: EMERALD WOODS

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	7	11	0	0	14		0	0	0	0	0	17
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.90		0.90				0.90	
Flow Rate	19		16				18	
% Heavy Veh	10		10				10	
No. Lanes		1		1				1
Opposing-Lanes		1		1				0
Conflicting-lanes		1		1				1
Geometry group		1		1				1
Duration, T	0.25	hrs.						

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	19		16				18	
Left-Turn	7		0				0	
Right-Turn	0		1				18	
Prop. Left-Turns	0.4		0.0				0.0	
Prop. Right-Turns	0.0		0.1				1.0	
Prop. Heavy Vehicle	0.1		0.1				0.1	
Geometry Group		1		1				1
Adjustments Exhibit 17-33:								
hLT-adj		0.2		0.2				0.2

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.2	0.1	-0.4

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	19		16				18	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.02		0.01				0.02	
hd, final value	4.19		4.09				3.55	
x, final value	0.02		0.02				0.02	
Move-up time, m		2.0		2.0				2.0
Service Time	2.2		2.1				1.5	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	19		16				18	
Service Time	2.2		2.1				1.5	
Utilization, x	0.02		0.02				0.02	
Dep. headway, hd	4.19		4.09				3.55	
Capacity	269		266				268	
Delay	7.29		7.16				6.61	
LOS	A		A				A	
Approach:								
Delay		7.29		7.16				6.61
LOS		A		A				A
Intersection Delay	7.02				Intersection LOS	A		

---

## HCS+: Unsignalized Intersections Release 5.3

Phone:  
E-Mail:

Fax:

ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: APF  
Agency/Co.: JCE  
Date Performed: 9/11/2009  
Analysis Time Period: PEAK PM HOUR  
Intersection: GRACEMERE & EMERALD WOODS  
Jurisdiction:  
Units: U. S. Customary  
Analysis Year: 2014/2015 BUILD VOLUMES  
Project ID: 1457PMBD9  
East/West Street: GRACEMERE ROAD  
North/South Street: EMERALD WOODS

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	23	18	0	0	8	1	0	0	0	1	0	15
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.90		0.90				0.90	
Flow Rate	45		9				17	
% Heavy Veh	10		10				10	
No. Lanes		1		1				1
Opposing-Lanes		1		1				0
Conflicting-lanes		1		1				1
Geometry group		1		1				1
Duration, T	0.25 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	45		9				17	
Left-Turn	25		0				1	
Right-Turn	0		1				16	
Prop. Left-Turns	0.6		0.0				0.1	
Prop. Right-Turns	0.0		0.1				0.9	
Prop. Heavy Vehicle	0.1		0.1				0.1	
Geometry Group		1		1				1
Adjustments Exhibit 17-33:								
hLT-adj		0.2		0.2				0.2

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.3	0.1	-0.4

---

Worksheet 4 - Departure Headway and Service Time

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	45		9				17	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.04		0.01				0.02	
hd, final value	4.22		4.08				3.64	
x, final value	0.05		0.01				0.02	
Move-up time, m		2.0		2.0				2.0
Service Time	2.2		2.1				1.6	

---

Worksheet 5 - Capacity and Level of Service

---

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	45		9				17	
Service Time	2.2		2.1				1.6	
Utilization, x	0.05		0.01				0.02	
Dep. headway, hd	4.22		4.08				3.64	
Capacity	295		259				267	
Delay	7.46		7.12				6.70	
LOS	A		A				A	
Approach:								
Delay		7.46		7.12				6.70
LOS		A		A				A
Intersection Delay	7.23							
			Intersection LOS	A				

---

## **APPENDIX “E”**

### **SHELDON AVENUE - ACCIDENT DATA**



# Accident Location Information System (ALIS)

## Accident Verbal Description Report

SHELDON AVE

Date: 08/26/09 03:21

Page: 1

Data in this report covers the period Jan 01, 2007 - Jan 31, 2009

Complete Accident data from NYSDMV is only available thru 1/31/2009

Street: SHELDON AVE

County: Westchester Muni: Tarrytown(V) Ref. Marker:  
AT INTERSECTION WITH E MEADOW ST

12/8/2007 Sat Persons Killed: 0

Accident Class: PROPERTY DAMAGE

Type Of Accident: COLL. W/LIGHT SUPPORT/UTILITY POLE

Manner of Collision: OTHER

Road Surface Condition: UNKNOWN

Loc. of Ped/Bicycle: NOT APPLICABLE

Persons Injured: 0

Extent of Injuries:

Police Agency:

Case: 2007-32450138

Num of Veh: 1

Traffic Control: UNKNOWN

Weather: UNKNOWN

Road Char.: UNKNOWN

Action of Ped/Bicycle: NOT APPLICABLE

Light Condition: UNKNOWN

Veh :1

CAR/VAN/PICKUP

Num of Occupants: 1

Direction of Travel: UNKNOWN

Pre-Accd Action: UNKNOWN

Apparent Factors: UNKNOWN, UNKNOWN

Registered Weight: 2388

Driver's Age: 35

Public Property Damage: N

State of Registration: NY

Sex: F

Citation Issued: N

School Bus Involved: N

County: Westchester Muni: Tarrytown(V) Ref. Marker:  
21 Meters East of CHESTNUT AVE

4/14/2008 Mon 19:08 PM

Persons Killed: 0

Accident Class: PROPERTY DAMAGE AND INJURY

Type Of Accident: COLLISION WITH MOTOR VEHICLE

Manner of Collision: RIGHT ANGLE

Road Surface Condition: DRY

Loc. of Ped/Bicycle: NOT APPLICABLE

Persons Injured: 1

Extent of Injuries: B

Police Agency:

Traffic Control: STOP SIGN

Weather: CLEAR

Light Condition: DAYLIGHT

Action of Ped/Bicycle: NOT APPLICABLE

Case: 2008-32581848

Num of Veh: 2

Veh :1

CAR/VAN/PICKUP

Num of Occupants: 1

Direction of Travel: EAST

Pre-Accd Action: GOING STRAIGHT AHEAD

Apparent Factors: UNKNOWN, UNKNOWN

Registered Weight:

Driver's Age: 108

Public Property Damage: N

State of Registration: NY

Sex: M

Citation Issued: N

School Bus Involved: N

Veh :2

CAR/VAN/PICKUP

Num of Occupants: 1

Direction of Travel: SOUTH

Pre-Accd Action: BACKING

Apparent Factors: UNKNOWN, UNKNOWN

Registered Weight: 2991

Driver's Age: 17

Public Property Damage: N

State of Registration: NY

Sex: M

Citation Issued: N

School Bus Involved: N

## **APPENDIX “F”**

### **OTHER DEVELOPMENT TRAFFIC TABLE**

OTHER DEVELOPMENT TRAFFIC TABLE

EMERALD WOODS (JARDIM ESTATES WEST)			
15 SINGLE FAMILY HOMES	ENTRY	EXIT	TOTAL
PEAK AM HIGHWAY HOUR	3	11	14
PEAK PM HIGHWAY HOUR	12	7	19

AVALON GREEN II			
444 DWELLING UNITS	ENTRY	EXIT	TOTAL
PEAK AM HIGHWAY HOUR	88	163	251
PEAK PM HIGHWAY HOUR	163	88	251

600 TARRYTOWN ROAD			
250,000 s.f. OF APPROVED OFFICE SPACE	ENTRY	EXIT	TOTAL
PEAK AM HIGHWAY HOUR	310	62	372
PEAK PM HIGHWAY HOUR	62	310	372

**APPENDIX “G”**

**COMPARISON OF ITE TRIP RATES**

**&**

**ACTUAL TRAFFIC VOLUMES AT VARIOUS SUBDIVISIONS**



# Single-Family Detached Housing (210)

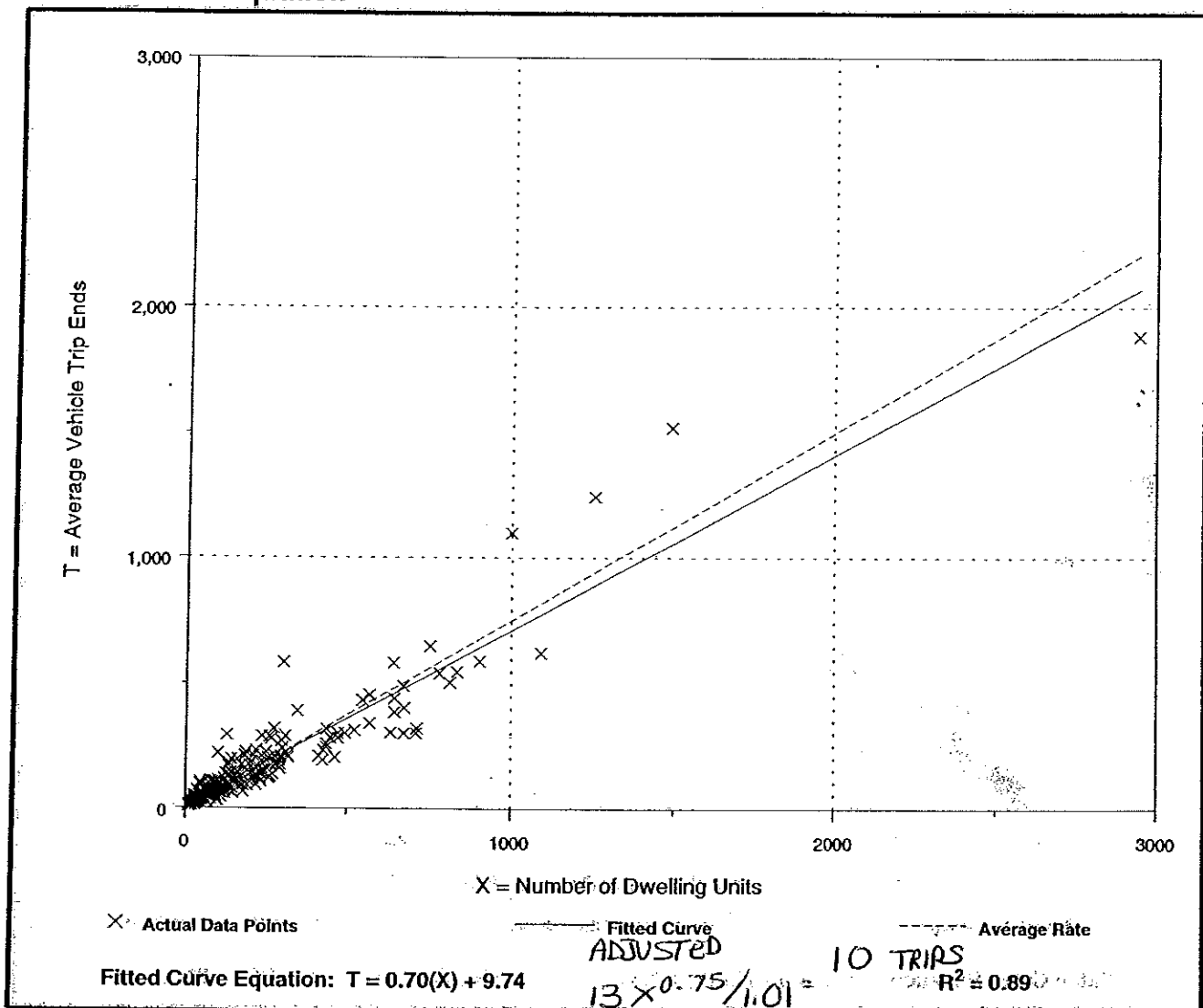
Average Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 7 and 9 a.m.

Number of Studies: 286  
Avg. Number of Dwelling Units: 194  
Directional Distribution: 25% entering, 75% exiting

## Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.75	0.33 - 2.27	0.90

## Data Plot and Equation



# Single-Family Detached Housing (210)

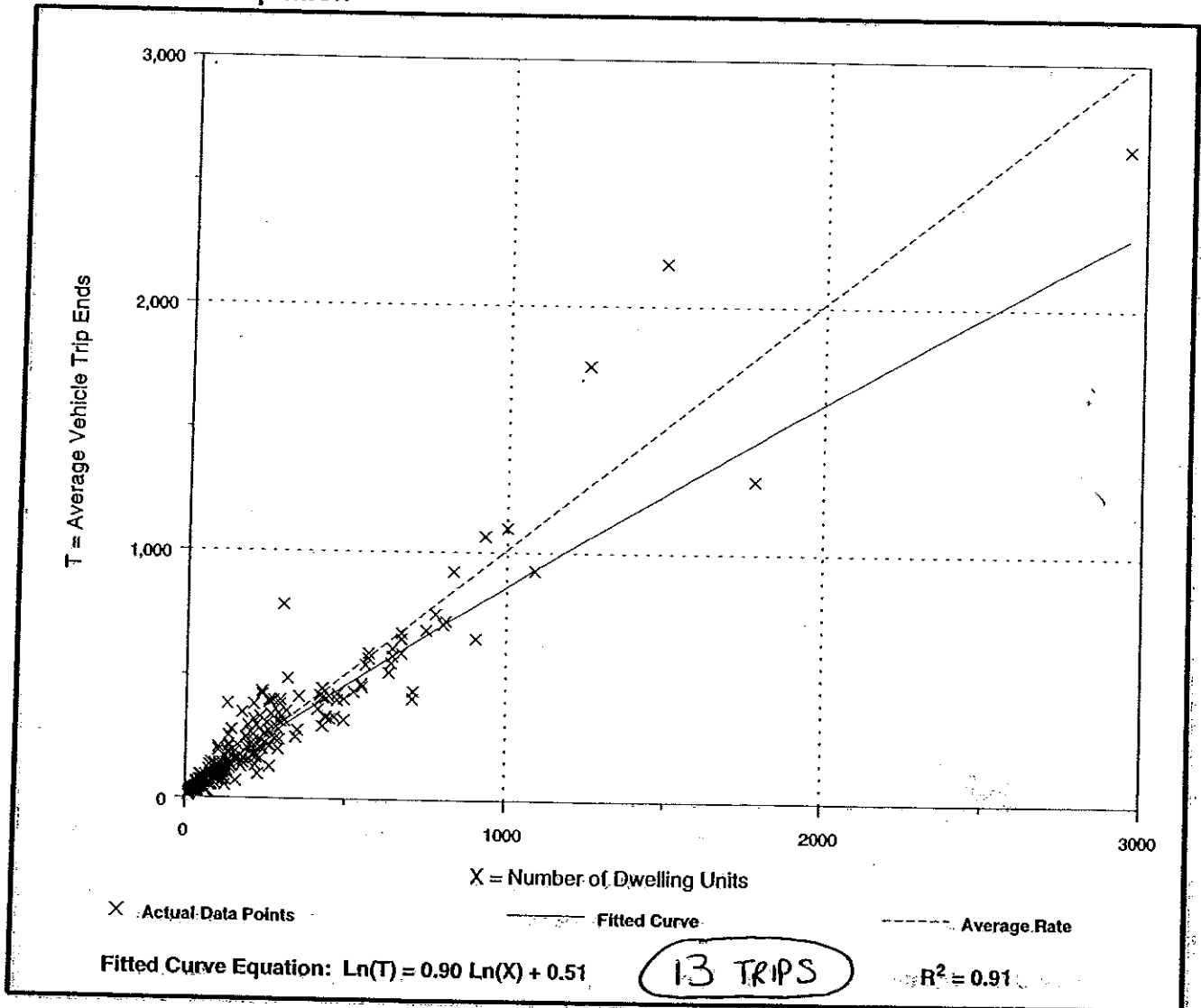
Average Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Number of Studies: 314  
Avg. Number of Dwelling Units: 208  
Directional Distribution: 63% entering, 37% exiting

## Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
1.01	0.42 - 2.98	1.05

## Data Plot and Equation



**Comparison of Institute of Transportation Engineers Formula with  
Actual Traffic Volumes at various Subdivisions**

<b>Topland Drive, White Plains -</b>			7 new four-bedroom, two-car-garage homes in mature middle class neighborhood
	<b>Peak AM Highway Hour (8:15 to 9:15 a.m.)</b>		<b>Peak PM Highway Hour (4:45 to 5:45 p.m.)</b>
ITE	14		10
Actual	8		12

ITE projections were, on average, **20% higher than actual observed volumes.**

<b>Indian Mill Road, Greenwich -</b>			Twelve, thirty-year-old in mature upper-middle class neighborhood
	<b>Peak AM Highway Hour (8:00 to 9:00 a.m.)</b>		<b>Peak PM Highway Hour (5:00 to 6:00 p.m.)</b>
ITE	18		16
Actual	16		9

ITE projections were, on average, **36% higher than actual observed volumes.**

<b>Roundabend Road &amp; Wagon Circle, Tarrytown -</b>			23 homes in mature middle class neighborhood
	<b>Peak AM Highway Hour (7:45 to 8:45 a.m.)</b>		<b>Peak PM Highway Hour</b>
ITE	26		Not Available
Actual	19		Not Available

ITE projections were, on average, **37% higher than actual observed volumes.**

<b>Dogwood Lane, Irvington -</b>			20 homes in mature middle class neighborhood
	<b>Peak AM Highway Hour (7:45 to 8:45 a.m.)</b>		<b>Peak PM Highway Hour</b>
ITE	23		Not Available
Actual	14		Not Available

ITE projections were, on average, **64% higher than actual observed volumes.**

<b>Legend Hollow, Irvington -</b>			19 new homes in upper class neighborhood
	<b>Peak AM Highway Hour (7:45 to 8:45 a.m.)</b>		<b>Peak PM Highway Hour</b>
ITE	23		Not Available
Actual	18		Not Available

ITE projections were, on average, **28% higher than actual observed volumes.**

As can be seen from the above analysis, the Institute of Transportation Engineers "Trip Generation" Manual consistently over estimates the number of trips that are generated by small residential developments.

Jardim Estates *WEST EMERALD WOODS*

		<b>Peak AM Highway Hour</b>	<b>Peak PM Highway Hour</b>
(15 Homes)	ITE	20	19
	Modified ITE*	14	Na
	Surveys	14	17

\* (ITE Peak PM Hour Trips for 15 homes / ITE Peak PM Hour average trip rate x ITE Peak AM Hour average rate,  $11/1.01 \times .75 = 14$ )

NA, Not Available      Na, Not Applicable

Note the Bold Values above were used for analysis purposes.





## **APPENDIX “H”**

### **SCHOOL BUS ROUTE INFORMATION**



## ARDSLEY-DOBBS FERRY-HASTINGS-IRVINGTON

SW BOCES Transportation Consortium  
40 N. Broadway  
Irvington, NY 10533  
914-591-3052  
fax: 914-591-4035

September 9, 2009

Andrew P. Fish  
John Collins Engineers, P.C.  
11 Bradhurst Ave  
Hawthorne, NY 10532


Dear Mr. Fish:

Regarding your request of August 27 for information about school buses from Irvington UFSD in the Sheldon Ave. area of Tarrytown, the district sends four big buses through the Sheldon neighborhood each school morning between approximately 7:00 and 8:30 and five buses between 2:30 and 4:30 each afternoon. The buses stop at about every other side street along Sheldon, Browning, Walnut, Lincoln and Meadow.

In addition, about five small school vans make pick ups and drop offs at the homes of out-of-district students in the Sheldon Ave neighborhood during these same hours.

If further information is needed, please contact me again.

Sincerely,

  
Douglas Carter  
Coordinator of Transportation

cc: James Reese, Ass't Sup't for Business, Irvington UFSD  
Cheryl Fitzgibbons, Dir. of Transportation, SW BOCES

Fish



## **APPENDIX “I”**

### **PEDESTRIAN/BICYCLE ACTIVITY**



TABLE NO. 2

**PEDESTRIAN / BICYCLE ACTIVITY ALONG  
EMERALD WOODS, GRACEMERE ROAD, BROWNING LANE AND SHELDON AVENUE**

<b>TIME PERIOD</b>	<b>EMERALD WOODS (Between Sheldon Avenue &amp; Gracemere Road)</b>	<b>GRACEMERE ROAD (Between Emerald Woods &amp; Browning Lane/Lake Drive)</b>	<b>BROWNING LANE (Between Gracemere Road/Lake Drive &amp; Sheldon Avenue)</b>	<b>SHELDON AVENUE (Between Browning Lane &amp; Emerald Woods)</b>
7:00 AM - 7:30 AM	0	0	0	0
7:30 AM - 8:00 AM	1	2	0	0
8:00 AM - 8:30 AM	0	0	2	3+1
8:30 AM - 9:00 AM	1	0	0	0
9:00 AM - 9:30 AM	0	0	1	1
9:30 AM - 10:00 AM	0	0	1	0
10:00 AM - 10:30 AM	0	3	2	2
10:30 AM - 11:00 AM	0	0	0	0
11:00 AM - 11:30 AM	0	13	13	1
11:30 AM - 12:00 PM	0	0	0	0
12:00 PM - 12:30 PM	0	0	0	0
12:30 PM - 1:00 PM	0	0	0	1
1:00 PM - 1:30 PM	0	0	0	1
1:30 PM - 2:00 PM	0	0	0	2
2:00 PM - 2:30 PM	0	0	0	0
2:30 PM - 3:00 PM	0	0	0	0
3:00 PM - 3:30 PM	0	0	2	0
3:30 PM - 4:00 PM	0	1	0	1
4:00 PM - 4:30 PM	0	2	0	4+1
4:30 PM - 5:00 PM	0	0	2	0
5:00 PM - 5:30 PM	1	0	1	2
5:30 PM - 6:00 PM	0	1	0	1
6:00 PM - 6:30 PM	1	1	2	3
6:30 PM - 7:00 PM	1	0	3	1

PEDESTRIANS + BICYCLISTS

BASED ON PEDESTRIAN/BICYCLIST SURVEY CONDUCTED BY JOHN COLLINS ENGINEERS, P.C. ON JULY 15, 2009.



TABLE NO. 3

**PEDESTRIAN / BICYCLE ACTIVITY  
AT BROWNING LANE/MEADOW STREET/SHELDON AVENUE**

TIME PERIOD	MEADOW STREET SOUTHBOUND	BROWNING LANE NORTHBOUND	SHELDON AVENUE EASTBOUND	SHELDON AVENUE WESTBOUND
7:00 AM - 7:30 AM	1	0	1	2
7:30 AM - 8:00 AM	2	1	1	2+2
8:00 AM - 8:30 AM	0+2	1	2	0
8:30 AM - 9:00 AM	0	0	0	0
9:00 AM - 9:30 AM	1	1	0	1
9:30 AM - 10:00 AM	0	0	0	1
10:00 AM - 10:30 AM	0	1	1	3
10:30 AM - 11:00 AM	0	0	1	0
11:00 AM - 11:30 AM	0	13	0	0
11:30 AM - 12:00 PM	0	0	0	0
12:00 PM - 12:30 PM	0	0	0	0
12:30 PM - 1:00 PM	1	0	1	0
1:00 PM - 1:30 PM	2	0	1	1
1:30 PM - 2:00 PM	0	4	3	3
2:00 PM - 2:30 PM	0	0	0	0
2:30 PM - 3:00 PM	0	0	0	0
3:00 PM - 3:30 PM	0	0	2	0
3:30 PM - 4:00 PM	1	0	0	3
4:00 PM - 4:30 PM	1+1	2	1	5
4:30 PM - 5:00 PM	0+1	1+1	0	0
5:00 PM - 5:30 PM	1	1	2	1
5:30 PM - 6:00 PM	2	0	1	3
6:00 PM - 6:30 PM	2	2	3	1
6:30 PM - 7:00 PM	1	3	1	0

PEDESTRIANS + BICYCLISTS

BASED ON PEDESTRIAN/BICYCLIST SURVEY CONDUCTED BY JOHN COLLINS ENGINEERS, P.C. ON JULY 15, 2009.

TABLE NO. 4

**PEDESTRIAN / BICYCLE ACTIVITY  
AT GRACEMERE ROAD/BROWNING LANE/LAKE DRIVE**

TIME PERIOD	GRACEMERE ROAD EASTBOUND	BROWNING LANE SOUTHBOUND	LAKE DRIVE WESTBOUND
7:00 AM - 7:30 AM	0	0	1
7:30 AM - 8:00 AM	2	2	0
8:00 AM - 8:30 AM	0	0	0
8:30 AM - 9:00 AM	1	0	0
9:00 AM - 9:30 AM	1	1	0
9:30 AM - 10:00 AM	0	0	0
10:00 AM - 10:30 AM	3	0	0
10:30 AM - 11:00 AM	0	0	0
11:00 AM - 11:30 AM	13	0	0
11:30 AM - 12:00 PM	0	0	0
12:00 PM - 12:30 PM	0	0	0
12:30 PM - 1:00 PM	0	0	0
1:00 PM - 1:30 PM	0	0	0
1:30 PM - 2:00 PM	0	0	0+1
2:00 PM - 2:30 PM	0	0	0
2:30 PM - 3:00 PM	0	0	0
3:00 PM - 3:30 PM	0	1	0
3:30 PM - 4:00 PM	1	1	1
4:00 PM - 4:30 PM	2	0	1
4:30 PM - 5:00 PM	0+1	0	0
5:00 PM - 5:30 PM	0	1	1
5:30 PM - 6:00 PM	1	0	0
6:00 PM - 6:30 PM	1	1	0
6:30 PM - 7:00 PM	0	1	1

PEDESTRIANS + BICYCLISTS



**APPENDIX “J”**

**ATR DATA**

**OPERATING SPEEDS**



## **GRACEMERE ROAD**

## JOHN COLLINS ENGINEERS, P.C.

Default Comments: 11 BRADHURST AVENUE  
 PROJECT: JARDIM ESTATES EAST HAWTHORNE, NY, 10532  
 LOCATION: TARRYTOWN, NEW YORK (914) 347-7500 / FAX (914) 347-7266  
 JCE JOB# 457

Site Code: 457000000222

Station ID:

GRACEMERE ROAD (EAST OF EMERALD WOODS  
AND WEST OF BROWNING LANE)

Latitude: 0' 0.000 Undefined

EB, WB	Start	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	85th	95th
Time	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	Percent	Percent	Percent
07/14/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	0	0	0	0	1	1	1	1	2	7	3	3	1	1	0	20	32	36
17:00	0	0	0	1	2	3	1	1	8	1	5	2	0	1	0	24	29	32
18:00	0	0	0	0	0	0	0	1	5	5	1	5	0	0	0	17	31	32
19:00	0	0	0	0	0	2	1	1	4	5	1	3	1	0	0	17	31	33
20:00	0	0	0	0	0	0	0	2	4	4	3	1	0	0	0	14	29	30
21:00	0	0	0	0	0	0	0	0	1	3	3	1	1	0	0	9	33	34
22:00	0	0	0	0	0	0	4	4	4	1	1	1	0	0	1	12	30	31
23:00	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	4	32	33
Total	0	0	0	1	3	6	10	28	26	26	18	19	3	2	1	117		
Percent	0.0%	0.0%	0.0%	0.9%	2.6%	5.1%	8.5%	23.9%	22.2%	15.4%	15.4%	16.2%	2.6%	1.7%	0.9%			
AM Peak																		
Vol.																		
PM Peak	17:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00	16:00	16:00	17:00	18:00	16:00	16:00	22:00	17:00		
Vol.	1	2	3	8	7	5	5	1	1	1	1	5	1	1	1	24		





# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000222

Station ID:

GRACEMERE ROAD (EAST OF EMERALD WOODS  
AND WEST OF BROWNING LANE)

Latitude: 0' 0.000 Undefined

Latitude: 0° 0.000 Undefined																		
EB, WB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	85th Percent	95th Percent
		3	6	9	12	15	18	21	24	27	30	33	36	39	999			
	07/16/09	1	0	0	0	0	0	1	1	1	0	0	0	0	0	4	24	25
	01:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	37	37
	02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
	03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
	04:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		
	05:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	28	28
	06:00	0	0	0	0	0	0	0	0	2	0	1	0	0	0	1	28	31
	07:00	0	0	0	0	1	1	1	0	1	2	0	0	0	1	7	29	40
	08:00	3	0	0	0	1	2	2	4	9	5	1	1	1	0	29	29	36
	09:00	0	0	0	0	1	0	2	3	4	3	2	2	1	0	18	33	35
	10:00	0	0	0	0	1	0	1	1	3	2	0	0	0	0	8	28	29
	11:00	0	0	0	0	2	2	0	2	2	4	1	0	0	0	13	29	30
	12 PM	2	0	0	0	0	0	0	1	0	3	0	0	0	0	10	28	29
	13:00	1	0	0	1	0	2	0	1	3	1	1	0	0	0	11	30	33
	14:00	0	0	0	0	1	1	7	4	9	0	1	1	0	0	23	27	27
	15:00	0	0	0	0	0	0	2	8	8	3	3	0	0	0	24	29	32
	16:00	1	0	0	0	1	0	2	4	5	1	3	2	0	1	20	33	35
	17:00	1	0	0	0	1	1	4	4	9	1	0	0	0	0	21	27	27
	18:00	0	0	0	0	0	1	4	0	2	5	1	0	0	0	13	29	30
	19:00	0	0	0	0	0	0	3	5	5	3	1	1	0	0	18	29	33
	20:00	0	0	0	0	0	0	1	2	3	1	1	0	0	0	8	30	31
	21:00	0	0	0	0	0	1	1	2	3	1	2	1	0	0	11	31	32
	22:00	0	0	0	0	0	0	1	0	1	0	1	0	0	0	3	31	31
	23:00	0	0	0	0	0	0	1	0	0	0	1	1	0	0	3	34	34
	Total	9	0	0	2	9	11	37	42	70	37	19	10	3	2	251		
	Percent	3.6%	0.0%	0.0%	0.8%	3.6%	4.4%	14.7%	16.7%	27.9%	14.7%	7.6%	4.0%	1.2%	0.8%			
	AM Peak	08:00			06:00	11:00	08:00	08:00	08:00	08:00	08:00	09:00	09:00	01:00	07:00	08:00		
	Vol.	3			1	2	2	2	4	9	5	2	2	1	1	29		
	PM Peak	12:00			13:00	14:00	13:00	14:00	15:00	14:00	18:00	15:00	16:00	16:00	15:00	15:00		
	Vol.	2			1	1	2	7	8	9	5	3	2	1	24			

# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000222

Station ID:  
GRACEMERE ROAD (EAST OF EMERALD WOODS  
AND WEST OF BROWNING LANE)  
Latitude: 0 0.000 Undefined

EB, WB	1	4	7	10	13	16	19	22	25	28	31	34	37	40	85th	95th
Start Time	3	6	9	12	15	18	21	24	27	30	33	36	39	42	Percent	Percent
07/17/09	0	0	0	0	0	0	0	0	2	3	0	2	0	0	7	35
01:00	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	31
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
05:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	22
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
07:00	0	0	0	0	0	1	1	0	2	3	1	0	0	0	2	31
08:00	0	0	0	0	0	0	0	2	4	2	2	0	0	0	7	30
09:00	0	0	0	0	0	1	0	2	4	5	1	1	1	0	11	31
10:00	0	0	0	0	0	2	1	0	4	4	3	1	2	0	14	32
11:00	0	0	0	1	0	2	0	6	5	2	2	0	2	0	17	33
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	20	37
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	0	0	1	0	7	2	12	21	19	10	4	5	0	81	
Percent	0.0%	0.0%	0.0%	1.2%	0.0%	8.6%	2.5%	14.8%	25.9%	23.5%	12.3%	4.9%	6.2%	0.0%		
AM Peak				11:00		10:00	07:00	11:00	11:00	09:00	10:00	00:00	10:00			
Vol.				1		2	1	6	5	5	3	2	2			
PM Peak																
Vol.																

Grand Total	11	0	1	7	17	36	79	155	202	122	71	23	16	7	747
Percent	1.5%	0.0%	0.1%	0.9%	2.3%	4.8%	10.6%	20.7%	27.0%	16.3%	9.5%	3.1%	2.1%	0.9%	

15th Percentile : 20 MPH  
50th Percentile : 25 MPH  
85th Percentile : 31 MPH  
95th Percentile : 35 MPH

Statistics  
10 MPH Pace Speed : 21-30 MPH  
Number in Pace : 506  
Percent in Pace : 67.7%  
Number of Vehicles > 55 MPH : 7  
Percent of Vehicles > 55 MPH : 0.9%  
Mean Speed(Average) : 26 MPH



**BROWNING LANE**



# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000333  
Station ID:  
BROWNING LANE (NORTH OF GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

NB, SB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	85th Percent	95th Percent
07/14/09	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45			
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	1	0	0	0	2	6	9	20	7	1	1	0	0	0	0	46	25	27
17:00	1	0	0	1	1	6	18	13	5	2	2	0	0	0	0	47	24	27
18:00	0	0	0	0	1	3	7	8	5	0	0	1	0	0	0	25	25	27
19:00	1	0	0	1	4	8	9	9	2	2	2	0	0	0	0	36	24	27
20:00	0	0	0	1	1	8	11	10	5	2	2	0	0	0	0	38	25	27
21:00	1	0	0	1	3	2	5	4	7	1	1	1	0	0	0	25	26	30
22:00	0	0	0	0	1	5	8	5	2	0	0	0	0	0	0	21	23	25
23:00	0	0	0	0	0	1	4	2	4	0	0	0	0	0	0	11	25	26
Total	4	0	0	4	13	39	71	71	28.5%	14.9%	3.2%	0.8%	0.0%	0.0%	0.0%	249		
Percent	1.6%	0.0%	0.0%	1.6%	5.2%	15.7%	28.5%	28.5%	14.9%	3.2%	0.8%	0.0%	0.0%	0.0%	0.0%			
AM Peak																		
Vol.																		
PM Peak	16:00			17:00	19:00	19:00	17:00	16:00	16:00	16:00	17:00	18:00				17:00		
Vol.	1			1	4	8	18	20	7	2	1					47		

# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000333  
Station ID:  
BROWNING LANE (NORTH OF GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

NB, SB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	85th Percent	95th Percent
	07/15/09	3	6	9	12	15	18	21	24	27	30	33	36	39	40	10	25	26
	01:00	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	21	21
	02:00	0	0	0	0	0	1	1	2	0	0	0	0	0	0	4	22	23
	03:00	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	25	25
	04:00	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	25	25
	05:00	1	0	0	0	2	0	2	0	0	0	0	0	0	0	5	19	20
	06:00	0	0	0	0	2	2	2	3	3	0	0	0	0	0	12	25	26
	07:00	1	0	0	0	1	3	3	5	7	0	0	0	0	0	20	26	27
	08:00	1	0	0	0	0	13	8	13	3	3	0	1	0	0	42	25	29
	09:00	0	0	0	0	4	7	13	9	8	0	0	0	0	0	41	25	26
	10:00	1	0	0	3	1	6	10	7	0	1	0	0	0	0	29	23	24
	11:00	0	0	0	0	2	5	12	5	9	1	0	0	0	0	34	26	27
	12 PM	0	0	0	0	0	3	8	7	10	2	0	0	0	0	30	26	27
	13:00	0	0	0	1	1	3	6	14	5	1	0	0	0	0	31	25	26
	14:00	0	0	0	1	2	0	3	7	8	3	0	0	0	0	24	27	29
	15:00	1	0	0	0	0	9	7	14	3	4	1	0	0	0	39	26	29
	16:00	1	0	0	0	1	8	13	12	4	0	0	0	0	0	39	24	25
	17:00	0	0	0	0	1	4	11	10	13	3	0	0	0	0	42	27	28
	18:00	3	0	0	0	2	6	12	7	3	1	0	1	0	0	35	24	27
	19:00	0	0	0	0	1	3	7	10	2	2	0	0	0	0	25	24	28
	20:00	0	0	0	0	1	4	5	7	2	0	0	0	0	0	19	24	25
	21:00	1	0	0	2	1	2	5	4	3	0	0	0	0	0	18	24	26
	22:00	0	0	0	0	0	1	1	2	4	1	0	0	0	0	9	27	28
	23:00	0	0	0	0	0	0	2	7	2	1	0	0	0	0	12	25	26
Total		11	0	0	7	22	82	136	149	95	23	1	2	0	0	528		
Percent	2.1%	0.0%	0.0%	1.3%	4.2%	15.5%	28.2%	25.8%	18.0%	4.4%	0.2%	0.2%	0.4%	0.0%	0.0%			
AM Peak	00:00				10:00	09:00	08:00	09:00	08:00	11:00	08:00		08:00			08:00		
Vol.	1			3	4	13	13	13	13	9	3		1			42		
PM Peak	18:00				21:00	14:00	15:00	16:00	13:00	17:00	15:00	15:00	18:00			17:00		
Vol.	3			2	2	9	9	13	14	13	4	1	1			42		

# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000333

Station ID:

BROWNING LANE (NORTH OF GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

NB, SB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	85th Percent	95th Percent
	07/16/09	3	6	9	12	15	18	21	24	27	30	33	36	39	42	0	3	22
	01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	27
	02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	28
	03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	28
	04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	23
	05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	20
	06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	23
	07:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	22
	08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	25
	09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	27
	10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	25
	11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	26
	12 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	25
	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	27
	14:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	26
	15:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	27
	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	24
	17:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	26
	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	25
	19:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	26
	20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	26
	21:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	24
	22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	26
	23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	23
	Total	8	0	2	4	31	78	139	162	85	34	10	1	0	0	554		
	Percent	1.4%	0.0%	0.4%	0.7%	5.6%	14.1%	25.1%	29.2%	15.3%	6.1%	1.8%	0.2%	0.0%	0.0%			
	AM Peak	00:00		08:00	09:00	10:00	09:00	08:00	09:00	08:00	09:00	11:00				09:00		
	Vol.	1		1	1	5	9	18	11	8	6	1				45		
	PM Peak	17:00			16:00	14:00	14:00	17:00	18:00	15:00	15:00	13:00	22:00			18:00		
	Vol.	2			1	3	7	12	17	9	4	2	1			45		



## JOHN COLLINS ENGINEERS, P.C.

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

Site Code: 457000000333

Station ID:

BROWNING LANE (NORTH OF GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

NB, SB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	999	Total	85th Percent	95th Percent
07/17/09	0	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	5	26	27
01:00	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	25	25
02:00	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2	22	22
03:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	17	17
04:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	19	19
05:00	0	0	0	0	1	0	0	2	1	0	0	0	0	0	0	0	4	20	22
06:00	0	0	0	0	1	0	2	4	3	2	0	0	0	0	0	0	12	24	25
07:00	0	0	0	0	1	1	1	4	4	6	0	0	0	0	0	0	16	26	27
08:00	2	0	0	0	2	2	4	13	11	6	1	1	0	1	0	0	41	26	30
09:00	0	0	0	0	4	4	4	13	12	5	1	0	0	0	0	0	39	24	26
10:00	0	0	0	1	1	2	2	8	11	7	2	0	0	0	0	0	32	26	27
11:00	0	0	0	0	0	3	3	6	7	4	1	0	0	0	0	0	21	25	27
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	2	0	0	1	11	18	54	54	50	34	5	1	0	1	0	0	177		
Percent	1.1%	0.0%	0.0%	0.6%	6.2%	10.2%	30.5%	30.5%	28.2%	19.2%	2.8%	0.6%	0.0%	0.6%	0.0%	0.0%			
AM Peak	08:00			10:00	09:00	08:00	08:00	08:00	09:00	10:00	10:00	08:00		08:00					
Vol.	2			1	4	4	13	13	12	7	2	1		1					
PM Peak																			
Vol.																			

Grand Total	25	0	2	16	77	217	400	432	251	70	14	3	1	0	1508
Percent	1.7%	0.0%	0.1%	1.1%	5.1%	14.4%	26.5%	28.6%	16.6%	4.6%	0.9%	0.2%	0.1%	0.0%	

15th Percentile : 17 MPH  
50th Percentile : 22 MPH  
85th Percentile : 26 MPH  
95th Percentile : 28 MPH

10 MPH Pace Speed : 18-27 MPH  
Number in Pace : 1156  
Percent in Pace : 76.7%  
Number of Vehicles > 55 MPH : 0  
Percent of Vehicles > 55 MPH : 0.0%  
Mean Speed(Average) : 21 MPH

Statistics

**LAKE DRIVE**



# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

WB, EB	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	85th	95th
Start	3	6	9	12	15	18	21	24	27	30	33	36	39	999		Percent	Percent
07/14/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	0	0	0	1	0	0	1	4	7	3	0	0	0	0	16	28	29
16:00	0	0	0	0	0	0	1	2	2	8	1	0	0	0	14	30	30
17:00	0	0	0	0	0	1	3	6	6	3	2	0	0	0	21	29	31
18:00	0	0	0	0	1	2	1	2	2	1	0	1	0	0	10	26	28
19:00	2	0	1	0	1	0	3	2	0	1	0	0	0	0	10	22	23
20:00	0	0	0	0	0	2	3	1	2	1	0	0	0	0	9	26	28
21:00	0	0	0	0	0	1	0	2	4	2	0	0	0	0	9	28	29
22:00	0	0	0	0	0	3	2	1	4	1	1	1	0	0	13	30	33
23:00	0	0	0	0	0	0	2	1	3	1	0	0	0	0	7	27	28
Total	2	0	1	1	2	9	16	21	30	21	4	2	0	0	109		
Percent	1.8%	0.0%	0.9%	0.9%	1.8%	8.3%	14.7%	19.3%	27.5%	19.3%	3.7%	1.8%	0.0%	0.0%			

AM Peak																	
Vol.																	
PM Peak	19:00		19:00	15:00	18:00	22:00	17:00	17:00	15:00	16:00	17:00	18:00	17:00	17:00	21		
Vol.	2		1	1	1	3	3	6	7	8	2	1					

# JOHN COLLINS ENGINEERS, P.C.

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

Site Code: 45700000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

WB, EB	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	85th Percent	95th Percent
Start Time	3	6	9	12	15	18	21	24	27	30	33	36	39	42			
07/15/09	0	0	0	0	0	0	0	1	3	1	1	0	0	0	6	30	31
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	26	26
04:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	25	25
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	0	0	0	0	1	1	1	2	0	3	0	0	0	0	8	29	30
07:00	0	0	0	0	0	0	0	4	7	3	1	0	0	0	4	26	27
08:00	0	0	0	0	0	1	5	10	5	1	0	0	0	0	21	28	30
09:00	0	0	0	0	0	0	2	1	3	1	1	0	0	0	9	30	31
10:00	0	0	0	0	0	0	3	1	3	5	0	0	0	0	11	29	29
11:00	0	0	0	0	0	0	1	2	6	2	0	0	0	0	13	27	28
12 PM	0	0	0	0	0	0	0	3	5	2	0	0	0	0	14	27	28
13:00	1	0	0	1	0	0	0	4	4	3	0	0	0	0	12	28	29
14:00	0	0	0	0	0	0	0	8	5	1	0	0	0	0	16	26	27
15:00	1	0	0	0	0	0	1	4	5	0	0	0	0	0	11	26	26
16:00	0	0	0	0	0	0	3	5	9	2	0	0	0	0	19	27	28
17:00	0	0	0	0	0	0	1	7	4	1	0	0	0	0	14	26	27
18:00	1	0	0	0	0	0	1	2	5	2	0	0	0	0	11	27	28
19:00	0	0	0	0	0	0	0	6	1	2	0	0	0	0	10	27	28
20:00	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3	26	26
21:00	0	0	0	0	0	0	0	1	4	1	2	0	0	0	8	31	32
22:00	0	0	0	0	0	0	0	1	2	2	0	0	0	0	5	28	29
23:00	0	0	0	0	0	0	0	1	2	2	0	0	0	0	5	28	29
Total	3	0	0	2	3	8	19	67	79	32	5	0	0	0	218		
Percent	1.4%	0.0%	0.0%	0.9%	1.4%	3.7%	8.7%	30.7%	36.2%	14.7%	2.3%	0.0%	0.0%	0.0%			
AM Peak				09:00	06:00	06:00	08:00	09:00	08:00	11:00	00:00				08:00		
Vol.	1			1	1	1	5	10	7	5	1				21		
PM Peak	13:00			13:00	14:00	12:00	17:00	15:00	17:00	14:00	22:00				17:00		
Vol.	1			1	1	2	3	8	9	3	2				19		

# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

WB, EB	1	4	7	10	13	16	19	22	25	28	31	34	37	40	85th	95th
Start	3	6	9	12	15	18	21	24	27	30	33	36	39	42	Percent	Percent
07/16/09	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	22
01:00	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	28
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
04:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	22
05:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	22
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	28
07:00	0	0	0	1	1	1	0	0	0	1	0	0	0	0	2	13
08:00	3	0	0	0	1	0	6	7	7	4	0	0	0	0	3	28
09:00	1	0	0	0	2	0	4	7	5	3	1	0	0	0	28	29
10:00	0	0	0	0	0	0	3	0	9	2	1	0	0	0	23	30
11:00	0	0	0	0	0	1	4	4	1	0	0	0	0	0	15	29
12 PM	0	0	0	0	0	0	4	1	5	3	0	0	0	0	10	24
13:00	0	0	0	0	0	1	0	0	4	1	1	0	0	0	13	29
14:00	0	0	0	0	1	1	3	3	4	2	1	0	0	0	15	31
15:00	0	0	0	0	2	1	4	12	7	2	0	0	0	0	28	29
16:00	0	0	0	0	1	3	1	7	2	4	1	0	0	0	28	28
17:00	0	0	0	0	0	0	4	3	2	1	1	0	0	0	19	30
18:00	0	0	0	0	0	1	0	2	4	1	0	0	0	0	11	26
19:00	0	0	0	0	0	1	1	5	4	2	0	0	0	0	8	27
20:00	2	0	0	0	0	0	0	1	1	0	0	0	0	0	13	28
21:00	0	0	0	0	0	0	0	2	1	1	1	0	0	0	5	31
22:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	27
23:00	0	0	0	0	0	0	0	1	0	2	0	0	0	0	2	22
Total	6	0	0	1	10	10	34	59	58	31	7	0	0	0	3	29
Percent	2.8%	0.0%	0.0%	0.5%	4.6%	4.6%	15.7%	27.3%	26.9%	14.4%	3.2%	0.0%	0.0%	0.0%	216	
AM Peak	08:00			06:00	09:00	07:00	08:00	08:00	10:00	08:00	09:00				08:00	
Vol.	3			1	2	1	6	7	9	4	1				28	
PM Peak	20:00				15:00	16:00	12:00	15:00	15:00	16:00	13:00				15:00	
Vol.	2				2	3	4	12	7	4	1				28	

JOHN COLLINS ENGINEERS, P.C.

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

Site Code: 457000000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

Latitude: 0° 0' 0.000 Undefined																																							
WB, EB		1		4		7		10		13		16		19		22		25		28		31		34		37		40		85th		95th							
Start	Time	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90	93							
07/17/09	01:00	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	4	30	31							
	02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	25	25								
	03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*							
	04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*							
	05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*							
	06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*							
	07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	19	19								
	08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	27	28								
	09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	26	27								
	10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	29	30								
	11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	28	29								
12 PM		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	14	28	29								
13:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
14:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
15:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
16:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
17:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
18:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
19:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
20:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
21:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
22:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
23:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
Total		0	0	0	0	2	5	11	16	19	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88										
Percent		0.0%	0.0%	0.0%	0.0%	2.9%	7.4%	16.2%	23.5%	27.9%	20.6%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%											
AM Peak																														10:00									
Vol.																														1	2	4	6	5	4	1			20

Statistics

10 MPH Pace Speed : 21-30 MPH  
Number in Pace : 474  
Percent in Pace : 77.6%  
Number of Vehicles > 55 MPH : 0  
Percent of Vehicles > 55 MPH : 0.0%  
Mean Speed(Average) : 24 MPH

## **APPENDIX “K”**

### **ATR DATA**

#### **HOURLY TRAFFIC VOLUMES, VEHICLE CLASSIFICATION & POTENTIAL IMPACT TABLE**





# PROJECT IMPACT TABLE

<b>GRACEMERE ROAD</b>	<b>2008/2009 EXISTING VOLUMES</b>	<b>PROJECT IMPACT 10 SINGLE FAMILY HOMES</b>
WEEKDAY PEAK AM HOUR *	19	4
WEEKDAY PEAK PM HOUR *	15	5
DAILY **	298	45

<b>BROWNING LANE</b>	<b>2008/2009 EXISTING VOLUMES</b>	<b>PROJECT IMPACT 10 SINGLE FAMILY HOMES</b>
WEEKDAY PEAK AM HOUR *	33	5
WEEKDAY PEAK PM HOUR *	22	7
DAILY **	554	68

<b>LAKE DRIVE - (SITE ACCESS)</b>	<b>2008/2009 EXISTING VOLUMES</b>	<b>PROJECT IMPACT 10 SINGLE FAMILY HOMES</b>
WEEKDAY PEAK AM HOUR *	32	9
WEEKDAY PEAK PM HOUR *	19	12
DAILY **	218	113

\* BASED ON MANUAL TRAFFIC COUNTS      \*\* BASED ON ATR COUNTS



## **GRACEMERE ROAD**



# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000222  
Station ID:  
GRACEMERE ROAD (EAST OF EMERALD WOODS  
AND WEST OF BROWNING LANE)  
Latitude: 0' 0.000 Undefined

Start Time	13-Jul-09		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	5	4	4	0	3	4	*	*	*	*	4	3
01:00	*	*	*	*	0	1	0	1	1	1	*	*	*	*	0	1
02:00	*	*	*	*	0	0	0	0	0	0	*	*	*	*	0	0
03:00	*	*	*	*	1	1	0	0	0	0	*	*	*	*	0	0
04:00	*	*	*	*	1	2	0	1	1	0	*	*	*	*	1	1
05:00	*	*	*	*	0	0	0	1	0	0	*	*	*	*	0	0
06:00	*	*	*	*	2	6	2	1	1	1	*	*	*	*	2	3
07:00	*	*	*	*	3	10	1	6	2	5	*	*	*	*	2	7
08:00	*	*	*	*	10	8	9	20	3	8	*	*	*	*	7	12
09:00	*	*	*	*	11	10	6	12	5	9	*	*	*	*	7	10
10:00	*	*	*	*	4	8	2	6	4	13	*	*	*	*	3	9
11:00	*	*	*	*	8	11	6	7	8	12	*	*	*	*	7	10
12:00 PM	*	*	*	*	11	4	5	5	9	3	*	*	*	*	8	4
01:00	*	*	*	*	8	13	6	5	*	*	*	*	*	*	7	9
02:00	*	*	*	*	10	13	13	10	*	*	*	*	*	*	12	12
03:00	*	*	*	*	12	6	12	12	*	*	*	*	*	*	10	9
04:00	*	*	*	*	8	9	11	9	*	*	*	*	*	*	15	9
05:00	*	*	*	*	15	11	15	6	*	*	*	*	*	*	9	9
06:00	*	*	*	*	10	8	6	7	*	*	*	*	*	*	9	7
07:00	*	*	*	*	13	7	11	7	*	*	*	*	*	*	11	7
08:00	*	*	*	*	10	9	5	3	*	*	*	*	*	*	7	7
09:00	*	*	*	*	5	1	8	3	*	*	*	*	*	*	5	3
10:00	*	*	*	*	4	2	2	1	*	*	*	*	*	*	4	3
11:00	*	*	*	*	3	3	1	2	*	*	*	*	*	*	1	3
Lane	0	0	62	55	151	147	125	126	37	56	0	0	0	0	134	138
Day	0	0	117	117	298	298	251	251	93	93	0	0	0	0	272	272
AM Peak Vol.					09:00	11:00	08:00	08:00	11:00	10:00					08:00	08:00
PM Peak Vol.			17:00	16:00	11	11	9	20	8	13					7	12
			15	9	15	13	15	12	9	3					17:00	14:00
															15	12

Comb. Total	0	117	298	251	93	0	272
ADT	ADT 274	ADT 274	AADT 274				

# JOHN COLLINS ENGINEERS, P.C.

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

Site Code: 457000000222

Station ID:  
GRACEMERE ROAD (EAST OF EMERALD WOODS  
AND WEST OF BROWNING LANE)  
Latitude: 0' 0.000 Undefined

EB, WB	Start Time	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
	07/14/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	16:00	16	4	0	0	0	0	0	0	0	0	0	0	0	20
	17:00	18	5	0	0	0	0	1	0	0	0	0	0	0	24
	18:00	10	7	0	0	0	0	0	0	0	0	0	0	0	17
	19:00	15	2	0	0	0	0	0	0	0	0	0	0	0	17
	20:00	11	3	0	0	0	0	0	0	0	0	0	0	0	14
	21:00	8	1	0	0	0	0	0	0	0	0	0	0	0	9
	22:00	12	0	0	0	0	0	0	0	0	0	0	0	0	12
	23:00	4	0	0	0	0	0	0	0	0	0	0	0	0	4
	Total	94	22	0	0	0	0	1	0	0	0	0	0	0	117
	Percent	80.3%	18.8%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak															
Vol.															
PM Peak	17:00	18:00						17:00							
Vol.	18	7						1							

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000222

Station ID:

GRACEMERE ROAD (EAST OF EMERALD WOODS  
AND WEST OF BROWNING LANE)

Latitude: 0' 0.000 Undefined

EB, WB	Start Time	Cars & Trailers	Bikes	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
	07/15/09	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	01:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	03:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	04:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	06:00	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
	07:00	9	0	4	0	0	0	0	0	0	0	0	0	0	0	13
	08:00	15	0	3	0	0	0	0	0	0	0	0	0	0	0	18
	09:00	11	0	9	0	0	0	0	0	0	0	0	0	0	1	21
	10:00	9	0	3	0	0	0	0	0	0	0	0	0	0	0	12
	11:00	16	0	3	0	0	0	0	0	0	0	0	0	0	0	19
	12 PM	9	0	5	0	0	0	0	0	0	0	0	0	0	1	15
	13:00	18	0	3	0	0	0	0	0	0	0	0	0	0	0	21
	14:00	15	0	7	0	0	0	0	1	0	0	0	0	0	0	23
	15:00	9	1	8	0	0	0	0	0	0	0	0	0	0	0	18
	16:00	13	0	4	0	0	0	0	0	0	0	0	0	0	0	17
	17:00	19	0	7	0	0	0	0	0	0	0	0	0	0	0	26
	18:00	14	0	4	0	0	0	0	0	0	0	0	0	0	0	18
	19:00	16	0	4	0	0	0	0	0	0	0	0	0	0	0	20
	20:00	17	0	2	0	0	0	0	0	0	0	0	0	0	0	19
	21:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	22:00	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	23:00	5	0	1	0	0	0	0	0	0	0	0	0	0	0	6
Total		227	1	67	0	0	0	0	1	0	0	0	0	0	2	298
Percent		76.2%	0.3%	22.5%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	
AM Peak		11:00		09:00											09:00	
Vol.		16		9											1	
PM Peak		17:00		15:00					14:00						12:00	
Vol.		19	1	8					1						1	



Start Time	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/16/09	3	0	0	0	0	0	0	0	0	0	0	0	1	4
01:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	4	0	0	0	0	0	0	0	0	0	0	0	0	4
07:00	7	0	0	0	0	0	0	0	0	0	0	0	0	7
08:00	20	5	0	0	1	0	0	0	0	0	0	0	3	29
09:00	12	5	0	1	0	0	0	0	0	0	0	0	0	18
10:00	5	3	0	0	0	0	0	0	0	0	0	0	0	8
11:00	10	2	0	1	0	0	0	0	0	0	0	0	0	13
12 PM	7	1	0	0	0	0	0	0	0	0	0	0	2	10
13:00	8	2	0	0	0	0	0	0	0	0	0	0	1	11
14:00	13	8	0	1	0	0	1	0	0	0	0	0	0	23
15:00	13	9	0	2	0	0	0	0	0	0	0	0	0	24
16:00	15	3	0	1	0	0	0	0	0	0	0	0	1	20
17:00	18	2	0	0	0	0	0	0	0	0	0	0	1	21
18:00	12	1	0	0	0	0	0	0	0	0	0	0	0	13
19:00	14	4	0	0	0	0	0	0	0	0	0	0	0	18
20:00	5	3	0	0	0	0	0	0	0	0	0	0	0	8
21:00	10	1	0	0	0	0	0	0	0	0	0	0	0	11
22:00	2	1	0	0	0	0	0	0	0	0	0	0	0	3
23:00	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	183	51	0	6	1	0	1	0	0	0	0	0	9	251
Percent	72.9%	20.3%	0.0%	2.4%	0.4%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	
AM Peak	08:00	08:00		09:00	08:00								08:00	
Vol.	20	5		1	1								3	
PM Peak	17:00	15:00		15:00			14:00						12:00	
Vol.	18	9		2			1						2	

EB, WB															Latitude: 0° 0.000 Undefined			
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total			
07/17/09	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7			
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2			
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1			
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
06:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2			
07:00	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7			
08:00	0	10	1	0	0	0	0	0	0	0	0	0	0	0	11			
09:00	0	10	4	0	0	0	0	0	0	0	0	0	0	0	14			
10:00	0	14	2	0	1	0	0	0	0	0	0	0	0	0	17			
11:00	0	15	3	0	0	2	0	0	0	0	0	0	0	0	20			
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
Total	0	66	12	0	1	2	0	0	0	0	0	0	0	0	81			
Percent	0.0%	81.5%	14.8%	0.0%	1.2%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak		11:00	09:00		10:00	11:00												
Vol.		15	4		1	2												
PM Peak																		
Vol.																		
Grand Total	1	570	152	0	7	3	0	3	0	0	0	0	0	11	747			
Percent	0.1%	76.3%	20.3%	0.0%	0.9%	0.4%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%				



**BROWNING LANE**



# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000333

Station ID:  
BROWNING LANE (NORTH OF GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

Start Time	13-Jul-09		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	3	7	0	3	0	5	*	*	*	*	1	5
01:00	*	*	*	*	2	1	1	4	0	2	*	*	*	*	1	2
02:00	*	*	*	*	0	4	2	1	1	1	*	*	*	*	1	2
03:00	*	*	*	*	0	3	1	1	0	2	*	*	*	*	0	2
04:00	*	*	*	*	1	1	1	1	1	0	*	*	*	*	1	1
05:00	*	*	*	*	3	2	5	1	2	2	*	*	*	*	3	2
06:00	*	*	*	*	7	5	5	1	8	4	*	*	*	*	7	3
07:00	*	*	*	*	14	6	9	10	11	5	*	*	*	*	11	7
08:00	*	*	*	*	25	17	25	18	18	17	*	*	*	*	25	17
09:00	*	*	*	*	27	14	30	15	23	16	*	*	*	*	27	15
10:00	*	*	*	*	17	12	17	17	16	16	*	*	*	*	17	15
11:00	*	*	*	*	17	17	15	17	7	14	*	*	*	*	13	16
12:00 PM	*	*	*	*	17	13	16	19	6	8	*	*	*	*	13	13
01:00	*	*	*	*	15	16	13	15	*	*	*	*	*	*	14	16
02:00	*	*	*	*	7	17	21	18	*	*	*	*	*	*	14	18
03:00	*	*	*	*	12	27	13	27	*	*	*	*	*	*	12	27
04:00	*	*	*	*	18	21	16	15	*	*	*	*	*	*	18	21
05:00	*	*	*	*	19	23	16	25	*	*	*	*	*	*	18	25
06:00	*	*	*	*	14	21	19	26	*	*	*	*	*	*	13	22
07:00	*	*	*	*	12	13	13	19	*	*	*	*	*	*	15	16
08:00	*	*	*	*	4	15	6	14	*	*	*	*	*	*	7	19
09:00	*	*	*	*	6	12	6	15	*	*	*	*	*	*	6	15
10:00	*	*	*	*	3	6	3	8	*	*	*	*	*	*	4	9
11:00	*	*	*	*	3	9	2	8	*	*	*	*	*	*	3	8
Lane	0	0	92	157	246	282	255	299	99	92	0	0	0	0	244	296
Day	0		249		528		554		191		0		0		540	
AM Peak	09:00		09:00		08:00		08:00		08:00		08:00		08:00		08:00	
Vol.	27		30		17		18		24		17		17		27	
PM Peak	16:00		17:00		15:00		15:00		12:00		12:00		16:00		16:00	
Vol.	19		28		19		21		6		8		18		18	

Comb. Total 0 249 528 554 191 0 540

ADT ADT 541 AADT 541

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-

Station ID:

BROWNING LANE (NORTH OF GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

[illegible]







[illegible]

# JOHN COLLINS ENGINEERS, P.C.

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

Site Code: 457000000333  
Station ID:  
BROWNING LANE (NORTH OF GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined														
NB, SB														
Start Time	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/17/09	5	0	0	0	0	0	0	0	0	0	0	0	0	5
01:00	1	1	0	0	0	0	0	0	0	0	0	0	0	2
02:00	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00	4	0	0	0	0	0	0	0	0	0	0	0	0	4
06:00	10	2	0	0	0	0	0	0	0	0	0	0	0	12
07:00	13	2	0	1	0	0	0	0	0	0	0	0	0	16
08:00	22	13	1	2	0	0	1	0	0	0	0	0	2	41
09:00	24	14	1	0	0	0	0	0	0	0	0	0	0	39
10:00	25	6	0	1	0	0	0	0	0	0	0	0	0	32
11:00	18	3	0	0	0	0	0	0	0	0	0	0	0	21
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	127	41	2	4	0	0	1	0	0	0	0	0	2	177
Percent	71.8%	23.2%	1.1%	2.3%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	
AM Peak	10:00	09:00	08:00	08:00			08:00						08:00	
Vol.	25	14	1	2			1						2	
PM Peak														
Vol.														
Grand Total	1	1168	284	3	21	1	3	0	0	0	0	0	27	1508
Percent	0.1%	77.5%	18.8%	0.2%	1.4%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	



## **LAKE DRIVE**



# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIM ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000666  
Station ID:  
LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)  
Latitude: 0' 0.000 Undefined

Start Time	13-Jul-09		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	*	*	2	4	0	1	2	2	*	*	*	*	1	2
01:00	*	*	*	*	0	0	1	2	1	0	*	*	*	*	0	1
02:00	*	*	*	*	0	0	0	0	0	0	*	*	*	*	0	0
03:00	*	*	*	*	1	1	0	1	0	0	*	*	*	*	0	1
04:00	*	*	*	*	1	0	1	0	0	0	*	*	*	*	1	0
05:00	*	*	*	*	0	0	1	0	0	0	*	*	*	*	0	0
06:00	*	*	*	*	5	3	1	1	2	1	*	*	*	*	3	2
07:00	*	*	*	*	3	1	2	1	2	2	*	*	*	*	2	1
08:00	*	*	*	*	11	10	14	14	7	6	*	*	*	*	11	10
09:00	*	*	*	*	11	9	14	9	6	3	*	*	*	*	10	7
10:00	*	*	*	*	7	2	9	6	7	7	*	*	*	*	10	5
11:00	*	*	*	*	5	6	3	7	6	8	*	*	*	*	5	6
12:00 PM	*	*	*	*	4	9	8	5	6	1	*	*	*	*	4	7
01:00	*	*	*	*	7	7	4	3	3	*	*	*	*	*	6	5
02:00	*	*	*	*	5	7	9	6	6	*	*	*	*	*	7	6
03:00	*	*	*	*	5	11	13	15	*	*	*	*	*	*	9	11
04:00	*	*	*	*	8	3	9	10	*	*	*	*	*	*	8	7
05:00	*	*	*	*	11	11	7	4	*	*	*	*	*	*	8	9
06:00	*	*	*	*	9	5	3	5	*	*	*	*	*	*	5	6
07:00	*	*	*	*	4	7	4	9	*	*	*	*	*	*	4	7
08:00	*	*	*	*	5	5	2	3	*	*	*	*	*	*	3	5
09:00	*	*	*	*	1	2	2	2	*	*	*	*	*	*	2	3
10:00	*	*	*	*	2	6	0	2	*	*	*	*	*	*	5	3
11:00	*	*	*	*	3	2	1	2	*	*	*	*	*	*	3	2
Lane	0	0	48	61	107	111	108	108	41	34	0	0	0	0	105	108
Day	0		109		218		216		75		0		0		213	
AM Peak	08:00		08:00		08:00		08:00		10:00		10:00		08:00		08:00	
Vol.	11		10		14		14		13		13		11		11	
PM Peak	17:00		17:00		18:00		15:00		12:00		12:00		15:00		15:00	
Vol.	9		12		9		13		1		6		9		11	

Comb. Total	0	109	218	216	75	0	213
ADT		ADT 217	AADT 217				

Default Comments  
PROJECT: JARDIN ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

WB, EB	Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Classed	Not	Total
	07/14/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	15:00	0	12	2	0	2	0	0	0	0	0	0	0	0	0	0	16
	16:00	0	12	2	0	0	0	0	0	0	0	0	0	0	0	0	14
	17:00	0	12	7	0	1	0	0	1	0	0	0	0	0	0	0	21
	18:00	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	10
	19:00	0	7	1	0	0	0	0	0	0	0	0	0	0	0	2	10
	20:00	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	9
	21:00	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	22:00	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13
	23:00	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	Total	0	89	14	0	3	0	0	1	0	0	0	0	0	0	2	109
	Percent	0.0%	81.7%	12.8%	0.0%	2.8%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	
	AM Peak																
	Vol.																
	PM Peak		22:00	17:00		15:00			17:00							19:00	
	Vol.		13	7		2			1							2	



# JOHN COLLINS ENGINEERS, P.C.

Default Comments  
PROJECT: JARDIN ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 45700000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

WB, EB		Cars &	Bikes	Trailers	2 Axle	Buses	2 Axle	6 Tire	3 Axle	4 Axle	<5 Axle	5 Axle	>6 Axle	<6 Axle	6 Axle	>6 Axle	Not	Total
Start	Time	Trucks			Long				Single	Single	Double	Double	Double	Multi	Multi	Multi	Classed	
07/15/09		6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
01:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00		6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	8
07:00		3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
08:00		16	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	21
09:00		14	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	20
10:00		7	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	9
11:00		10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	11
12 PM		10	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	13
13:00		12	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14
14:00		9	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	12
15:00		7	0	0	6	0	0	2	0	0	0	0	0	0	0	0	1	16
16:00		7	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	11
17:00		16	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	19
18:00		8	0	0	4	0	0	1	0	0	0	0	0	0	0	0	1	14
19:00		11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
20:00		8	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	10
21:00		3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
22:00		8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
23:00		4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5
Total		168	0	0	40	0	0	5	0	0	2	0	0	0	0	0	3	218
Percent		77.1%	0.0%	0.0%	18.3%	0.0%	0.0%	2.3%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	
AM Peak		08:00			08:00			09:00			08:00							
Vol.		16			4			2			1							
PM Peak		17:00			15:00			15:00			14:00							
Vol.		16			6			2			1							



Default Comments  
 PROJECT: JARDIN ESTATES EAST  
 LOCATION: TARRYTOWN, NEW YORK  
 JCE JOB# 457

11 BRADHURST AVENUE  
 HAWTHORNE, NY, 10532  
 (914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
 GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

WB, EB	Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Total
	07/16/09	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
	02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	05:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	06:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
	07:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
	08:00	0	15	4	0	3	0	0	1	0	0	0	0	0	5	28
	09:00	0	18	4	0	0	0	0	0	0	0	0	0	0	1	23
	10:00	0	12	2	0	1	0	0	0	0	0	0	0	0	0	15
	11:00	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
	12 PM	0	8	5	0	0	0	0	0	0	0	0	0	0	0	13
	13:00	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
	14:00	0	8	6	0	0	0	0	1	0	0	0	0	0	0	15
	15:00	0	19	5	0	4	0	0	0	0	0	0	0	0	0	28
	16:00	0	11	5	0	3	0	0	0	0	0	0	0	0	0	19
	17:00	0	7	3	0	1	0	0	0	0	0	0	0	0	0	11
	18:00	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
	19:00	0	11	1	0	1	0	0	0	0	0	0	0	0	0	13
	20:00	0	3	0	0	0	0	0	0	0	0	0	0	0	2	5
	21:00	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
	22:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
	23:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
	Total	0	150	42	0	14	0	0	2	0	0	0	0	0	8	216
	Percent	0.0%	69.4%	19.4%	0.0%	6.5%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%	
	AM Peak		09:00	08:00		08:00			08:00						08:00	
	Vol.		18	4		3			1						5	
	PM Peak		15:00	14:00		15:00			14:00						20:00	
	Vol.		19	6		4			1						2	

Default Comments  
PROJECT: JARDIN ESTATES EAST  
LOCATION: TARRYTOWN, NEW YORK  
JCE JOB# 457

11 BRADHURST AVENUE  
HAWTHORNE, NY, 10532  
(914) 347-7500 / FAX (914) 347-7266

Site Code: 457000000666

Station ID:

LAKE DRIVE (EAST OF BROWNING LANE/  
GRACEMERE ROAD)

Latitude: 0' 0.000 Undefined

[illegible][illegible]