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

11 BRADHURST AVENUE • HAWTHORNE, N.Y. • 10532 • (914) 347-7500 • FAX (914) 347-7266

RECEIVED
By Dover Planning & ARB at 8:43 am, Mar 27, 2012

TRAFFIC IMPACT STUDY

****

PROPOSED DOVER MOBIL

NYS ROUTE 22 AND PLEASANT RIDGE (C.R. 21)

TOWN OF DOVER, NEW YORK

JOB NO. 1884

MARCH 22, 2012

TABLE OF CONTENTS

SECTION I

INTRODUCTION

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

A new Mobil gas and convenience store which will include a Dunkin Donuts drive-thru with approximately 3,250 sq. ft and 6 gas fueling positions and a diesel fueling station is proposed on the site located on the southeast corner of the intersection of NYS Route 22 and Pleasant Ridge Road in the Town of Dover, New York. The site, which currently contains a diner, is accessed via separate driveways to NYS Route 22, Pleasant Ridge Road as well as NYS Route 55. The location of the site is shown on Figure No. 1. A Design Year of 2014 has been utilized in completing the traffic analysis for the project.

B. SCOPE OF STUDY

This report has been prepared to evaluate the potential traffic impacts associated with the proposed Dover Mobil on the surrounding roadway network.

The study evaluates Existing, No-Build and Build conditions. Traffic counts collected by representatives of John Collins Engineers, P.C. in the vicinity of the site together with data obtained from the NYSDOT were utilized to establish the Existing Traffic Volumes for the study area intersections.

The Existing Traffic Volumes were then projected to a Year 2014 Design Year to take into account expected increases in traffic due to normal background traffic growth in the area. In addition, traffic from other proposed projects in the area was also added to the projected traffic volumes resulting in the Year 2014 No-Build Traffic Volumes.

Estimates of the traffic to be generated by the Dover Mobil project were then made based the result of surveys of similar type facilities and data published by the Institute of Transportation Engineers. The additional traffic volumes to be generated by the proposed expansion were then added to the Year 2014 No-Build Traffic Volumes to obtain the Year 2014 Build Traffic Volumes.

Based on the procedures contained in the *2010 Highway Capacity Manual*, the traffic volumes were then compared to roadway capacities to determine existing and future Levels of Service and operating conditions. Recommendations for improvements were then made where necessary.

SECTION II

TRAFFIC IMPACT ANALYSIS FOR

EXISTING AND FUTURE TRAFFIC CONDITIONS

A. DESCRIPTION OF EXISTING ROADWAYS (Figure No. 1)

As shown on Figure No. 1, the site is served by various area and local roadways including NYS Route 22, Pleasant Ridge Road and NYS Route 55. The following is a brief description of each of these roadways. Copies of the capacity analysis which include lane widths, number of lanes, traffic control and signal timings (where appropriate) are contained in Appendix "C" of this study for each of the individual intersections studied.

1. NYS Route 22/55

Within the Study Area, NYS Route 22/55 is a two lane, State road. South of the site, NYS Route 22/55 intersects with North Quaker Hill Road (C.R. 68), Hurds Corner Road/Old Pawling Road, Kitchen Corners Road and Furlong Road all at unsignalized intersections. In the immediate vicinity of the site, NYS Route 22/55 intersects with Wheeler Road at a signalized intersection. North of Wheeler Road, NYS Route 22 and NYS Route 55 split with NYS Route 22 continuing in a northwesterly direction intersecting with Pleasant Ridge Road at a signalized intersection with NYS Route 55 continuing in a northeasterly direction intersecting with Hutchinson Avenue and Pleasant Ridge Road at unsignalized intersections. North of Pleasant Ridge Road, NYS Route 22 intersects with Rural Avenue and Cricket Hill

Road (C.R. 26) at unsignalized intersections. NYS Route 22/55 has varying speed limits with a 30 mph speed limit approaching Wheeler Road with speed limits of 40 mph to 55 mph at various other locations.

2. Pleasant Ridge Road (C.R. 21)

Pleasant Ridge Road is a two lane County road (C.R. 21) which generally runs in an east/west direction within the Study Area. Pleasant Ridge Road intersects with Hoags Corners Road at an unsignalized intersection west of the Study Area. Pleasant Ridge Road continues in an easterly direction intersecting with NYS Route 22/55 at a signalized intersection before terminating at NYS Route 55 at an unsignalized intersection east of the Study Area. Pleasant Ridge Road has varying speed limits with a 30 mph speed limit approaching the NYS Route 22/55 intersection with speed limits of 40 mph to 55 mph at various other locations.

B. YEAR 2012 EXISTING TRAFFIC VOLUMES (Figures No. 2 and 3)

Recent turning movement traffic counts were conducted by representatives of John Collins Engineers, P.C. on March 7th and 8th of 2012 supplemented with traffic counts obtained from the NYSDOT as well as previous count data collected by our office for the area roadways during 2009. These data were used to identify current traffic conditions in the vicinity of the site and to establish the Year 2012 Existing Traffic Volumes for the Weekday AM and PM Peak Hours at the following intersections:

- NYS Route 22 and Pleasant Ridge Road (C.R. 21)
- NYS Route 22 and NYS Route 55
- NYS Route 55 and Pleasant Ridge Road

The resulting Year 2012 Existing Traffic Volumes for each of the study intersections are shown on Figures No. 2 and 3 for the Weekday Peak AM and Peak PM Hours, respectively.

C. YEAR 2014 NO-BUILD TRAFFIC VOLUMES (Figures No. 4 through 9)

The Year 2012 Existing Traffic Volumes were increased by a growth factor of 1% per year to the 2014 Design Year for a total background growth of 2% to account for normal traffic growth in the area. The resulting Year 2014 Projected Traffic Volumes are shown on Figures No. 4 and 5 for each of the Peak Hours, respectively. In addition, traffic volumes which would be generated by other specific developments in the area were also identified including the Phase 1 of the Dover Knolls development. The Other Development Traffic Volumes which are shown on Figures No. 6 and 7 were added to the Year 2014 Projected Traffic Volumes to obtain the Year 2014 No-Build Traffic Volumes. The Year 2014 No-Build Traffic Volumes are shown on Figures No. 8 and 9 for the Weekday AM and PM Peak Hours, respectively.

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

Estimates of the amount of traffic to be generated by the Dover Mobil during each of the peak hours were developed based on data collected at a similar type facility as well as data published by the

Institute of Transportation Engineers as contained in their report entitled, *Trip Generation*, 8th Edition, 2008. Table No. 1 provides the Hourly Trip Generation Rates and Existing and Anticipated Site Generated Traffic Volumes for each of the Peak Hours.

It should also be noted that for this type of facility a major portion of the trips (typically in excess of 50%) are attracted from the existing traffic stream as pass-by or diverted link trips and are not "new trips" to the roadway system. No credit has been taken herein.

E. ARRIVAL/DEPARTURE DISTRIBUTION (Figures No. 10 and 11)

An arrival and departure distribution was established based on a review of the existing traffic volumes and in order to assign the site generated traffic volumes to the roadway network. The resulting arrival and departure distributions are shown on Figures No. 10 and 11, respectively.

F. YEAR 2014 BUILD TRAFFIC VOLUMES (Figures No. 12 through 15)

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 are shown on Figures No. 12 and 13 for each of the Peak Hours. These site generated traffic volumes were added to the Year 2014 No-Build Traffic Volumes resulting in the Year 2014 Build Traffic Volumes which are shown on Figures No. 14 and 15 for the Weekday AM and PM Peak Hours, respectively.

G. DESCRIPTION OF ANALYSIS PROCEDURES

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

- Signalized Intersection Capacity Analysis

  The capacity analysis for a signalized intersection was performed in accordance with the procedures described in the *2010 Highway Capacity Manual*, published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service "A" represents the best condition and a Level of Service "F" represents the worst condition. A Level of Service "C" is generally used as a design standard while a Level of Service "D" is acceptable during peak periods. A Level of Service "E" represents an operation near capacity. In order to identify an intersection's Level of Service, the average amount of vehicle delay is computed for each approach to the intersection as well as for the overall intersection.

- Unsignalized Intersection Capacity Analysis

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

Additional information concerning signalized and unsignalized Levels of Service can be found in Appendix "D" of this report.

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

Capacity analyses were performed at each of the study area intersections utilizing the procedures described above to evaluate current and future operating conditions. Summarized below is a brief description of the exiting geometrics, traffic control and a summary of the existing and future Levels of Service and any recommended improvements for each of the intersections studied.

Table No. 2 also summarizes the results of the capacity analysis (Levels of Service and average vehicle delays) for the Year 2012 Existing, Year 2014 No-Build and Year 2014 Build Conditions. Copies of the capacity analysis for each of the individual intersections are contained in Appendix "C" of this report. A SYNCHRO analysis was also completed for the roadway network to analyze the affects of queuing on the study area intersections.

1. NYS Route 22 and Pleasant Ridge Road (C.R. 21)

   Pleasant Ridge Road (C.R. 21) intersects with NYS Route 22 at a signalized intersection. All approaches to the intersection consist of one lane.

Existing

Capacity analysis conducted utilizing the Year 2012 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service "B" during each of the peak hours.

No-Build

Capacity analysis conducted utilizing the Year 2014 No-Build Traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service "B" during each of the peak hours.

Build

Capacity analysis conducted utilizing the Year 2014 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service "B" during each of the peak hours.

2. NYS Route 22 and Dover Mobil Access

The existing Dover Mobil site is accessed from NYS Route 22 via a full movement driveway. Each of the approaches to the intersection consists of one lane. It is recommended that the driveway be limited to right turn in/right turn out.

The capacity analysis conducted at this intersection utilizing the Year 2014 Build Traffic Volumes indicates that the intersection will to operate at a Level of Service "B" or better during the AM and PM Peak Hours.

3. NYS 22/55 Intersection

NYS Route 55 northbound separates from NYS Route 22 north of Wheeler Road and NYS Route 55 southbound joins NYS Route 22 south of Pleasant Ridge Road. NYS Route 55 southbound traffic enters the NYS Route 22 Corridor at an unsignalized intersection.

Existing

Capacity analysis conducted utilizing the Year 2012 Existing Traffic Volumes indicates that the NYS Route 55 traffic is currently operating at a Level of Service "C" or better during each of the peak hours.

No-Build

Capacity analysis conducted utilizing the Year 2014 No-Build Traffic Volumes indicates that the NYS Route 55 traffic is projected to operate at a Level of Service "C" during the Weekday Peak AM Highway Hour, is projected to operate at a level of Service "C" during the Weekday Peak PM Highway Hour.

Build

Capacity analysis conducted utilizing the Year 2014 Build Traffic Volumes indicates that the NYS Route 55 traffic turning left onto Route 22 southbound is projected to operate at a Level of Service "D" during the Weekday Peak AM Highway Hour, is projected to operate at a Level of Service "C" during the Weekday Peak PM Highway Hour.

4. NYS Route 55 and Dover Mobil Access Driveway

The Dover Mobil access intersects NYS Route 55 at an unsignalized "T" shaped intersection. Each approach to the intersection consists of one lane and the Mobil access will be "Stop" sign controlled.

5. NYS Route 55 and Pleasant Ridge Road (C.R. 21)

Pleasant Ridge Road intersects with NYS Route 55 at an unsignalized intersection. The NYS Route 55 northbound approach consists of one lane in the form of a shared left/through lane and the NYS Route 55 southbound approach consists of one lane in the form of a shared through/right turn lane. The Pleasant Ridge Road eastbound approach consists of one lane for left and right turn movements and is "Stop" sign controlled.

Existing

Capacity analysis conducted utilizing the Year 2012 Existing Traffic Volumes indicates that the Pleasant Ridge Road approach is currently operating at a Level of Service "B" during each of the peak hours, with all other movements operating at a Level of Service "A".

No-Build

Capacity analysis conducted utilizing the Year 2014 No-Build Traffic Volumes indicates that the Pleasant Ridge Road approach is projected to operate at a Level of Service "C" or better during each of the peak hours, with all other movements are projected to operate at a Level of Service "A".

Build

Capacity analysis conducted utilizing the Year 2014 Build Traffic Volumes indicates that the Pleasant Ridge Road approach is projected to operate at a Level of Service "C" during each of the peak hours, with all other movements projected to continue to operate at a Level of Service "A".

6. Pleasant Ridge Road and Dover Mobil Access Driveway

The Dover Mobil Access intersects Pleasant Ridge Road at an unsignalized "T" shaped intersection. Each approach to the intersection consists of one lane and the Mobil Access will be "Stop" sign controlled.

Conducting the analysis with the 2014 Build Traffic Volumes indicates that the Levels of Service "B" during each of the peak hours.

I. ACCESS AND CIRCULATION

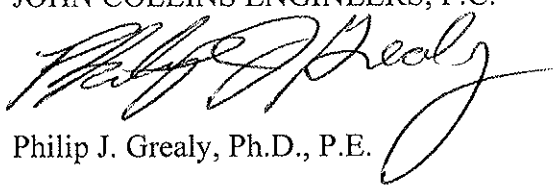
A review of the site plans indicates that stacking for approximately 9 vehicles is provided at the drive-through window with additional stacking of approximately 6 vehicles available prior to them affecting the driveway entrance areas. This will be adequate to meet the expected peak loading on the proposed drive-through window. Also, the entrance and exit to the drive-through area should be signed with "One-Way" and "Do Not Enter" signs as appropriate along with additional pavement marking.

J. SUMMARY AND CONCLUSION

As summarized in this report, with the completion of the recommended improvements, the traffic generated by the Dover Mobil project can be accommodated on the roadway system in the vicinity of the site. Based on the analysis contained in this report, similar Levels of Service will be experienced under future No-Build and Future Build Conditions.

Respectfully submitted,

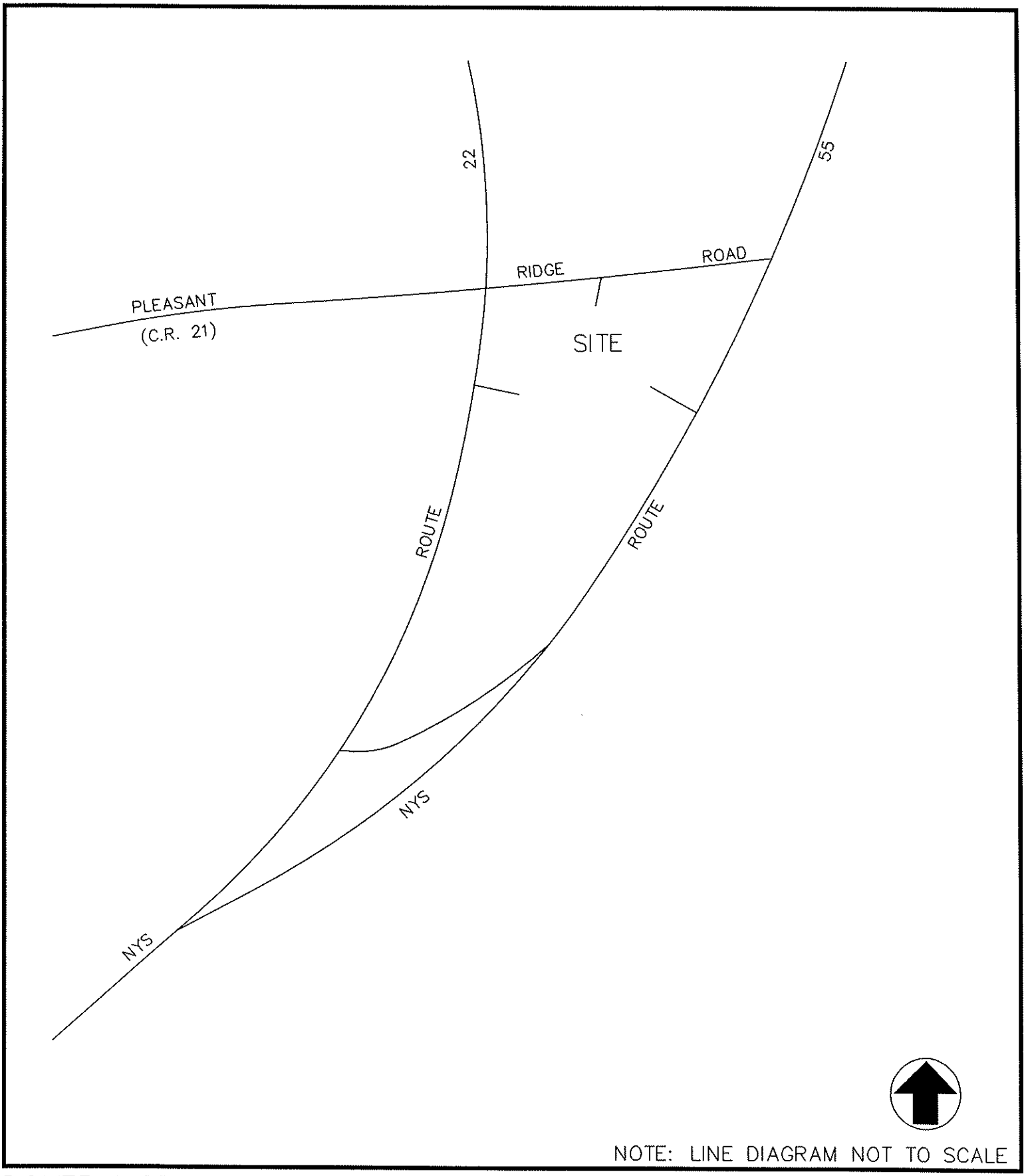
JOHN COLLINS ENGINEERS, P.C.



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

APPENDIX "A"

FIGURES



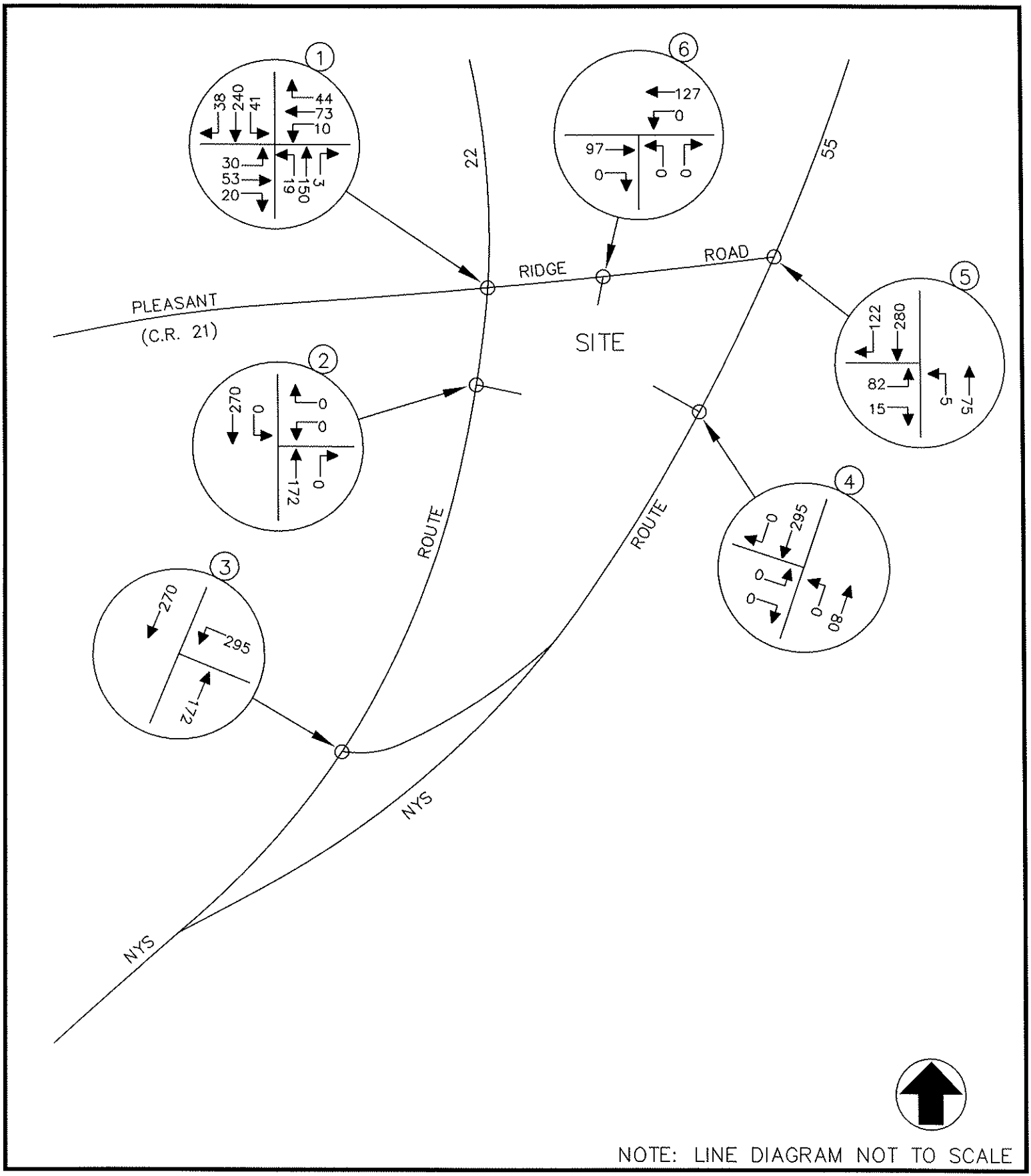
DOVER MOBIL
DOVER, NEW YORK

SITE LOCATION MAP

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 1



NOTE: LINE DIAGRAM NOT TO SCALE

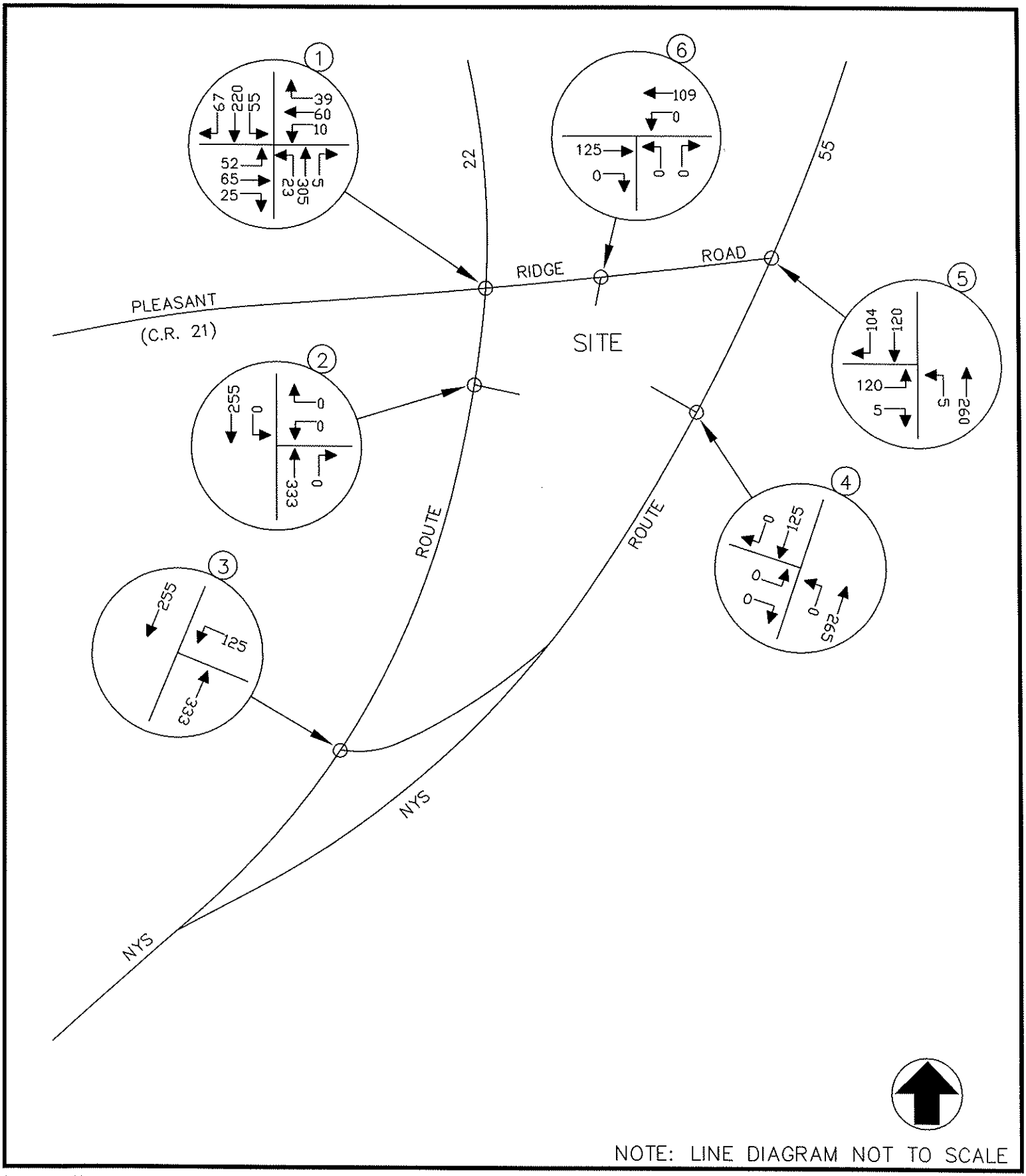
DOVER MOBIL
DOVER, NEW YORK

2012 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 2



NOTE: LINE DIAGRAM NOT TO SCALE

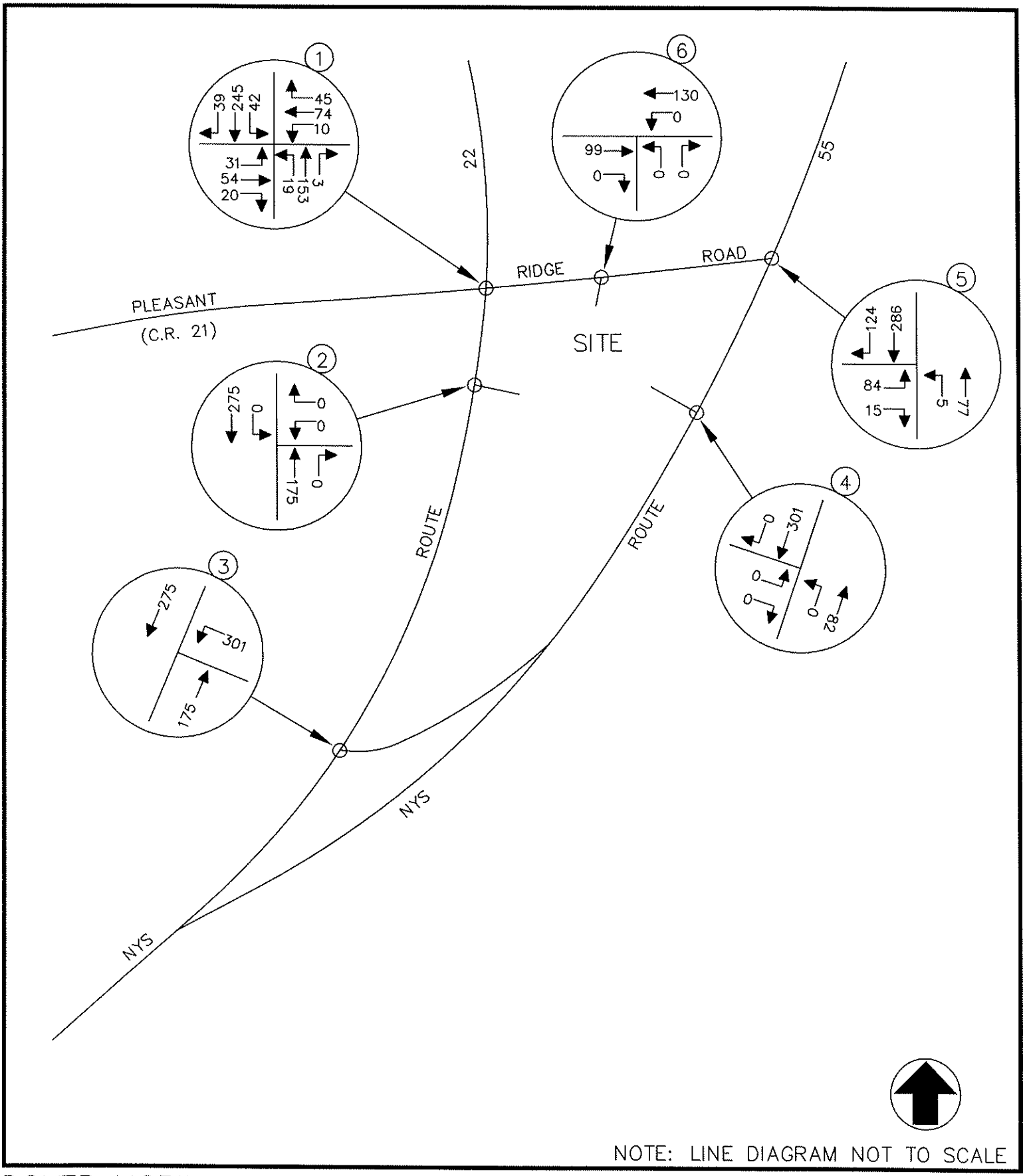
DOVER MOBIL
DOVER, NEW YORK

2012 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 3



NOTE: LINE DIAGRAM NOT TO SCALE

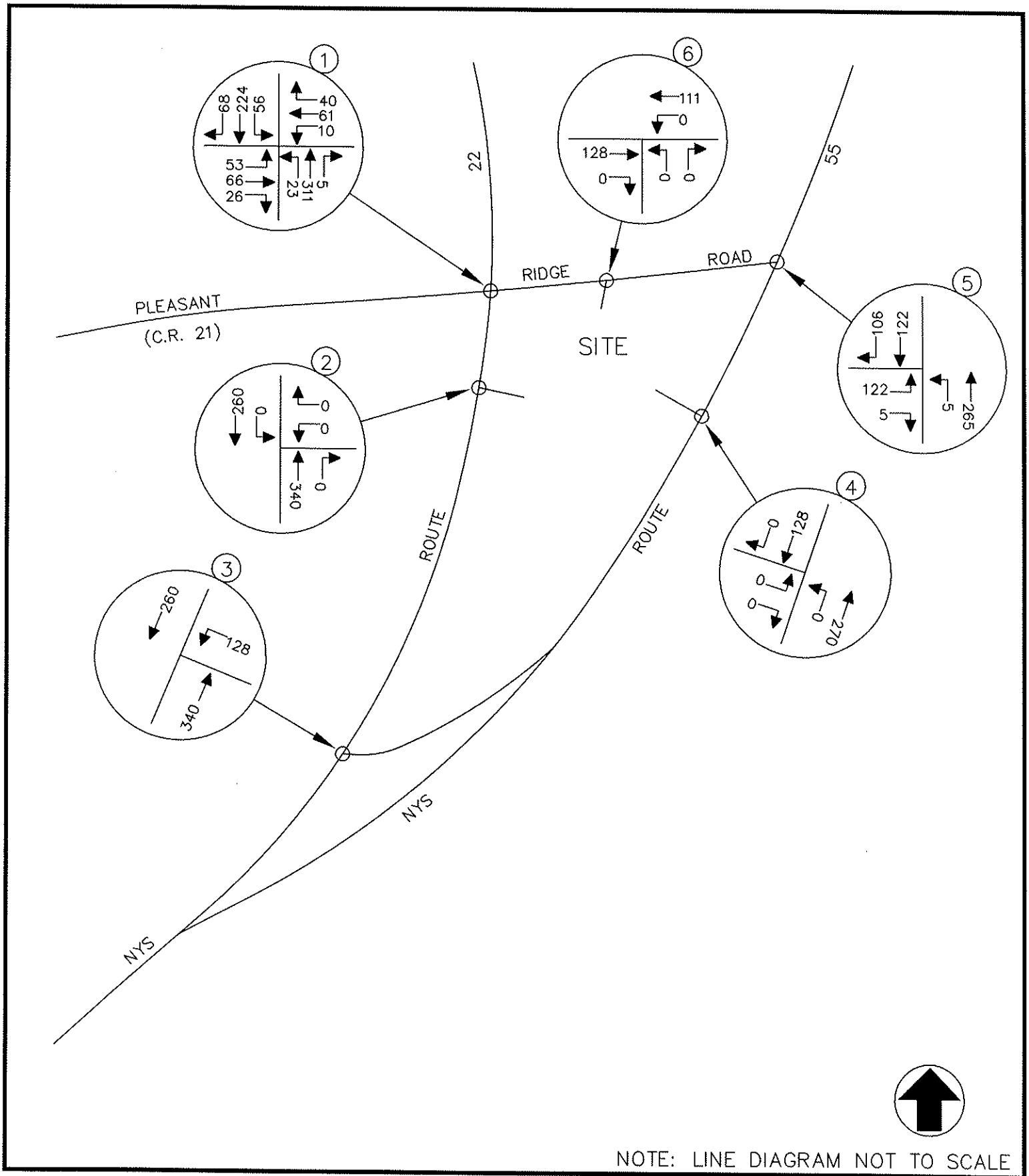
DOVER MOBIL
DOVER, NEW YORK

2014 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO.4



NOTE: LINE DIAGRAM NOT TO SCALE

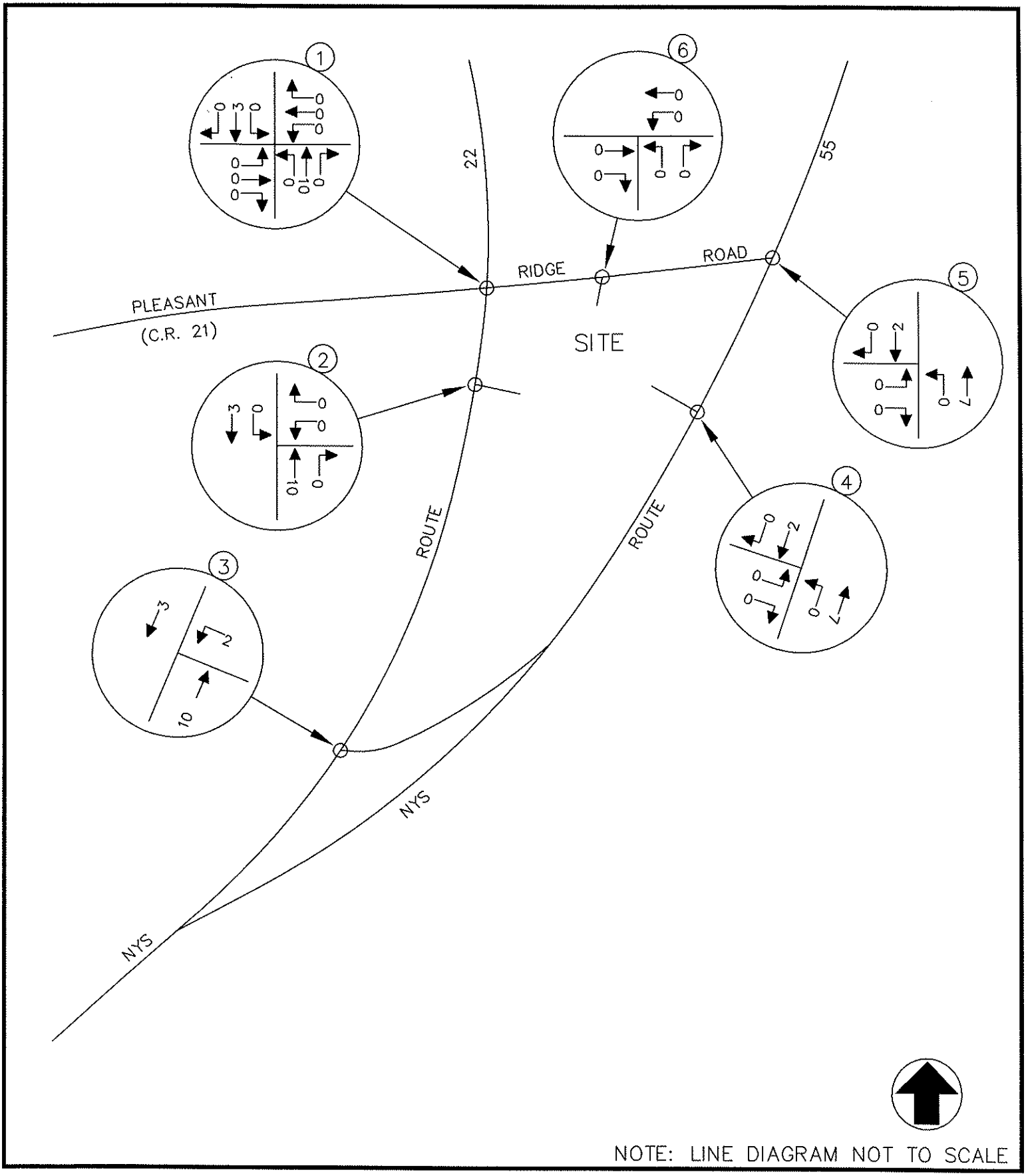
DOVER MOBIL
DOVER, NEW YORK

2014 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 5



NOTE: LINE DIAGRAM NOT TO SCALE

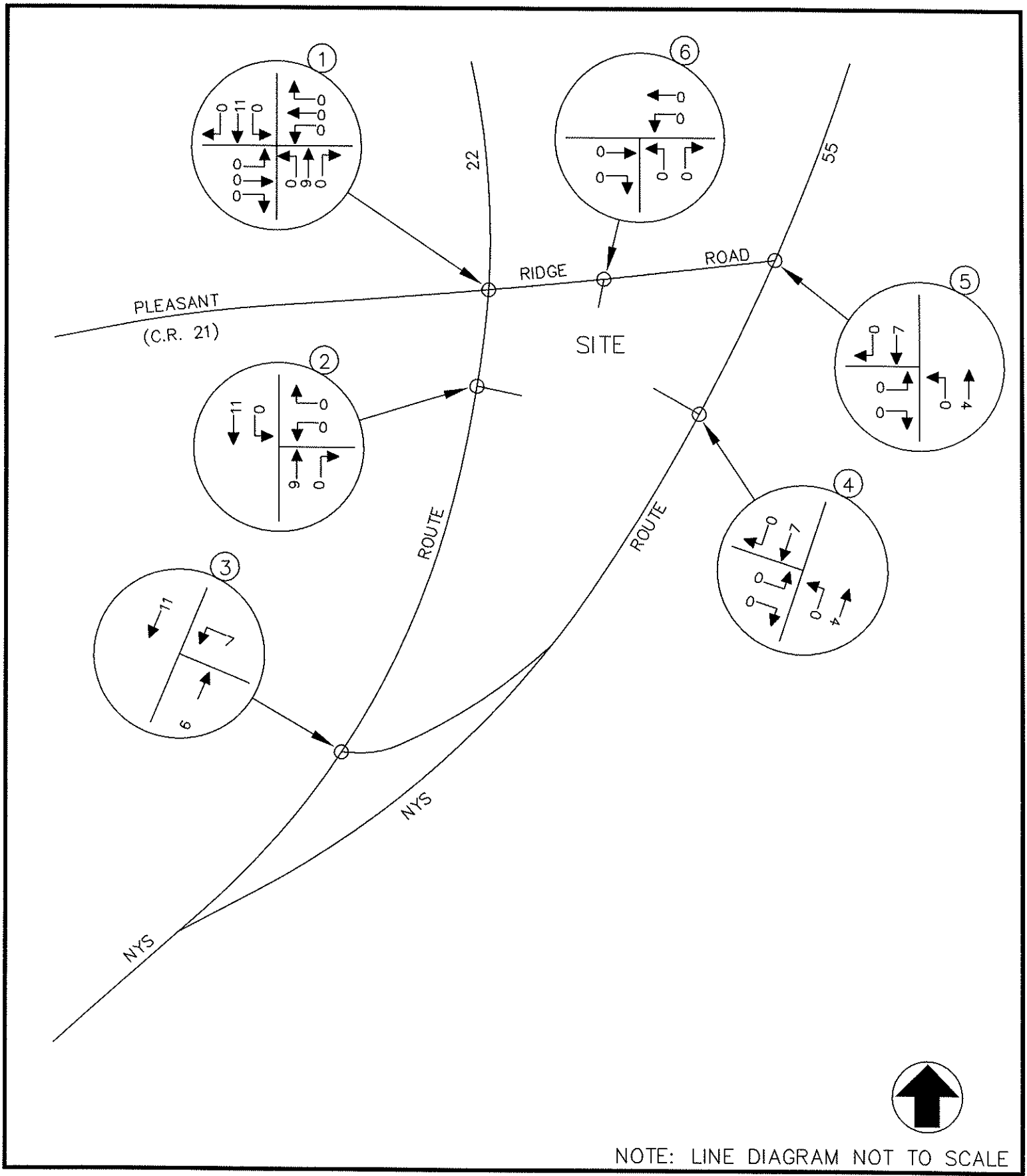
DOVER MOBIL
DOVER, NEW YORK

OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 6



NOTE: LINE DIAGRAM NOT TO SCALE

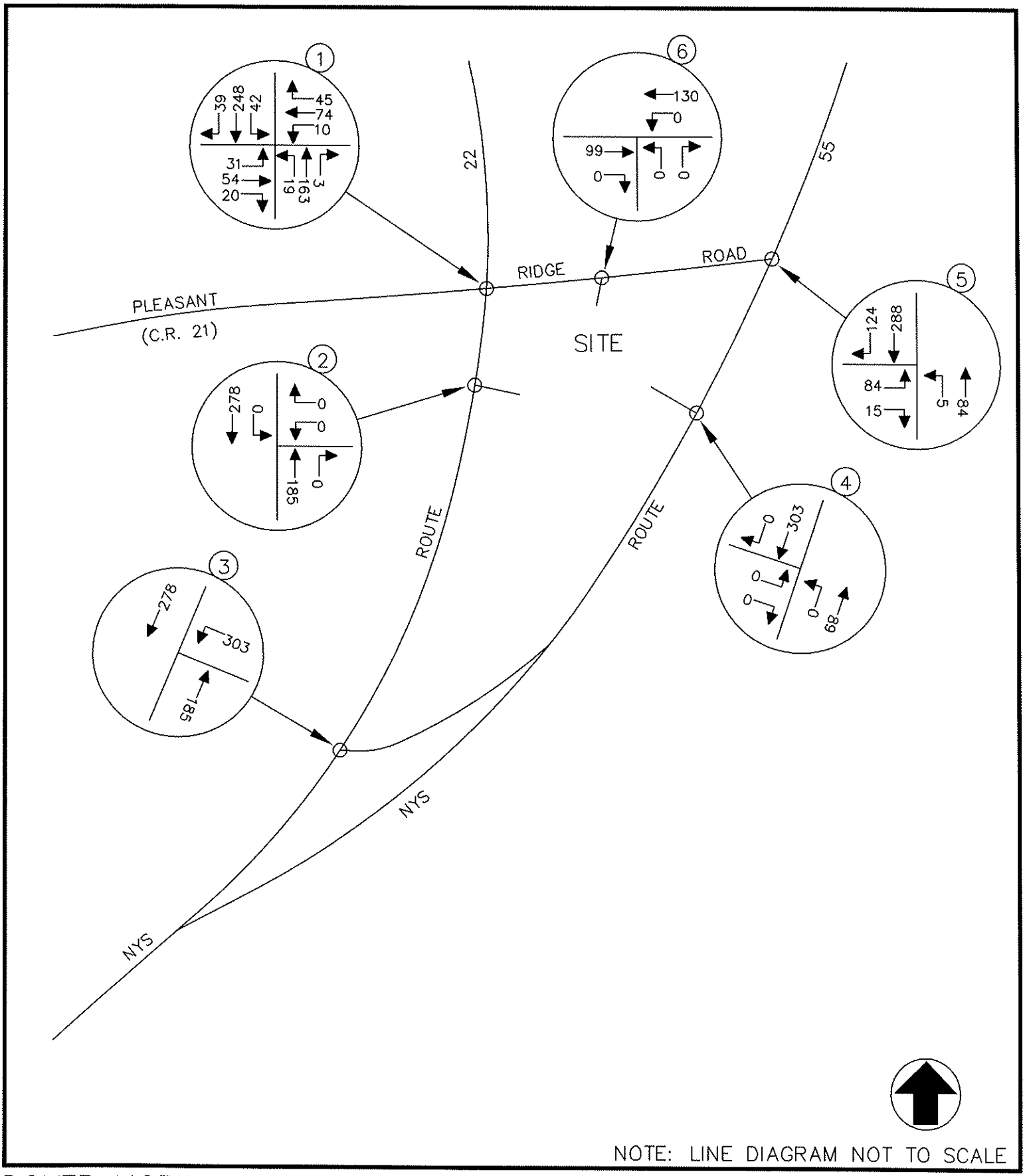
DOVER MOBIL
DOVER, NEW YORK

OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO.7



NOTE: LINE DIAGRAM NOT TO SCALE

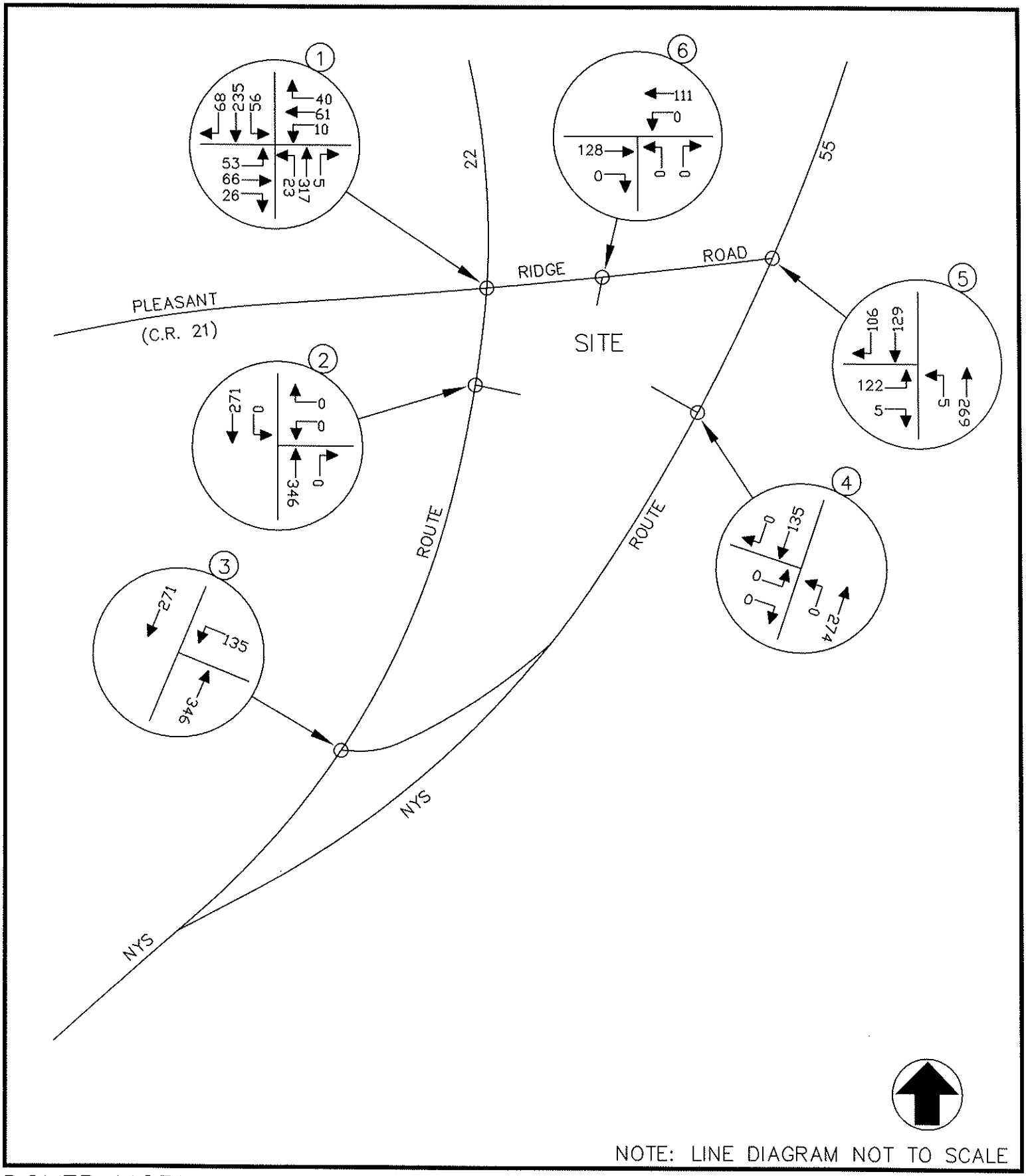
DOVER MOBIL
DOVER, NEW YORK

2014 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 8



NOTE: LINE DIAGRAM NOT TO SCALE

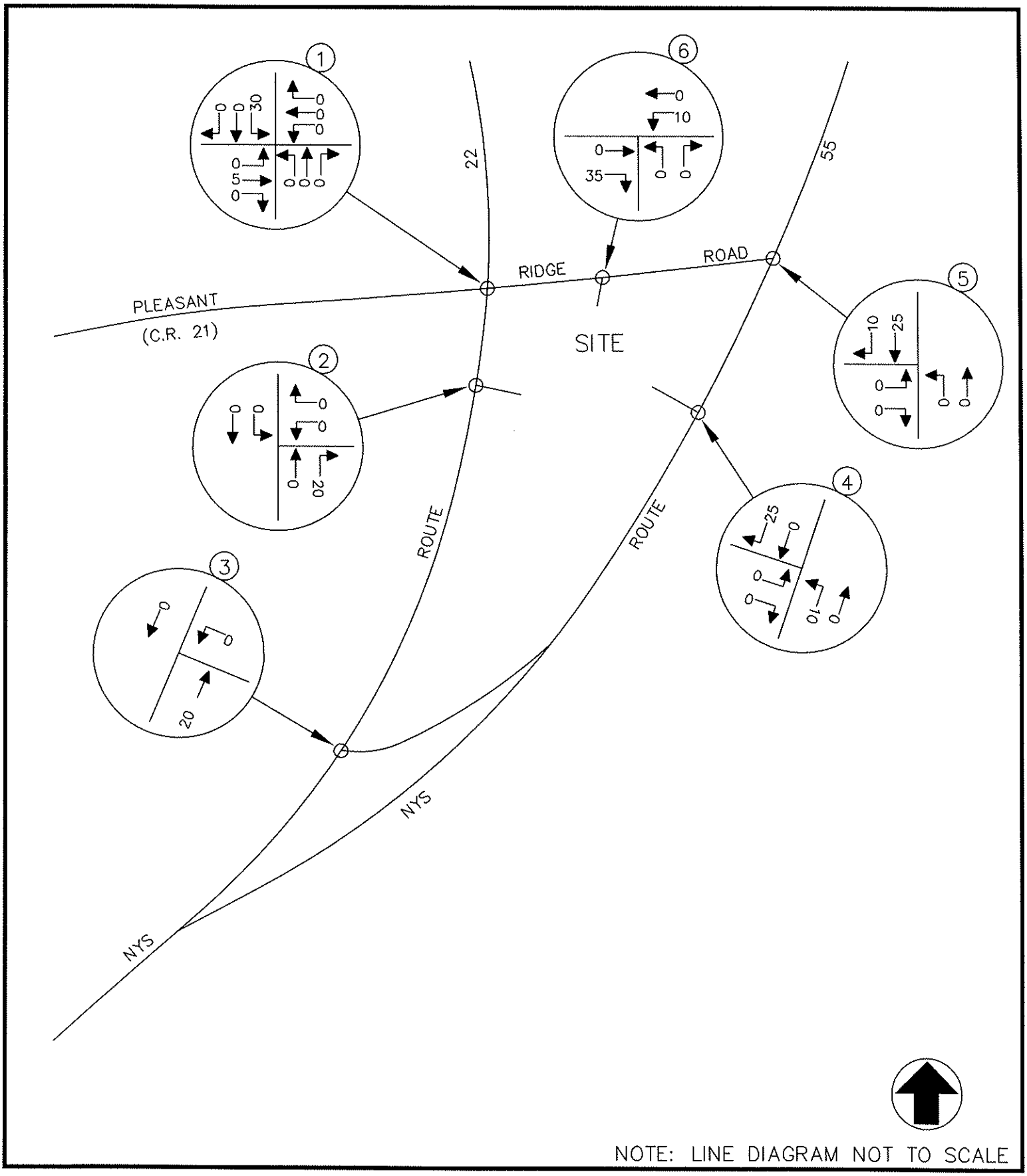
DOVER MOBIL
DOVER, NEW YORK

2012 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 9



NOTE: LINE DIAGRAM NOT TO SCALE

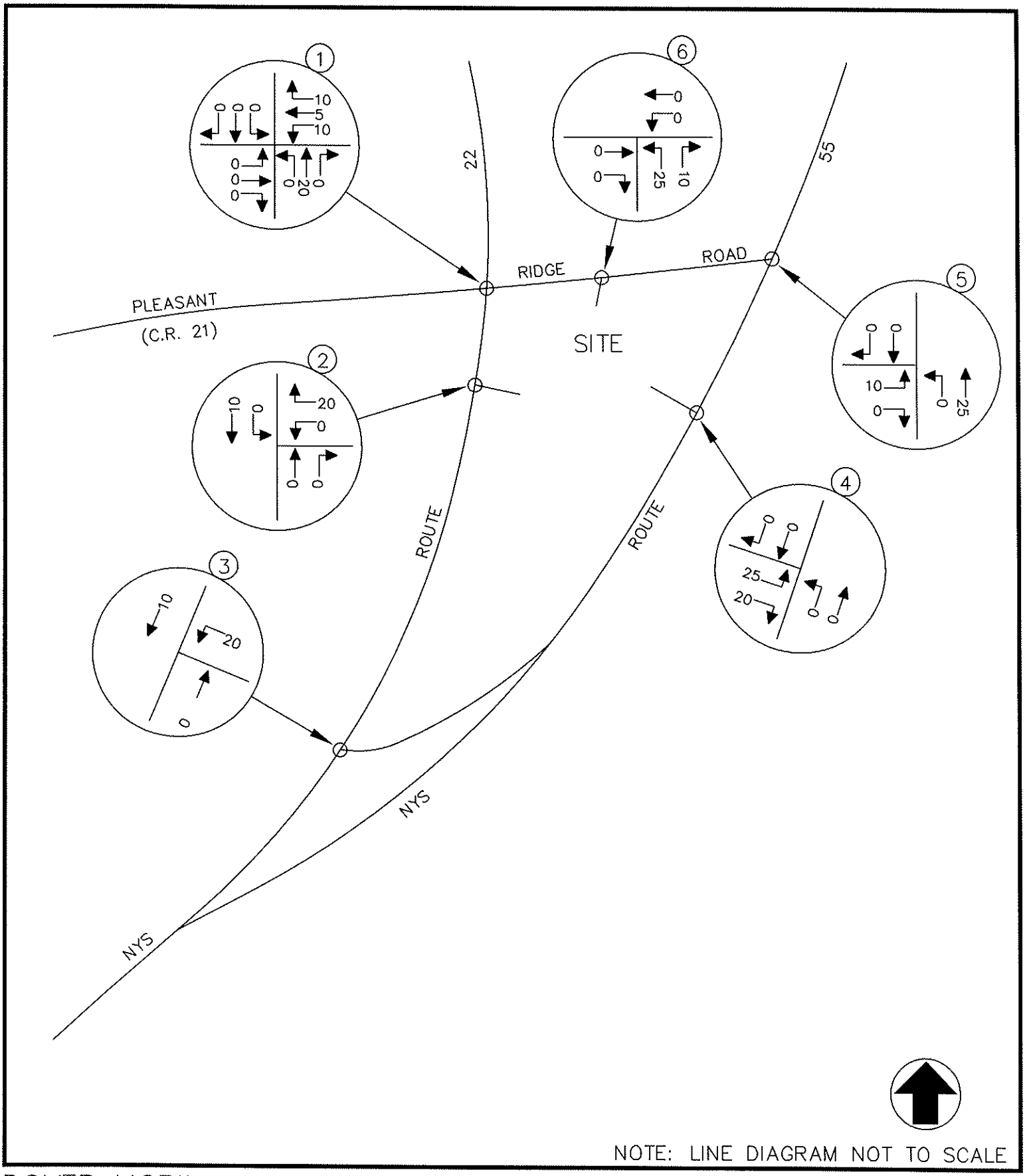
DOVER MOBIL
DOVER, NEW YORK

ARRIVAL DISTRIBUTION
(ALL VALUES EXPRESSED AS A %)

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 10



NOTE: LINE DIAGRAM NOT TO SCALE

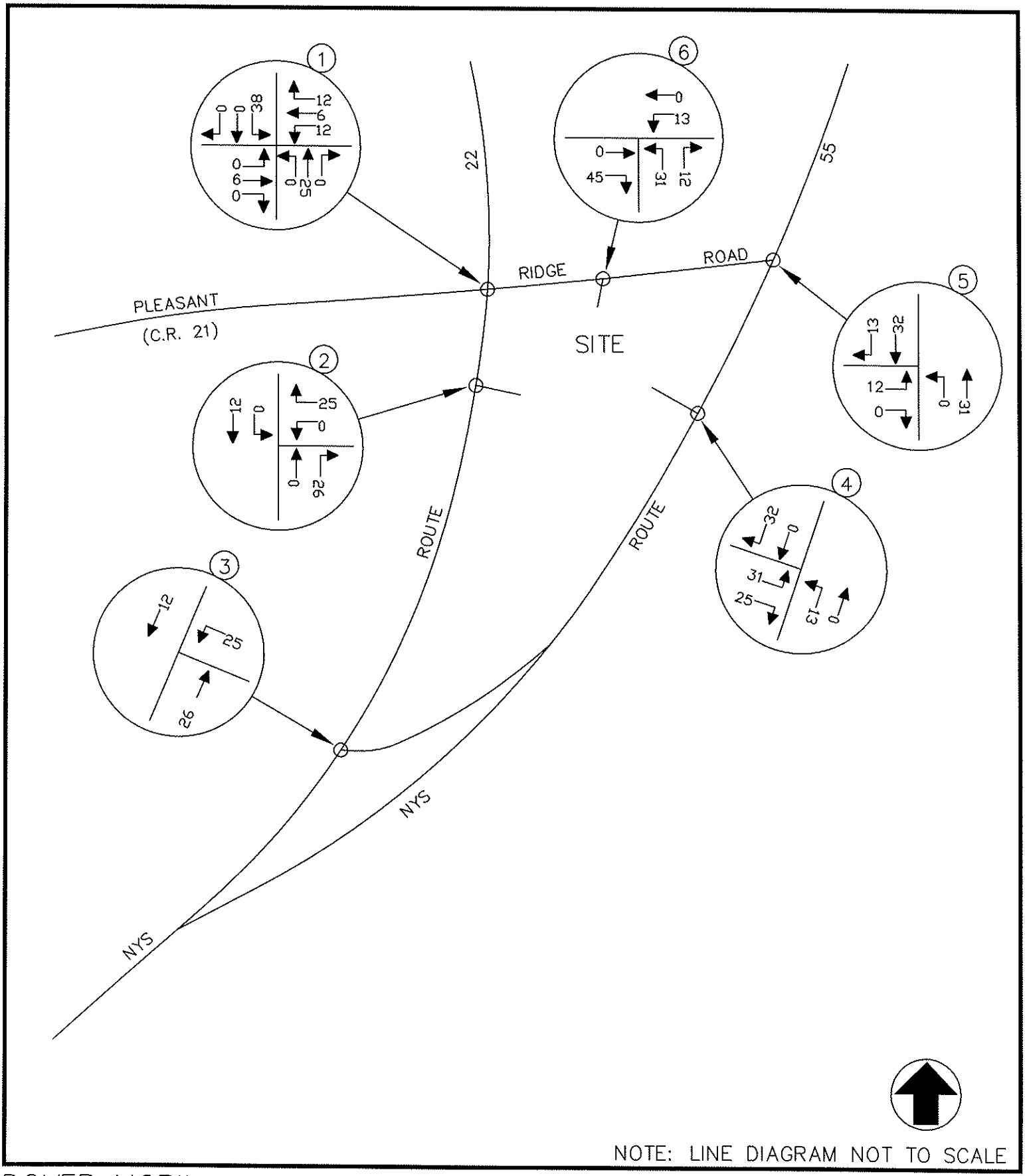
DOVER MOBIL
DOVER, NEW YORK

DEPARTURE DISTRIBUTION
(ALL VALUES EXPRESSED AS A %)

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 11



NOTE: LINE DIAGRAM NOT TO SCALE

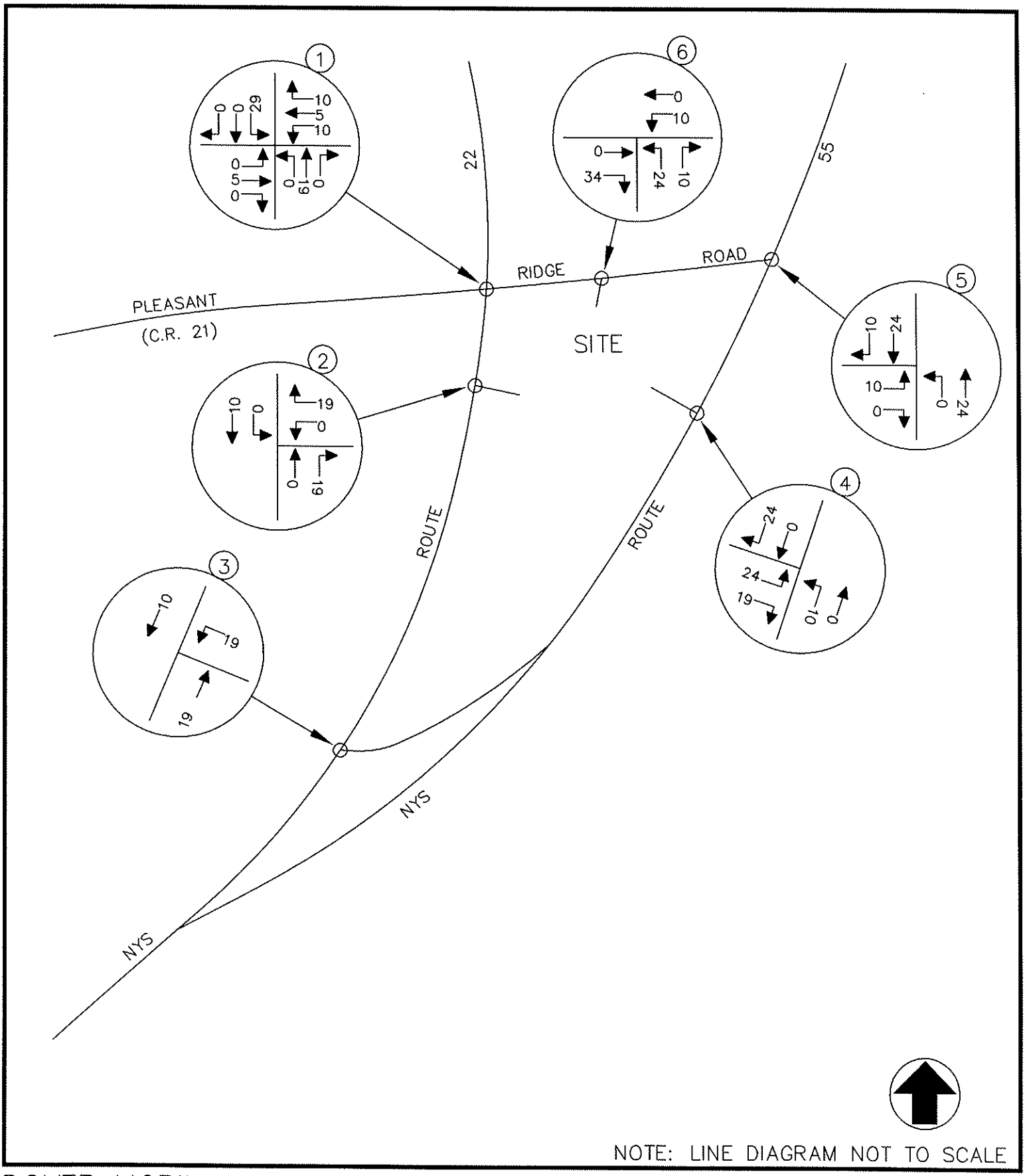
DOVER MOBIL
DOVER, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 12



NOTE: LINE DIAGRAM NOT TO SCALE

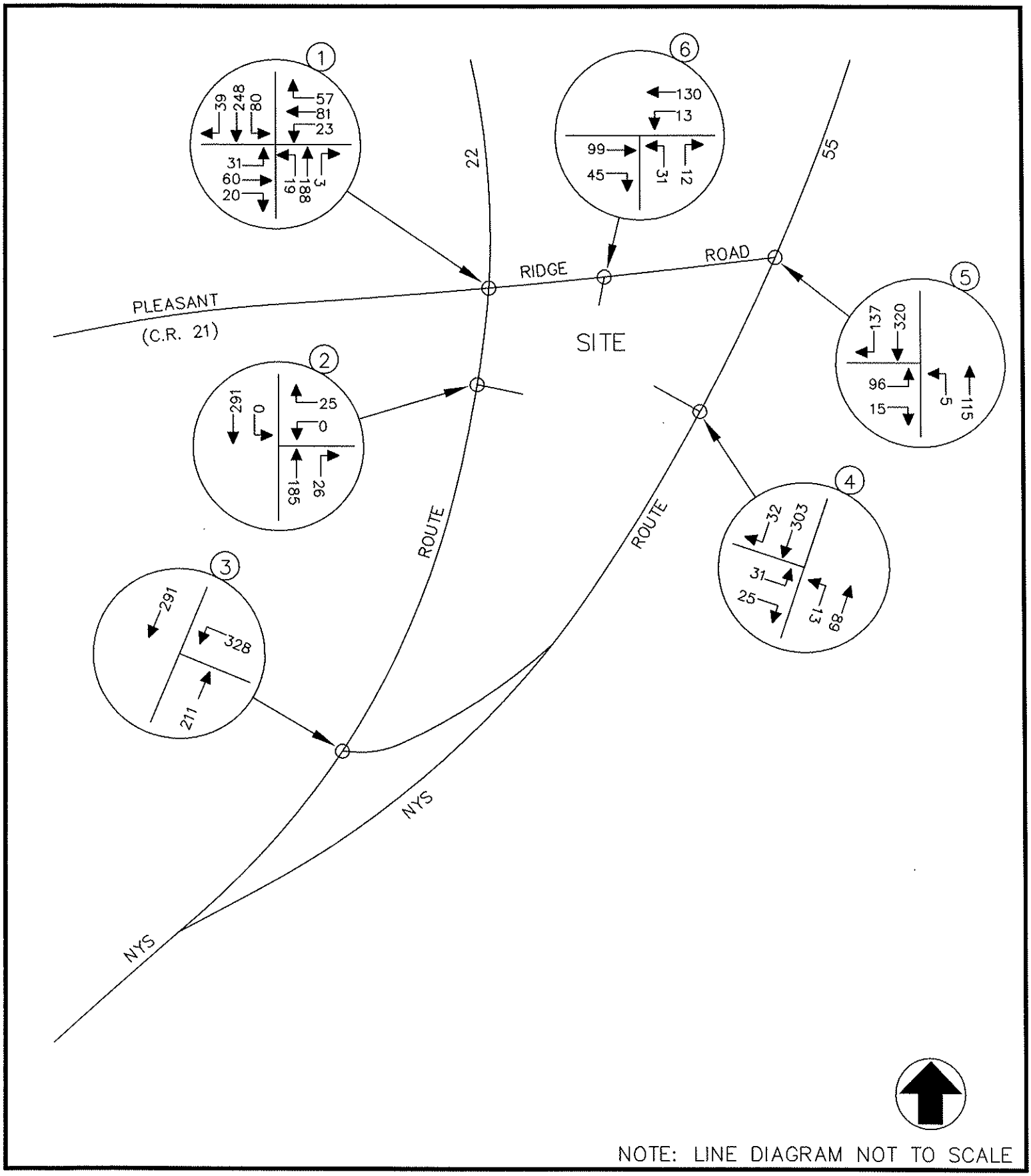
DOVER MOBIL
DOVER, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 13



NOTE: LINE DIAGRAM NOT TO SCALE

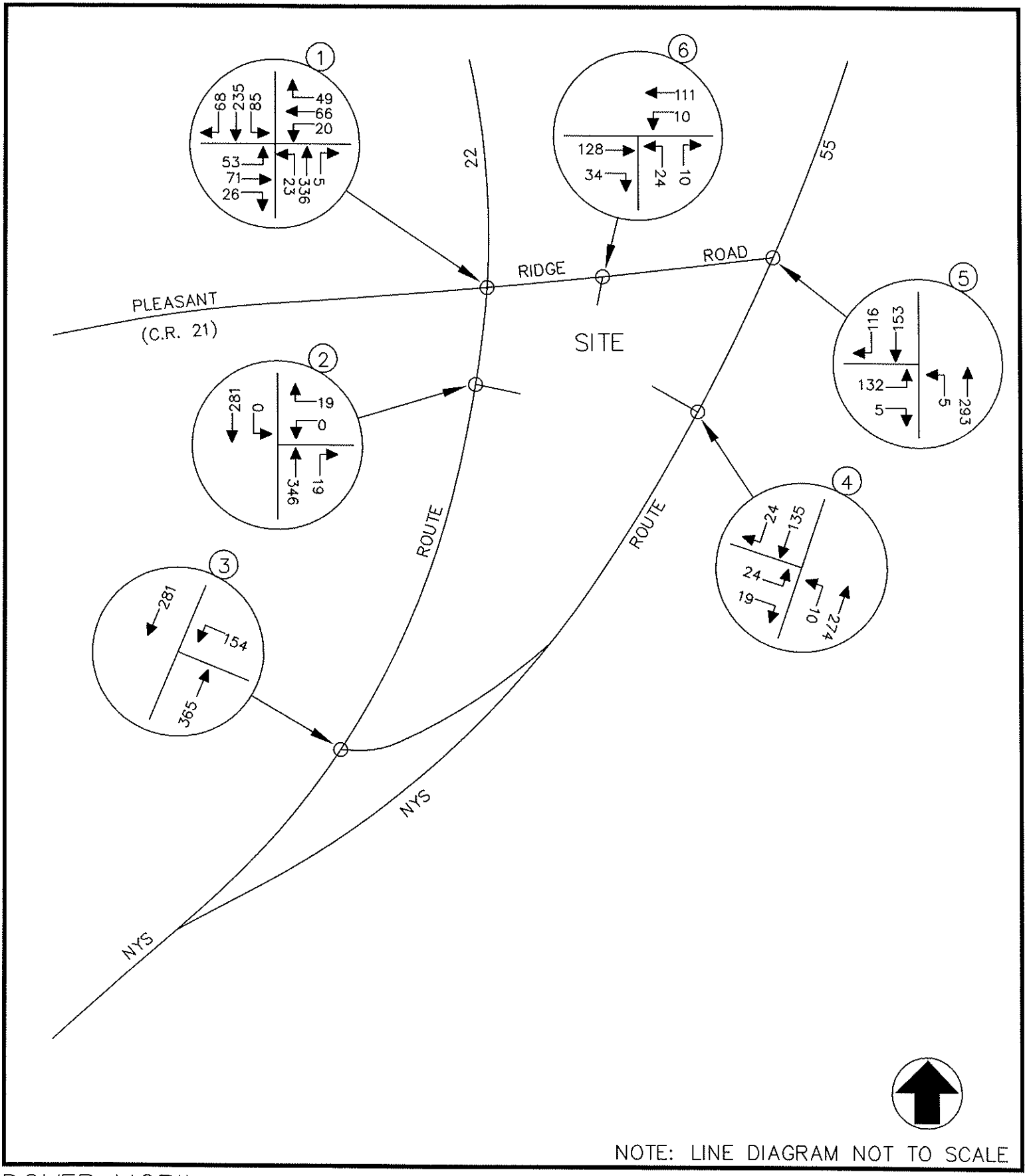
DOVER MOBIL
DOVER, NEW YORK

2014 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 14



NOTE: LINE DIAGRAM NOT TO SCALE

DOVER MOBIL
DOVER, NEW YORK

2014 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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

PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 15

APPENDIX "B"

TABLES

TABLE 1

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

DOVER MOBIL DOVER, NY	ENTRY		EXIT	
	HTGR*	VOLUME	HTGR*	VOLUME
DUNKIN DONUTS W/DRIVE THRU WINDOW (1,625 S.F.)				
PEAK AM HOUR	56.48	92	54.27	88
PEAK PM HOUR	29.85	48	29.85	48
CONVENIENCE MARKET W/GASOLINE PUMPS (1,625 S.F.)				
PEAK AM HOUR	21.95	36	21.95	36
PEAK PM HOUR	29.85	48	29.85	48
TOTALS				
PEAK AM HOUR	-	128	-	124
PEAK PM HOUR	-	96	-	96

NOTES:

1) TRIP GENERATION RATES FOR LAND USE 937 - COFFEE/DONUT SHOP W/DRIVE THRU WINDOW AND 853 - CONVENIENCE MARKET W/GASOLINE PUMPS THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) PUBLICATION ENTITLED "TRIP GENERATION", 8TH EDITION, JANUARY 2008.

TABLE NO. 2

LEVEL OF SERVICE SUMMARY TABLE

			2012 EXISTING		2014 NO-BUILD		2014 BUILD	
			AM	PM	AM	PM	AM	PM
1	NYS ROUTE 22 &	**SIGNALIZED**						
	PLEASANT RIDGE ROAD (C.R. 21)	EB	B[14.4]	B[14.8]	B[14.4]	B[14.8]	B[14.4]	B[14.9]
		WB	B[14.6]	B[14.4]	B[14.7]	B[14.4]	B[15.1]	B[14.7]
		NB	A[9.0]	B[10.8]	A[9.2]	B[11.0]	A[9.4]	B[11.3]
		SB	B[11.0]	B[11.5]	B[11.1]	B[11.8]	B[12.6]	B[12.9]
		OVERALL	B[11.6]	B[12.1]	B[11.7]	B[12.3]	B[12.5]	B[12.9]
2	NYS ROUTE 22 &	**UNSIGNALIZED**						
	SITE ACCESS DRIVEWAY	WB	-	-	-	-	A[9.6]	B[10.7]
3	NYS ROUTE 22 &	**UNSIGNALIZED**						
	NYS ROUTE 55	WB	C[22.2]	C[16.6]	C[24.4]	C[17.8]	D[31.9]	C[19.8]
4	NYS ROUTE 55 &	**UNSIGNALIZED**						
	SITE ACCESS DRIVEWAY	EB	-	-	-	-	B[12.3]	B[11.3]
		NB	-	-	-	-	A[8.1]	A[7.6]
5	NYS ROUTE 55 &	**UNSIGNALIZED**						
	PLEASANT RIDGE ROAD (C.R. 21)	EB	B[13.8]	B[14.7]	B[14.1]	C[15.1]	C[16.1]	C[16.9]
		NB	A[8.3]	A[7.8]	A[8.4]	A[7.8]	A[8.5]	A[7.9]
6	PLEASANT RIDGE ROAD (C.R. 21) &	**UNSIGNALIZED**						
	SITE ACCESS DRIVEWAY	WB	-	-	-	-	A[7.6]	A[7.6]
		NB	-	-	-	-	B[10.4]	B[10.2]

NOTES:

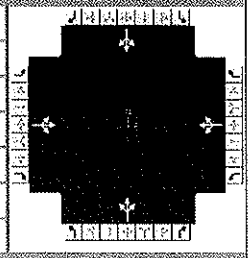
1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH AS WELL AS FOR THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTION.

APPENDIX "C"

CAPACITY ANALYSIS

HCS 2010 Signalized Intersection Results Summary

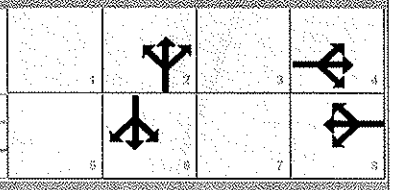
General Information				Intersection Information	
Agency	JCE			Duration, h	0.25
Analyst	R.H.	Analysis Date	Mar 19, 2012	Area Type	Other
Jurisdiction		Time Period	PEAK AM HOUR	PHF	0.87
Intersection	NYS ROUTE 22 & PLEAS/	Analysis Year	2012	Analysis Period	1> 7:45
File Name	1884AMEX1.xus				
Project Description	EXISTING TRAFFIC VOLUMES				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	53	20	10	73	44	19	150	3	41	240	38

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

	EB		WB			
Green	30.0	20.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



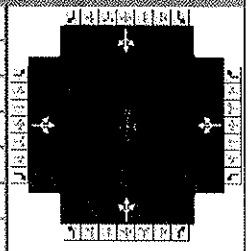
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		25.0		25.0		35.0		35.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.1		3.1		0.0		0.0
Queue Clearance Time (g_s), s		4.9		5.7				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		118			146			198			367	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1352			1656			1606			1591	
Queue Service Time (g_s), s		0.0			0.0			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		2.9			3.7			3.7			7.8	
Capacity (*c*), veh/h		528			617			869			863	
Volume-to-Capacity Ratio (*X*)		0.224			0.237			0.227			0.425	
Available Capacity (c_a), veh/h		528			617			869			863	
Back of Queue (*Q*), veh/ln (50th percentile)		1.0			1.2			1.3			2.7	
Overflow Queue (Q_3), veh/ln		0.0			0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		14.3			14.6			8.4			9.4	
Incremental Delay (d_2), s/veh		0.1			0.1			0.6			1.5	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		14.4			14.6			9.0			11.0	
Level of Service (LOS)		B			B			A			B	
Approach Delay, s/veh / LOS	14.4	B		14.6	B		9.0	A		11.0	B	
Intersection Delay, s/veh / LOS	11.6						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.4	A	1.4	A	1.4	A	1.4	A
Bicycle LOS Score / LOS	0.7	A	0.7	A	0.8	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

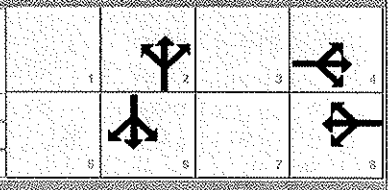
General Information				Intersection Information	
Agency	JCE			Duration, h	0.25
Analyst	R.H.	Analysis Date	Mar 19, 2012	Area Type	Other
Jurisdiction		Time Period	PEAK PM HOUR	PHF	0.90
Intersection	NYS ROUTE 22 & PLEAS/	Analysis Year	2012	Analysis Period	1> 16:00
File Name	1884PMEX1.xus				
Project Description	EXISTING TRAFFIC VOLUMES				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	52	65	25	10	60	39	23	305	5	55	220	67

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	30.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



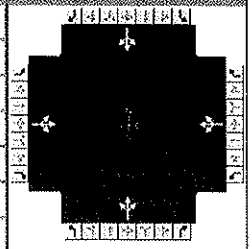
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		25.0		25.0		35.0		35.0
Change Period, (*Y+Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.2		5.0				
Green Extension Time (g_e), s		0.4		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		158			121			370			380	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1254			1635			1685			1473	
Queue Service Time (g_s), s		0.8			0.0			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		4.2			3.0			7.8			8.3	
Capacity (*c*), veh/h		500			611			907			806	
Volume-to-Capacity Ratio (*X*)		0.316			0.198			0.408			0.472	
Available Capacity (c_a), veh/h		500			611			907			806	
Back of Queue (*Q*), veh/ln (50th percentile)		1.4			1.0			2.7			2.9	
Overflow Queue (Q_3), veh/ln		0.0			0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		14.6			14.3			9.5			9.6	
Incremental Delay (d_2), s/veh		0.1			0.1			1.4			2.0	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		14.8			14.4			10.8			11.5	
Level of Service (LOS)		B			B			B			B	
Approach Delay, s/veh / LOS	14.8	B		14.4	B		10.8	B		11.5	B	
Intersection Delay, s/veh / LOS	12.1						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.4	A	1.4	A	1.4	A	1.4	A
Bicycle LOS Score / LOS	0.7	A	0.7	A	1.1	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

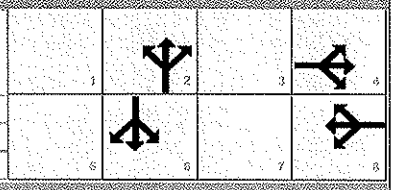
General Information				Intersection Information	
Agency	JCE			Duration, h	0.25
Analyst	R.H.	Analysis Date	Mar 19, 2012	Area Type	Other
Jurisdiction		Time Period	PEAK AM HOUR	PHF	0.87
Intersection	NYS ROUTE 22 & PLEAS/	Analysis Year	2014	Analysis Period	1> 7:45
File Name	1884AMNB1.xus				
Project Description	NO-BUILD TRAFFIC VOLUMES				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	31	54	20	10	74	45	19	163	3	42	248	39

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	30.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



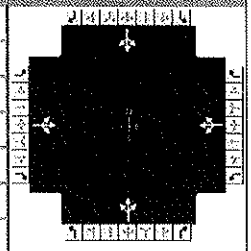
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		25.0		25.0		35.0		35.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.1		3.1		0.0		0.0
Queue Clearance Time (g_s), s		4.9		5.8				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		121			148			213			378	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1346			1656			1622			1590	
Queue Service Time (g_s), s		0.0			0.0			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		2.9			3.8			4.1			8.1	
Capacity (*c*), veh/h		526			617			877			863	
Volume-to-Capacity Ratio (*X*)		0.229			0.240			0.242			0.438	
Available Capacity (c_a), veh/h		526			617			877			863	
Back of Queue (*Q*), veh/ln (50th percentile)		1.0			1.3			1.4			2.8	
Overflow Queue (Q_3), veh/ln		0.0			0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		14.3			14.6			8.5			9.5	
Incremental Delay (d_2), s/veh		0.1			0.1			0.7			1.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		14.4			14.7			9.2			11.1	
Level of Service (LOS)		B			B			A			B	
Approach Delay, s/veh / LOS	14.4	B		14.7	B		9.2	A		11.1	B	
Intersection Delay, s/veh / LOS	11.7						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.4	A	1.4	A	1.4	A	1.4	A
Bicycle LOS Score / LOS	0.7	A	0.7	A	0.8	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

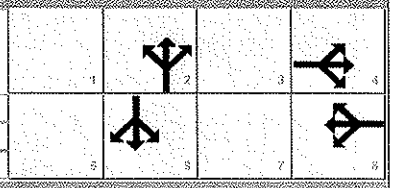
General Information				Intersection Information	
Agency	JCE			Duration, h	0.25
Analyst	R.H.	Analysis Date	Mar 19, 2012	Area Type	Other
Jurisdiction		Time Period	PEAK PM HOUR	PHF	0.90
Intersection	NYS ROUTE 22 & PLEAS/	Analysis Year	2014	Analysis Period	1> 16:00
File Name	1884PMNB1.xus				
Project Description	NO-BUILD TRAFFIC VOLUMES				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	53	66	26	10	61	40	23	317	5	56	235	68

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	30.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



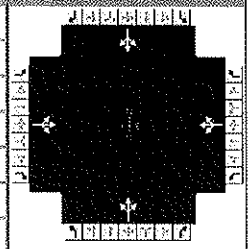
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		25.0		25.0		35.0		35.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.3		5.1				
Green Extension Time (g_e), s		0.4		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		161			123			383			399	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1253			1637			1687			1482	
Queue Service Time (g_s), s		0.9			0.0			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		4.3			3.1			8.2			8.8	
Capacity (*c*), veh/h		500			611			907			810	
Volume-to-Capacity Ratio (*X*)		0.322			0.202			0.423			0.492	
Available Capacity (c_a), veh/h		500			611			907			810	
Back of Queue (*Q*), veh/ln (50th percentile)		1.4			1.0			2.8			3.0	
Overflow Queue (Q_3), veh/ln		0.0			0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		14.7			14.4			9.5			9.7	
Incremental Delay (d_2), s/veh		0.1			0.1			1.4			2.1	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		14.8			14.4			11.0			11.8	
Level of Service (LOS)		B			B			B			B	
Approach Delay, s/veh / LOS	14.8	B		14.4	B		11.0	B		11.8	B	
Intersection Delay, s/veh / LOS	12.3						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.4	A	1.4	A	1.4	A	1.4	A
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.1	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

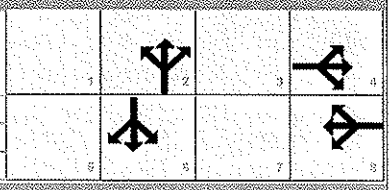
General Information				Intersection Information	
Agency	JCE			Duration, h	0.25
Analyst	R.H.	Analysis Date	Mar 19, 2012	Area Type	Other
Jurisdiction		Time Period	PEAK AM HOUR	PHF	0.87
Intersection	NYS ROUTE 22 & PLEAS/	Analysis Year	2014	Analysis Period	1> 7:45
File Name	1884AMB1.xus				
Project Description	BUILD TRAFFIC VOLUMES				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	31	60	20	23	81	57	19	188	3	80	248	39

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	30.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



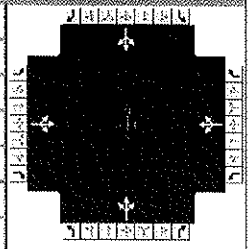
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		25.0		25.0		35.0		35.0
Change Period, (*Y+Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		5.1		6.8				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		128			185			241			422	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1362			1560			1645			1408	
Queue Service Time (g_s), s		0.0			0.0			0.0			3.6	
Cycle Queue Clearance Time (g_c), s		3.1			4.8			4.7			10.6	
Capacity (*c*), veh/h		531			588			888			777	
Volume-to-Capacity Ratio (*X*)		0.240			0.314			0.272			0.543	
Available Capacity (c_a), veh/h		531			588			888			777	
Back of Queue (*Q*), veh/ln (50th percentile)		1.1			1.6			1.6			3.4	
Overflow Queue (Q_3), veh/ln		0.0			0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		14.4			14.9			8.7			9.9	
Incremental Delay (d_2), s/veh		0.1			0.1			0.8			2.7	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		14.4			15.1			9.4			12.6	
Level of Service (LOS)		B			B			A			B	
Approach Delay, s/veh / LOS	14.4	B		15.1	B		9.4	A		12.6	B	
Intersection Delay, s/veh / LOS	12.5						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.4	A	1.4	A	1.4	A	1.4	A
Bicycle LOS Score / LOS	0.7	A	0.8	A	0.9	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

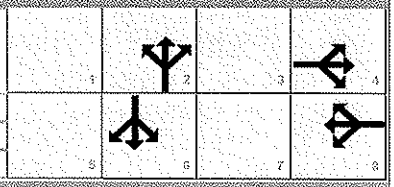
General Information				Intersection Information	
Agency	JCE			Duration, h	0.25
Analyst	R.H.	Analysis Date	Mar 19, 2012	Area Type	Other
Jurisdiction		Time Period	PEAK PM HOUR	PHF	0.90
Intersection	NYS ROUTE 22 & PLEAS/	Analysis Year	2014	Analysis Period	1> 16:00
File Name	1884PMB1.xus				
Project Description	BUILD TRAFFIC VOLUMES				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	53	71	26	20	66	49	23	336	5	85	235	68

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	30.0	20.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	1.0	1.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		25.0		25.0		35.0		35.0
Change Period, *(Y+Rc)*, s		5.0		5.0		5.0		5.0
Max Allow Headway *(MAH)*, s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.3		5.8				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		167			150			404			431	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1269			1543			1689			1383	
Queue Service Time (g_s), s		0.5			0.0			0.0			1.4	
Cycle Queue Clearance Time (g_c), s		4.3			3.8			8.8			10.2	
Capacity (*c*), veh/h		504			583			908			765	
Volume-to-Capacity Ratio (*X*)		0.330			0.257			0.445			0.564	
Available Capacity (c_a), veh/h		504			583			908			765	
Back of Queue (*Q*), veh/ln (50th percentile)		1.4			1.3			3.0			3.5	
Overflow Queue (Q_3), veh/ln		0.0			0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		14.7			14.6			9.7			9.9	
Incremental Delay (d_2), s/veh		0.1			0.1			1.6			3.0	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		14.9			14.7			11.3			12.9	
Level of Service (LOS)		B			B			B			B	
Approach Delay, s/veh / LOS	14.9	B		14.7	B		11.3	B		12.9	B	
Intersection Delay, s/veh / LOS	12.9						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.4	A	1.4	A	1.4	A	1.4	A
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.2	A	1.2	A

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS ROUTE 22 & SITE ACCESS DRI
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884AMB2
East/West Street: SITE ACCESS DRIVEWAY
North/South Street: NYS ROUTE 22
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		185	26		291	
Peak-Hour Factor, PHF		0.87	0.87		0.87	
Hourly Flow Rate, HFR		212	29		334	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0		1	
Configuration			TR		T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			25			
Peak Hour Factor, PHF			0.87			
Hourly Flow Rate, HFR			28			
Percent Heavy Vehicles			5			
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)					28			
C(m) (vph)					806			
v/c					0.03			
95% queue length					0.11			
Control Delay					9.6			
LOS					A			
Approach Delay				9.6				
Approach LOS				A				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS ROUTE 22 & SITE ACCESS DRI
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884PMB2
East/West Street: SITE ACCESS DRIVEWAY
North/South Street: NYS ROUTE 22
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		346	19		281	
Peak-Hour Factor, PHF		0.90	0.90		0.90	
Hourly Flow Rate, HFR		384	21		312	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0		1	
Configuration			TR		T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			19			
Peak Hour Factor, PHF			0.90			
Hourly Flow Rate, HFR			21			
Percent Heavy Vehicles			5			
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)					21			
C(m) (vph)					649			
v/c					0.03			
95% queue length					0.10			
Control Delay					10.7			
LOS					B			
Approach Delay				10.7				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS ROUTE 22 & NYS ROUTE 55
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012 EXISTING TRAFFIC VOLUMES
Project ID: 1884AMEX3
East/West Street: NYS ROUTE 55
North/South Street: NYS ROUTE 22
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		172			270	
Peak-Hour Factor, PHF		0.87			0.87	
Hourly Flow Rate, HFR		197			310	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1			1	
Configuration		T			T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	295					
Peak Hour Factor, PHF	0.87					
Hourly Flow Rate, HFR	339					
Percent Heavy Vehicles	2					
Percent Grade (%)		-1			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1					
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config			L					
v (vph)			339					
C(m) (vph)			540					
v/c			0.63					
95% queue length			4.32					
Control Delay			22.2					
LOS			C					
Approach Delay				22.2				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS ROUTE 22 & NYS ROUTE 55
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012 EXISTING TRAFFIC VOLUMES
Project ID: 1884PMEX3
East/West Street: NYS ROUTE 55
North/South Street: NYS ROUTE 22
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		333			255	
Peak-Hour Factor, PHF		0.90			0.90	
Hourly Flow Rate, HFR		370			283	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1			1	
Configuration		T			T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	125					
Peak Hour Factor, PHF	0.90					
Hourly Flow Rate, HFR	138					
Percent Heavy Vehicles	2					
Percent Grade (%)		-1			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1					
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config			L					
v (vph)			138					
C(m) (vph)			448					
v/c			0.31					
95% queue length			1.29					
Control Delay			16.6					
LOS			C					
Approach Delay				16.6				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS ROUTE 22 & NYS ROUTE 55
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 NO-BUILD TRAFFIC VOLUMES
Project ID: 1884AMNB3
East/West Street: NYS ROUTE 55
North/South Street: NYS ROUTE 22
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		185			278	
Peak-Hour Factor, PHF		0.87			0.87	
Hourly Flow Rate, HFR		212			319	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1			1	
Configuration		T			T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	303					
Peak Hour Factor, PHF	0.87					
Hourly Flow Rate, HFR	348					
Percent Heavy Vehicles	2					
Percent Grade (%)		-1			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1					
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config			L					
v (vph)			348					
C(m) (vph)			524					
v/c			0.66					
95% queue length			4.86					
Control Delay			24.4					
LOS			C					
Approach Delay				24.4				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS ROUTE 22 & NYS ROUTE 55
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 NO-BUILD TRAFFIC VOLUMES
Project ID: 1884PMNB3
East/West Street: NYS ROUTE 55
North/South Street: NYS ROUTE 22
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		346			271	
Peak-Hour Factor, PHF		0.90			0.90	
Hourly Flow Rate, HFR		384			301	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1			1	
Configuration		T			T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	135					
Peak Hour Factor, PHF	0.90					
Hourly Flow Rate, HFR	150					
Percent Heavy Vehicles	2					
Percent Grade (%)		-1			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1					
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config			L					
v (vph)			150					
C(m) (vph)			430					
v/c			0.35					
95% queue length			1.54					
Control Delay			17.8					
LOS			C					
Approach Delay				17.8				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS ROUTE 22 & NYS ROUTE 55
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884AMB3
East/West Street: NYS ROUTE 55
North/South Street: NYS ROUTE 22
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		211			291	
Peak-Hour Factor, PHF		0.87			0.87	
Hourly Flow Rate, HFR		242			334	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1			1	
Configuration		T			T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	328					
Peak Hour Factor, PHF	0.87					
Hourly Flow Rate, HFR	377					
Percent Heavy Vehicles	2					
Percent Grade (%)		-1			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1					
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config			L					
v (vph)			377					
C(m) (vph)			495					
v/c			0.76					
95% queue length			6.62					
Control Delay			31.9					
LOS			D					
Approach Delay				31.9				
Approach LOS				D				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS ROUTE 22 & NYS ROUTE 55
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884PMB3
East/West Street: NYS ROUTE 55
North/South Street: NYS ROUTE 22
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		365			281	
Peak-Hour Factor, PHF		0.90			0.90	
Hourly Flow Rate, HFR		405			312	
Percent Heavy Vehicles		--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1			1	
Configuration		T			T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	154					
Peak Hour Factor, PHF	0.90					
Hourly Flow Rate, HFR	171					
Percent Heavy Vehicles	2					
Percent Grade (%)		-1			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1					
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config			L					
v (vph)			171					
C(m) (vph)			412					
v/c			0.42					
95% queue length			2.00					
Control Delay			19.8					
LOS			C					
Approach Delay				19.8				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS RTE 55 & SITE ACCESS
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884AMB4
East/West Street: SITE ACCESS DRIVEWAY
North/South Street: NYS ROUTE 55
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	13	89			303	32
Peak-Hour Factor, PHF	0.87	0.87			0.87	0.87
Hourly Flow Rate, HFR	14	102			348	36
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				31		25
Peak Hour Factor, PHF				0.87		0.87
Hourly Flow Rate, HFR				35		28
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	14						63	
C(m) (vph)	1158						556	
v/c	0.01						0.11	
95% queue length	0.04						0.38	
Control Delay	8.1						12.3	
LOS	A						B	
Approach Delay							12.3	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS RTE 55 & SITE ACCESS
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884PMB4
East/West Street: SITE ACCESS DRIVEWAY
North/South Street: NYS ROUTE 55
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	10	274			135	24
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	304			150	26
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				24		19
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				26		21
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	11						47	
C(m) (vph)	1382						617	
v/c	0.01						0.08	
95% queue length	0.02						0.25	
Control Delay	7.6						11.3	
LOS	A						B	
Approach Delay							11.3	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS RTE 55 & PLEASANT RIDGE RD
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012 EXISTING TRAFFIC VOLUMES
Project ID: 1884AMEX5
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: NYS ROUTE 55
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	5	75			280	122
Peak-Hour Factor, PHF	0.87	0.87			0.87	0.87
Hourly Flow Rate, HFR	5	86			321	140
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				82		15
Peak Hour Factor, PHF				0.87		0.87
Hourly Flow Rate, HFR				94		17
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	5						111	
C(m) (vph)	1084						521	
v/c	0.00						0.21	
95% queue length	0.01						0.80	
Control Delay	8.3						13.8	
LOS	A						B	
Approach Delay							13.8	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS RTE 55 & PLEASANT RIDGE RD
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012 EXISTING TRAFFIC VOLUMES
Project ID: 1884PMEX5
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: NYS ROUTE 55
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	5	260			120	104
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	5	288			133	115
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				120		5
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				133		5
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	5						138	
C(m) (vph)	1300						510	
v/c	0.00						0.27	
95% queue length	0.01						1.09	
Control Delay	7.8						14.7	
LOS	A						B	
Approach Delay							14.7	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS RTE 55 & PLEASANT RIDGE RD
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 NO-BUILD TRAFFIC VOLUMES
Project ID: 1884AMNB5
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: NYS ROUTE 55
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	5	84			288	124
Peak-Hour Factor, PHF	0.87	0.87			0.87	0.87
Hourly Flow Rate, HFR	5	96			331	142
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				84		15
Peak Hour Factor, PHF				0.87		0.87
Hourly Flow Rate, HFR				96		17
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	5						113	
C(m) (vph)	1073						506	
v/c	0.00						0.22	
95% queue length	0.01						0.85	
Control Delay	8.4						14.1	
LOS	A						B	
Approach Delay							14.1	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS RTE 55 & PLEASANT RIDGE RD
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 NO-BUILD TRAFFIC VOLUMES
Project ID: 1884PMNB5
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: NYS ROUTE 55
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	5	269			129	106
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	5	298			143	117
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				122		5
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				135		5
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	5						140	
C(m) (vph)	1287						494	
v/c	0.00						0.28	
95% queue length	0.01						1.16	
Control Delay	7.8						15.1	
LOS	A						C	
Approach Delay							15.1	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: NYS RTE 55 & PLEASANT RIDGE RD
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884AMB5
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: NYS ROUTE 55
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	5	115			320	137
Peak-Hour Factor, PHF	0.87	0.87			0.87	0.87
Hourly Flow Rate, HFR	5	132			367	157
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				96		15
Peak Hour Factor, PHF				0.87		0.87
Hourly Flow Rate, HFR				110		17
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	5						127	
C(m) (vph)	1027						451	
v/c	0.00						0.28	
95% queue length	0.01						1.14	
Control Delay	8.5						16.1	
LOS	A						C	
Approach Delay							16.1	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: NYS RTE 55 & PLEASANT RIDGE RD
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884PMB5
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: NYS ROUTE 55
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	5	293			153	116
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	5	325			170	128
Percent Heavy Vehicles	5	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				132		5
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				146		5
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			2	
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	LT						LR	
v (vph)	5						151	
C(m) (vph)	1246						453	
v/c	0.00						0.33	
95% queue length	0.01						1.44	
Control Delay	7.9						16.9	
LOS	A						C	
Approach Delay							16.9	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK AM HOUR
Intersection: PLEASANT RIDGE ROAD & SITE
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884AMB6
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: SITE ACCESS DRIVEWAY
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		99	45	13	130	
Peak-Hour Factor, PHF		0.87	0.87	0.87	0.87	
Hourly Flow Rate, HFR		113	51	14	149	
Percent Heavy Vehicles		--	--	5	--	--
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	31		12			
Peak Hour Factor, PHF	0.87		0.87			
Hourly Flow Rate, HFR	35		13			
Percent Heavy Vehicles	5		5			
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)		14		48				
C(m) (vph)		1396		716				
v/c		0.01		0.07				
95% queue length		0.03		0.22				
Control Delay		7.6		10.4				
LOS		A		B				
Approach Delay				10.4				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: JCE
Date Performed: MARCH 2012
Analysis Time Period: PEAK PM HOUR
Intersection: PLEASANT RIDGE ROAD & SITE
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014 BUILD TRAFFIC VOLUMES
Project ID: 1884PMB6
East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
North/South Street: SITE ACCESS DRIVEWAY
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		128	34	10	111	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		142	37	11	123	
Percent Heavy Vehicles		--	--	5	--	--
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	24		10			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	26		11			
Percent Heavy Vehicles	5		5			
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)		11		37				
C(m) (vph)		1379		725				
v/c		0.01		0.05				
95% queue length		0.02		0.16				
Control Delay		7.6		10.2				
LOS		A		B				
Approach Delay				10.2				
Approach LOS				B				

APPENDIX "D"

STANDARDS

APPENDIX "D"

STANDARDS

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

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

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

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

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

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

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

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

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

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

Exhibit 18-4

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

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

LEVEL OF SERVICE CRITERIA
FOR TWO-WAY STOP-CONTROLLED (TWSC) UNSIGNALIZED INTERSECTIONS

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

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

Exhibit 19-1

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

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

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

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

LEVEL OF SERVICE CRITERIA
FOR ALL-WAY STOP-CONTROLLED (AWSC) UNSIGNALIZED INTERSECTIONS

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

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

Exhibit 20-2

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

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