APPENDIX 2E.
TRAFFIC IMPACT STUDY

JOHN COLLINS ENGINEERS, P.C. TRAFFIC • TRANSPORTATION ENGINEERS

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TRAFFIC IMPACT STUDY

****

CORNWALL COMMONS

U.S. ROUTE 9W

CORNWALL, NEW YORK

JOB NO. 173

MARCH 13, 2007

TABLE OF CONTENTS

SECTION I

INTRODUCTION

This report has been prepared as an update to the original Traffic Impact Study prepared for the Cornwall Commons project dated February 26, 2002. This report has been prepared to evaluate the changes in the project components and to update the background traffic volumes and related analyses.

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

Cornwall Commons is now proposed as a mixed used development which will be developed on properties located on the west side of U.S. Route 9W in the vicinity of the NYS Route 218 (Academy Avenue) Interchange (See Figure No. 1).

Access to the site will include the construction of a new roadway connecting with U.S. Route 9W north and south of the NYS Route 218 Interchange to provide two access points to U.S. Route 9W.

For the purposes of analysis, a design year of 2010 has been utilized for the development.

B. SCOPE OF STUDY

This study has been prepared to evaluate traffic conditions associated with the proposed mixed use development on the surrounding roadway network and to make

recommendations for any improvements required to mitigate the traffic generated by the project. In the course of completing this study, traffic volumes on the roadways surrounding the site were counted and projected to the design year utilizing an appropriate growth factor. In addition, traffic for other planned developments in the area were also identified and added to the Projected Traffic Volumes to obtain the No-Build Traffic Volumes.

Estimates of traffic for the proposed land uses within the development were made based on information published by the Institute of Transportation Engineers. These site generated traffic volumes were then added to the design year No-Build Traffic Volumes to obtain the design year Build Traffic Volumes. The Existing, No-Build and Build Traffic Volumes were then analyzed to determine traffic operating conditions for each condition and where potential problem areas were identified, recommendations for improvements were made.

Since a Draft Generic Environmental Impact Statement (DGEIS) was previously prepared for this site, this study is formatted to address the Existing, No-Build and Build Conditions and is based on the Supplemental Scoping Document for the project dated January 9, 2007.

SECTION II

EXISTING ROADWAY AND TRAFFIC CONDITIONS

A. DESCRIPTION OF EXISTING ROADWAY NETWORK

The site is located along the west side of U.S. Route 9W. A description of U.S. Route 9W and other area roadways is provided below.

1. U.S. Route 9W

U.S. Route 9W is a major north/south roadway which traverses throughout Orange County. In the vicinity of the site, the roadway consists of two lanes per direction and has a grade separated interchange with NYS Route 218. North of the site, there is an intersection with Forge Hill Road and south of the site, U.S. Route 9W has an Interchange connection with Willow Avenue (C.R. 32). The posted speed limit on this section of roadway currently varies between 45 and 55mph.

The New York State Department of Transportation (NYSDOT) has plans for long term improvements to the U.S. Route 9W Corridor and will generally involve safety related improvements for this section of the Corridor. The NYSDOT in the interim has installed a traffic signal at the U.S. Route 9W/Forge Hill Road intersection and has incorporated striping changes on the northbound approach to provide a separate left turn lane.

2. Forge Hill Road (County Route 74)

Forge Hill Road intersects with US Route 9W at a signalized intersection. The U.S. Route 9W approaches consist of two lanes while Forge Hill Road consists of one lane in each direction.

3. NYS Route 218

New York State Route 218 (Academy Avenue) originates at a grade separated interchange with US Route 9W adjacent to the site. This section of roadway consists of one travel lane per direction and has a posted speed limit of 35 mph. The roadway continues in a southeasterly direction providing access to Cornwall. The roadway continues further to the south eventually connecting again with US Route 9W.

4. Willow Avenue (County Route 32)

Willow Avenue (C.R. 32) intersects with U.S. Route 9W at a grade separated Interchange. In the vicinity of the interchange, Willow Avenue consists of one lane in each direction. The ramp connections are channelized and controlled by a series of "stop" and "yield" signs.

5. Mailler Avenue

Mailler Avenue is a two lane local roadway which originates at an intersection with Willow Avenue, continues in a northeasterly direction intersecting with several other local roadways and terminates at a "T" intersection with NYS Route 218 (Academy Avenue).

B. 2006 EXISTING TRAFFIC VOLUMES (Figures No. 2 and 3)

In order to establish the existing traffic volumes on the area roadways, all available traffic count data was collected from the NYSDOT. In addition, manual traffic counts were conducted by representatives of John Collins Engineers, P.C. at the various intersections which were identified as part of the Scoping Document. These intersections included the following:

- U.S. Route 9W and NYS 218 (Academy Avenue) Interchange
- Academy Avenue (NYS Route 218) and Main Street
- U.S. Route 9W and Caesar's Lane
- U.S. Route 9W and Forge Hill Road
- Willow Avenue (C.R. 32) and U.S. Route 9W Interchange
- Academy Avenue (NYS Route 218) and Mailler Avenue

The traffic counts at these intersections were conducted during various periods during 2005 and 2006. The counts were conducted on typical Weekdays and covered the morning and afternoon peak hours. Based on the results of the existing traffic volumes the following peak hours were determined to be critical with respect to analysis.

- 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 2006 Existing Traffic Volumes for each of these intersections are shown on Figures No. 2 and 3.

SECTION III

EVALUATION OF FUTURE TRAFFIC CONDITIONS

A. 2010 NO-BUILD TRAFFIC VOLUMES (Figures No. 4, 5, 6, 7, 8 and 9)

In order to develop the design year No-Build Traffic Volumes, the existing traffic volumes were projected to the future design year utilizing a background growth factor of 2% per year. This growth factor was developed based on a review of historical data compiled by NYSDOT. The resulting Year 2010 Projected Traffic Volumes are shown on Figures No. 4 and 5. In addition, as specified in the scoping document, the traffic for other planned developments in the area including Chestnut Woods, Winding Creek and Willow Woods were estimated and then added to the Projected Traffic Volumes to obtain the 2010 No-Build Traffic Volumes. The other development volumes are shown on Figures No. 6 and 7 and the resulting Year 2010 No-Build Traffic Volumes are shown on Figures No. 8 and 9 for each of the Peak Hours, respectively.

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

The proposed development includes both residential and commercial development component. Information published by the Institute of Transportation Engineers (ITE) as contained in their report entitled Trip Generation, 7th Edition, 2003, was utilized to develop the Peak Hour traffic volumes. The Peak Hour trip generation rates and

corresponding site generated traffic volumes for the development are shown in Table No. 1. It should be noted that the peak traffic generation for the currently proposed project is significantly lower than that analyzed in the original GEIS.

C. ARRIVAL AND DEPARTURE DISTRIBUTIONS (Figures 10, 10A, 11 and 11A)

Based on a review of existing traffic volumes and a review of population and employment centers in the area, the arrival and departure distributions were developed. Figures No. 10 and 11 show the distributions for the development. Note that these distributions reflect the utilization of the Route 9W/Route 218 (Academy Avenue) Interchange in order to accomplish left turn movements to and from the site and are herein referred to as Access Scenario No. 1. The second access scenario (Access Scenario No. 2), considers the creation of a full movement signalized intersection connection with US Route 9W at the southerly location. The expected traffic distributions for this access scenario are shown on Figures No. 10A and 11A.

D. 2010 BUILD TRAFFIC VOLUMES

(Figures No. 12, 12A, 13, 13A, 14, 14A, 15 and 15A)

The site generated traffic volumes were assigned to the roadway network utilizing the above referenced arrival and departure distributions. The resulting site generated traffic volumes for Scenario No. 1 are shown on Figures No. 12 and 13. These volumes were added to the Year 2010 No-Build Traffic Volumes to obtain the Year 2010 Build Traffic

Volumes. The resulting Year 2010 Build Traffic Volumes are shown Figures No. 14 and 15 for each of the peak Hours.

Similarly, the site generated traffic volumes for the Access Scenario No. 2 are shown on Figures No. 12A and 13A. These site generated traffic volumes were added to the Year 20010 No-Build Traffic Volumes to obtain the Year 2010 Build Traffic Volumes for Access Scenario No. 2. The resulting Year 2010 Build Traffic volumes for Access Scenario No. 2 are shown on Figures No. 14A and 15A.

E. DESCRIPTION OF ANALYSIS PROCEDURES

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

- Signalized Intersection Capacity Analysis

  The capacity analysis for a signalized intersection was performed in accordance with the procedures described in the 2000 Highway Capacity Manual, published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service "A" represents the best condition and a Level of Service "F" represents the worst condition. A Level of Service "C" is generally used as a design standard while a Level of Service "D" is acceptable during peak periods. A Level of Service "E" represents an operation near capacity. In order to identify an intersection's Level of Service, the average

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

o Unsignalized Intersection Capacity Analysis

The unsignalized intersection capacity analysis method utilized in this report was also performed in accordance with the procedures described in the 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 signalized and unsignalized Levels of Service can be found in Appendix "D" of this report.

F. RESULTS OF TRAFFIC ANALYSIS (Table No. 2)

A capacity analysis was performed at each of the intersections utilizing the procedures described above in order to evaluate current and future operating conditions for the area roadways. A description of each of the intersections and the results of the analysis are provided below.

Copies of the capacity analysis are contained in Appendix "C" of this report. Table No. 2 provides a summary of the Levels of Service for the Year 2006 Existing, 2010 No-Build and 2010 Build Conditions.

1. U.S. Route 9W and Caesar's Lane

Caesar's Lane intersects at a "T" intersection with U.S. Route 9W southbound. Capacity analysis conducted at the intersection utilizing the existing traffic volumes indicates Levels of Service "C" for traffic entering and exiting Route 9W. The capacity analyses were re-computed for the future conditions. A review of future analysis indicates that Levels of Service "C" or better will be maintained in the future 2010 No-Build and Build conditions.

2. US Route 9W and Forge Hill Road

Forge Hill Road intersects with U.S. Route 9W at a signalized intersection. The U.S. Route 9W northbound approach consists of two lanes including a left and a through/right lane. The Route 9W southbound approach consists of a separate left, a through and a through/right turn lane. The Forge Hill Road eastbound approach is one lane and the westbound approach also has a short right turn lane. Capacity analysis conducted at the intersection indicates that under current conditions. Levels of services "D" are experienced during the PM Peak Hour.

Capacity analysis conducted at the intersection utilizing future traffic volumes indicates that under the future No-Build conditions, overall Levels of Services

"D" or better are expected for the intersection. However, during the PM Peak Hour, the northbound approach will experience a Level of Service "E" and "F".

To improve operations, modifications to the traffic signal timings could be implemented. Capacity analysis conducted at the intersection utilizing the future No-Build and Build traffic volumes with these changes indicates that overall Levels of Service "D" will be experienced.

The New York State Department of Transportation as part of their long term improvement project, is planning to provide additional lanes to improve the operation and safety of the intersection.

3. U.S. Route 9W and North Site Access Road

In the vicinity of the north site access road, U.S. Route 9W consists of two lanes in each direction. When constructed, this roadway should consist of a right turn entry and right turn exit connection to Route 9W southbound.

Capacity analysis conducted at the intersection indicates that acceptable levels of service will be experienced at the intersection under future conditions. The final design of this intersection will be detailed with NYSDOT as part of the Highway Work Permit process.

4. U.S. Route 9W and NYS 218 Interchange

NYS Route 218 (Academy Avenue) intersects with US Route 9W at a full movement interchange. The analysis conducted for existing conditions indicates that Levels of Service "B" or better are currently experienced during the weekday AM and PM peak hours.

The future conditions were evaluated for No-Build and Build conditions. A review of these analyses indicates that Levels of Service "D" or better will be obtained at the intersection under the future conditions. It is also recommended that additional signing be installed in advance of the interchange areas to direct traffic to and from the local area roadways including the new access road which will serve the site.

5. U.S. Route 9W and Southerly Site Access Road

The new southerly site access road will intersect with Route 9W south of the 218 Interchange. This intersection has been analyzed for two conditions including a full movement signalized intersection (Scenario No. 2). When constructed this intersection should consist of one entering and two exiting lanes and require the construction of separate left and right turn lanes on Route 9W. Capacity analysis conducted at this intersection utilizing future traffic volumes indicates that overall Levels of Service "B" will be experienced.

6. Academy Avenue and Mailler Avenue

Academy Avenue intersects with Mailler Avenue at a "stop" sign controlled intersection. Capacity analysis conducted at the intersection utilizing existing traffic volumes indicates a Level of Service "C" or better during peak periods. A review of the analysis indicates that for the future No-Build condition Levels of Service "C" or better will be maintained at the intersection.

The future Build conditions were re-analyzed utilizing the Build traffic volumes. A review of these analyses indicates these Levels of Service "C" or better will be maintained at the intersection under future conditions.

7. Academy Avenue and Main Street/Faculty Road

Academy Avenue and Main Street/Faculty Road intersect at a stop sign controlled intersection. All approaches to the intersection consist of one lane. Capacity analysis conducted at the intersection utilizing the existing traffic volumes indicates that the northbound left turn movement currently operates at a Level of Service "F" during peak hours.

In order to improve operating conditions for this left turn movement, the installation of a traffic signal would be required. Therefore, it is recommended that this intersection be monitored in the future to determine if traffic signal warrants will be satisfied. If satisfied, a fair-share contribution towards the signalization should be made by the Applicant.

The intersection was re-evaluated assuming signalization utilizing the 2010 No-Build and 2010 No-Build traffic volumes. A review of these analyses indicates overall Levels of Service "B" will be obtained.

8. U.S. Route 9W and Willow Avenue

Willow Avenue intersects with US Route 9W at a grade separated interchange. The ramps are located in the northwest and southeast quadrants of the interchange. The ramp connections to Willow Avenue are both stop sign controlled and channelized. Capacity analysis, conducted at the intersections indicate that during peak periods traffic exiting the ramps is currently operating at Level Service "C" or better. A review of the 2010 No-Build and Build analysis indicates that similar levels of service will be maintained at the interchange signing and striping improvements should be considered at these intersections.

G. SUMMARY OF FINDINGS AND RECOMMENDATIONS

Based on a review of the field conditions in the vicinity of the site, as well as a review of the results of the capacity analysis, the following is a summary of the findings and recommendations relative to the proposed development.

1. The construction of the new access road connection to Route 9W will have to be coordinated with the New York State Department of Transportation. Under the current development plan, the site can be served via a right turn entry and right turn exit at the northerly portion of the property. The southerly access (Scenario

No. 2) includes the provision of a full-movement signalized intersection. This improvement will include construction of separate turn lanes on Route 9W as well as the installation of a new traffic signal.

2. The New York State DOT has evaluated improvements to the 9W corridor which include safety and capacity type improvements. It is expected that the improvements will include extension of acceleration and deceleration lanes at the 218 interchange.

3. As a result of the capacity analysis, certain intersection improvements were identified as described in the previous section. These should be implemented with or without the development of the project. A fair-share contribution to these should be made by the proposed project.

4. At the existing intersection of the Route 9W northbound on/off ramp connection to Route 218, this intersection should be modified to allow exiting movements along Route 218 in both directions. Under existing conditions there is an unpaved area which is occasionally utilized by vehicles; however this should be modified to provide a standard intersection.

5. In addition to the above items, several of the intersections in the vicinity of the site should be improved by the addition of the new pavement markings including stop bars, painted stop bars, etc. Furthermore, the sight distance at some of the locations could be improved by the pruning of the existing vegetation located

within the right-of-way. These improvements should be implemented regardless of the proposed development.

H. SUMMARY AND CONCLUSIONS

Based on the results of the field inspections of the roadways in the vicinity of the site as well as the results of the analysis, certain improvements have been identified, many of which are required regardless of the proposed development. The development of the property will also require close coordination with NYSDOT as part of the Highway Work Permit Process to coordinate the access improvements in conjunction with the U.S. Route 9W corridor improvements.

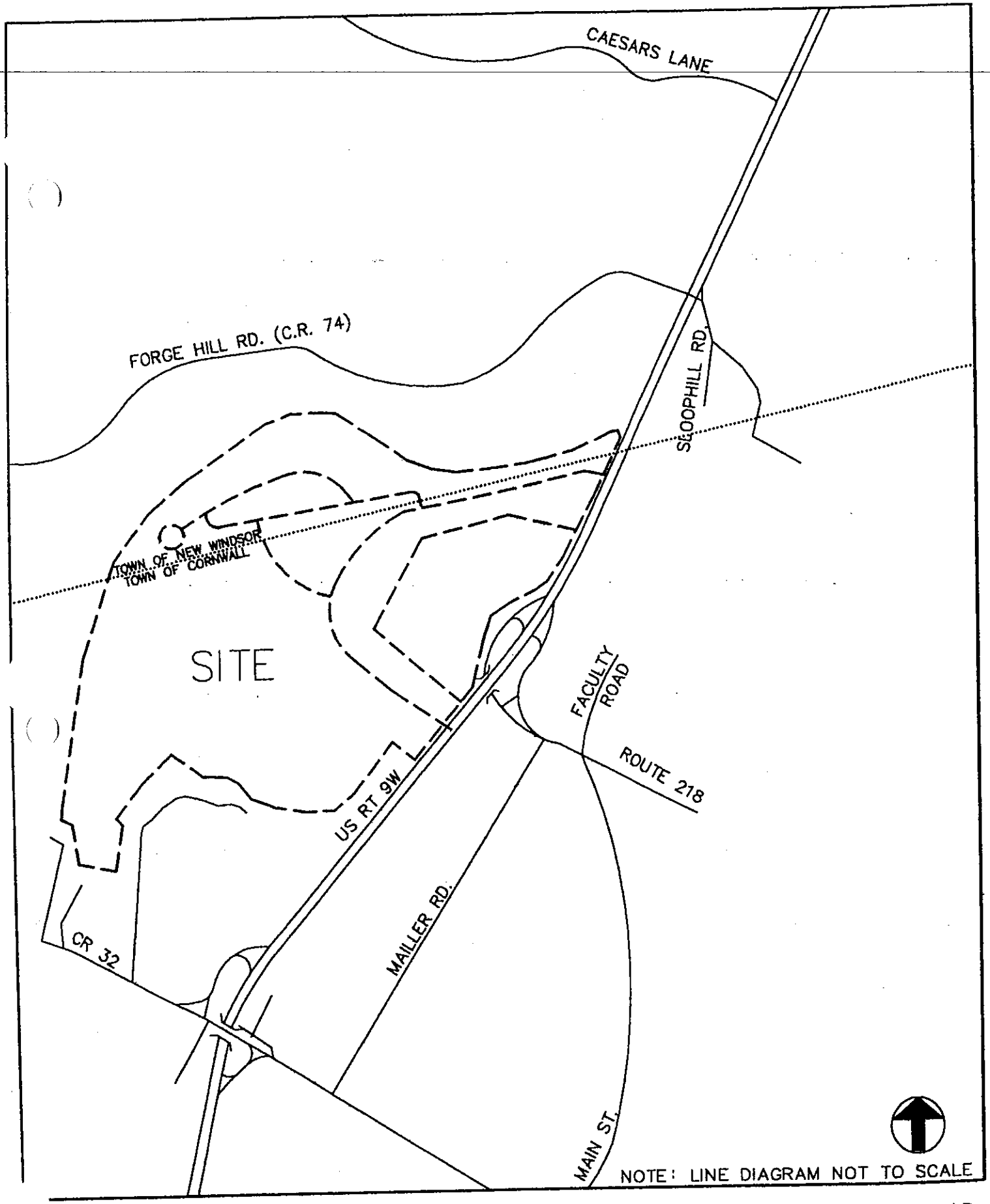
Respectfully submitted,

JOHN COLLINS ENGINEERS, P.C.

Philip J. Grealy, Ph.D., P.E.

APPENDIX "A"

FIGURES



SITE LOCATION MAP

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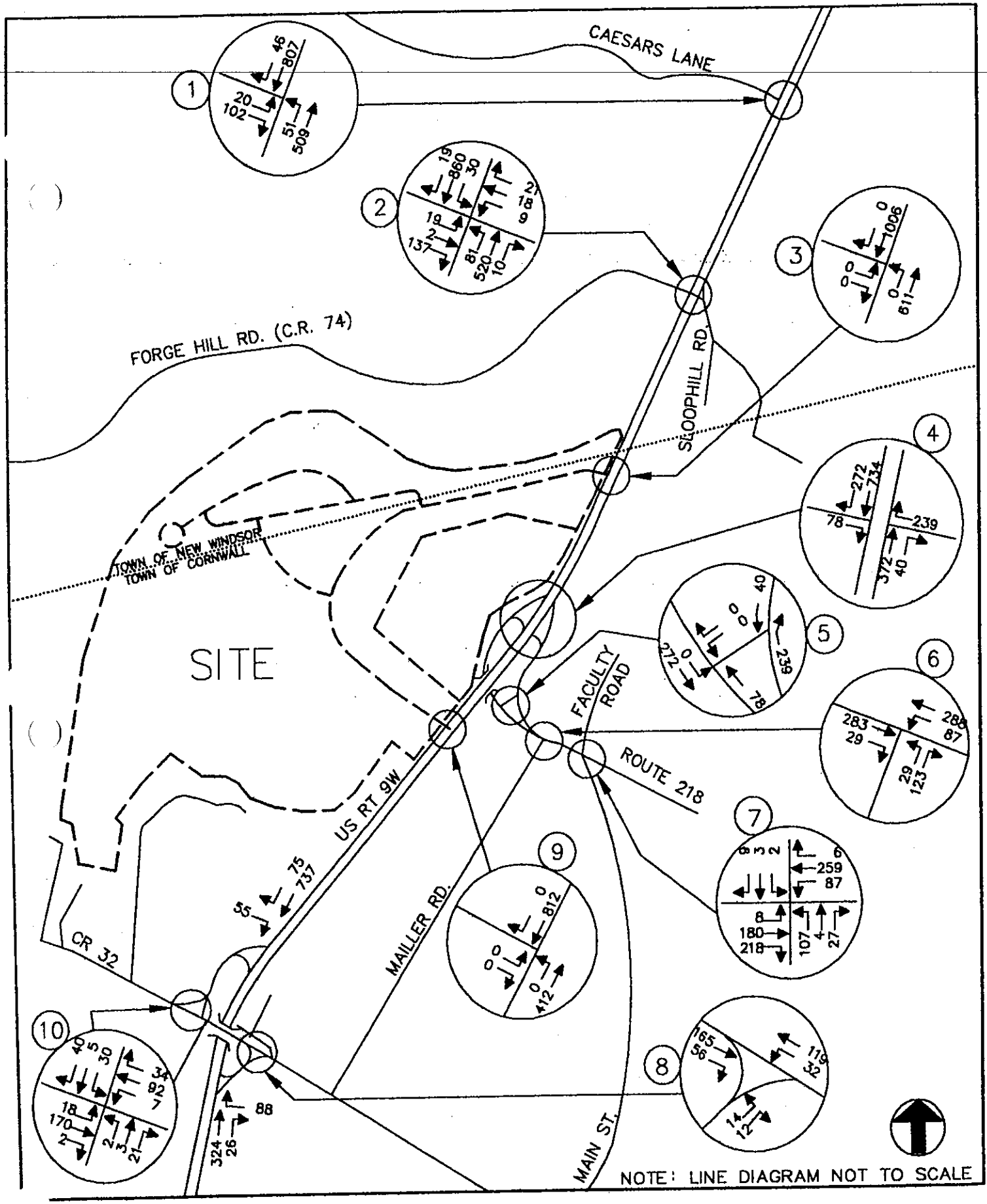
PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 1



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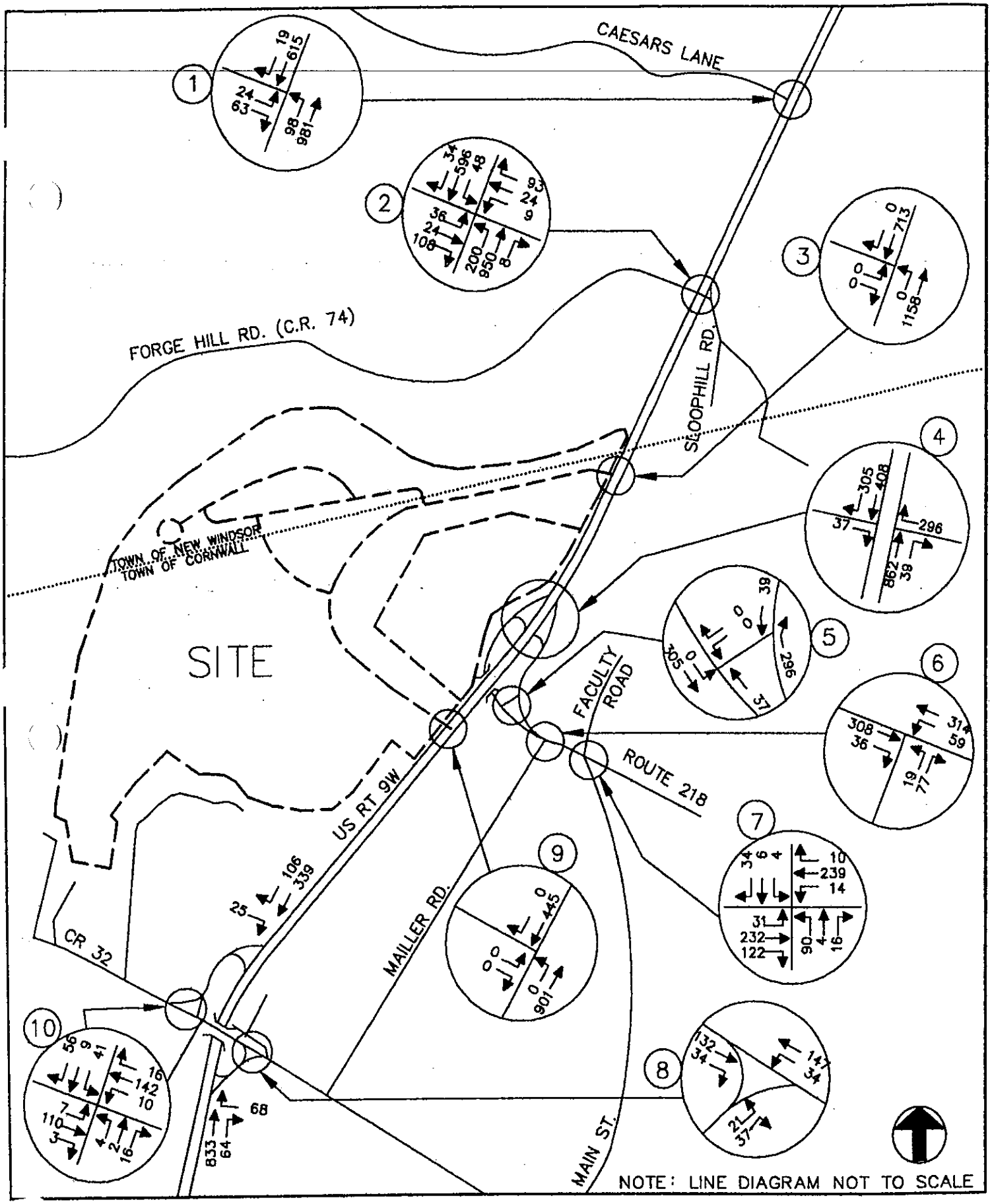
2006 EXISTING TRAFFIC VOLUMES
PEAK AM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 2



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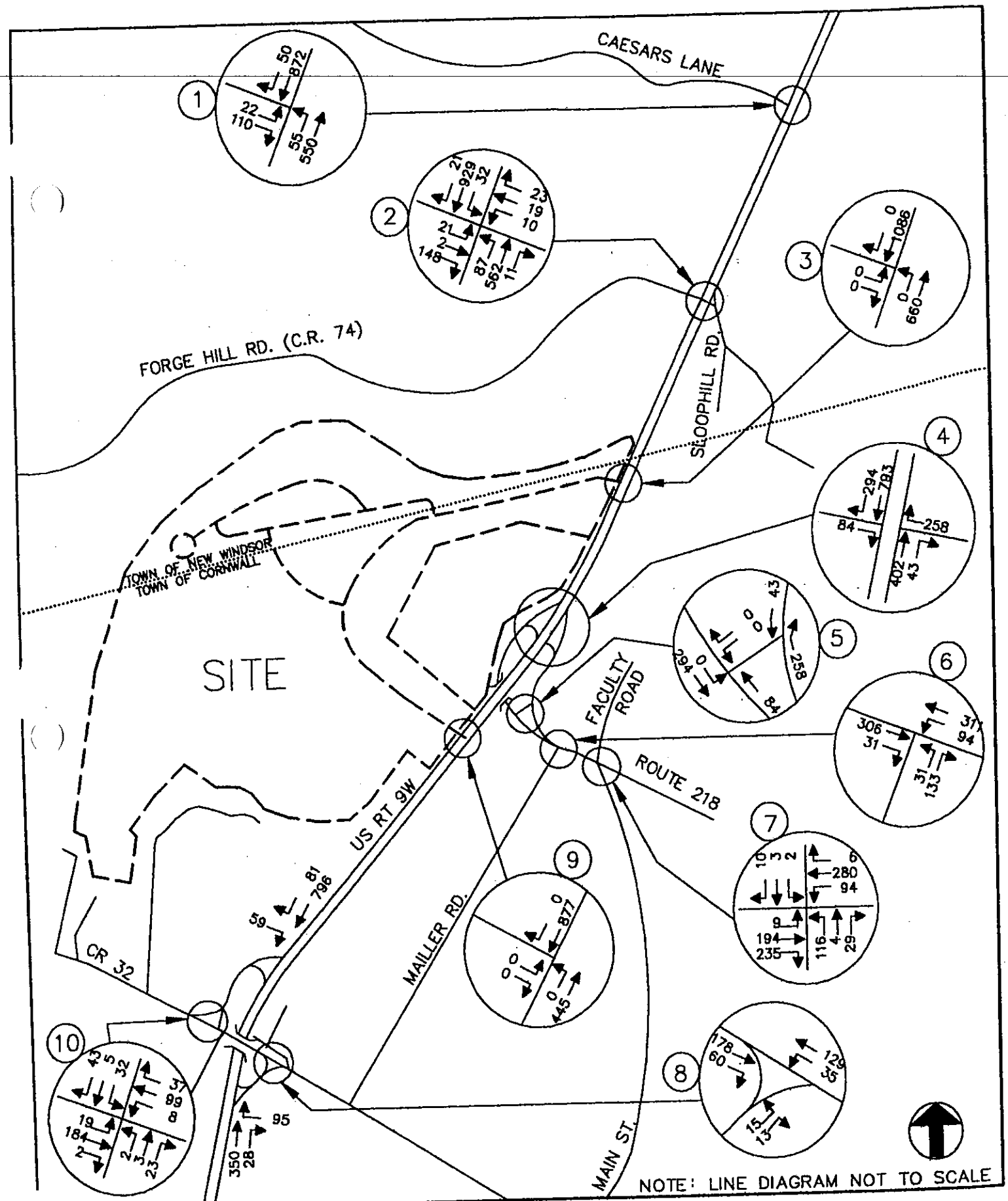
2006 EXISTING TRAFFIC VOLUMES
PEAK PM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 3



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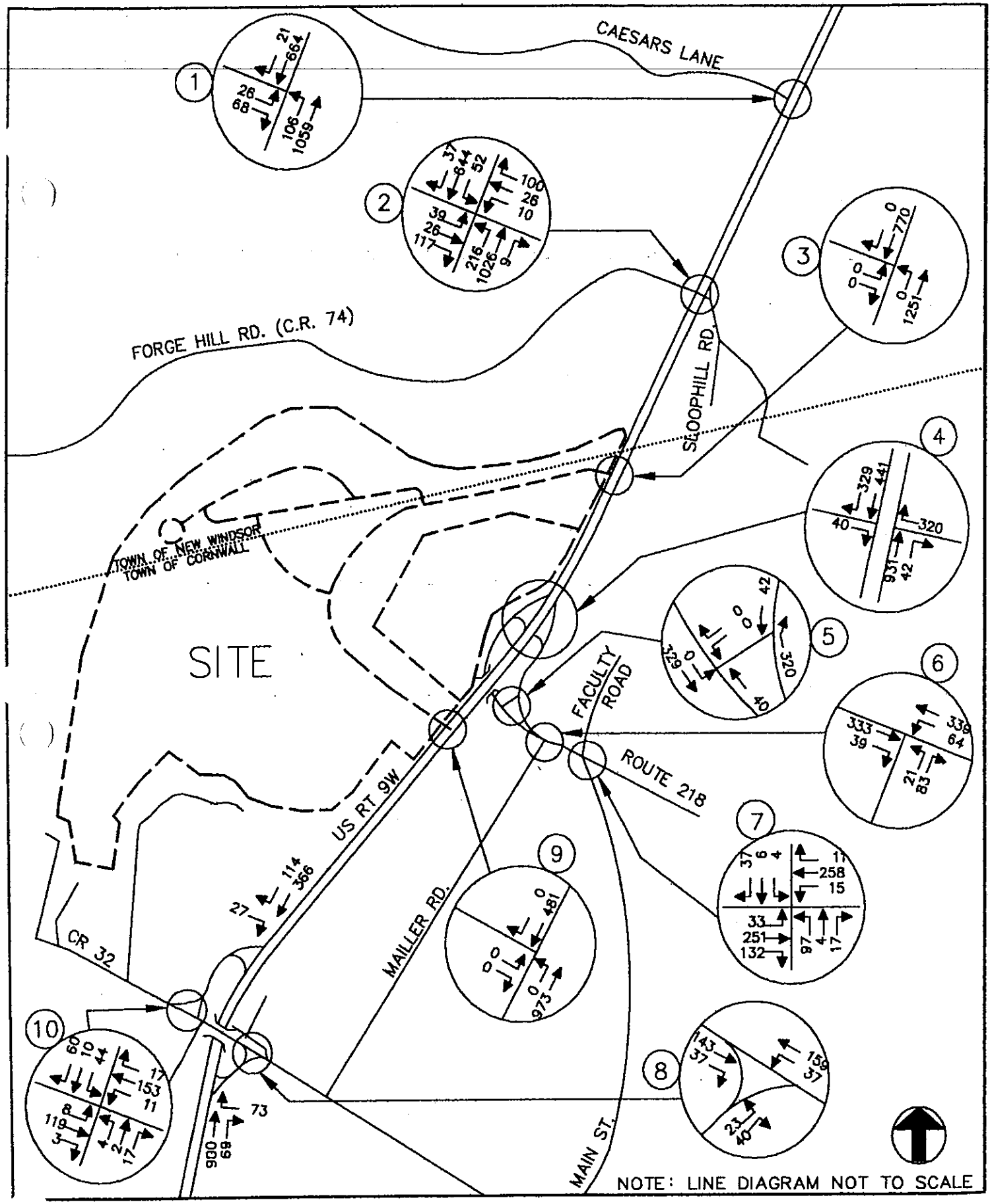
2010 PROJECTED TRAFFIC VOLUMES
PEAK AM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 4



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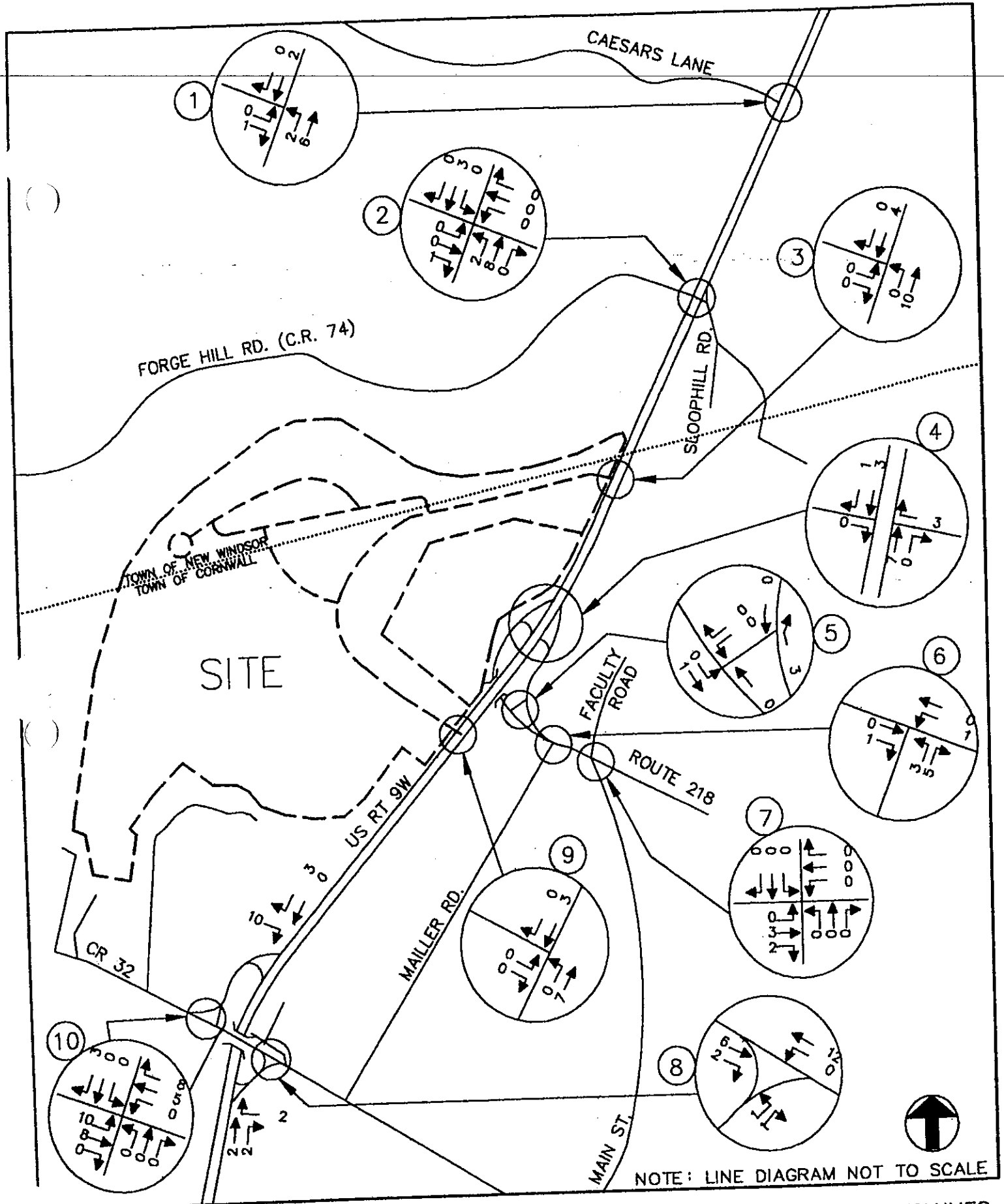
2010 PROJECTED TRAFFIC VOLUMES
PEAK PM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 5



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OTHER DEVELOPMENT TRAFFIC VOLUMES
PEAK AM HOUR

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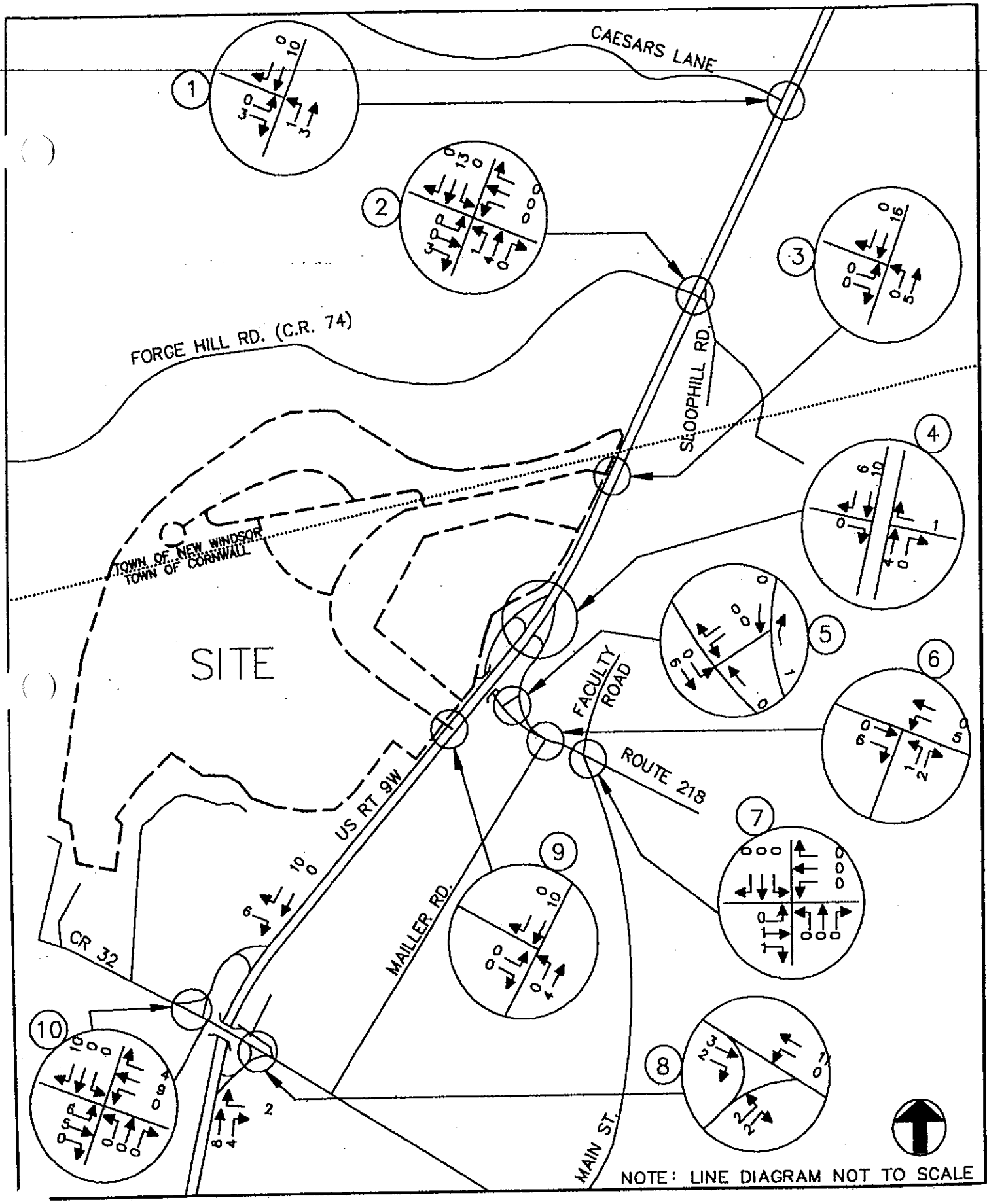
PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 6



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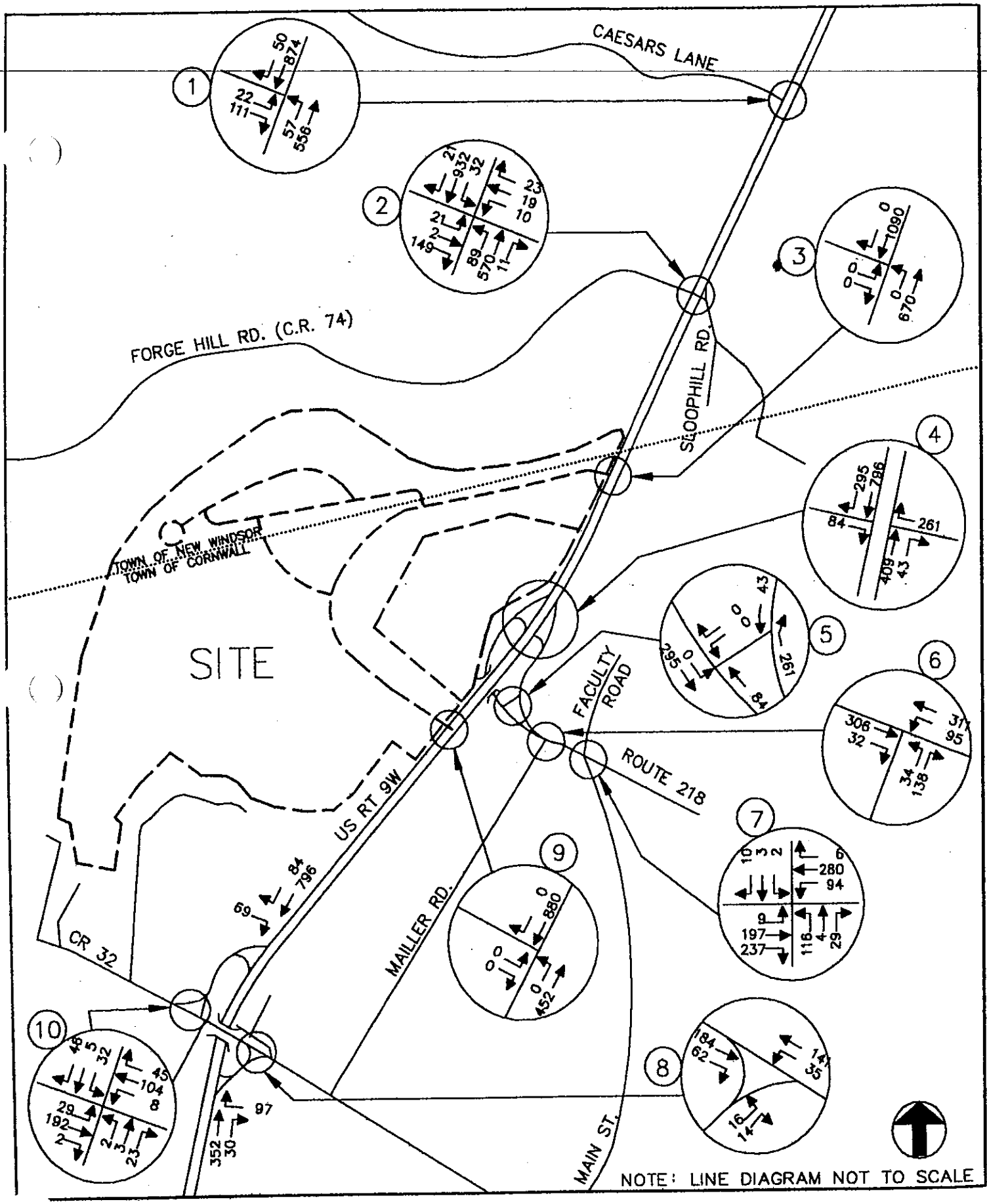
OTHER DEVELOPMENT TRAFFIC VOLUMES
PEAK PM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 7



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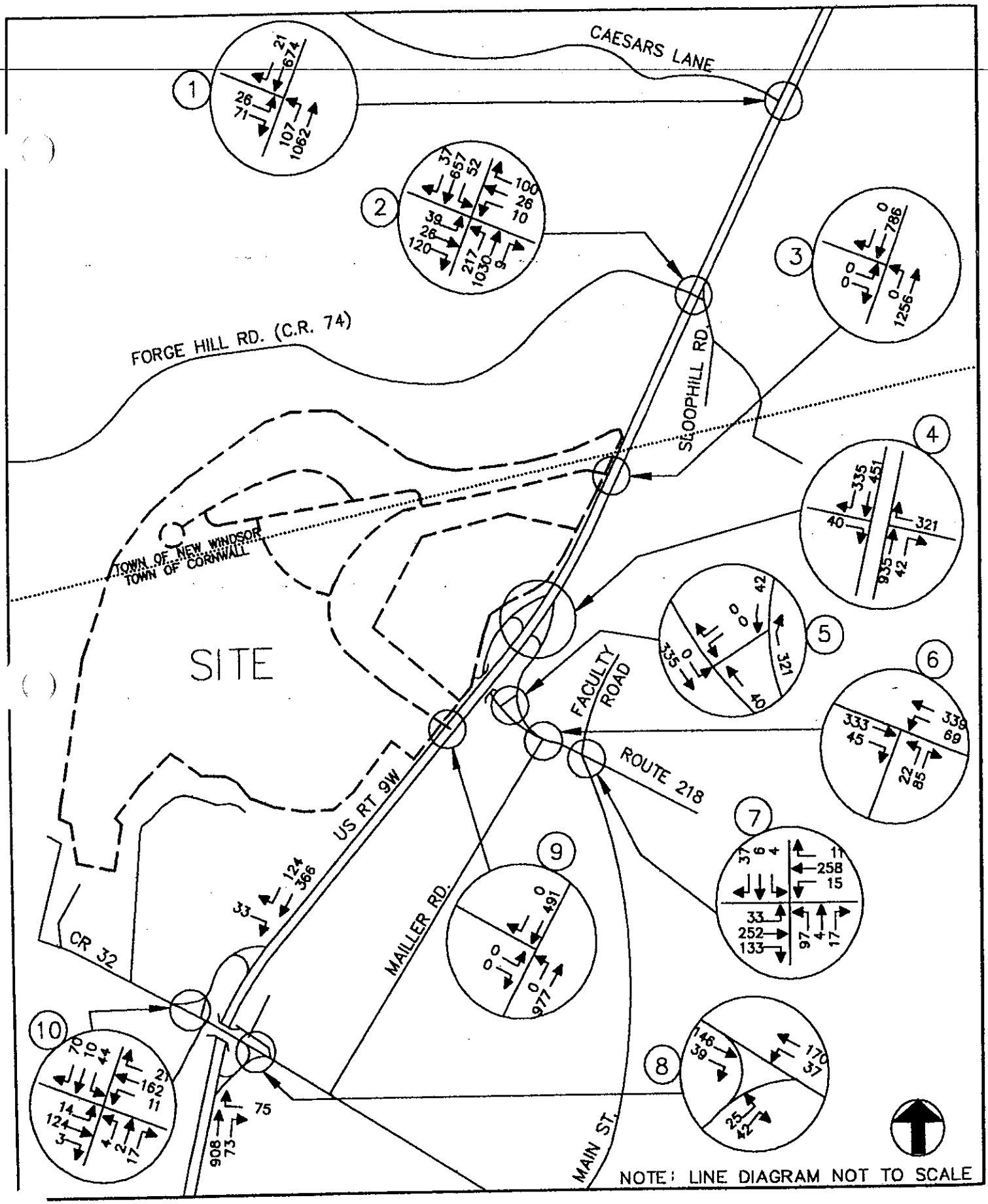
2010 NO-BUILD TRAFFIC VOLUMES
PEAK AM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 8



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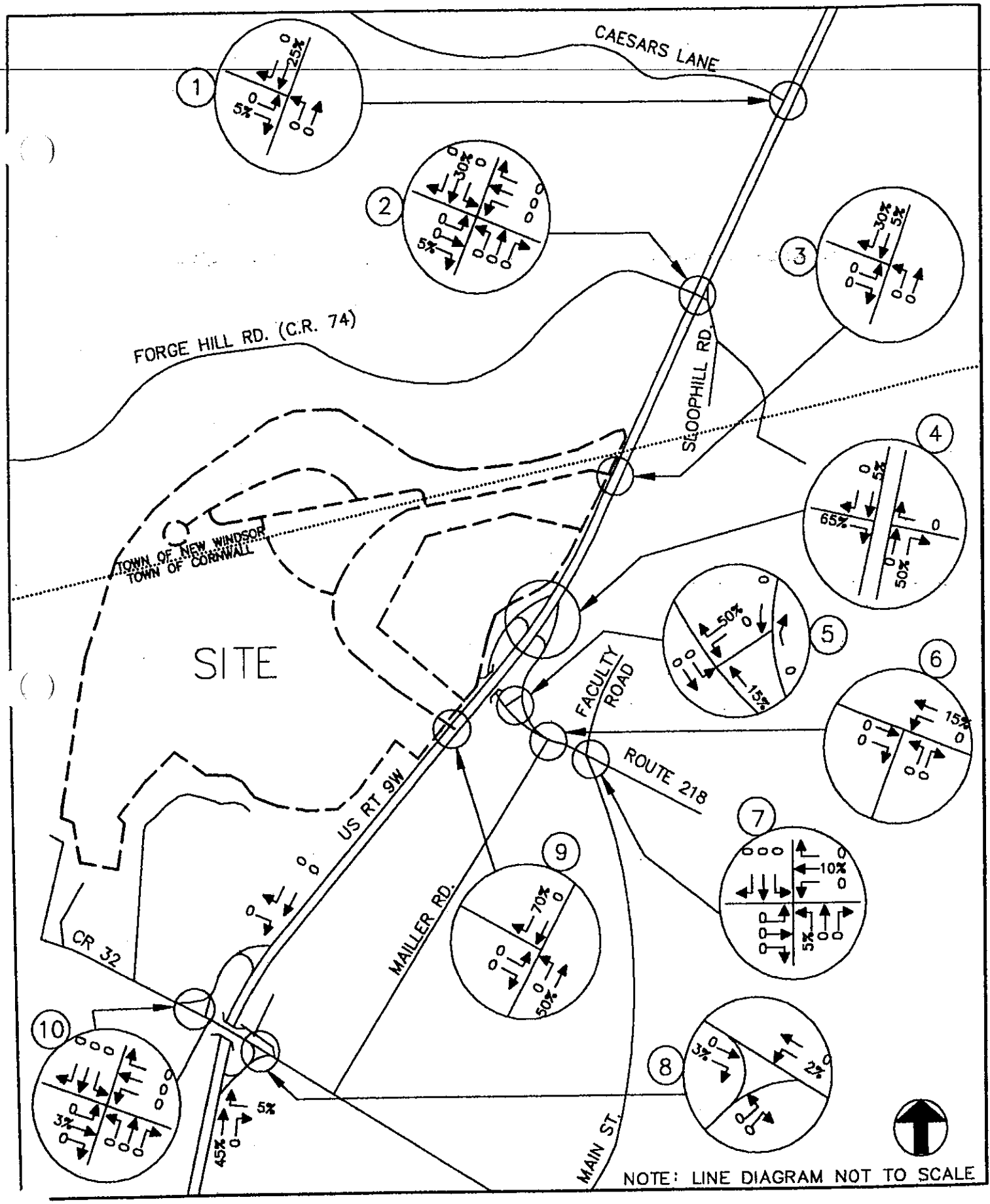
2010 NO-BUILD TRAFFIC VOLUMES
PEAK PM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 9



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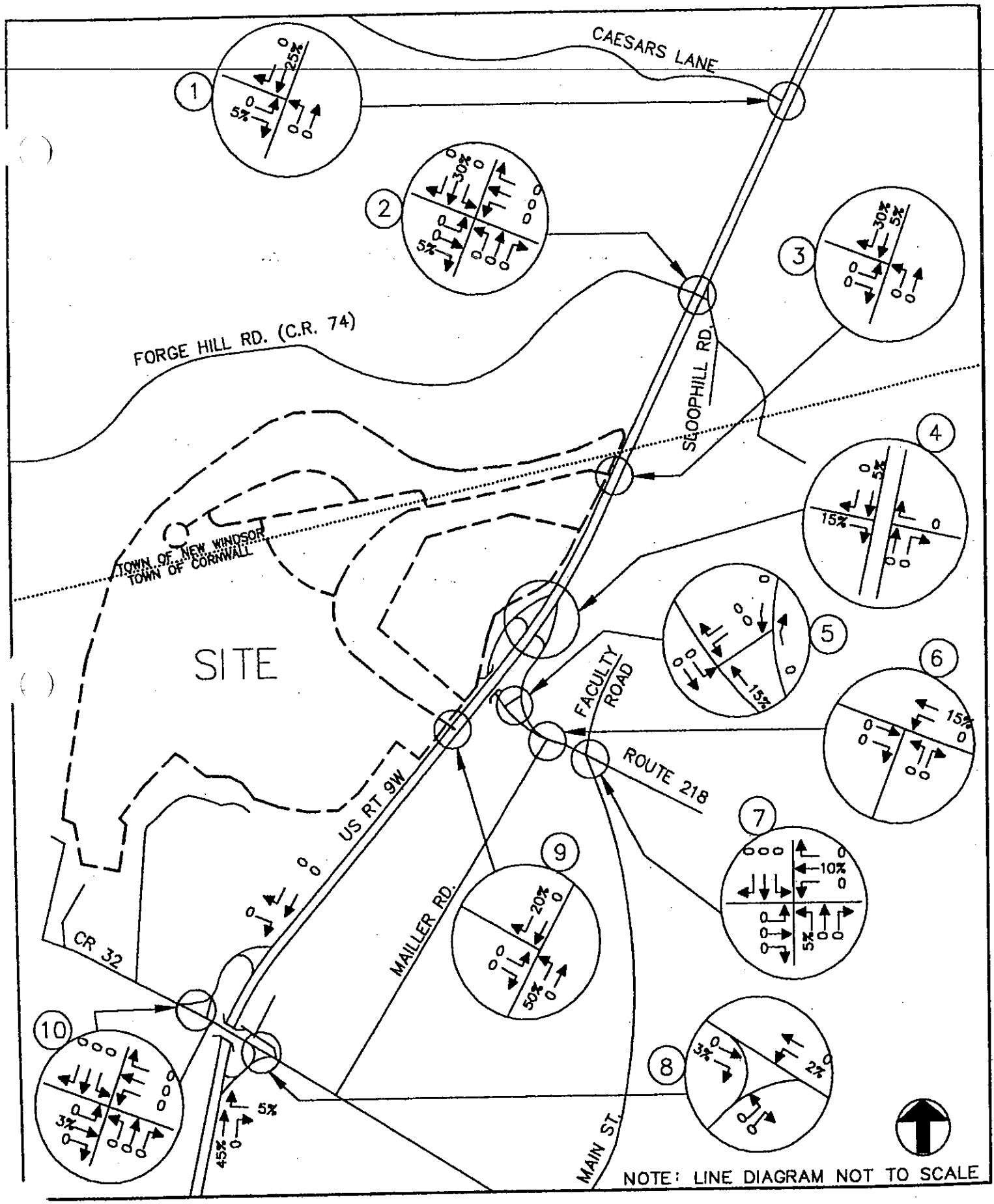
ARRIVAL DISTRIBUTION

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 10



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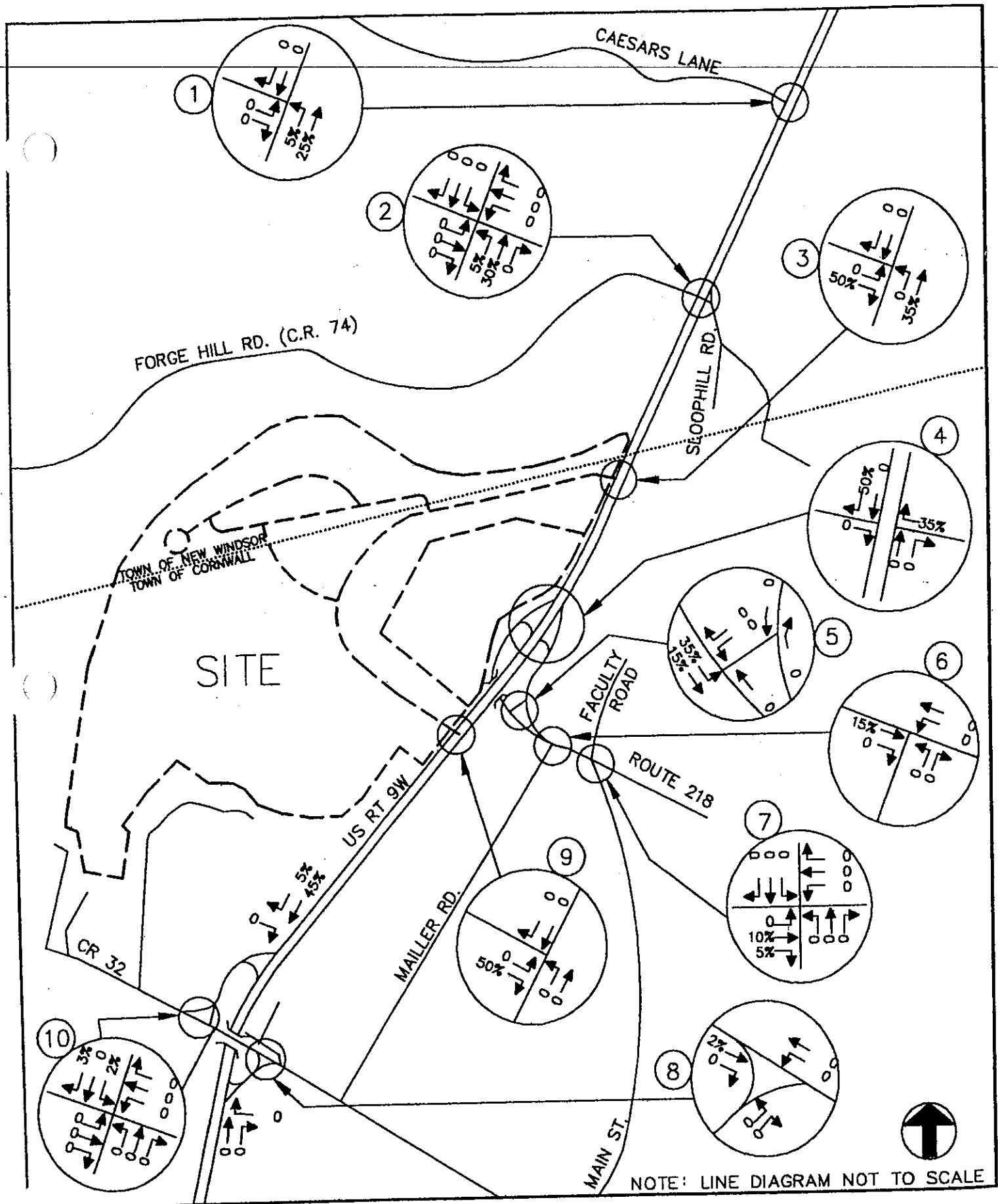
ARRIVAL DISTRIBUTION

(SCENARIO 2)

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 10A



DEPARTURE DISTRIBUTION

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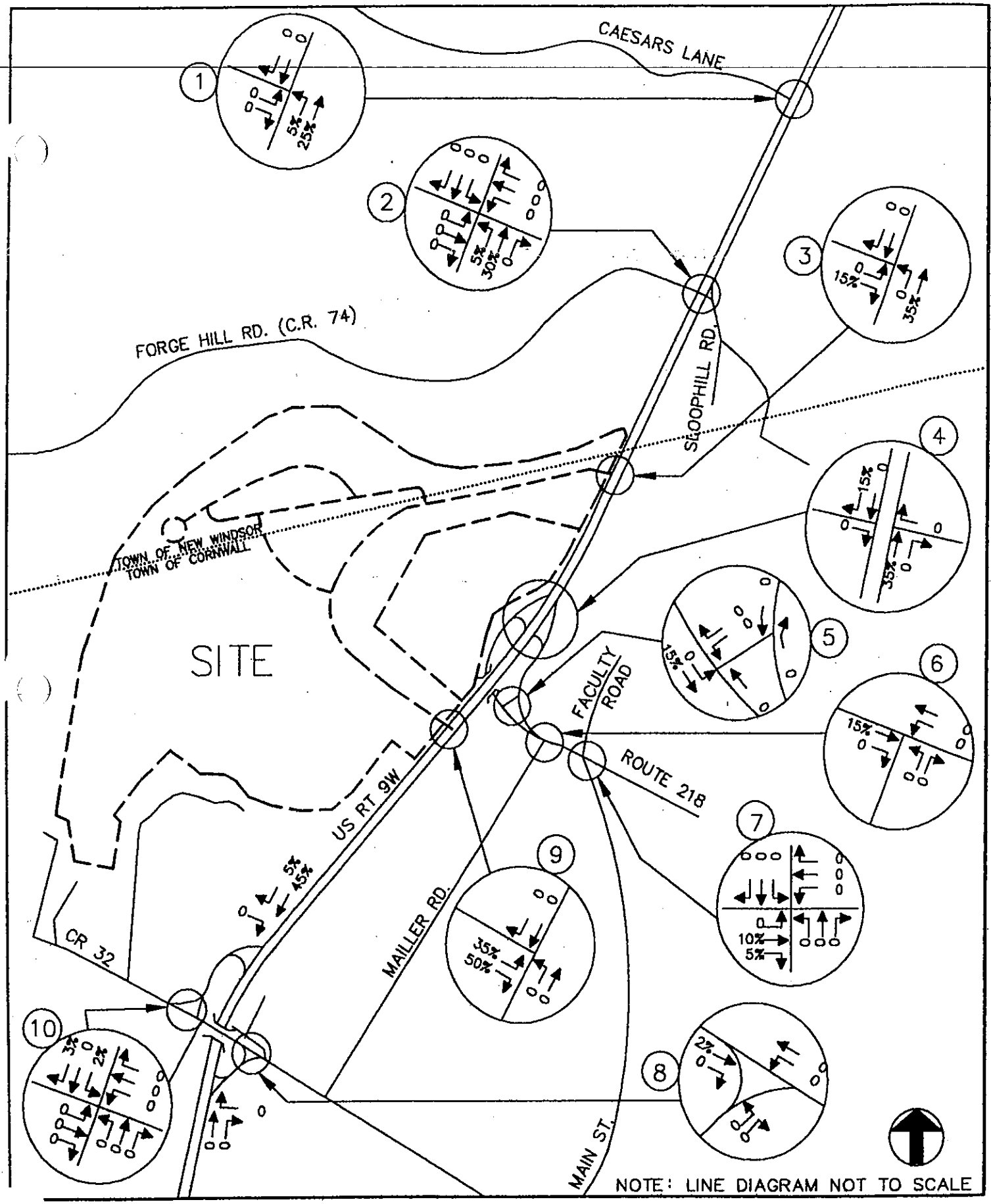
PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 11



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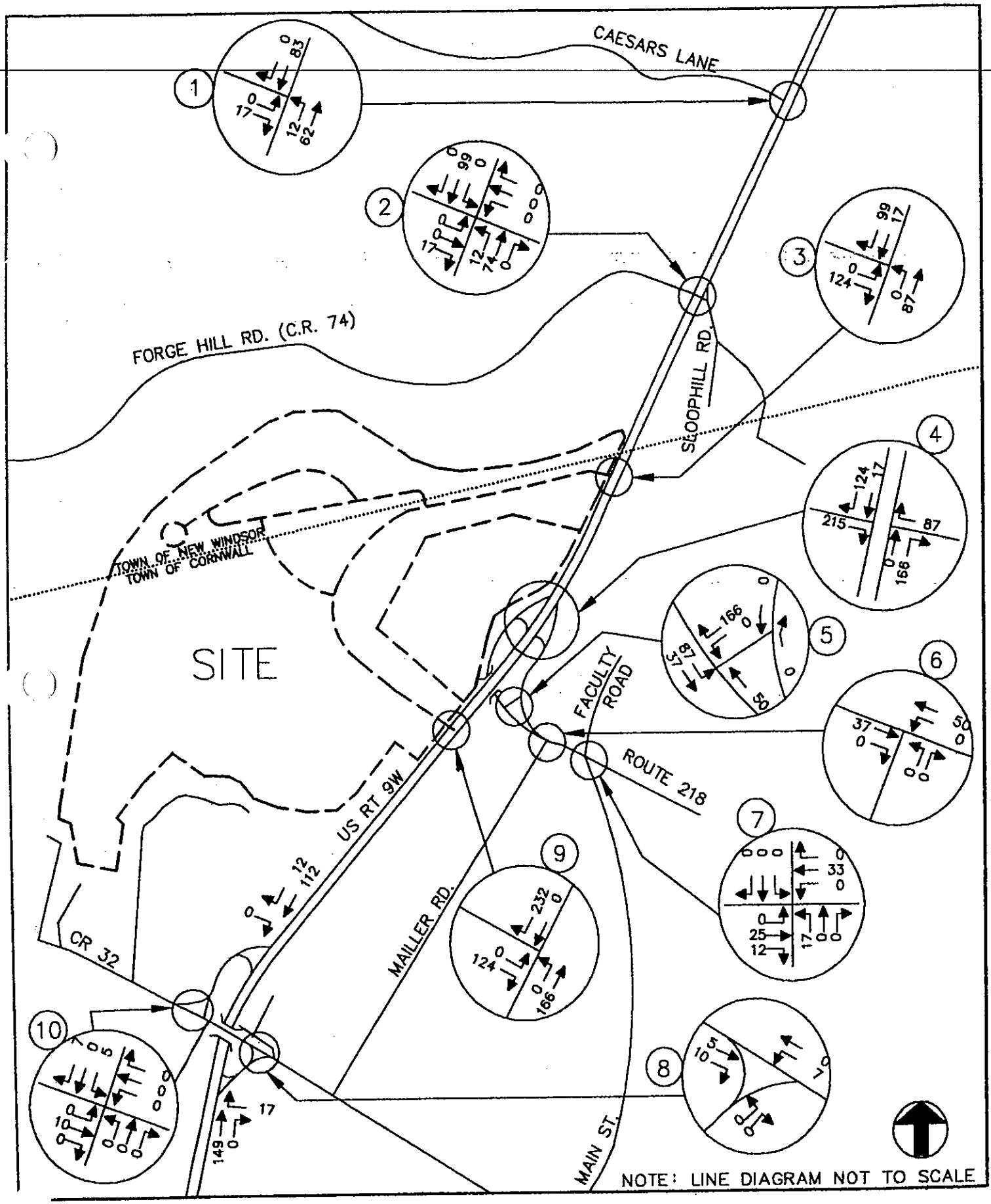
DEPARTURE DISTRIBUTION

(SCENARIO 2)

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 11A



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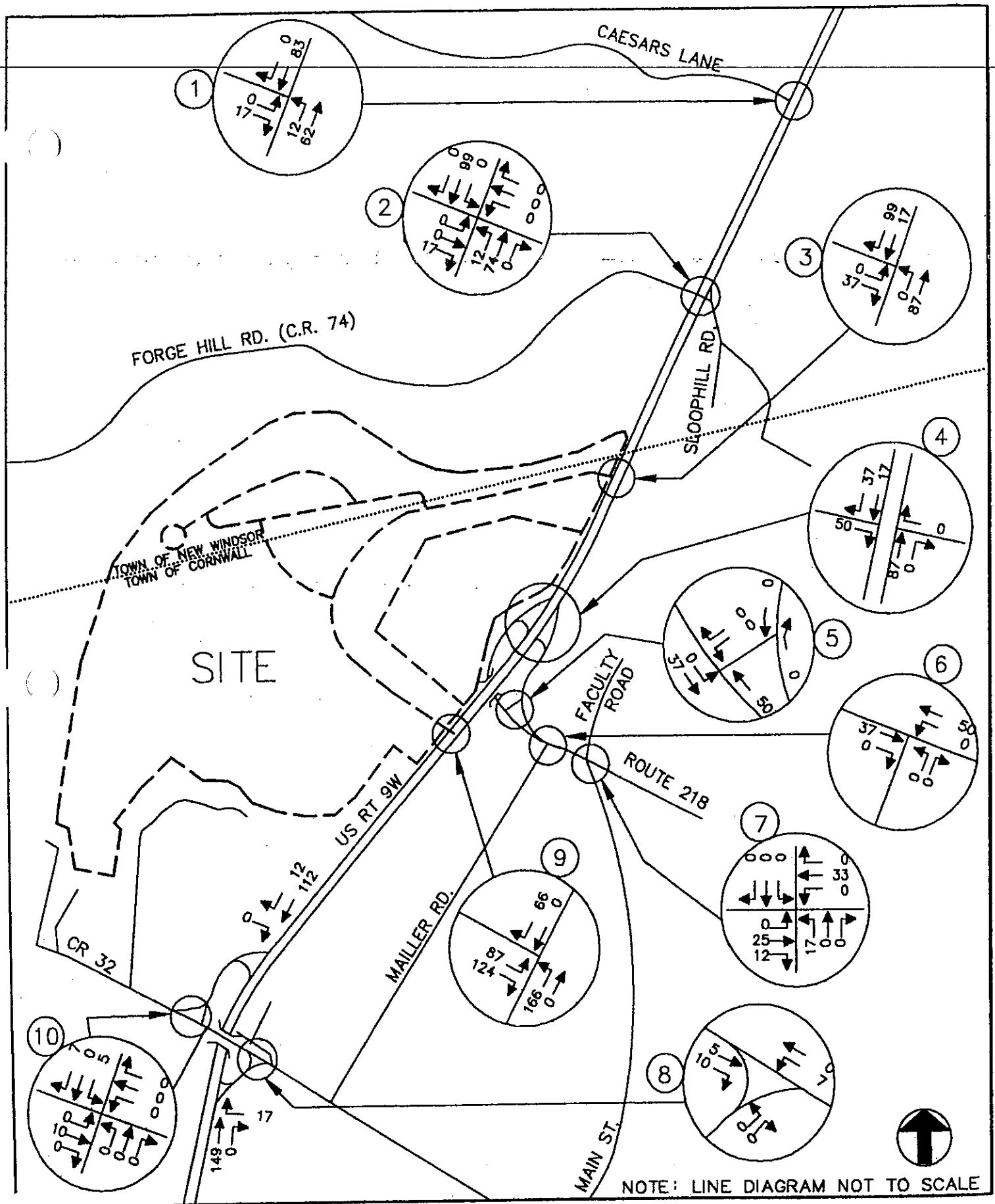
SITE GENERATED TRAFFIC VOLUME
PEAK AM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 12



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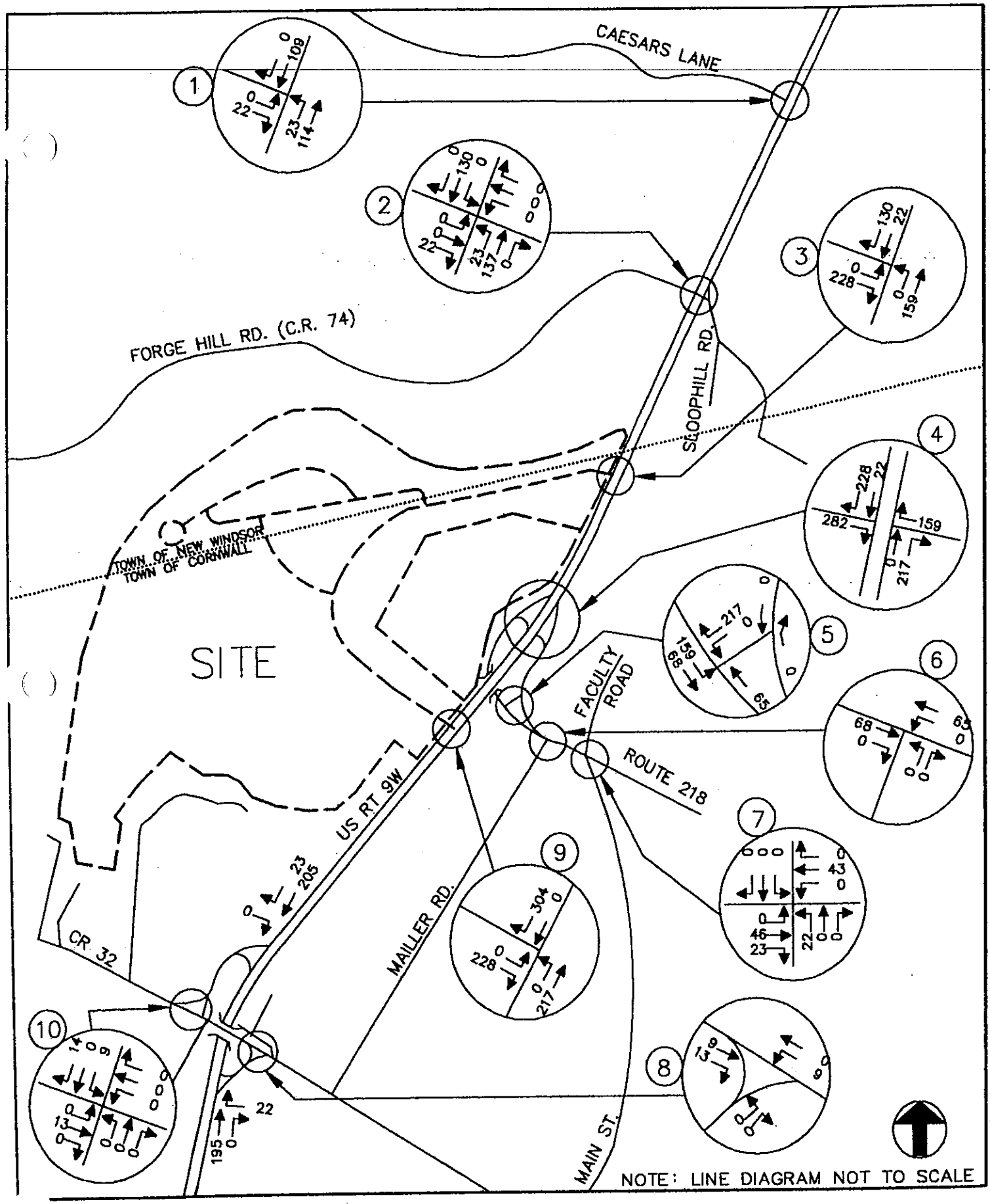
SITE GENERATED TRAFFIC VOLUME
PEAK AM HOUR
(SCENARIO 2)

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 12A



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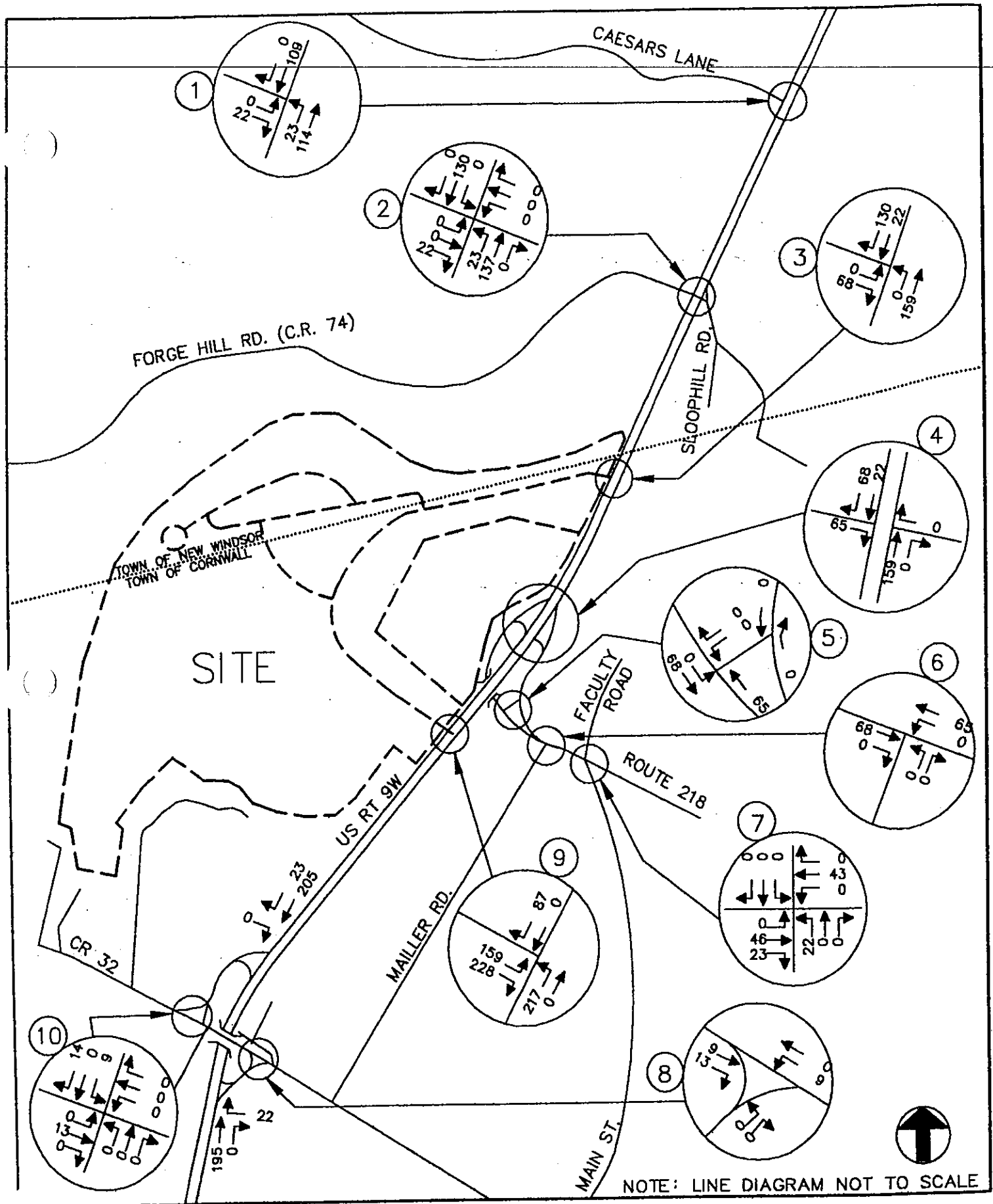
SITE GENERATED TRAFFIC VOLUMES
PEAK PM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 13



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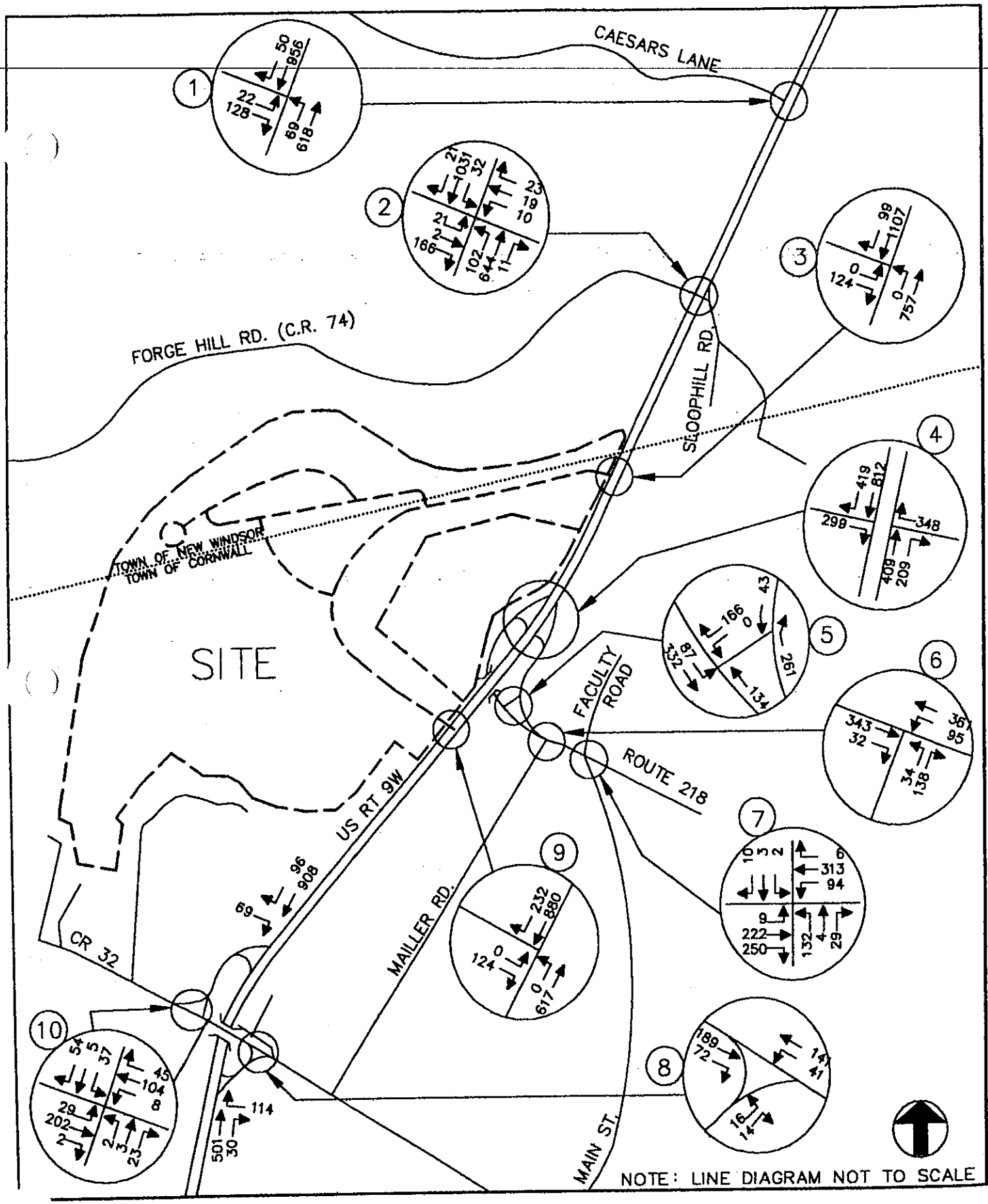
SITE GENERATED TRAFFIC VOLUMES
PEAK PM HOUR
(SCENARIO 2)

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 13A

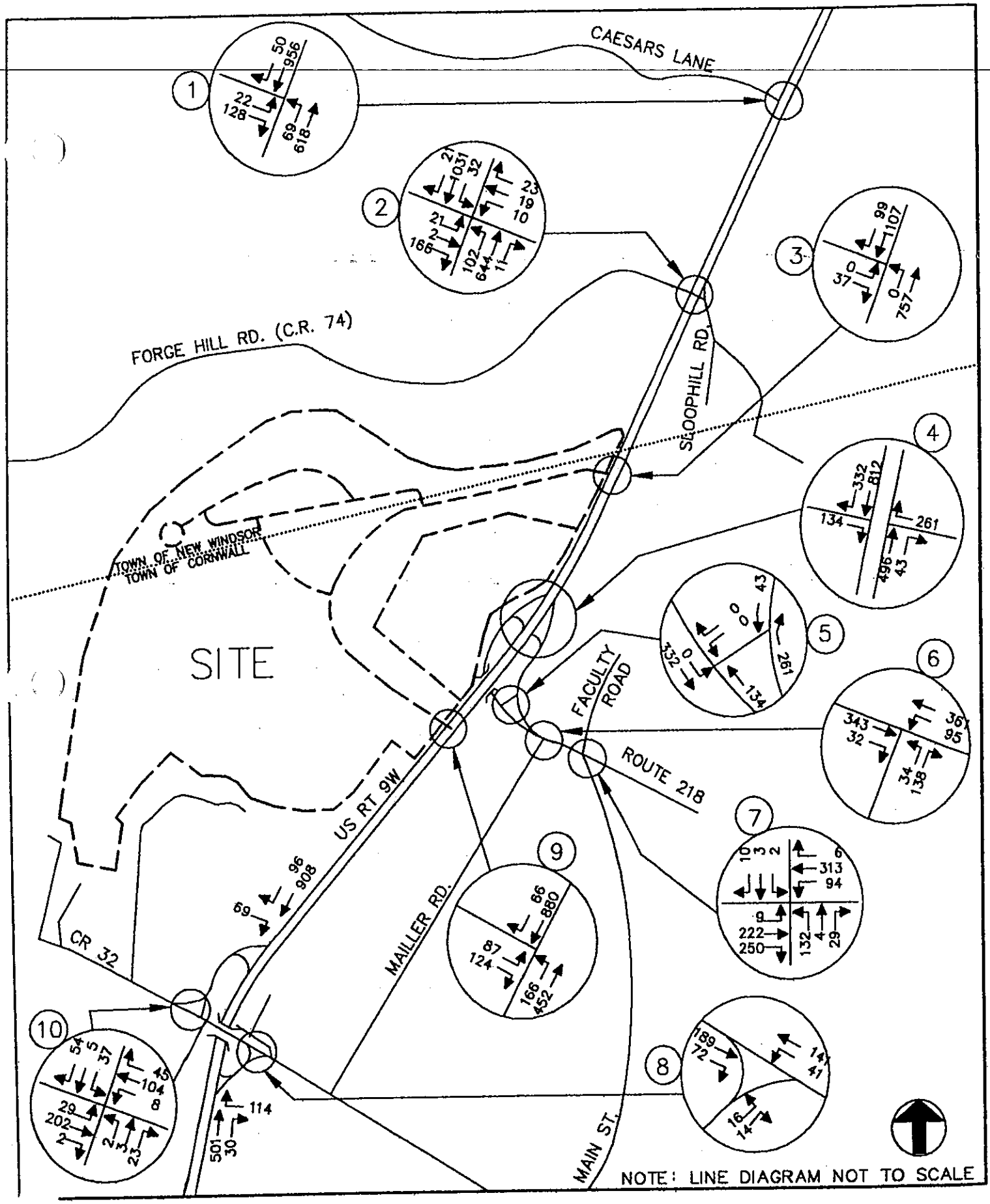


CORNWALL COMMONS
CORNWALL / NEW WINDSOR, NY

JOHN COLLINS ENGINEERS, P.C.
HAWTHORNE , NEW YORK

2010 BUILD TRAFFIC VOLUMES
PEAK AM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 14

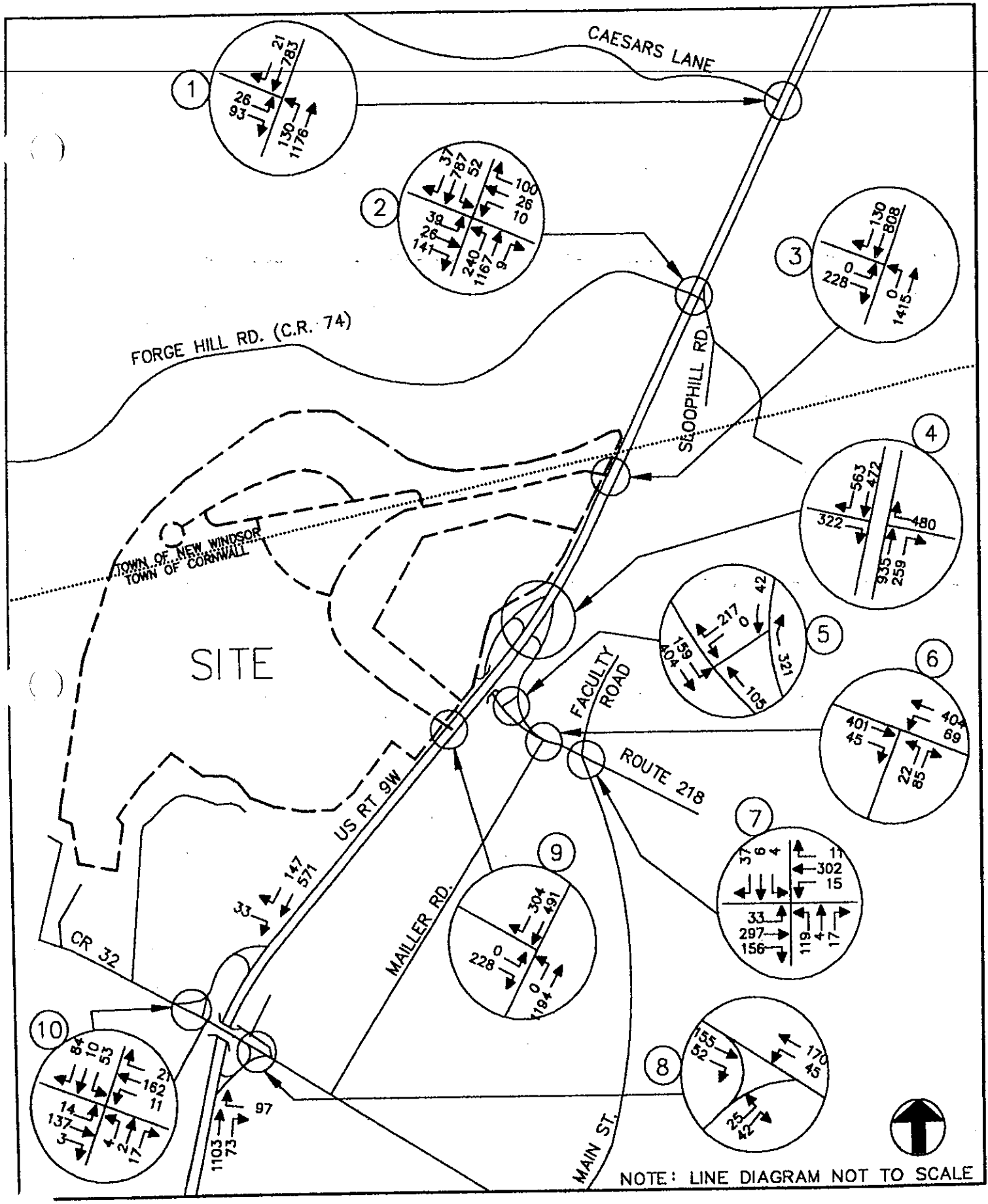


CORNWALL COMMONS
CORNWALL / NEW WINDSOR, NY

JOHN COLLINS ENGINEERS, P.C.
HAWTHORNE , NEW YORK

2010 BUILD TRAFFIC VOLUMES
PEAK AM HOUR
(SCENARIO 2)

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 14A

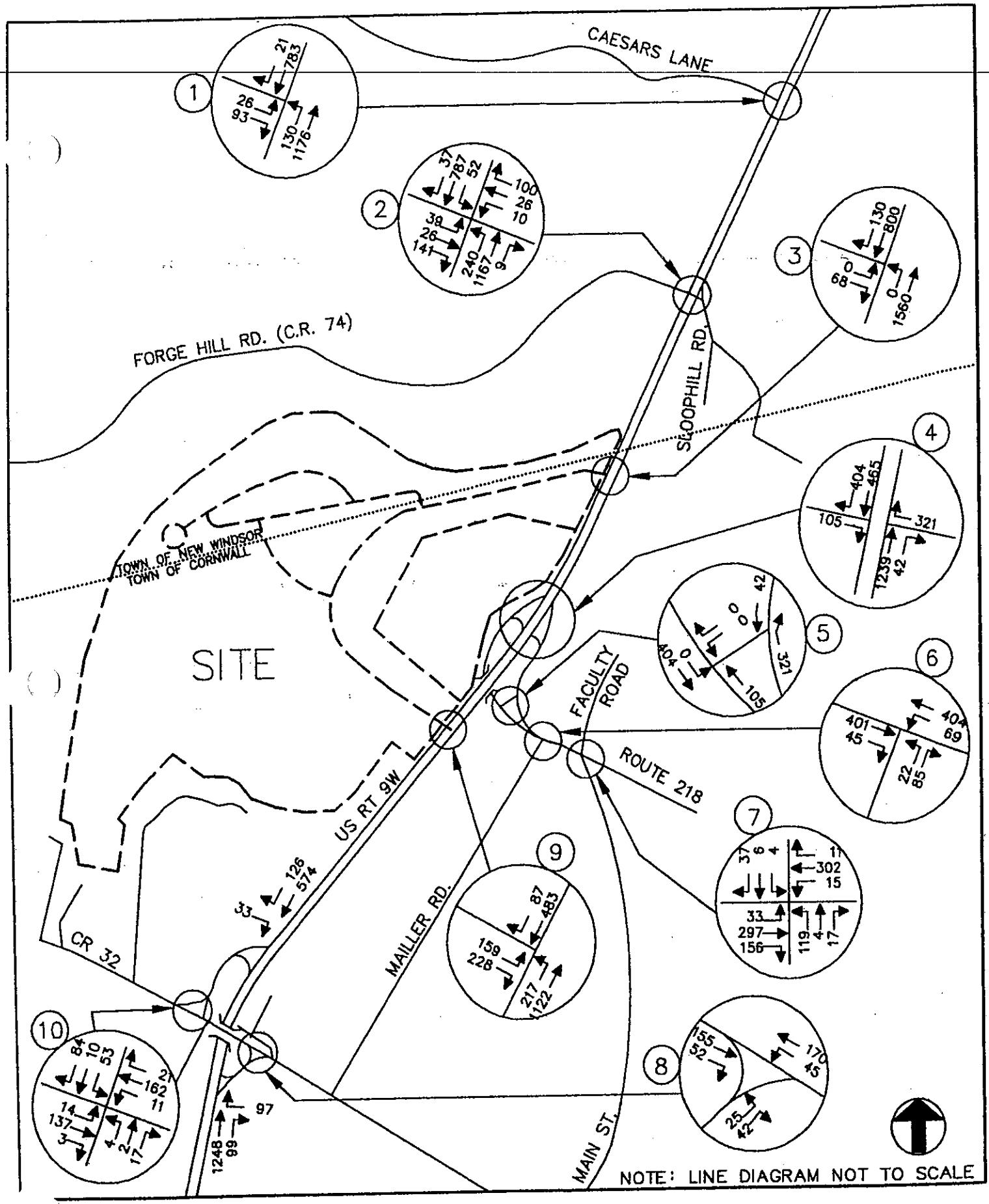


CORNWALL COMMONS
CORNWALL / NEW WINDSOR, NY

JOHN COLLINS ENGINEERS, P.C.
HAWTHORNE , NEW YORK

2010 BUILD TRAFFIC VOLUMES
PEAK PM HOUR

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 15



CORNWALL COMMONS
CORNWALL / NEW WINDSOR, NY

JOHN COLLINS ENGINEERS, P.C.
HAWTHORNE , NEW YORK

2010 BUILD TRAFFIC VOLUMES
PEAK PM HOUR
(SCENARIO 2)

PROJECT NO. 173 DATE: JANUARY 2007 FIG. NO. 15A

APPENDIX "B"

TABLES

TABLE 1

HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

CORNWALL COMMONS	ENTRY			EXIT		
	HTGR*	VOLUME	NEW TRIPS	HTGR*	VOLUME	NEW TRIPS
SENIOR ADULT HOUSING (490 DWELLING UNITS)						
PEAK AM HOUR	0.12	59	59	0.19	93	93
PEAK PM HOUR	0.19	93	93	0.12	59	59
SHOPPING CENTER (45,000 S.F.)						
PEAK AM HOUR	1.31	59	44	0.84	38	29
PEAK PM HOUR	4.11	185	139	4.11	185	139
HIGH TURNOVER RESTAURANT (15,500 S.F.)						
PEAK AM HOUR	5.99	93	70	5.53	86	65
PEAK PM HOUR	6.66	103	77	4.26	66	50
OFFICE BUILDING (50,000 S.F.)						
PEAK AM HOUR	1.90	95	95	0.26	13	13
PEAK PM HOUR	0.46	23	23	2.24	112	112
HOTEL (80 ROOMS)						
PEAK AM HOUR	0.24	19	19	0.15	12	12
PEAK PM HOUR	0.31	25	25	0.28	22	22
CONGREGATE CARE (70 BEDS)						
PEAK AM HOUR	0.09	6	6	0.09	6	6
PEAK PM HOUR	0.07	5	5	0.15	11	11
TOTAL		VOLUME			VOLUME	
PEAK AM HOUR	-	331	293	-	248	217
PEAK PM HOUR	-	434	362	-	455	392

NOTES:

1) THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON THE DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 7TH EDITION, 2003. ITE LAND USE CODE - 710 GENERAL OFFICE BUILDING, LU 252 - SENIOR ADULT HOUSING, LU 820 - RETAIL, LU 932 - HIGH TURNOVER SIT-DOWN RESTAURANT, LU 310 - HOTEL AND LU - 620 NURSING HOME.

2) A 25% PASS-BY CREDIT HAS BEEN TAKEN FOR THE RETAIL AND RESTAURANT USE.

TABLE 2

LEVEL OF SERVICE SUMMARY TABLE

			2006 EXISTING		2010 NO BUILD		2010 BUILD		SCENARIO 2 2010 BUILD	
			AM	PM	AM	PM	AM	PM	AM	PM
1.	CAESER'S LANE & US ROUTE 9W	NB	B[10.4]	A[9.6]	B[10.8]	A[9.9]	B[11.5]	B[10.8]	B[11.5]	B[10.8]
		EB	C[15.7]	C[18.3]	C[18.0]	C[21.5]	C[21.0]	D[28.8]	C[21.0]	D[28.8]
2.	FORGE HILL RD. (C.R. 74) / SLOOPHILL RD. & US ROUTE 9W	NB	B[17.4]	D[47.8]	B[18.4]	E[70.0]	C[20.1]	F[120.3]	C[20.1]	F[120.3]
		SB	B[14.3]	B[13.8]	B[14.8]	B[14.1]	B[15.6]	B[14.5]	B[15.6]	B[14.5]
		EB	D[37.7]	D[39.3]	D[40.6]	D[43.0]	D[44.3]	D[49.6]	D[44.3]	D[49.6]
		WB	C[32.8]	C[34.7]	C[32.8]	C[34.9]	C[32.9]	C[34.9]	C[32.9]	C[34.9]
		OVERALL	B[17.7]	D[35.5]	B[18.6]	D[47.9]	B[20.0]	E[75.4]	B[20.0]	E[75.4]
	WITH SIGNAL TIMING IMPROVEMENTS	NB	-	-	C[25.4]	C[20.7]	B[19.1]	D[45.7]	B[19.1]	D[45.7]
		SB	-	-	C[21.0]	B[19.9]	C[22.6]	C[20.6]	C[22.6]	C[20.6]
		EB	-	-	C[31.0]	D[39.6]	C[31.6]	D[49.6]	C[31.6]	D[49.6]
		WB	-	-	C[27.8]	C[33.9]	C[27.8]	C[34.9]	C[27.8]	C[34.9]
		OVERALL	-	-	C[23.6]	C[22.5]	C[22.1]	D[37.0]	C[22.1]	D[37.0]
	WITH NYSDOT IMPROVEMENTS	NB	-	-	B[10.8]	B[10.5]	B[11.1]	B[12.6]	B[11.1]	B[12.6]
		SB	-	-	C[21.0]	B[18.6]	C[22.6]	B[19.4]	C[22.6]	B[19.4]
		EB	-	-	C[31.0]	C[32.4]	C[31.6]	C[33.8]	C[31.6]	C[33.8]
		WB	-	-	C[27.8]	C[30.1]	C[27.8]	C[30.1]	C[27.8]	C[30.1]
		OVERALL	-	-	B[18.3]	B[15.8]	B[19.2]	B[17.2]	B[19.2]	B[17.2]
3.	NORTH END SITE ACCESS & US ROUTE 9W	EB	-	-	-	-	C[18.4]	C[19.0]	B[14.9]	B[13.3]
4.	NYS ROUTE 218 & US ROUTE 9W NB RAMPS	WB	B[10.7]	B[15.0]	B[11.1]	C[16.7]	B[12.3]	D[29.1]	B[11.6]	C[22.2]
	NYS ROUTE 218 & US ROUTE 9W SB RAMPS	EB	B[11.3]	A[9.6]	B[11.8]	A[9.8]	C[17.1]	B[13.2]	B[12.6]	B[10.3]
5.	NYS ROUTE 218 & US ROUTE 9W (ON/OFF RAMPS)	SB	-	-	-	-	B[11.0]	B[11.3]	A[9.3]	A[9.0]
		EB	-	-	-	-	A[7.9]	A[8.0]	A[7.6]	A[7.5]

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND AVERAGE VEHICLE DELAY IN SECONDS.

2) SEE APPENDIX "D" FOR A DESCRIPTION OF THE LEVELS OF SERVICE

3) THE 2010 BUILD REPRESENTS THE RESULTS FOR THE CURRENTLY PROPOSED DEVELOPMENT AS PRESENTED IN TABLE 1R.

4) AT LOCATION 2, THE ANALYSIS REFLECTS THE NYSDOT INTERIM SIGNAL & STRIPING IMPROVEMENTS THAT HAVE BEEN COMPLETED SINCE THE TIME OF THE ORIGINAL DGEIS. TRAFFIC SIGNAL IMPROVEMENTS ARE ALSO INCLUDED UNDER THE REVISED PLAN. THE NYSDOT IMPROVEMENTS AT THIS LOCATION INCLUDE THE LANE WIDENING.

TABLE 2 (CONTINUED)

LEVEL OF SERVICE SUMMARY TABLE

			2006 EXISTING		2010 NO BUILD		2010 BUILD		SCENARIO 2 2010 BUILD	
			AM	PM	AM	PM	AM	PM	AM	PM
6.	MAILLER AVENUE & NYS ROUTE 218	NB	C[16.7]	C[20.0]	C[19.8]	C[16.6]	C[23.2]	C[20.0]	C[23.2]	C[20.0]
		WB	A[8.5]	A[9.0]	A[8.6]	A[8.7]	A[8.8]	A[9.0]	A[8.8]	A[9.0]
7.	MAIN STREET / FACULTY ROAD & NYS ROUTE 218	NB	F[157.9]	F[54.8]	F[300.6]	F[91.3]	F[525.7]	F[280.4]	F[525.7]	F[280.4]
		SB	C[17.6]	B[13.8]	C[19.4]	B[14.5]	C[21.9]	C[16.6]	C[21.9]	C[16.6]
		EB	A[8.1]	A[8.1]	A[8.2]	A[8.2]	A[8.4]	A[8.4]	A[8.4]	A[8.4]
		WB	A[9.2]	A[8.5]	A[9.5]	A[8.7]	A[9.8]	A[9.0]	A[9.8]	A[9.0]
	WITH SIGNALIZATION	NB	-	-	B[17.3]	B[17.7]	B[18.3]	B[18.8]	B[18.3]	B[18.8]
		SB	-	-	B[14.8]	B[15.6]	B[14.8]	B[15.6]	B[14.8]	B[15.6]
		EB	-	-	B[11.8]	A[9.6]	B[13.7]	B[10.8]	B[13.7]	B[10.8]
		WB	-	-	B[14.6]	A[7.7]	B[18.9]	A[8.2]	B[18.9]	A[8.2]
		OVERALL	-	-	B[13.7]	B[10.4]	B[16.4]	B[11.3]	B[16.4]	B[11.3]
8	WILLOW AVE. (C.R. 32) & US ROUTE 9W NB RAMPS	NB	B[11.2]	B[10.8]	B[11.7]	B[11.3]	B[11.9]	B[11.6]	B[11.9]	B[11.6]
		WB	A[7.9]	A[7.7]	A[8.0]	A[7.8]	A[8.1]	A[7.9]	A[8.1]	A[7.9]
9.	SOUTH END SITE ACCESS & US ROUTE 9W	EB	-	-	-	-	C[16.9]	C[16.3]	-	-
	WITH SIGNALIZATION	NB	-	-	-	-	-	-	A[8.4]	C[25.4]
		SB	-	-	-	-	-	-	C[23.3]	C[30.8]
		EB	-	-	-	-	-	-	C[30.7]	B[17.7]
		OVERALL	-	-	-	-	-	-	B[19.0]	C[25.5]
10.	WILLOW AVE. (C.R. 32) & US RTE 9W SB RAMP/HARRIS LANE	NB	B[10.3]	B[10.1]	B[10.6]	B[10.4]	B[10.7]	B[10.7]	B[10.7]	B[10.7]
		SB	B[10.3]	B[12.0]	B[12.5]	B[12.9]	B[12.9]	B[13.6]	B[12.9]	B[13.6]
		EB	A[7.6]	A[7.7]	A[7.7]	A[7.8]	A[7.7]	A[7.8]	A[7.7]	A[7.8]
		WB	A[7.7]	A[7.5]	A[7.8]	A[7.6]	A[7.8]	A[7.6]	A[7.8]	A[7.6]

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND AVERAGE VEHICLE DELAY IN SECONDS.

2) SEE APPENDIX "D" FOR A DESCRIPTION OF THE LEVELS OF SERVICE

3) THE 2010 BUILD REPRESENTS THE RESULTS FOR THE CURRENTLY PROPOSED DEVELOPMENT AS PRESENTED IN TABLE 1R.

4) AT LOCATION 2, THE ANALYSIS REFLECTS THE NYSDOT INTERIM SIGNAL & STRIPING IMPROVEMENTS THAT HAVE BEEN COMPLETED SINCE THE TIME OF THE ORIGINAL DGEIS. TRAFFIC SIGNAL IMPROVEMENTS ARE ALSO INCLUDED UNDER THE REVISED PLAN. THE NYSDOT IMPROVEMENTS AT THIS LOCATION INCLUDE THE LANE WIDENING.

APPENDIX "C"

CAPACITY ANALYSIS

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2006 EXISTING AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2006 EXISTING AM PEAK HOUR
Intersection:	CAESER'S LANE & US ROUTE 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173EXAM1
East/West Street:	CAESER'S LANE
North/South Street:	US ROUTE 9W
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	51	509			807	46
Peak-Hour Factor, PHF	0.91	0.91			0.91	0.91
Hourly Flow Rate, HFR	56	559			886	50
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	2			2	0
Configuration	L	T			T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				20		102
Peak Hour Factor, PHF				0.91		0.91
Hourly Flow Rate, HFR				21		112
Percent Heavy Vehicles				2		2
Percent Grade (%)		0			-1	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	0	
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	56						133	
C(m) (vph)	727						467	
v/c	0.08						0.28	
95% queue length	0.25						1.16	
Control Delay	10.4						15.7	
LOS	B						C	
Approach Delay							15.7	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2006 EXISTING PM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING PM PEAK HOUR
Intersection: CAESER'S LANE & US ROUTE 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173EXPM1
East/West Street: CAESER'S LANE
North/South Street: US ROUTE 9W
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1 L	2 T	3 R	4 L	5 T	6 R
Volume	98	981			615	19
Peak-Hour Factor, PHF	0.91	0.91			0.91	0.91
Hourly Flow Rate, HFR	107	1078			675	20
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	2			2	0
Configuration	L	T			T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume				24		63
Peak Hour Factor, PHF				0.91		0.91
Hourly Flow Rate, HFR				26		69
Percent Heavy Vehicles				2		2
Percent Grade (%)		0			-1	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	107						95	
C(m) (vph)	897						365	
v/c	0.12						0.26	
95% queue length	0.40						1.02	
Control Delay	9.6						18.3	
LOS	A						C	
Approach Delay							18.3	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

2010 NO-BUILD AM PEAK HOUR

alyst:
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD AM PEAK HOUR
Intersection: CAESER'S LANE & US ROUTE 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173NBAM1
East/West Street: CAESER'S LANE
North/South Street: US ROUTE 9W
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		57	556			874	50
Peak-Hour Factor, PHF		0.91	0.91			0.91	0.91
Hourly Flow Rate, HFR		62	610			960	54
Percent Heavy Vehicles		2	--	--		--	--
Median Type/Storage		Undivided		/			
RT Channelized?							
Lanes		1	2			2	0
Configuration		L	T			T	TR
pstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					22		111
Peak Hour Factor, PHF					0.91		0.91
Hourly Flow Rate, HFR					24		121
Percent Heavy Vehicles					2		2
Percent Grade (%)			0			-1	
Flared Approach:	Exists?/Storage				/		No /
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	62						145	
C(m) (vph)	680						421	
v/c	0.09						0.34	
95% queue length	0.30						1.51	
Control Delay	10.8						18.0	
LOS	B						C	
Approach Delay							18.0	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

2010 NO-BUILD PM PEAK HOUR

alyst:
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD PM PEAK HOUR
Intersection: CAESER'S LANE & US ROUTE 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173NBPM1
East/West Street: CAESER'S LANE
North/South Street: US ROUTE 9W
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		107	1062			674	21
Peak-Hour Factor, PHF		0.91	0.91			0.91	0.91
Hourly Flow Rate, HFR		117	1167			740	23
Percent Heavy Vehicles		2	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	2			2	0
Configuration		L	T			T	TR
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					26		71
Peak Hour Factor, PHF					0.91		0.91
Hourly Flow Rate, HFR					28		78
Percent Heavy Vehicles					2		2
Percent Grade (%)			0			-1	
Flared Approach:	Exists?/Storage				/		No /
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	117						106	
C(m) (vph)	845						323	
v/c	0.14						0.33	
95% queue length	0.48						1.39	
Control Delay	9.9						21.5	
LOS	A						C	
Approach Delay							21.5	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	CAESER'S LANE & US ROUTE 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173BDAM1
East/West Street:	CAESER'S LANE
North/South Street:	US ROUTE 9W
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		69	618			956	50
Peak-Hour Factor, PHF		0.91	0.91			0.91	0.91
Hourly Flow Rate, HFR		75	679			1050	54
Percent Heavy Vehicles		2	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	2			2	0
Configuration		L	T			T	TR
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					22		128
Peak Hour Factor, PHF					0.91		0.91
Hourly Flow Rate, HFR					24		140
Percent Heavy Vehicles					2		2
Percent Grade (%)			0			-1	
Flared Approach:	Exists?/Storage			/			No /
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	75						164	
C(m) (vph)	628						386	
v/c	0.12						0.42	
95% queue length	0.40						2.06	
Control Delay	11.5						21.0	
LOS	B						C	
Approach Delay							21.0	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	CAESER'S LANE & US ROUTE 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173BDPM1
East/West Street:	CAESER'S LANE
North/South Street:	US ROUTE 9W
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	130	1176			783	21
Peak-Hour Factor, PHF	0.91	0.91			0.91	0.91
Hourly Flow Rate, HFR	142	1292			860	23
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	2			2	0
Configuration	L	T			T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				26		93
Peak Hour Factor, PHF				0.91		0.91
Hourly Flow Rate, HFR				28		102
Percent Heavy Vehicles				2		2
Percent Grade (%)		0			-1	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	142						130	
C(m) (vph)	762						278	
v/c	0.19						0.47	
95% queue length	0.68						2.34	
Control Delay	10.8						28.8	
LOS	B						D	
Approach Delay							28.8	
Approach LOS							D	

HCS+: Signalized Intersections Release 5.2

Analyst: JCE
Agency: TOWN OF NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK AM HOUR
Project ID: 173NBAM1
E/W St: CAESAR'S LANE

Inter.: CAESAR'S LANE & NYS ROUTE 9W
Area Type: All other areas
Jurisd:
Year :

N/S St: NYS ROUTE 9W

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	1	1	0	0	2	0
LGConfig		LR					L	T			TR	
Volume	22		111				57	556			874	50
Lane Width		12.0					12.0	12.0			12.0	
RTOR Vol			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					Thru	A		
Right		A			Right			
Peds					Peds			
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green		15.0				25.0		
Yellow		3.0				3.0		
All Red		2.0				2.0		

Cycle Length: 50.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LR	504	1680	0.29	0.30	13.7	B	13.7	B
Westbound								
Northbound								
L	209	417	0.30	0.50	8.1	A		
T	946	1891	0.64	0.50	10.6	B	10.4	B
Southbound								
TR	1770	3539	0.57	0.50	9.2	A	9.2	A

Intersection Delay = 10.0- (sec/veh) Intersection LOS = A

HCS+: Signalized Intersections Release 5.2

Analyst: JCE
Agency: TOWN OF NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK PM HOUR
Project ID: 173NBPM1
E/W St: CAESAR'S LANE

Inter.: CAESAR'S LANE & NYS ROUTE 9W
Area Type: All other areas
Jurisd:
Year :

N/S St: NYS ROUTE 9W

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	1	2	0	0	2	0
LGConfig		LR					L	T			TR	
Volume	26		71				107	1062			674	21
Lane Width		12.0					12.0	12.0			12.0	
RTOR Vol			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					Thru	A		
	Right	A				Right			
	Peds					Peds			
WB	Left					SB Left			
	Thru					Thru	A		
	Right					Right	A		
	Peds					Peds			
EB	Right					EB Right			
WB	Right					WB Right			
Green		15.0				25.0			
Yellow		3.0				3.0			
All Red		2.0				2.0			

Cycle Length: 50.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LR	509	1698	0.21	0.30	13.3	B	13.3	B
Westbound								
Northbound								
L	311	621	0.37	0.50	8.4	A		
T	1800	3600	0.64	0.50	10.0-	A	9.8	A
Southbound								
TR	1775	3550	0.43	0.50	8.1	A	8.1	A

Intersection Delay = 9.4 (sec/veh) Intersection LOS = A

Analyst: JCE
Agency: TOWN OF NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK AM HOUR
Project ID: 173BDAM1
E/W St: CAESAR'S LANE

Inter.: CAESAR'S LANE & NYS ROUTE 9W
Area Type: All other areas
Jurisd:
Year :

N/S St: NYS ROUTE 9W

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	1	1	0	0	2	0
LGConfig		LR					L	T			TR	
Volume	22		128				69	618			956	50
Lane Width		12.0					12.0	12.0			12.0	
RTOR Vol			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					Thru	A		
Right	A				Right			
Peds					Peds			
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green	15.0				25.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 50.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LR	503	1677	0.32	0.30	13.9	B	13.9	B
Westbound								
Northbound								
L	178	355	0.42	0.50	9.5	A		
T	946	1891	0.71	0.50	12.2	B	11.9	B
Southbound								
TR	1771	3541	0.62	0.50	9.7	A	9.7	A

Intersection Delay = 10.9 (sec/veh) Intersection LOS = B

Analyst: JCE
Agency: TOWN OF NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK PM HOUR
Project ID: 173BDPM1
E/W St: CAESAR'S LANE

Inter.: CAESAR'S LANE & NYS ROUTE 9W
Area Type: All other areas
Jurisd:
Year :

N/S St: NYS ROUTE 9W

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	1	2	0	0	2	0
LGConfig		LR					L	T			TR	
Volume	26		93				130	1176			783	21
Lane Width		12.0					12.0	12.0			12.0	
RTOR Vol			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					Thru	A		
Right	A				Right			
Peds					Peds			
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	15.0					25.0		
Yellow	3.0					3.0		
All Red	2.0					2.0		

Cycle Length: 50.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LR	507	1689	0.25	0.30	13.5	B	13.5	B
Westbound								
Northbound								
L	259	517	0.54	0.50	11.0	B		
T	1800	3600	0.71	0.50	11.0	B	11.0	B
Southbound								
TR	1776	3552	0.49	0.50	8.5	A	8.5	A

Intersection Delay = 10.2 (sec/veh) Intersection LOS = B

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2006 EXISTING PEAK AM
Project ID: 173EXAM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :
N/S St: US ROUTE 9W

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	19	2	137	8	18	21	81	520	10	30	860	19
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A	
Right	A				Right	A	A	
Peds					Peds			
WB Left	A				SB Left			A
Thru	A				Thru		A	A
Right	A				Right		A	A
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green	14.0					13.0	30.0	13.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	247	1586	0.55	0.16	37.7	D	37.7	D
Westbound								
LT	260	1674	0.11	0.16	32.8	C	32.8	C
R	245	1575	0.09	0.16	32.7	C		
Northbound								
L	259	1796	0.33	0.14	35.4	D		
TR	1005	1885	0.56	0.53	14.7	B	17.4	B
Southbound								
L	250	1734	0.13	0.14	33.8	C		
TR	1848	3465	0.51	0.53	13.7	B	14.3	B

Intersection Delay = 17.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2006 EXISTING PEAK PM
Project ID: 173EXPM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :
N/S St: US ROUTE 9W

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	36	24	108	9	24	93	200	950	8	48	596	34
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A	
Right	A				Right	A	A	
Peds					Peds			
WB Left	A				SB Left			A
Thru	A				Thru		A	A
Right	A				Right		A	A
Peds					Peds			
Right					EB Right			
Right					WB Right			
Green	14.0					13.0	31.0	12.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	243	1560	0.60	0.16	39.3	D	39.3	D
Westbound								
LT	266	1708	0.13	0.16	33.0	C	34.7	C
R	245	1575	0.40	0.16	35.3	D		
Northbound								
L	257	1778	0.82	0.14	56.1	E		
TR	1018	1870	0.99	0.54	46.0	D	47.8	D
Southbound								
L	236	1770	0.22	0.13	35.3	D		
TR	1876	3518	0.35	0.53	12.2	B	13.8	B

Intersection Delay = 35.5 (sec/veh) Intersection LOS = D

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK AM
Project ID: 173NBAM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :
N/S St: US ROUTE 9W

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	21	6	149	10	19	23	89	570	11	32	932	21
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
	Right	A					Right	A	A		
	Peds						Peds				
WB	Left	A				SB	Left			A	
	Thru	A					Thru		A	A	
	Right	A					Right		A	A	
	Peds						Peds				
3	Right					EB	Right				
3	Right					WB	Right				
Green		14.0						13.0	30.0	13.0	
Yellow		3.0						3.0	3.0	3.0	
All Red		2.0						2.0	2.0	2.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	247	1590	0.63	0.16	40.6	D	40.6	D
Westbound								
LT	261	1675	0.12	0.16	32.9	C	32.8	C
R	245	1575	0.10	0.16	32.8	C		
Northbound								
L	259	1796	0.37	0.14	35.7	D		
TR	1005	1885	0.61	0.53	15.7	B	18.4	B
Southbound								
L	250	1734	0.14	0.14	33.8	C		
TR	1847	3464	0.55	0.53	14.2	B	14.8	B

Intersection Delay = 18.6 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK PM
Project ID: 173NBPM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL N/S St: US ROUTE 9W

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	39	26	120	10	26	100	217	1030	9	52	657	37
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
Right	A				Right A	A		
Peds					Peds			
WB Left	A				SB Left		A	
Thru	A				Thru	A	A	
Right	A				Right	A	A	
Peds					Peds			
3 Right					EB Right			
8 Right					WB Right			
Green	14.0					13.0	31.0	12.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	242	1556	0.67	0.16	43.0	D	43.0	D
Westbound								
LT	263	1692	0.14	0.16	33.1	C	34.9	C
R	245	1575	0.43	0.16	35.6	D		
Northbound								
L	257	1778	0.89	0.14	66.7	E		
TR	1018	1870	1.07	0.54	70.7	E	70.0	E
Southbound								
L	236	1770	0.23	0.13	35.4	D		
TR	1876	3518	0.39	0.53	12.5	B	14.1	B

Intersection Delay = 47.9 (sec/veh) Intersection LOS = D

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK AM
Project ID: 173BDAM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :
N/S St: US ROUTE 9W

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	21	6	166	10	19	23	102	644	11	32	1031	21
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
Right	A				Right	A	A		
Peds					Peds				
WB Left	A				SB Left			A	
Thru	A				Thru		A	A	
Right	A				Right		A	A	
Peds					Peds				
3 Right					EB Right				
8 Right					WB Right				
Green	14.0					13.0	30.0	13.0	
Yellow	3.0					3.0	3.0	3.0	
All Red	2.0					2.0	2.0	2.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	248	1593	0.70	0.16	44.3	D	44.3	D
Westbound								
LT	254	1636	0.12	0.16	32.9	C	32.9	C
R	245	1575	0.10	0.16	32.8	C		
Northbound								
L	259	1796	0.42	0.14	36.2	D		
TR	1006	1886	0.69	0.53	17.6	B	20.1	C
Southbound								
L	250	1734	0.14	0.14	33.8	C		
TR	1848	3465	0.61	0.53	15.0	B	15.6	B

Intersection Delay = 20.0- (sec/veh) Intersection LOS = B

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK PM
Project ID: 173BDPM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :
N/S St: US ROUTE 9W

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	39	26	141	10	26	100	240	1167	9	52	787	37
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
Right	A				Right A	A		
Peds					Peds			
WB Left	A				SB Left		A	
Thru	A				Thru	A	A	
Right	A				Right	A	A	
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green	14.0					13.0	31.0	12.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	243	1562	0.76	0.16	49.6	D	49.6	D
Westbound								
LT	257	1649	0.15	0.16	33.1	C	34.9	C
R	245	1575	0.43	0.16	35.6	D		
Northbound								
L	257	1778	0.98	0.14	90.0	F		
TR	1018	1870	1.22	0.54	126.4	F	120.3	F
Southbound								
L	236	1770	0.23	0.13	35.4	D		
TR	1879	3523	0.46	0.53	13.2	B	14.5	B

Intersection Delay = 75.4 (sec/veh) Intersection LOS = E

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK AM
Project ID: 173NBAM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year : WITH SIGNAL TIMING CHANGE
N/S St: US ROUTE 9W

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	21	6	149	10	19	23	89	570	11	32	932	21
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
Right	A				Right A	A		
Peds					Peds			
WB Left	A				SB Left		A	
Thru	A				Thru	A	A	
Right	A				Right	A	A	
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green	20.0					15.0	20.0	15.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	356	1600	0.44	0.22	31.0	C	31.0	C
Westbound								
LT	370	1664	0.08	0.22	27.8	C	27.8	C
R	350	1575	0.07	0.22	27.7	C		
Northbound								
L	299	1796	0.32	0.17	33.6	C		
TR	838	1885	0.74	0.44	24.1	C	25.4	C
Southbound								
L	289	1734	0.12	0.17	32.1	C		
TR	1540	3464	0.66	0.44	20.7	C	21.0	C

Intersection Delay = 23.6 (sec/veh) Intersection LOS = C

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK PM
Project ID: 173NBPM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL N/S St: US ROUTE 9W

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year : WITH SIGNAL TIMING CHANGE

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	39	26	120	10	26	100	217	1030	9	52	657	37
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
	Right	A					Right	A	A		
	Peds						Peds				
WB	Left	A				SB	Left			A	
	Thru	A					Thru		A	A	
	Right	A					Right		A	A	
	Peds						Peds				
	Right					EB	Right				
	Right					WB	Right				
Green		15.0						20.0	30.0	5.0	
Yellow		3.0						3.0	3.0	3.0	
All Red		2.0						2.0	2.0	2.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	260	1560	0.63	0.17	39.6	D	39.6	D
Westbound								
LT	283	1698	0.13	0.17	32.2	C	33.9	C
R	263	1575	0.40	0.17	34.5	C		
Northbound								
L	395	1778	0.58	0.22	27.4	C		
TR	1143	1870	0.96	0.61	19.2	B	20.7	C
Southbound								
L	98	1770	0.56	0.06	48.6	D		
TR	1564	3518	0.47	0.44	17.8	B	19.9	B

Intersection Delay = 22.5 (sec/veh) Intersection LOS = C

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK AM
Project ID: 173BDAM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year : WITH SIGNAL TIMING CHANGES
N/S St: US ROUTE 9W

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	21	6	166	10	19	23	102	644	11	32	1031	21
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A	
Right	A				Right	A	A	
Peds					Peds			
WB Left	A				SB Left			A
Thru	A				Thru		A	A
Right	A				Right		A	A
Peds					Peds			
3 Right					EB Right			
8 Right					WB Right			
Green	20.0					15.0	20.0	15.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	356	1602	0.49	0.22	31.6	C	31.6	C
Westbound								
LT	368	1656	0.08	0.22	27.8	C	27.8	C
R	350	1575	0.07	0.22	27.7	C		
Northbound								
L	299	1796	0.36	0.17	29.6	C		
TR	838	1886	0.83	0.44	17.4	B	19.1	B
Southbound								
L	289	1734	0.12	0.17	32.1	C		
TR	1540	3465	0.73	0.44	22.3	C	22.6	C

Intersection Delay = 22.1 (sec/veh) Intersection LOS = C

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK PM
Project ID: 173BDPM2
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL N/S St: US ROUTE 9W

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year : WITH SIGNAL TIMING CHANGE

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	1	0	1	2	0
LGConfig		LTR			LT	R	L	TR		L	TR	
Volume	39	26	141	10	26	100	240	1167	9	52	787	37
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
Right	A					Right	A	A		
Peds						Peds				
WB Left	A				SB	Left			A	
Thru	A					Thru		A	A	
Right	A					Right		A	A	
Peds						Peds				
3 Right					EB	Right				
8 Right					WB	Right				
Green	14.0						21.0	30.0	5.0	
Yellow	3.0						3.0	3.0	3.0	
All Red	2.0						2.0	2.0	2.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	243	1562	0.76	0.16	49.6	D	49.6	D
Westbound								
LT	257	1649	0.15	0.16	33.1	C	34.9	C
R	245	1575	0.43	0.16	35.6	D		
Northbound								
L	415	1778	0.61	0.23	27.2	C		
TR	1164	1870	1.06	0.62	49.5	D	45.7	D
Southbound								
L	98	1770	0.56	0.06	48.6	D		
TR	1566	3523	0.55	0.44	18.9	B	20.6	C

Intersection Delay = 37.0 (sec/veh) Intersection LOS = D

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK AM
Project ID: 173NBAM2 (WITH DOT IMPROVEMENTS)
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL N/S St: US ROUTE 9W

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :

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	6	149	10	19	23	89	570	11	32	932	21
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
Right	A					Right	A	A		
Peds						Peds				
WB Left	A				SB	Left			A	
Thru	A					Thru		A	A	
Right	A					Right		A	A	
Peds						Peds				
3 Right					EB	Right				
8 Right					WB	Right				
Green	20.0						15.0	20.0	15.0	
Yellow	3.0						3.0	3.0	3.0	
All Red	2.0						2.0	2.0	2.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	356	1600	0.44	0.22	31.0	C	31.0	C
Westbound								
LT	370	1664	0.08	0.22	27.8	C	27.8	C
R	350	1575	0.07	0.22	27.7	C		
Northbound								
L	299	1796	0.32	0.17	29.2	C		
TR	1595	3589	0.39	0.44	8.0	A	10.8	B
Southbound								
L	289	1734	0.12	0.17	32.1	C		
TR	1540	3464	0.66	0.44	20.7	C	21.0	C

Intersection Delay = 18.3 (sec/veh) Intersection LOS = B

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK PM
Project ID: 173NBPM2 (WITH DOT IMPROVEMENTS)
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL N/S St: US ROUTE 9W

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :

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	39	26	120	10	26	100	217	1030	9	52	657	37
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A	
Right	A				Right	A	A	
Peds					Peds			
WB Left	A				SB Left			A
Thru	A				Thru		A	A
Right	A				Right		A	A
Peds					Peds			
Right					EB Right			
Right					WB Right			
Green	19.0					15.0	28.0	8.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	332	1572	0.49	0.21	32.4	C	32.4	C
Westbound								
LT	356	1687	0.11	0.21	28.8	C	30.1	C
R	333	1575	0.32	0.21	30.5	C		
Northbound								
L	296	1778	0.77	0.17	42.8	D		
TR	1899	3560	0.58	0.53	3.8	A	10.5	B
Southbound								
L	157	1770	0.35	0.09	39.9	D		
TR	1603	3518	0.46	0.46	17.0	B	18.6	B

Intersection Delay = 15.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK AM
Project ID: 173BDAM2 (WITH DOT IMPROVEMENTS)
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :
N/S St: US ROUTE 9W

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	6	166	10	19	23	102	644	11	32	1031	21
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A	
Right	A				Right	A	A	
Peds					Peds			
WB Left	A				SB Left			A
Thru	A				Thru		A	A
Right	A				Right		A	A
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green	20.0					15.0	20.0	15.0
Yellow	3.0					3.0	3.0	3.0
All Red	2.0					2.0	2.0	2.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	356	1602	0.49	0.22	31.6	C	31.6	C
Westbound								
LT	368	1656	0.08	0.22	27.8	C	27.8	C
R	350	1575	0.07	0.22	27.7	C		
Northbound								
L	299	1796	0.36	0.17	29.6	C		
TR	1596	3591	0.44	0.44	8.2	A	11.1	B
Southbound								
L	289	1734	0.12	0.17	32.1	C		
TR	1540	3465	0.73	0.44	22.3	C	22.6	C

Intersection Delay = 19.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK PM
Project ID: 173BDPM2 (WITH DOT IMPROVEMENTS)
E/W St: FORGE HILL RD(CR 74)/SLOOPHILL

Inter.: C.R. 74/SLOOPHILL RD. & RT 9W
Area Type: All other areas
Jurisd:
Year :
N/S St: US ROUTE 9W

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	39	26	141	10	26	100	240	1167	9	52	787	37
Lane Width		12.0			12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			30			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	A		
Right	A				Right	A	A		
Peds					Peds				
WB Left	A				SB Left			A	
Thru	A				Thru		A	A	
Right	A				Right		A	A	
Peds					Peds				
B Right					EB Right				
B Right					WB Right				
Green	19.0					15.0	28.0	8.0	
Yellow	3.0					3.0	3.0	3.0	
All Red	2.0					2.0	2.0	2.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	333	1576	0.56	0.21	33.8	C	33.8	C
Westbound								
LT	354	1678	0.11	0.21	28.8	C	30.1	C
R	333	1575	0.32	0.21	30.5	C		
Northbound								
L	296	1778	0.85	0.17	52.5	D		
TR	1899	3561	0.65	0.53	4.4	A	12.6	B
Southbound								
L	157	1770	0.35	0.09	39.9	D		
TR	1605	3523	0.54	0.46	18.1	B	19.4	B

Intersection Delay = 17.2 (sec/veh) Intersection LOS = B

TWO-WAY STOP CONTROL SUMMARY

alyst:
ncy/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD AM PEAK HOUR
Intersection: RT 9W & NORTH END SITE ACCESS
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173BDAM3
East/West Street: NORTH END SITE ACCESS
North/South Street: US ROUTE 9W
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		757			1107	99
Peak-Hour Factor, PHF		0.90			0.90	0.90
Hourly Flow Rate, HFR		841			1230	110
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2			2	0
Configuration		T			T	TR
ostream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						124
Peak Hour Factor, PHF						0.90
Hourly Flow Rate, HFR						137
Percent Heavy Vehicles						0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								137
C(m) (vph)								404
v/c								0.34
95% queue length								1.47
Control Delay								18.4
OS								C
Approach Delay							18.4	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

alyst:
ency/Co.:
ate Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD PM PEAK HOUR
Intersection: RT 9W & NORTH END SITE ACCESS
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173BDPM3
East/West Street: NORTH END SITE ACCESS
North/South Street: US ROUTE 9W
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		1415			808	130
Peak-Hour Factor, PHF		0.90			0.90	0.90
Hourly Flow Rate, HFR		1572			897	144
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2			2	0
Configuration		T			T	TR
ostream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						228
Peak Hour Factor, PHF						0.90
Hourly Flow Rate, HFR						253
Percent Heavy Vehicles						0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes					1	
Configuration					R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								253
C(m) (vph)								506
v/c								0.50
95% queue length								2.76
Control Delay								19.0
LOS								C
pproach Delay							19.0	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD AM PEAK HOUR
Intersection: RT 9W & NORTH END SITE ACCESS
Jurisdiction:
Units: U. S. Customary
Analysis Year: SCENARIO 2
Project ID: 173BDAM3
East/West Street: NORTH END SITE ACCESS
North/South Street: US ROUTE 9W
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		757			1107	99
Peak-Hour Factor, PHF		0.90			0.90	0.90
Hourly Flow Rate, HFR		841			1230	110
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2			2	0
Configuration		T			T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						37
Peak Hour Factor, PHF						0.90
Hourly Flow Rate, HFR						41
Percent Heavy Vehicles						0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								41
C(m) (vph)								404
v/c								0.10
95% queue length								0.34
Control Delay								14.9
LOS								B
Approach Delay							14.9	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD PM PEAK HOUR
Intersection: RT 9W & NORTH END SITE ACCESS
Jurisdiction:
Units: U. S. Customary
Analysis Year: SCENARIO 2
Project ID: 173BDPM3
East/West Street: NORTH END SITE ACCESS
North/South Street: US ROUTE 9W
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		1560			800	130
Peak-Hour Factor, PHF		0.90			0.90	0.90
Hourly Flow Rate, HFR		1733			888	144
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2			2	0
Configuration		T			T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						68
Peak Hour Factor, PHF						0.90
Hourly Flow Rate, HFR						75
Percent Heavy Vehicles						0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								75
C(m) (vph)								509
v/c								0.15
95% queue length								0.51
Control Delay								13.3
LOS								B
Approach Delay							13.3	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

alyst:
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING AM PEAK HOUR
Intersection: NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006 EXISTING AM PEAK HOUR
Project ID: 173AMEX4A
East/West Street: NYS ROUTE 218 NB ON/OFF RAMP
North/South Street: US ROUTE 9W
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		372	40			
Peak-Hour Factor, PHF		0.92	0.92			
Hourly Flow Rate, HFR		404	43			
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			
Lanes		2	1			
Configuration		T	R			
ostream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			239			
Peak Hour Factor, PHF			0.92			
Hourly Flow Rate, HFR			259			
Percent Heavy Vehicles			2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					259			
C(m) (vph)					887			
v/c					0.29			
95% queue length					1.22			
Control Delay					10.7			
OS					B			
Approach Delay				10.7				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

alyst: 2006 EXISTING PM PEAK HOUR
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING PM PEAK HOUR
Intersection: NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173PMEX4A
East/West Street: NYS ROUTE 218 NB ON/OFF RAMP
North/South Street: US ROUTE 9W
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		862	39			
Peak-Hour Factor, PHF		0.92	0.92			
Hourly Flow Rate, HFR		936	42			
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			
Lanes		2	1			
Configuration		T	R			
pstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			296			
Peak Hour Factor, PHF			0.92			
Hourly Flow Rate, HFR			321			
Percent Heavy Vehicles			2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					321			
C(m) (vph)					678			
v/c					0.47			
95% queue length					2.55			
Control Delay					15.0-			
LOS					B			
Approach Delay				15.0-				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2010 NO-BUILD AM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD AM PEAK HOUR
Intersection: NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173AMNB4A
East/West Street: NYS ROUTE 218 NB ON/OFF RAMP
North/South Street: US ROUTE 9W
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		409	43			
Peak-Hour Factor, PHF		0.92	0.92			
Hourly Flow Rate, HFR		444	46			
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			
Lanes		2	1			
Configuration		T	R			
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			261			
Peak Hour Factor, PHF			0.92			
Hourly Flow Rate, HFR			283			
Percent Heavy Vehicles			2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					283			
C(m) (vph)					870			
v/c					0.33			
95% queue length					1.42			
Control Delay					11.1			
LOS					B			
Approach Delay					11.1			
Approach LOS					B			

TWO-WAY STOP CONTROL SUMMARY

2010 NO-BUILD PM PEAK HOUR

alyst:
)ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD PM PEAK HOUR
Intersection: NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173PMNB4A
East/West Street: NYS ROUTE 218 NB ON/OFF RAMP
North/South Street: US ROUTE 9W
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			935	42			
Peak-Hour Factor, PHF			0.92	0.92			
Hourly Flow Rate, HFR			1016	45			
Percent Heavy Vehicles			--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?				No			
Lanes			2	1			
Configuration			T	R			
)pstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				321			
Peak Hour Factor, PHF				0.92			
Hourly Flow Rate, HFR				348			
Percent Heavy Vehicles				2			
Percent Grade (%)			0			0	
Flared Approach:	Exists?/Storage			/			/
Lanes				1			
Configuration				R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					348			
C(m) (vph)					650			
v/c					0.54			
95% queue length					3.19			
Control Delay					16.7			
)LOS					C			
Approach Delay				16.7				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

alyst: 2010 BUILD AM PEAK HOUR
ency/Co.:
ate Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD AM PEAK HOUR
Intersection: NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173AMB4A
East/West Street: NYS ROUTE 218 NB ON/OFF RAMP
North/South Street: US ROUTE 9W
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		409	209			
Peak-Hour Factor, PHF		0.92	0.92			
Hourly Flow Rate, HFR		444	227			
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			
Lanes		2	1			
Configuration		T	R			
ıstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			348			
Peak Hour Factor, PHF			0.92			
Hourly Flow Rate, HFR			378			
Percent Heavy Vehicles			2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					378			
C(m) (vph)					870			
v/c					0.43			
95% queue length					2.22			
Control Delay					12.3			
OS					B			
pproach Delay				12.3				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

alyst: 2010 BUILD PM PEAK HOUR
ency/Co.:
ate Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD PM PEAK HOUR
Intersection: NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173PMB4A
East/West Street: NYS ROUTE 218 NB ON/OFF RAMP
North/South Street: US ROUTE 9W
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		935	259			
Peak-Hour Factor, PHF		0.92	0.92			
Hourly Flow Rate, HFR		1016	281			
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			
Lanes		2	1			
Configuration		T	R			
ostream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			480			
Peak Hour Factor, PHF			0.92			
Hourly Flow Rate, HFR			521			
Percent Heavy Vehicles			2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					521			
C(m) (vph)					650			
v/c					0.80			
95% queue length					8.07			
Control Delay					29.1			
OS					D			
pproach Delay					29.1			
Approach LOS					D			

TWO-WAY STOP CONTROL SUMMARY

alyst:	2010 BUILD AM PEAK HOUR
)ency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	SCENARIO 2
Project ID: 173AMB4A	
East/West Street:	NYS ROUTE 218 NB ON/OFF RAMP
North/South Street:	US ROUTE 9W
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		496	43			
Peak-Hour Factor, PHF		0.92	0.92			
Hourly Flow Rate, HFR		539	46			
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?			No			
Lanes		2	1			
Configuration		T	R			
)pstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			261			
Peak Hour Factor, PHF			0.92			
Hourly Flow Rate, HFR			283			
Percent Heavy Vehicles			2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					283			
C(m) (vph)					829			
v/c					0.34			
95% queue length					1.52			
Control Delay					11.6			
LOS					B			
Approach Delay				11.6				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	NYS RT 218 NB RAMP & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	SCENARIO 2
Project ID:	173PMB4A
East/West Street:	NYS ROUTE 218 NB ON/OFF RAMP
North/South Street:	US ROUTE 9W
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			1239	42			
Peak-Hour Factor, PHF			0.92	0.92			
Hourly Flow Rate, HFR			1346	45			
Percent Heavy Vehicles			--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?				No			
Lanes			2	1			
Configuration			T	R			
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				321			
Peak Hour Factor, PHF				0.92			
Hourly Flow Rate, HFR				348			
Percent Heavy Vehicles				2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				/			/
Lanes				1			
Configuration				R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R			
v (vph)					348			
C(m) (vph)					549			
v/c					0.63			
95% queue length					4.42			
Control Delay					22.2			
LOS					C			
Approach Delay					22.2			
Approach LOS					C			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2006 EXISTING AM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING AM PEAK HOUR
Intersection: NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173AMEX4B
East/West Street: NYS ROUTE 218 SB ON/OFF RAMP
North/South Street: NYS ROUTE 9W
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						734	272
Peak-Hour Factor, PHF						0.92	0.92
Hourly Flow Rate, HFR						797	295
Percent Heavy Vehicles			--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes						2	1
Configuration						T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume							78
Peak Hour Factor, PHF							0.92
Hourly Flow Rate, HFR							84
Percent Heavy Vehicles							2
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes							1
Configuration							R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								84
C(m) (vph)								652
v/c								0.13
95% queue length								0.44
Control Delay								11.3
LOS								B
Approach Delay							11.3	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

alyst:	2006 EXISTING PM PEAK HOUR
ency/Co.:	
ate Performed:	JANUARY 2007
Analysis Time Period:	2006 EXISTING PM PEAK HOUR
Intersection:	NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173PMEX4B
East/West Street:	NYS ROUTE 218 SB ON/OFF RAMP
North/South Street:	NYS ROUTE 9W
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						408	305
Peak-Hour Factor, PHF						0.92	0.92
Hourly Flow Rate, HFR						443	331
Percent Heavy Vehicles			--	--		--	--
Median Type/Storage		Undivided		/			
RT Channelized?							No
Lanes						2	1
Configuration						T	R
ostream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume							37
Peak Hour Factor, PHF							0.92
Hourly Flow Rate, HFR							40
Percent Heavy Vehicles							2
Percent Grade (%)			0			0	
Flared Approach:	Exists?/Storage			/			/
Lanes							1
Configuration							R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								40
C(m) (vph)								818
v/c								0.05
95% queue length								0.15
Control Delay								9.6
OS								A
pproach Delay							9.6	
Approach LOS							A	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 NO-BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 NO-BUILD AM PEAK HOUR
Intersection:	NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173AMNB4B
East/West Street:	NYS ROUTE 218 SB ON/OFF RAMP
North/South Street:	NYS ROUTE 9W
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					796	295
Peak-Hour Factor, PHF					0.92	0.92
Hourly Flow Rate, HFR					865	320
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						No
Lanes					2	1
Configuration					T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						84
Peak Hour Factor, PHF						0.92
Hourly Flow Rate, HFR						91
Percent Heavy Vehicles						2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								91
C(m) (vph)								624
v/c								0.15
95% queue length								0.51
Control Delay								11.8
LOS								B
Approach Delay							11.8	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

alyst:	2010 NO-BUILD PM PEAK HOUR
)ency/Co.:	
)ate Performed:	JANUARY 2007
Analysis Time Period:	2010 NO-BUILD PM PEAK HOUR
Intersection:	NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173PMNB4B
East/West Street:	NYS ROUTE 218 SB ON/OFF RAMP
North/South Street:	NYS ROUTE 9W
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						451	335
Peak-Hour Factor, PHF						0.92	0.92
Hourly Flow Rate, HFR						490	364
Percent Heavy Vehicles			--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes						2	1
Configuration						T	R
)stream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume							40
Peak Hour Factor, PHF							0.92
Hourly Flow Rate, HFR							43
Percent Heavy Vehicles							2
Percent Grade (%)			0			0	
Flared Approach:	Exists?/Storage			/			/
Lanes							1
Configuration							R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								43
C(m) (vph)								794
v/c								0.05
95% queue length								0.17
Control Delay								9.8
)OS								A
Approach Delay							9.8	
Approach LOS							A	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

alyst: 2010 BUILD AM PEAK HOUR
ncy/Co.:
ate Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD AM PEAK HOUR
Intersection: NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year: 294
Project ID: 173AMB4B
East/West Street: NYS ROUTE 218 SB ON/OFF RAMP
North/South Street: NYS ROUTE 9W
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					812	419
Peak-Hour Factor, PHF					0.92	0.92
Hourly Flow Rate, HFR					882	455
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						No
Lanes					2	1
Configuration					T	R
ostream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						299
Peak Hour Factor, PHF						0.92
Hourly Flow Rate, HFR						324
Percent Heavy Vehicles						2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								324
C(m) (vph)								616
v/c								0.53
95% queue length								3.07
Control Delay								17.1
OS								C
pproach Delay							17.1	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173PMB4B
East/West Street:	NYS ROUTE 218 SB ON/OFF RAMP
North/South Street:	NYS ROUTE 9W
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					472	563
Peak-Hour Factor, PHF					0.92	0.92
Hourly Flow Rate, HFR					513	611
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						No
Lanes					2	1
Configuration					T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						322
Peak Hour Factor, PHF						0.92
Hourly Flow Rate, HFR						349
Percent Heavy Vehicles						2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								349
C(m) (vph)								783
v/c								0.45
95% queue length								2.31
Control Delay								13.2
LOS								B
Approach Delay							13.2	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	SCENARIO 2
Project ID:	173AMB4B
East/West Street:	NYS ROUTE 218 SB ON/OFF RAMP
North/South Street:	NYS ROUTE 9W
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						812	332
Peak-Hour Factor, PHF						0.92	0.92
Hourly Flow Rate, HFR						882	360
Percent Heavy Vehicles			--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes						2	1
Configuration						T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume							134
Peak Hour Factor, PHF							0.92
Hourly Flow Rate, HFR							145
Percent Heavy Vehicles							2
Percent Grade (%)			0			0	
Flared Approach:	Exists?/Storage			/			/
Lanes							1
Configuration							R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								145
C(m) (vph)								616
v/c								0.24
95% queue length								0.91
Control Delay								12.6
LOS								B
Approach Delay							12.6	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

alyst:	2010 BUILD PM PEAK HOUR
ency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	NYS RT 218 SB ON/OFF & RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	SCENARIO 2
Project ID: 173PMB4B	
East/West Street:	NYS ROUTE 218 SB ON/OFF RAMP
North/South Street:	NYS ROUTE 9W
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					465	404
Peak-Hour Factor, PHF					0.92	0.92
Hourly Flow Rate, HFR					505	439
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						No
Lanes					2	1
Configuration					T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						105
Peak Hour Factor, PHF						0.92
Hourly Flow Rate, HFR						114
Percent Heavy Vehicles						2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								114
C(m) (vph)								787
v/c								0.14
95% queue length								0.51
Control Delay								10.3
LOS								B
Approach Delay							10.3	
Approach LOS							B	

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TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	NYS RTE 218 & US RTE 9W RAMPS
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173BDAM5
East/West Street:	NYS ROUTE 218
North/South Street:	U.S. ROUTE 9W (ON/OFF RAMPS)
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		87	332			134	
Peak-Hour Factor, PHF		0.67	0.67			0.67	
Hourly Flow Rate, HFR		129	495			199	
Percent Heavy Vehicles		2	--	--		--	--
Median Type/Storage		Undivided		/			
RT Channelized?							
Lanes		0	1			1	
Configuration			LT			T	
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					0		166
Peak Hour Factor, PHF					0.67		0.67
Hourly Flow Rate, HFR					0		247
Percent Heavy Vehicles					2		2
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)	129						247	
C(m) (vph)	1373						842	
v/c	0.09						0.29	
95% queue length	0.31						1.23	
Control Delay	7.9						11.0	
LOS	A						B	
Approach Delay							11.0	
Approach LOS							B	

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TWO-WAY STOP CONTROL SUMMARY

2010 BUILD PM PEAK HOUR

Analyst:
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD PM PEAK HOUR
Intersection: NYS RTE 218 & US RTE 9W RAMPS
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173BDPM5
East/West Street: NYS ROUTE 218
North/South Street: U.S. ROUTE 9W (ON/OFF RAMPS)
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	159	404			105	
Peak-Hour Factor, PHF	0.67	0.67			0.67	
Hourly Flow Rate, HFR	237	602			156	
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	
Configuration	LT				T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				0		217
Peak Hour Factor, PHF				0.67		0.67
Hourly Flow Rate, HFR				0		323
Percent Heavy Vehicles				2		2
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)	237						323	
C(m) (vph)	1424						890	
v/c	0.17						0.36	
95% queue length	0.60						1.67	
Control Delay	8.0						11.3	
LOS	A						B	
Approach Delay							11.3	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

alyst:	2010 BUILD AM PEAK HOUR
ency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	NYS RTE 218 & US RTE 9W RAMPS
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	SCENARIO 2
Project ID: 173BDAM5	
East/West Street:	NYS ROUTE 218
North/South Street:	U.S. ROUTE 9W (ON/OFF RAMPS)
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	0	332			134	
Peak-Hour Factor, PHF	0.67	0.67			0.67	
Hourly Flow Rate, HFR	0	495			199	
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	
Configuration		LT			T	
ostream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				0		1
Peak Hour Factor, PHF				0.67		0.67
Hourly Flow Rate, HFR				0		1
Percent Heavy Vehicles				2		2
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)	0						1	
C(m) (vph)	1373						842	
v/c	0.00						0.00	
95% queue length	0.00						0.00	
Control Delay	7.6						9.3	
LOS	A						A	
Approach Delay							9.3	
Approach LOS							A	

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TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	NYS RTE 218 & US RTE 9W RAMPS
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	SCENARIO 2
Project ID: 173BDPM5	
East/West Street:	NYS ROUTE 218
North/South Street:	U.S. ROUTE 9W (ON/OFF RAMPS)
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	0	404			105	
Peak-Hour Factor, PHF	0.67	0.67			0.67	
Hourly Flow Rate, HFR	0	602			156	
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	
Configuration		LT			T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				0		1
Peak Hour Factor, PHF				0.67		0.67
Hourly Flow Rate, HFR				0		1
Percent Heavy Vehicles				2		2
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)	0						1	
C(m) (vph)	1424						890	
v/c	0.00						0.00	
95% queue length	0.00						0.00	
Control Delay	7.5						9.0	
LOS	A						A	
Approach Delay							9.0	
Approach LOS							A	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2006 EXISTING AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2006 EXISTING AM PEAK HOUR
Intersection:	MAILER ROAD & NYS ROUTE 218
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173EXAM6
East/West Street:	NYS ROUTE 218
North/South Street:	MAILER ROAD
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		283	29	87	288	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		367	37	112	374	
Percent Heavy Vehicles		--	--	2	--	--
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	29		123			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	37		159			
Percent Heavy Vehicles	2		2			
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)		112		196				
C(m) (vph)		1155		503				
v/c		0.10		0.39				
95% queue length		0.32		1.83				
Control Delay		8.5		16.7				
LOS		A		C				
Approach Delay				16.7				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

2006 EXISTING PM PEAK HOUR

Analyst:
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING PM PEAK HOUR
Intersection: MAILER ROAD & NYS ROUTE 218
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173EXPM6
East/West Street: NYS ROUTE 218
North/South Street: MAILER ROAD
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			401	45	69	404	
Peak-Hour Factor, PHF			0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR			520	58	89	524	
Percent Heavy Vehicles			--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?				0			0
Lanes			1				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		22		85			
Peak Hour Factor, PHF		0.77		0.77			
Hourly Flow Rate, HFR		28		110			
Percent Heavy Vehicles		2		2			
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)		89		138				
C(m) (vph)		996		376				
v/c		0.09		0.37				
95% queue length		0.29		1.65				
Control Delay		9.0		20.0				
LOS		A		C				
Approach Delay				20.0				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 NO-BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 NO-BUILD AM PEAK HOUR
Intersection:	MAILER ROAD & NYS ROUTE 218
Jurisdiction:	
Units:	U. S. Customary
Analysis Year:	
Project ID:	173NBAM6
East/West Street:	NYS ROUTE 218
North/South Street:	MAILER ROAD
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		306	32	95	311	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		397	41	123	403	
Percent Heavy Vehicles		--	--	2	--	--
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	34		138			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	44		179			
Percent Heavy Vehicles	2		2			
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)		123		223				
C(m) (vph)		1122		462				
v/c		0.11		0.48				
95% queue length		0.37		2.58				
Control Delay		8.6		19.8				
LOS		A		C				
Approach Delay				19.8				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

alyst:	2010 NO-BUILD PM PEAK HOUR
ency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 NO-BUILD PM PEAK HOUR
Intersection:	MAILER ROAD & NYS ROUTE 218
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173NBPM6
East/West Street:	NYS ROUTE 218
North/South Street:	MAILER ROAD
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			333	45	69	339	
Peak-Hour Factor, PHF			0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR			432	58	89	440	
Percent Heavy Vehicles			--	--	2	--	--
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		22		85			
Peak Hour Factor, PHF		0.77		0.77			
Hourly Flow Rate, HFR		28		110			
Percent Heavy Vehicles		2		2			
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)		89		138				
C(m) (vph)		1073		446				
v/c		0.08		0.31				
95% queue length		0.27		1.30				
Control Delay		8.7		16.6				
LOS		A		C				
Approach Delay				16.6				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	MAILER ROAD & NYS ROUTE 218
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173BDAM6
East/West Street:	NYS ROUTE 218
North/South Street:	MAILER ROAD
Intersection Orientation:	EW
Study period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street:	Eastbound			Westbound		
Approach						
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		343	32	95	361	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		445	41	123	468	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?			0			1
Lanes		1	0		0	1
Configuration		TR			LT	
Upstream Signal?		No			No	

Minor Street:	Northbound			Southbound		
Approach						
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	34		138			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	44		179			
Percent Heavy Vehicles	2		2			
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)		123		223				
C(m) (vph)		1077		416				
v/c		0.11		0.54				
95% queue length		0.39		3.07				
Control Delay		8.8		23.2				
LOS		A		C				
Approach Delay				23.2				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

2010 BUILD PM PEAK HOUR

alyst:
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD PM PEAK HOUR
Intersection: MAILER ROAD & NYS ROUTE 218
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173BDPM6
East/West Street: NYS ROUTE 218
North/South Street: MAILER ROAD
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		401	45	69	404	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		520	58	89	524	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
pstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	22		85			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	28		110			
Percent Heavy Vehicles	2		2			
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)		89		138				
C(m) (vph)		996		376				
v/c		0.09		0.37				
95% queue length		0.29		1.65				
Control Delay		9.0		20.0				
OS		A		C				
Approach Delay				20.0				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING AM PEAK HOUR
Intersection: MAIN ST/FACULTY RD & RT 218
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006 EXISTING AM PEAK HOUR
Project ID: 173EXAM7
East/West Street: NYS ROUTE 218
North/South Street: MAIN STREET / FACULTY ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1 L	2 T	3 R	4 L	5 T	6 R
Volume	8	180	218	87	259	6
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	11	268	325	129	386	8
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?		0			0	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume	107	4	27	2	3	9
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	159	5	40	2	4	13
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			1	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	11	129		204			19	
C(m) (vph)	1165	983		181			304	
v/c	0.01	0.13		1.13			0.06	
95% queue length	0.03	0.45		10.30			0.20	
Control Delay	8.1	9.2		157.9			17.6	
LOS	A	A		F			C	
Approach Delay				157.9			17.6	
Approach LOS				F			C	

TWO-WAY STOP CONTROL SUMMARY

alyst: 2006 EXISTING PM PEAK HOUR
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING PM PEAK HOUR
Intersection: MAIN ST/FACULTY RD & RT 218
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173EXPM7
East/West Street: NYS ROUTE 218
North/South Street: MAIN STREET / FACULTY ROAD
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	31	232	122	14	239	10
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	46	346	182	20	356	14
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0 1 0			0 1 0		
Configuration	LTR			LTR		
ostream Signal?	No			No		

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	90	4	16	4	6	34
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	134	5	23	5	8	50
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			1	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	46	20		162			63	
C(m) (vph)	1189	1039		223			472	
v/c	0.04	0.02		0.73			0.13	
95% queue length	0.12	0.06		4.86			0.46	
Control Delay	8.1	8.5		54.8			13.8	
OS	A	A		F			B	
pproach Delay				54.8			13.8	
Approach LOS				F			B	

TWO-WAY STOP CONTROL SUMMARY

2010 NO-BUILD AM PEAK HOUR

alyst:
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD AM PEAK HOUR
Intersection: MAIN ST/FACULTY RD & RT 218
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173NBAM7
East/West Street: NYS ROUTE 218
North/South Street: MAIN STREET / FACULTY ROAD
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		9	197	237	94	280	6
Peak-Hour Factor, PHF		0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR		13	294	353	140	417	8
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1	0	0	1	0
Configuration			LTR			LTR	
pstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		116	4	29	2	3	10
Peak Hour Factor, PHF		0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR		173	5	43	2	4	14
Percent Heavy Vehicles		2	2	2	2	2	2
Percent Grade (%)			0			1	
Flared Approach:	Exists?/Storage			No /			No /
Lanes		0	1	0	0	1	0
Configuration			LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	13	140		221			20	
C(m) (vph)	1134	939		150			270	
v/c	0.01	0.15		1.47			0.07	
95% queue length	0.03	0.52		14.57			0.24	
Control Delay	8.2	9.5		300.6			19.4	
LOS	A	A		F			C	
Approach Delay				300.6			19.4	
Approach LOS				F			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 NO-BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 NO-BUILD PM PEAK HOUR
Intersection:	MAIN ST/FACULTY RD & RT 218
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173NBPM7
East/West Street:	NYS ROUTE 218
North/South Street:	MAIN STREET / FACULTY ROAD
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	33	252	133	15	258	11
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	49	376	198	22	385	16
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	97	4	17	4	6	37
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	144	5	25	5	8	55
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			1	
Flared Approach: Exists?/Storage			No /			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	49	22		174			68	
C(m) (vph)	1158	999		193			445	
v/c	0.04	0.02		0.90			0.15	
95% queue length	0.13	0.07		6.98			0.54	
Control Delay	8.2	8.7		91.3			14.5	
LOS	A	A		F			B	
Approach Delay				91.3			14.5	
Approach LOS				F			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	MAIN ST/FACULTY RD & RT 218
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID: 173BDAM7	
East/West Street:	NYS ROUTE 218
North/South Street:	MAIN STREET / FACULTY ROAD
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1 L	2 T	3 R	4 L	5 T	6 R
Volume	9	222	250	94	313	6
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	13	331	373	140	467	8
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume	132	4	29	2	3	10
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	197	5	43	2	4	14
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			1	
Flared Approach: Exists?/Storage			No /			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	13	140		245			20	
C(m) (vph)	1087	894		124			233	
v/c	0.01	0.16		1.98			0.09	
95% queue length	0.04	0.55		19.77			0.28	
Control Delay	8.4	9.8		525.7			21.9	
LOS	A	A		F			C	
Approach Delay				525.7			21.9	
Approach LOS				F			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	MAIN ST/FACULTY RD & RT 218
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173BDPM7
East/West Street:	NYS ROUTE 218
North/South Street:	MAIN STREET / FACULTY ROAD
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	33	297	156	15	302	11
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	49	443	232	22	450	16
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	119	4	17	4	6	37
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	177	5	25	5	8	55
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			1	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	49	22		207			68	
C(m) (vph)	1095	916		146			379	
v/c	0.04	0.02		1.42			0.18	
95% queue length	0.14	0.07		13.41			0.65	
Control Delay	8.4	9.0		280.4			16.6	
LOS	A	A		F			C	
Approach Delay				280.4			16.6	
Approach LOS				F			C	

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK AM
Project ID: 173NBAM7
E/W St: NYS ROUTE 218

Inter.: MAIN ST./FACULTY RD. & RT 218
Area Type: All other areas
Jurisd:
Year :

N/S St: MAIN STREET/FACULTY ROAD

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	0	1	1	0	1	0
LGConfig		LTR			LTR			LT	R		LTR	
Volume	9	197	237	94	280	6	116	4	29	2	3	10
Lane Width		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			
EB Right					EB Right			
WB Right					WB Right			
Green		30.0				15.0		
Yellow		3.0				3.0		
All Red		2.0				2.0		

Cycle Length: 55.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	931	1707	0.71	0.55	11.8	B	11.8	B
Westbound								
LTR	741	1359	0.77	0.55	14.6	B	14.6	B
Northbound								
LT	366	1343	0.49	0.27	17.8	B	17.3	B
R	434	1591	0.10	0.27	15.0	B		
Southbound								
LTR	445	1632	0.05	0.27	14.8	B	14.8	B

Intersection Delay = 13.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 NO-BUILD PEAK PM
Project ID: 173NBPM7
E/W St: NYS ROUTE 218

Inter.: MAIN ST./FACULTY RD. & RT 218
Area Type: All other areas
Jurisd:
Year :

N/S St: MAIN STREET/FACULTY ROAD

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	0	1	1	0	1	0
LGConfig		LTR			LTR			LT	R		LTR	
Volume	33	252	133	15	258	11	97	4	17	4	6	37
Lane Width		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	P				NB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds					Peds			
WB Left	P				SB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green	30.0					15.0		
Yellow	3.0					3.0		
All Red	2.0					2.0		

Cycle Length: 55.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	933	1710	0.49	0.55	9.6	A	9.6	A
Westbound								
LTR	979	1794	0.32	0.55	7.7	A	7.7	A
Northbound								
LT	355	1302	0.31	0.27	18.2	B	17.7	B
R	434	1591	0.04	0.27	14.9	B		
Southbound								
LTR	446	1634	0.12	0.27	15.6	B	15.6	B

Intersection Delay = 10.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK AM
Project ID: 173BDAM7
E/W St: NYS ROUTE 218

Inter.: MAIN ST./FACULTY RD. & RT 218
Area Type: All other areas
Jurisd:
Year :

N/S St: MAIN STREET/FACULTY ROAD

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	0	1	1	0	1	0
LGConfig		LTR			LTR			LT	R		LTR	
Volume	9	222	250	94	313	6	132	4	29	2	3	10
Lane Width		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			
EB Right					EB Right			
WB Right					WB Right			
Green	30.0					15.0		
Yellow	3.0					3.0		
All Red	2.0					2.0		

Cycle Length: 55.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	933	1711	0.77	0.55	13.7	B	13.7	B
Westbound								
LTR	736	1349	0.84	0.55	18.9	B	18.9	B
Northbound								
LT	366	1341	0.55	0.27	19.0	B	18.3	B
R	434	1591	0.10	0.27	15.0	B		
Southbound								
LTR	444	1628	0.05	0.27	14.8	B	14.8	B

Intersection Delay = 16.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK PM
Project ID: 173BDPM7
E/W St: NYS ROUTE 218

Inter.: MAIN ST./FACULTY RD. & RT 218
Area Type: All other areas
Jurisd:
Year :

N/S St: MAIN STREET/FACULTY ROAD

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	0	1	1	0	1	0
LGConfig		LTR			LTR			LT	R		LTR	
Volume	33	297	156	15	302	11	119	4	17	4	6	37
Lane Width		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	P				NB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds					Peds			
WB Left	P				SB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds					Peds			
EB Right					EB Right			
WB Right					WB Right			
Green	30.0					15.0		
Yellow	3.0					3.0		
All Red	2.0					2.0		

Cycle Length: 55.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	934	1713	0.57	0.55	10.8	B	10.8	B
Westbound								
LTR	980	1796	0.37	0.55	8.2	A	8.2	A
Northbound								
LT	355	1300	0.38	0.27	19.3	B	18.8	B
R	434	1591	0.04	0.27	14.9	B		
Southbound								
LTR	445	1632	0.12	0.27	15.6	B	15.6	B

Intersection Delay = 11.3 (sec/veh) Intersection LOS = B

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2006 EXISTING AM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING AM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173EXAM8
East/West Street: NYS COUTY ROUTE 32
North/South Street: US ROUTE 9W
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		165	56	32	119	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		214	72	41	154	
Percent Heavy Vehicles		--	--	2	--	--
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	14		12			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	18		15			
Percent Heavy Vehicles	2		2			
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)		41		33				
C(m) (vph)		1276		618				
v/c		0.03		0.05				
95% queue length		0.10		0.17				
Control Delay		7.9		11.2				
LOS		A		B				
Approach Delay				11.2				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2006 EXISTING PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2006 EXISTING PM PEAK HOUR
Intersection:	NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173EXPM8
East/West Street:	NYS COUTY ROUTE 32
North/South Street:	US ROUTE 9W
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		132	34	34	147	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		171	44	44	190	
Percent Heavy Vehicles		--	--	2	--	--
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	21		37			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	27		48			
Percent Heavy Vehicles	2		2			
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)		44		75				
C(m) (vph)		1355		700				
v/c		0.03		0.11				
95% queue length		0.10		0.36				
Control Delay		7.7		10.8				
LOS		A		B				
Approach Delay				10.8				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 NO-BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 NO-BUILD AM PEAK HOUR
Intersection:	NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173NBAM8
East/West Street:	NYS COUTY ROUTE 32
North/South Street:	US ROUTE 9W
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			184	62	35	141	
Peak-Hour Factor, PHF			0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR			238	80	45	183	
Percent Heavy Vehicles			--	--	2	--	--
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		16		14			
Peak Hour Factor, PHF		0.77		0.77			
Hourly Flow Rate, HFR		20		18			
Percent Heavy Vehicles		2		2			
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)		45		38				
C(m) (vph)		1242		579				
v/c		0.04		0.07				
95% queue length		0.11		0.21				
Control Delay		8.0		11.7				
LOS		A		B				
Approach Delay				11.7				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2010 NO-BUILD PM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD PM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173NBPM8
East/West Street: NYS COUTY ROUTE 32
North/South Street: US ROUTE 9W
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		146	39	37	170	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		189	50	48	220	
Percent Heavy Vehicles		--	--	2	--	--
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	25		42			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	32		54			
Percent Heavy Vehicles	2		2			
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)		48		86				
C(m) (vph)		1328		659				
v/c		0.04		0.13				
95% queue length		0.11		0.45				
Control Delay		7.8		11.3				
LOS		A		B				
Approach Delay				11.3				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID: 173BDAM8	
East/West Street:	NYS COUTY ROUTE 32
North/South Street:	US ROUTE 9W
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		189	72	41	141	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		245	93	53	183	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?			0			1
Lanes		1		0		
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	16		14			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	20		18			
Percent Heavy Vehicles	2		2			
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)		53		38				
C(m) (vph)		1221		558				
v/c		0.04		0.07				
95% queue length		0.14		0.22				
Control Delay		8.1		11.9				
LOS		A		B				
Approach Delay				11.9				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173BDPM8
East/West Street:	NYS COUTY ROUTE 32
North/South Street:	US ROUTE 9W
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		155	52	45	170	
Peak-Hour Factor, PHF		0.77	0.77	0.77	0.77	
Hourly Flow Rate, HFR		201	67	58	220	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?			1			0
Lanes		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	25		42			
Peak Hour Factor, PHF	0.77		0.77			
Hourly Flow Rate, HFR	32		54			
Percent Heavy Vehicles	2		2			
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)		58		86				
C(m) (vph)		1296		630				
v/c		0.04		0.14				
95% queue length		0.14		0.47				
Control Delay		7.9		11.6				
LOS		A		B				
Approach Delay				11.6				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	RT 9W & SOUTH END SITE ACCESS
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID: 173AMB9	
East/West Street:	SOUTH END SITE ACCESS
North/South Street:	US ROUTE 9W
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			617			880	232
Peak-Hour Factor, PHF			0.90			0.90	0.90
Hourly Flow Rate, HFR			685			977	257
Percent Heavy Vehicles			--	--		--	--
Median Type/Storage		Undivided		/			
RT Channelized?							
Lanes			2			2	0
Configuration			T			T	TR
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume							124
Peak Hour Factor, PHF							0.90
Hourly Flow Rate, HFR							137
Percent Heavy Vehicles							0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				/			/
Lanes						1	
Configuration						R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								137
C(m) (vph)								438
v/c								0.31
95% queue length								1.32
Control Delay								16.9
LOS								C
Approach Delay							16.9	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD PM PEAK HOUR
Intersection:	RT 9W & SOUTH END SITE ACCESS
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173PMB9
East/West Street:	SOUTH END SITE ACCESS
North/South Street:	US ROUTE 9W
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		1194			491	304
Peak-Hour Factor, PHF		0.90			0.90	0.90
Hourly Flow Rate, HFR		1326			545	337
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2			2	0
Configuration		T			T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume						228
Peak Hour Factor, PHF						0.90
Hourly Flow Rate, HFR						253
Percent Heavy Vehicles						0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes						1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config								R
v (vph)								253
C(m) (vph)								570
v/c								0.44
95% queue length								2.26
Control Delay								16.3
LOS								C
Approach Delay							16.3	
Approach LOS							C	

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL/NEW WINDSOR
Date: JANUARY 2007
Period: 2010 BUILD PEAK AM
Project ID: 173BDAM9
E/W St: SOUTHERLY SITE ACCESS

Inter.: SOUTHERLY SITE ACCESS & RT 9W
Area Type: All other areas
Jurisd:
Year : SCENARIO 2

N/S St: US ROUTE 9W

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	2	0	0	2	0
LGConfig	L		R				L	T			TR	
Volume	87		124				166	452			880	66
Lane Width	12.0		12.0				12.0	12.0			12.0	
RTOR Vol			0									0

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left		A			NB Left	A	A	
	Thru					Thru	A	A	
	Right		A			Right			
	Peds					Peds			
WB	Left					SB Left			
	Thru					Thru		A	
	Right					Right		A	
	Peds					Peds			
NB	Right					EB Right			
SB	Right					WB Right			
Green			25.0				16.0	44.0	
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	443	1770	0.21	0.25	30.0	C	30.7	C
R	396	1583	0.34	0.25	31.3	C		
Westbound								
Northbound								
L	414	1778	0.43	0.65	12.0	B	8.4	A
T	2317	3564	0.21	0.65	7.1	A		
Southbound								
TR	1544	3509	0.67	0.44	23.3	C	23.3	C

Intersection Delay = 19.0 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: MAB
Agency: CORNWALL, NY
Date: JANUARY 2007
Period: 2010 BUILD PEAK PM
Project ID: 173BDPM9
E/W St: SOUTHERLY SITE ACCESS

Inter.: SOUTHERLY SITE ACCESS & RT 9W
Area Type: All other areas
Jurisd:
Year : SCENARIO 2

N/S St: US ROUTE 9W

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	2	0	0	2	0
LGConfig	L		R				L	T			TR	
Volume	159		228				217	1122			483	87
Lane Width	12.0		12.0				12.0	12.0			12.0	
RTOR Vol			0									0

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru					Thru	A	A	
Right		A			Right			
Peds					Peds			
WB Left					SB Left			
Thru					Thru		A	
Right					Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				10.0	30.0	
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	796	1770	0.22	0.45	16.9	B	17.7	B
R	712	1583	0.35	0.45	18.2	B		
Westbound								
Northbound								
L	331	1778	0.71	0.45	26.5	C		
T	1604	3564	0.76	0.45	25.2	C	25.4	C
Southbound								
TR	1040	3465	0.60	0.30	30.8	C	30.8	C

Intersection Delay = 25.5 (sec/veh) Intersection LOS = C

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2006 EXISTING AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2006 EXISTING AM PEAK HOUR
Intersection:	NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173EXAM10
East/West Street:	NYS COUNTY ROUTE 32
North/South Street:	US ROUTE 9W
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	18	170	2	7	92	34
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	24	229	2	9	124	45
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2	3	21	30	5	40
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	2	4	28	40	6	54
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	24	9		34			100	
C(m) (vph)	1409	1337		719			645	
v/c	0.02	0.01		0.05			0.16	
95% queue length	0.05	0.02		0.15			0.55	
Control Delay	7.6	7.7		10.3			11.6	
LOS	A	A		B			B	
Approach Delay				10.3			11.6	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2006 EXISTING PM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173EXPM10
East/West Street: NYS COUNTY ROUTE 32
North/South Street: US ROUTE 9W
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1 L	2 T	3 R	4 L	5 T	6 R
Volume	7	110	3	10	142	16
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	9	148	4	13	191	21
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume	4	2	16	41	9	59
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	5	2	21	55	12	79
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	9	13		28			146	
C(m) (vph)	1358	1429		736			663	
v/c	0.01	0.01		0.04			0.22	
95% queue length	0.02	0.03		0.12			0.84	
Control Delay	7.7	7.5		10.1			12.0	
LOS	A	A		B			B	
Approach Delay				10.1			12.0	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2010 NO-BUILD AM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD AM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173NBAM10
East/West Street: NYS COUNTY ROUTE 32
North/South Street: US ROUTE 9W
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1 L	2 T	3 R	4 L	5 T	6 R
Volume	29	192	2	8	104	45
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	39	259	2	10	140	60
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume	2	3	23	32	5	46
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	2	4	31	43	6	62
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	39	10		37			111	
C(m) (vph)	1372	1303		680			588	
v/c	0.03	0.01		0.05			0.19	
95% queue length	0.09	0.02		0.17			0.69	
Control Delay	7.7	7.8		10.6			12.5	
LOS	A	A		B			B	
Approach Delay				10.6			12.5	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 NO-BUILD PM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 NO-BUILD PM PEAK HOUR
Intersection:	NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173NBPM10
East/West Street:	NYS COUNTY ROUTE 32
North/South Street:	US ROUTE 9W
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	14	124	3	11	162	21
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	18	167	4	14	218	28
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4	2	17	44	10	70
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	5	2	22	59	13	94
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	18	14		29			166	
C(m) (vph)	1320	1406		691			619	
v/c	0.01	0.01		0.04			0.27	
95% queue length	0.04	0.03		0.13			1.08	
Control Delay	7.8	7.6		10.4			12.9	
LOS	A	A		B			B	
Approach Delay				10.4			12.9	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

2010 BUILD AM PEAK HOUR

alyst:
ency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD AM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173BDAM10
East/West Street: NYS COUNTY ROUTE 32
North/South Street: US ROUTE 9W
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1 L	2 T	3 R	4 L	5 T	6 R
Volume	29	202	2	8	104	45
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	39	272	2	10	140	60
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
)pstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume	2	3	23	37	5	54
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	2	4	31	49	6	72
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	39	10		37			127	
C(m) (vph)	1372	1289		667			585	
v/c	0.03	0.01		0.06			0.22	
95% queue length	0.09	0.02		0.18			0.82	
Control Delay	7.7	7.8		10.7			12.9	
)OS	A	A		B			B	
Approach Delay				10.7			12.9	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2010 BUILD PM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD PM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173BDPM10
East/West Street: NYS COUNTY ROUTE 32
North/South Street: US ROUTE 9W
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	14	137	3	11	162	21
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	18	185	4	14	218	28
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4	2	17	53	10	84
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	5	2	22	71	13	113
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	18	14		29			197	
C(m) (vph)	1320	1385		665			612	
v/c	0.01	0.01		0.04			0.32	
95% queue length	0.04	0.03		0.14			1.39	
Control Delay	7.8	7.6		10.7			13.6	
LOS	A	A		B			B	
Approach Delay				10.7			13.6	
Approach LOS				B			B	

APPENDIX "D"

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.

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2010 NO-BUILD PM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 NO-BUILD PM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173NBPM10
East/West Street: NYS COUNTY ROUTE 32
North/South Street: US ROUTE 9W
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	14	124	3	11	162	21
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	18	167	4	14	218	28
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4	2	17	44	10	70
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	5	2	22	59	13	94
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	18	14		29			166	
C(m) (vph)	1320	1406		691			619	
v/c	0.01	0.01		0.04			0.27	
95% queue length	0.04	0.03		0.13			1.08	
Control Delay	7.8	7.6		10.4			12.9	
LOS	A	A		B			B	
Approach Delay				10.4			12.9	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst:	2010 BUILD AM PEAK HOUR
Agency/Co.:	
Date Performed:	JANUARY 2007
Analysis Time Period:	2010 BUILD AM PEAK HOUR
Intersection:	NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	
Project ID:	173BDAM10
East/West Street:	NYS COUNTY ROUTE 32
North/South Street:	US ROUTE 9W
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	29	202	2	8	104	45
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	39	272	2	10	140	60
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?	No			No		

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2	3	23	37	5	54
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	2	4	31	49	6	72
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	39	10		37			127	
C(m) (vph)	1372	1289		667			585	
v/c	0.03	0.01		0.06			0.22	
95% queue length	0.09	0.02		0.18			0.82	
Control Delay	7.7	7.8		10.7			12.9	
LOS	A	A		B			B	
Approach Delay				10.7			12.9	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: 2010 BUILD PM PEAK HOUR
Agency/Co.:
Date Performed: JANUARY 2007
Analysis Time Period: 2010 BUILD PM PEAK HOUR
Intersection: NYS COUNTY ROUTE 32 & US RT 9W
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 173BDPM10
East/West Street: NYS COUNTY ROUTE 32
North/South Street: US ROUTE 9W
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	14	137	3	11	162	21
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	18	185	4	14	218	28
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4	2	17	53	10	84
Peak Hour Factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Hourly Flow Rate, HFR	5	2	22	71	13	113
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	18	14		29			197	
C(m) (vph)	1320	1385		665			612	
v/c	0.01	0.01		0.04			0.32	
95% queue length	0.04	0.03		0.14			1.39	
Control Delay	7.8	7.6		10.7			13.6	
LOS	A	A		B			B	
Approach Delay				10.7			13.6	
Approach LOS				B			B	

APPENDIX "D"

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.