Appendix 2

TRAFFIC IMPACT STUDY
(See attached CD for complete Appendix)

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MEMORANDUM

To: **Ms. Ann Cutignola, AICP**
Mr. Brian Stokosa, P.E.

From: **Philip J. Grealy, Ph.D., P.E.**

Date: **March 20, 2013**

Re: **Hilltop Manor Subdivision**
DEIS (12/20/12 Submission)
Town of East Fishkill, New York
MC Project No. 12100156A

Attached for your information and as requested in the February 28, 2013 letter from Hudson Valley Engineering Associates, PC is a revised trip generation table (Table 1R) based on the Institute of Transportation Engineers (ITE), 9th Edition, 2012, *Trip Generation Handbook.*

As can be seen from a comparison of this table with the original Table 1 contained in the DEIS, which was developed based on the 7th Edition, the trip generation rates for single family dwelling units have not changed significantly in the new manual. In fact, the peak hour trip estimates (based on the new manual) are essentially the same as those in the original traffic study. Also, note that since all of the development vehicles enter and exit via Creek Bend Road, the site generated volumes on that roadway as well as other area roadways would be essentially the same as those previously analyzed.

In addition, since the time of the DEIS, the Transportation Research Board has released the 2010 Highway Capacity Manual and related software updates. We have updated the No-Build and Build analysis for three (3) key intersections, which are expected to handle the highest percentages of the site traffic, to determine any potential impact of the new software compared to the original analysis. The locations reanalyzed included:

- Martin Road and Carol Drive
- Martin Road and Beekman Road/Foster Road
- Beekman Road (CR 9) and Route 82

The first two are unsignalized intersections and the updated analyses, based on the latest HCS Software Version 5.6, are attached. The last intersection is a signalized intersection and has been updated based on the 2010 Highway Capacity Software for signalized intersections, Version

6.41. Comparing these results to those summarized in Table No. 2 from the DEIS Traffic Study indicates similar results.

Based on the above, we conclude that the revisions to the *Trip Generation Handbook* and the release of the *2010 Highway Capacity Manual* and Software do not change any of the conclusions of the DEIS Traffic Impact Study.

If you have any questions or need additional information, please do not hesitate to contact us.

TABLE 1R

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

HILLTOP MANOR SUBDIVISION EAST FISHKILL, NEW YORK	ENTRY		EXIT	
	HTGR*	VOLUME	HTGR*	VOLUME
SINGLE FAMILY DWELLING (23 DWELLING UNITS)				
PEAK AM HIGHWAY HOUR	0.28	6	0.85	20
PEAK PM HIGHWAY HOUR	0.77	18	0.45	10

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, 9TH EDITION, 2012.

FROM DEIS TRAFFIC STUDY

TABLE 1

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

HILLTOP MANOR SUBDIVISION EAST FISHKILL, NEW YORK	ENTRY		EXIT	
	HTGR*	VOLUME	HTGR*	VOLUME
SINGLE FAMILY DWELLING (23 DWELLING UNITS)				
PEAK AM HIGHWAY HOUR	0.28	6	0.83	19
PEAK PM HIGHWAY HOUR	0.78	18	0.46	11

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.

TABLE NO. 2

LEVEL OF SERVICE SUMMARY TABLE

FROM DEIS TRAFFIC STUDY

			2010 EXISTING		2015 NO-BUILD		2015 BUILD	
			AM	PM	AM	PM	AM	PM
1	BEEKMAN ROAD (COUNTY ROUTE 9) &	**SIGNALIZED**						
	CLOVE BRANCH ROAD / CARPENTER ROAD	EB	A[6.4]	A[7.5]	A[6.8]	A[8.3]	A[6.8]	A[8.3]
		WB	A[8.9]	A[9.4]	B[10.4]	B[10.9]	B[10.4]	B[11.0]
		SB	B[17.3]	B[17.2]	B[17.3]	B[17.2]	B[17.3]	B[17.2]
		NB	C[34.5]	C[25.9]	D[47.7]	C[32.2]	D[47.7]	C[32.2]
		OVERALL	B[16.4]	B[12.5]	C[20.4]	B[14.6]	C[20.3]	B[14.6]
2	BEEKMAN ROAD (COUNTY ROUTE 9) &	**UNSIGNALIZED**						
	FOSTER ROAD / MARTIN ROAD	EB	A[7.9]	A[7.9]	A[8.0]	A[8.1]	A[8.0]	A[8.1]
		WB	A[7.6]	A[8.1]	A[7.8]	A[8.4]	A[7.8]	A[8.5]
		NB	B[12.0]	C[15.8]	B[13.4]	C[19.8]	B[13.7]	C[20.6]
		SB	B[10.9]	B[14.3]	B[11.6]	C[16.9]	B[11.9]	C[17.7]
3	NYS ROUTE 82 &	**UNSIGNALIZED**						
	FOSTER ROAD	WB	B[12.7]	B[13.7]	B[13.8]	B[14.6]	B[13.6]	C[14.6]
		SB	A[8.0]	A[8.7]	A[8.1]	A[8.9]	A[8.1]	A[8.9]
4	BEEKMAN ROAD (COUNTY ROUTE 9) &	**SIGNALIZED**						
	NYS ROUTE 82	WB	C[31.5]	D[46.4]	D[39.4]	E[74.5]	D[40.3]	E[76.8]
		NB	B[15.1]	B[18.9]	B[18.7]	D[39.6	B[18.7]	D[41.0]
		SB	B[13.3]	A[7.7]	B[14.2]	A[8.0	B[14.2]	A[8.0]
		OVERALL	B[18.5]	C[21.4]	C[22.6]	D[39.1]	C[23.0]	D[40.4]
	WITH SIGNAL TIMING IMPROVEMENTS	WB	-	-	-	D[53.0]	-	D[54.1]
		NB	-	-	-	D[53.0]	-	D[54.7]
		SB	-	-	-	A[9.2]	-	A[9.2]
		OVERALL	-	-	-	D[42.4]	-	D[43.6]
5	NYS ROUTE 82 &	**UNSIGNALIZED**						
	TURNER STREET	EB	C[25.8]	B[14.6]	D[33.8]	C[16.5]	D[34.0]	C[16.6]
		NB	A[9.7]	A[9.3]	B[10.3]	A[9.7]	B[10.3]	A[9.8]
6	NYS ROUTE 82 &	**UNSIGNALIZED**						
	MARTIN ROAD	WB	D[25.1]	D[27.4]	D[33.3]	E[36.0]	D[34.0]	E[40.6]
		SB	A[8.6]	B[10.2]	A[8.9]	B[10.9]	A[8.9]	B[10.9]
7	MARTIN ROAD &	**UNSIGNALIZED**						
	CAROL DRIVE	EB	A[8.7]	A[9.0]	A[8.8]	A[9.1]	A[8.9]	A[9.1]
		NB	A[7.3]	A[7.4]	A[7.3]	A[7.4]	A[7.3]	A[7.4]
10	CREEK BEND ROAD &	**UNSIGNALIZED**						
	CAROL DRIVE	WB	-	-	-	-	A[8.7]	A[8.7]
		SB	-	-	-	-	A[7.3]	A[7.3]

NOTES:

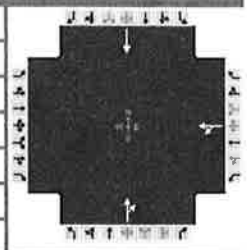
1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND AVERAGE VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH APPROACH AS WELL AS FOR THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS AND FOR THE KEY APPROACHES FOR THE UNSIGNALIZED LOCATIONS. SEE APPENDIX "D" FOR ADDITIONAL DETAILS.

2010 HIGHWAY
CAPACITY MANUAL ANALYSIS

- Signalized Version 6.41
- Unsignalized Version 5.6

HCS 2010 Signalized Intersection Results Summary

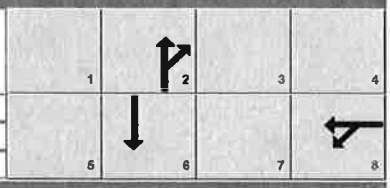
General Information				Intersection Information	
Agency	MC			Duration, h	0.25
Analyst	R.H.	Analysis Date	3/19/2013	Area Type	Other
Jurisdiction		Time Period	PEAK PM HOUR	PHF	0.92
Intersection	BEEKMAN ROAD & NYS F	Analysis Year	2015	Analysis Period	1> 16:00
File Name	190PMNB4.xus				
Project Description	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				361	0			625	424		467	

Signal Information			
Cycle, s	90.0	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	58.0	22.0	0.0	0.0	0.0	0.0	
Yellow	3.0	3.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



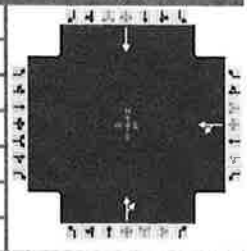
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				12.0		8.0		8.0
Phase Duration, s				27.0		63.0		63.0
Change Period, (*Y+Rc*), s				5.0		5.0		5.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (g_s), s				21.4				
Green Extension Time (g_e), s				0.1		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8			2	12		6	
Adjusted Flow Rate (*v*), veh/h					392			1080			508	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1766			1772			1881	
Queue Service Time (g_s), s					19.4			50.0			11.8	
Cycle Queue Clearance Time (g_c), s					19.4			50.0			11.8	
Capacity (*c*), veh/h					432			1142			1212	
Volume-to-Capacity Ratio (*X*)					0.909			0.946			0.419	
Available Capacity (c_a), veh/h					432			1142			1212	
Back of Queue (*Q*), veh/ln (50th percentile)					10.6			21.2			4.4	
Overflow Queue (Q_3), veh/ln					0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)					0.00			0.00			0.00	
Uniform Delay (d_1), s/veh					33.0			14.6			7.8	
Incremental Delay (d_2), s/veh					22.4			16.5			1.1	
Initial Queue Delay (d_3), s/veh					0.0			0.0			0.0	
Control Delay (*d*), s/veh					55.5			31.0			8.9	
Level of Service (LOS)					E			C			A	
Approach Delay, s/veh / LOS	0.0			55.5		E	31.0		C	8.9		A
Intersection Delay, s/veh / LOS	30.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.1	B	1.4	A	1.9	A
Bicycle LOS Score / LOS			1.1	A	2.3	B	1.3	A

HCS 2010 Signalized Intersection Results Summary

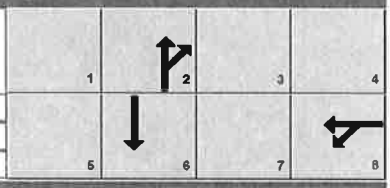
General Information				Intersection Information	
Agency	MC			Duration, h	0.25
Analyst	R.H.	Analysis Date	3/19/2013	Area Type	Other
Jurisdiction		Time Period	PEAK PM HOUR	PHF	0.92
Intersection	BEEKMAN ROAD & NYS F	Analysis Year	2015	Analysis Period	1> 16:00
File Name	190PMB4.xus				
Project Description	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				365	0			625	430		467	

Signal Information			
Cycle, s	90.0	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			NB			SB		
Green	58.0	22.0		0.0	0.0		0.0			0.0		
Yellow	3.0	3.0		0.0	0.0		0.0			0.0		
Red	2.0	2.0		0.0	0.0		0.0			0.0		



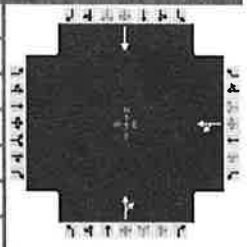
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				12.0		8.0		8.0
Phase Duration, s				27.0		63.0		63.0
Change Period, (*Y+Rc*), s				5.0		5.0		5.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (g_s), s				21.7				
Green Extension Time (g_e), s				0.0		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8			2	12		6	
Adjusted Flow Rate (*v*), veh/h					397			1087			508	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1766			1771			1881	
Queue Service Time (g_s), s					19.7			50.8			11.8	
Cycle Queue Clearance Time (g_c), s					19.7			50.8			11.8	
Capacity (*c*), veh/h					432			1141			1212	
Volume-to-Capacity Ratio (*X*)					0.919			0.952			0.419	
Available Capacity (c_a), veh/h					432			1141			1212	
Back of Queue (*Q*), veh/ln (50th percentile)					11.0			21.8			4.4	
Overflow Queue (Q_3), veh/ln					0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)					0.00			0.00			0.00	
Uniform Delay (d_1), s/veh					33.1			14.7			7.8	
Incremental Delay (d_2), s/veh					24.2			17.4			1.1	
Initial Queue Delay (d_3), s/veh					0.0			0.0			0.0	
Control Delay (*d*), s/veh					57.4			32.1			8.9	
Level of Service (LOS)					E			C			A	
Approach Delay, s/veh / LOS	0.0			57.4		E	32.1		C	8.9		A
Intersection Delay, s/veh / LOS	31.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.1	B	1.4	A	1.9	A
Bicycle LOS Score / LOS			1.1	A	2.3	B	1.3	A

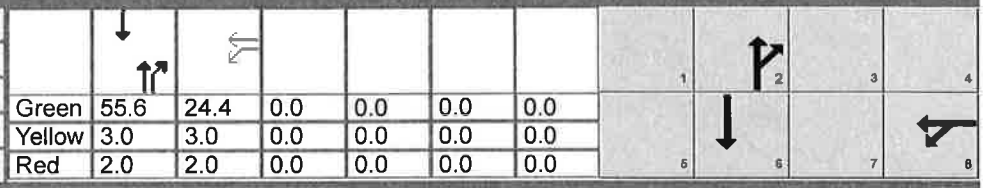
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	MC			Duration, h	0.25
Analyst	R.H.	Analysis Date	3/19/2013	Area Type	Other
Jurisdiction		Time Period	PEAK PM HOUR	PHF	0.92
Intersection	BEEKMAN ROAD & NYS F	Analysis Year	2015	Analysis Period	1> 16:00
File Name	190PMB4IM.xus				
Project Description	BUILD TRAFFIC VOLUMES (WITH TIMING IMPROVEMENTS)				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				365	0			625	430		467	

Signal Information			
Cycle, s	90.0	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	55.6	24.4	0.0	0.0	0.0	0.0	
Yellow	3.0	3.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	

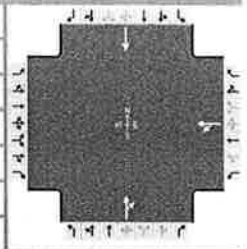
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				12.0		8.0		8.0
Phase Duration, s				29.4		60.6		60.6
Change Period, (*Y+Rc*), s				5.0		5.0		5.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (g_s), s				21.0				
Green Extension Time (g_e), s				0.3		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.83				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8			2	12		6	
Adjusted Flow Rate (*v*), veh/h					397			1087			508	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1766			1771			1881	
Queue Service Time (g_s), s					19.0			54.7			12.7	
Cycle Queue Clearance Time (g_c), s					19.0			54.7			12.7	
Capacity (*c*), veh/h					479			1094			1162	
Volume-to-Capacity Ratio (*X*)					0.829			0.993			0.437	
Available Capacity (c_a), veh/h					479			1094			1162	
Back of Queue (*Q*), veh/ln (50th percentile)					9.2			25.9			4.9	
Overflow Queue (Q_3), veh/ln					0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)					0.00			0.00			0.00	
Uniform Delay (d_1), s/veh					30.8			17.0			9.0	
Incremental Delay (d_2), s/veh					10.9			25.7			1.2	
Initial Queue Delay (d_3), s/veh					0.0			0.0			0.0	
Control Delay (*d*), s/veh					41.8			42.7			10.2	
Level of Service (LOS)					D			D			B	
Approach Delay, s/veh / LOS	0.0			41.8		D	42.7		D	10.2		B
Intersection Delay, s/veh / LOS	34.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.1	B	1.4	A	1.9	A
Bicycle LOS Score / LOS			1.1	A	2.3	B	1.3	A

HCS 2010 Signalized Intersection Results Summary

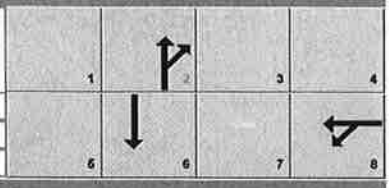
General Information				Intersection Information	
Agency	MC			Duration, h	0.25
Analyst	R.H.	Analysis Date	3/19/2013	Area Type	Other
Jurisdiction		Time Period	PEAK AM HOUR	PHF	0.84
Intersection	BEEKMAN ROAD & NYS F	Analysis Year	2015	Analysis Period	1> 7:00
File Name	190AMB4.xus				
Project Description	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				363	0			333	222		497	

Signal Information			
Cycle, s	90.0	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	50.0	30.0	0.0	0.0	0.0	0.0	
Yellow	3.0	3.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				12.0		8.0		8.0
Phase Duration, s				35.0		55.0		55.0
Change Period, (*Y+Rc*), s				5.0		5.0		5.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (g_s), s				20.8				
Green Extension Time (g_e), s				0.7		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.02				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8			2	12		6	
Adjusted Flow Rate (*v*), veh/h					432			661			592	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1810			1605			1793	
Queue Service Time (g_s), s					18.8			28.0			19.7	
Cycle Queue Clearance Time (g_c), s					18.8			28.0			19.7	
Capacity (*c*), veh/h					603			892			996	
Volume-to-Capacity Ratio (*X*)					0.716			0.741			0.594	
Available Capacity (c_a), veh/h					603			892			996	
Back of Queue (*Q*), veh/ln (50th percentile)					8.3			10.3			7.8	
Overflow Queue (Q_3), veh/ln					0.0			0.0			0.0	
Queue Storage Ratio (*RQ*) (50th percentile)					0.00			0.00			0.00	
Uniform Delay (d_1), s/veh					26.3			15.1			13.3	
Incremental Delay (d_2), s/veh					3.5			5.5			2.6	
Initial Queue Delay (d_3), s/veh					0.0			0.0			0.0	
Control Delay (*d*), s/veh					29.8			20.6			15.9	
Level of Service (LOS)					C			C			B	
Approach Delay, s/veh / LOS	0.0			29.8		C	20.6		C	15.9		B
Intersection Delay, s/veh / LOS	21.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.1	B	1.4	A	1.9	A
Bicycle LOS Score / LOS			1.2	A	1.6	A	1.5	A

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: MC
Date Performed: MARCH 2013
Analysis Time Period: 2015 BUILD AM PEAK HOUR
Intersection: BEEKMAN RD & FOSTER / MARTIN
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 190BDAM2
East/West Street: BEEKMAN ROAD (COUNTY ROUTE 9)
North/South Street: FOSTER ROAD / MARTIN 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	1	210	12	5	326	2
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR	1	228	13	5	354	2
Percent Heavy Vehicles	5	--	--	5	--	--
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	28	12	19	3	2	9
Peak Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR	30	13	20	3	2	9
Percent Heavy Vehicles	5	5	5	5	5	5
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)	1	5		63			14	
C(m) (vph)	1186	1308		475			536	
v/c	0.00	0.00		0.13			0.03	
95% queue length	0.00	0.01		0.45			0.08	
Control Delay	8.0	7.8		13.7			11.9	
LOS	A	A		B			B	
Approach Delay				13.7			11.9	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: MC
Date Performed: MARCH 2013
Analysis Time Period: 2015 BUILD PM PEAK HOUR
Intersection: BEEKMAN RD & FOSTER / MARTIN
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 190BDPM2
East/West Street: BEEKMAN ROAD (COUNTY ROUTE 9)
North/South Street: FOSTER ROAD / MARTIN 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	395	42	27	335	6
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR	9	429	45	29	364	6
Percent Heavy Vehicles	5	--	--	5	--	--
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	34	9	17	2	10	4
Peak Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR	36	9	18	2	10	4
Percent Heavy Vehicles	5	5	5	5	5	5
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	29		63			16	
C(m) (vph)	1172	1072		293			299	
v/c	0.01	0.03		0.22			0.05	
95% queue length	0.02	0.08		0.80			0.17	
Control Delay	8.1	8.5		20.6			17.7	
LOS	A	A		C			C	
Approach Delay				20.6			17.7	
Approach LOS				C			C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: MC
Date Performed: MARCH 2013
Analysis Time Period: 2015 BUILD AM PEAK HOUR
Intersection: CAROL DRIVE & MARTIN ROAD
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 190BDAM7
East/West Street: MARTIN ROAD
North/South Street: CAROL DRIVE
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	3	55			19	1
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	3	61			21	1
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				3		1
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				3		1
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			3	
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)	3						4	
C(m) (vph)	1574						923	
v/c	0.00						0.00	
95% queue length	0.01						0.01	
Control Delay	7.3						8.9	
LOS	A						A	
Approach Delay							8.9	
Approach LOS							A	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
Agency/Co.: MC
Date Performed: MARCH 2013
Analysis Time Period: 2015 BUILD PM PEAK HOUR
Intersection: CAROL DRIVE & MARTIN ROAD
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 190BDPM7
East/West Street: MARTIN ROAD
North/South Street: CAROL DRIVE
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	2	53			73	7
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	2	58			81	7
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				4		5
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				4		5
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			3	
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)	2						9	
C(m) (vph)	1489						891	
v/c	0.00						0.01	
95% queue length	0.00						0.03	
Control Delay	7.4						9.1	
LOS	A						A	
Approach Delay							9.1	
Approach LOS							A	

Ann Cutignola

Subject: FW: Bridge Data
Attachments: 190.Bridge Data.pdf

From: Philip Grealy [mailto:pgrealy@maserconsulting.com]
Sent: Wednesday, March 27, 2013 9:55 AM
To: Ann Cutignola (ACutignola@timmillerassociates.com)
Subject: Bridge Data

Ann,

Attached is the NYS Highway Bridge information as of February 28, 2013 for the Carol Drive Bridge. As noted in the "SD/FO" column, the bridge is considered neither structurally deficient nor functionally obsolete based on federal standards.

However, based on NYSDOT criteria, a bridge with a condition rating of less than 5.0 is considered a deficient bridge, which is the case for this one (4.86).

Regards,
Phil

Jenny Rosa
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P: 914.347.7500 ext: 4800
www.maserconsulting.com


Please consider the environment before printing this e-mail.

2013 is off to an exciting start at Maser Consulting. We are starting the year with a new management structure! New hire, **Kevin L. Haney, P.E.**, formerly of KLH Consultants and Bohler Engineering, has accepted the position of COO and **Leonardo E. Ponzio, P.L.S.** has been promoted to the newly created CAO position. We are also pleased to announce the acquisition of John Collins Engineers P.C., Westchester County, NY and our new Energy Service line based in Albany and headed by **Steven J. DeCarlo**, former Sr. VP of NY Power Authority.

New York State Highway Bridge Data

The Key to New York State Highway Bridge Data

The bridge data tables include information regarding highway bridges in New York State as of February 28, 2013. The second to last column, titled "SD/FO Status," is based upon rating criteria submitted to the Federal Highway Administration annually, most recently on January 31, 2010.

For ease of locating bridges, the tables for each county are arranged alphabetically by "Municipality" and then alphabetically by "Feature Carried" and "Feature Crossed."

The "Location" column of the chart identifies where each bridge is located in relation to highway and geographic features. Location descriptions vary. In some cases, an "I" precedes a highway number to designate an interstate. In that case, the entry "I90" would mean Interstate 90. In other cases, particularly under the "Feature Carried" column, the "I" follows the highway route number. In that case, the location appears as "90I," which also means Interstate 90.

The "Featured Carried" column identifies which roadway the bridge is on, while the "Feature Crossed" column identifies the roadway, body of water, or other feature the bridge crosses.

The "SD/FO Status" column indicates if a bridge is considered structurally deficient (SD), functionally obsolete (FO), or neither (N) based upon federal standards.

The "NYS Condition Rating" column contains the overall condition rating for each bridge based upon NYSDOT condition ratings. NYSDOT defines a deficient bridge as one with a State condition rating less than 5.0.

NY State Highway Bridge Data: February 28, 2013

Dutchess County

Region	County	Municipality	Location	Feature Carried	Feature Crossed	Owner	Year Built or Replaced	Date of Last Inspection	SD/FO Status	NYS Condition Rating
08	Dutchess	East Fishkill (Town)	NW QUAD RAMPS I84+TSP INT	84I X	STERN STREAM	NYSDoT	1962	04/25/2011	FO	5.21
08	Dutchess	East Fishkill (Town)	1.8 MI SOUTH JCT I84 &TSP	987G 987G82031008	MILLER HILL ROAD	NYSDoT	1999	05/15/2012	N	5.83
08	Dutchess	East Fishkill (Town)	JCT TSP & RTE 52	987G 987G82031043	52 52 82042118	NYSDoT	1937	05/31/2011	FO	4.64
08	Dutchess	East Fishkill (Town)	1.7 MI SE OF HOPEWELL JCT	987G 987G82031053	MNRR BE LINE	NYSDoT	1937	06/15/2011	FO	5.74
08	Dutchess	East Fishkill (Town)	2.3 MI NE OF HOPEWEL JCT	987G 987G82031069	FISHKILL CREEK	NYSDoT	1936	06/30/2011	FO	5.03
08	Dutchess	East Fishkill (Town)	JCT TSP & RTE 82	987G 987G82031097	82 82 82011079	NYSDoT	1938	05/31/2011	FO	5.00
08	Dutchess	East Fishkill (Town)	2.3 MI NE OF HOPEWELL JCT	BEEKMAN ROAD	SYLVAN LAKE OUTLT	County	1989	04/05/2011	N	5.66
08	Dutchess	East Fishkill (Town)	0.8 MI SE OF HOPEWELL JCT	CAROL DRIVE	FISH KILL CREEK	Town	1987	06/01/2011	N	4.86
08	Dutchess	East Fishkill (Town)	2.0 MI SE OF HOPEWELL JCT	CARPENTER ROAD	MNRR BE LINE	Railroad	1998	11/07/2012	FO	6.17
08	Dutchess	East Fishkill (Town)	1.2 MI NE OF HOPEWELL JCT	CARPENTR RD CR 29	FISHKILL CREEK	County	1940	05/10/2012	N	6.53
08	Dutchess	East Fishkill (Town)	1.1 MI SW OF HOPEWEL JCT	COUNTY ROAD 31	FISHKILL CREEK	County	1963	06/28/2011	FO	4.46
08	Dutchess	East Fishkill (Town)	4.1MI N JCT T.S.PWY & 84I	CR 9BEEKMAN RD.	987G 987G82031073	NYSDoT	1989	07/02/2012	FO	5.64
08	Dutchess	East Fishkill (Town)	2.4 MI E JCT I84 & US 9	FISHKILL HOOK RD	84I 84I82021084	NYSDoT	1963	11/15/2011	FO	5.11
08	Dutchess	East Fishkill (Town)	4MI N JCT TSP & 84I	FromTSP(BeekmanRd	Sylvan Lake Outle	NYSDoT	1989	10/04/2012	N	6.00
08	Dutchess	East Fishkill (Town)	5.4 MI E JCT I84+TSP	HOLMES ROAD	84I 84I82021177	NYSDoT	1968	07/14/2011	FO	5.05
08	Dutchess	East Fishkill (Town)	0.4 Mi NW JCT I-84 & TSP	HOSNER MTN. RD.	987G 987G82031036	NYSDoT	2006	03/14/2011	N	6.42
08	Dutchess	East Fishkill (Town)	0.4 Mi NW of I84 & TSP	HOSNER MTN. ROAD	987G 987G82031036	NYSDoT	2006	03/14/2011	N	6.52
08	Dutchess	East Fishkill (Town)	4.1 MI E JCT RTS I84+9	LIMEKILN RD	84I 84I82021101	NYSDoT	1963	06/26/2012	FO	5.31
08	Dutchess	East Fishkill (Town)	3.6 ME SE OF POUGHQUAG	PHILIPS ROAD	FISHKILL CREEK	County	1932	06/01/2011	SD	4.31
08	Dutchess	East Fishkill (Town)	5.0 MI E JCT RTS I84+9	SHENANDOAH ROAD	84I 84I82021111	NYSDoT	1963	07/13/2011	FO	4.92
08	Dutchess	East Fishkill (Town)	.5 MILE NW JCT I84 & TSP	SOMERSET ROAD	SHENANDOAH CREEK	County	2004	03/05/2012	N	5.82
08	Dutchess	East Fishkill (Town)	3.1 MI E JCT I84 & TSP	STORMVILLE MTN RD	84I 84I82021157	NYSDoT	1968	11/08/2011	FO	5.40
08	Dutchess	East Fishkill (Town)	2.2 MI NE OF HOPEWELL JCT	STORMVILLE ROAD	FISHKILL CREEK	County	1940	05/29/2012	SD	4.21
08	Dutchess	East Fishkill (Town)	1.1 MI S JCT I84 & HOOK	WARREN FARM ROAD	WICCOPEE CREEK	Town	1980	04/06/2011	FO	6.18
08	Dutchess	Fishkill (Town)	0.2 MI E JCT RTS 52 & 82	52 52 82042067	FISHKILL CREEK	NYSDoT	1994	06/21/2012	N	5.94
08	Dutchess	Fishkill (Town)	.9 MI E JCT I84 & SH 9D	84I 84I82021021	FIRST FARM ROAD	NYSDoT	1963	12/06/2011	FO	5.42
08	Dutchess	Fishkill (Town)	AT CAMP BEACON CORR FACIL	84I 84I82021031	CR36-RED SCHLHS R	NYSDoT	1964	07/31/2012	FO	4.41
08	Dutchess	Fishkill (Town)	AT CAMP BEACON CORR FACIL	84I 84I82021031	CR36-RED SCHLHS R	NYSDoT	1964	08/10/2011	FO	4.61
08	Dutchess	Fishkill (Town)	3.3 MI E JCT RTS I84+9D	84I 84I82021045	52 52 82042036	NYSDoT	1963	10/05/2011	FO	4.81
08	Dutchess	Fishkill (Town)	3.3 MI E JCT RTS I84+9D	84I 84I82021045	52 52 82042036	NYSDoT	1963	10/05/2011	FO	4.75
08	Dutchess	Fishkill (Town)	1.2 MI W JCT I84 & US 9	84I 84I82021047	MNRR BE LINE	NYSDoT	1963	06/14/2011	FO	4.36
08	Dutchess	Fishkill (Town)	1.2 MI W JCT I84 & US 9	84I 84I82021047	MNRR BE LINE	NYSDoT	1963	06/14/2011	FO	4.66
08	Dutchess	Fishkill (Town)	1.0 MI W JCT RTS I84+9	84I 84I82021050	FISHKILL CREEK	NYSDoT	1963	08/02/2011	N	4.19
08	Dutchess	Fishkill (Town)	1.0 MI W JCT RTS I84+9	84I 84I82021050	FISHKILL CREEK	NYSDoT	1963	09/12/2011	N	4.53
08	Dutchess	Fishkill (Town)	0.5 MI W JCT RTS I84+9	84I 84I82021054	CLOVE CREEK	NYSDoT	1963	07/13/2011	N	5.91
08	Dutchess	Fishkill (Town)	0.5 MI W JCT RTS I84+9	84I 84I82021054	CLOVE CREEK	NYSDoT	1963	07/13/2011	N	5.52
08	Dutchess	Fishkill (Town)	JCT RTS I-84 & 9	84I 84I82021060	9 9 82051026	NYSDoT	1998	09/25/2012	N	5.59
08	Dutchess	Fishkill (Town)	JCT RTS I-84 & 9	84I 84I82021060	9 9 82051027	NYSDoT	1998	09/25/2012	N	5.31
08	Dutchess	Fishkill (Town)	0.6 MI N JCT RTS I84 & 9	9 9 82051032	FISHKILL CREEK	NYSDoT	1980	06/08/2011	N	4.93
08	Dutchess	Fishkill (Town)	0.6 MI N JCT RTS I84 & 9	9 9 82051032	FISHKILL CREEK	NYSDoT	1980	06/08/2011	N	5.32

NY State Highway Bridge Data: May 31, 2011

Dutchess County

Region	County	Municipality	Location	Feature Carried	Feature Crossed	Owner	Year Built or Replaced	Date of Last Inspection	SD/FO Status	NYS Condition Rating
08	Dutchess	East Fishkill (Town)	NW QUAD RAMPS I84+TSP INT	84I X	STERN STREAM	NYSDoT	1962	04/25/2011	FO	5.21
08	Dutchess	East Fishkill (Town)	1.8 MI SOUTH JCT I84 &TSP	987G 987G82031008	MILLER HILL ROAD	NYSDoT	1999	05/19/2010	N	6.00
08	Dutchess	East Fishkill (Town)	JCT TSP & RTE 52	987G 987G82031043	52 52 82042118	NYSDoT	1937	05/06/2009	FO	5.00
08	Dutchess	East Fishkill (Town)	1.7 MI SE OF HOPEWELL JCT	987G 987G82031053	MNRR BE LINE	NYSDoT	1937	08/14/2009	FO	5.74
08	Dutchess	East Fishkill (Town)	2.3 MI NE OF HOPEWEL JCT	987G 987G82031069	FISHKILL CREEK	NYSDoT	1936	06/08/2009	FO	5.17
08	Dutchess	East Fishkill (Town)	JCT TSP & RTE 82	987G 987G82031097	82 82 82011079	NYSDoT	1938	04/08/2009	FO	5.11
08	Dutchess	East Fishkill (Town)	2.3 MI NE OF HOPEWELL JCT	BEEKMAN ROAD	SYLVAN LAKE OUTLT	County	1989	04/05/2011	N	5.66
08	Dutchess	East Fishkill (Town)	0.8 MI SE OF HOPEWELL JCT	CAROL DRIVE	FISH KILL CREEK	Town	1987	05/14/2009	N	5.51
08	Dutchess	East Fishkill (Town)	2.0 MI SE OF HOPEWELL JCT	CARPENTER ROAD	MNRR BE LINE	Railroad	1998	11/24/2010	FO	6.43
08	Dutchess	East Fishkill (Town)	1.2 MI NE OF HOPEWELL JCT	CARPENTR RD CR 29	FISHKILL CREEK	County	1940	05/12/2010	N	6.59
08	Dutchess	East Fishkill (Town)	1.1 MI SW OF HOPEWEL JCT	COUNTY ROAD 31	FISHKILL CREEK	County	1963	05/28/2009	SD	4.79
08	Dutchess	East Fishkill (Town)	4.1MI N JCT T.S.PWY & 84I	CR 9BEEKMAN RD.	987G 987G82031073	NYSDoT	1989	07/28/2010	FO	5.75
08	Dutchess	East Fishkill (Town)	2.4 MI E JCT I84 & US 9	FISHKILL HOOK RD	84I 84I82021084	NYSDoT	1963	08/04/2009	FO	5.28
08	Dutchess	East Fishkill (Town)	4MI N JCT TSP & 84I	FromTSP(BeekmanRd	Sylvan Lake Outle	NYSDoT	1989	10/06/2010	N	6.43
08	Dutchess	East Fishkill (Town)	5.4 MI E JCT I84+TSP	HOLMES ROAD	84I 84I82021177	NYSDoT	1968	06/02/2009	FO	5.57
08	Dutchess	East Fishkill (Town)	0.4 MI NW JCT I-84 & TSP	HOSNER MTN. RD.	987G 987G82031036	NYSDoT	2006	03/14/2011	N	6.42
08	Dutchess	East Fishkill (Town)	0.4 MI NW of I84 & TSP	HOSNER MTN. ROAD	987G 987G82031036	NYSDoT	2006	03/14/2011	N	6.52
08	Dutchess	East Fishkill (Town)	4.1 MI E JCT RTS I84+9	LIMEKILN RD	84I 84I82021101	NYSDoT	1963	06/04/2010	FO	5.36
08	Dutchess	East Fishkill (Town)	3.6 ME SE OF POUGHQUAG	PHILIPS ROAD	FISHKILL CREEK	County	1932	06/03/2009	FO	4.52
08	Dutchess	East Fishkill (Town)	5.0 MI E JCT RTS I84+9	SHENANDOAH ROAD	84I 84I82021111	NYSDoT	1963	06/04/2009	FO	5.05
08	Dutchess	East Fishkill (Town)	.5 MILE NW JCT I84 & TSP	SOMERSET ROAD	SHENANDOAH CREEK	County	2004	03/09/2010	N	7.00
08	Dutchess	East Fishkill (Town)	3.1 MI E JCT I84 & TSP	STORMVILLE MTN RD	84I 84I82021157	NYSDoT	1968	10/22/2009	FO	5.52
08	Dutchess	East Fishkill (Town)	2.2 MI NE OF HOPEWELL JCT	STORMVILLE ROAD	FISHKILL CREEK	County	1940	05/12/2010	SD	4.45
08	Dutchess	East Fishkill (Town)	1.1 MI S JCT I84 & HOOK	WARREN FARM ROAD	WICCOPEE CREEK	Town	1980	04/06/2011	FO	6.18
08	Dutchess	Fishkill (Town)	0.2 MI E JCT RTS 52 & 82	52 52 82042067	FISHKILL CREEK	NYSDoT	1994	08/31/2010	N	5.84
08	Dutchess	Fishkill (Town)	.9 MI E JCT I84 & SH 9D	84I 84I82021021	FIRST FARM ROAD	NYSDoT	1963	11/02/2009	FO	5.42
08	Dutchess	Fishkill (Town)	AT CAMP BEACON CORR FACIL	84I 84I82021031	CR36-RED SCHLHS R	NYSDoT	1964	06/25/2009	FO	5.06
08	Dutchess	Fishkill (Town)	AT CAMP BEACON CORR FACIL	84I 84I82021031	CR36-RED SCHLHS R	NYSDoT	1964	06/25/2009	FO	4.83
08	Dutchess	Fishkill (Town)	3.3 MI E JCT RTS I84+9D	84I 84I82021045	52 52 82042036	NYSDoT	1963	08/28/2009	FO	4.88
08	Dutchess	Fishkill (Town)	3.3 MI E JCT RTS I84+9D	84I 84I82021045	52 52 82042036	NYSDoT	1963	08/28/2009	FO	4.97
08	Dutchess	Fishkill (Town)	1.2 MI W JCT I84 & US 9	84I 84I82021047	MNRR BE LINE	NYSDoT	1963	08/12/2009	FO	4.43
08	Dutchess	Fishkill (Town)	1.2 MI W JCT I84 & US 9	84I 84I82021047	MNRR BE LINE	NYSDoT	1963	08/12/2009	FO	4.72
08	Dutchess	Fishkill (Town)	1.0 MI W JCT RTS I84+9	84I 84I82021050	FISHKILL CREEK	NYSDoT	1963	06/17/2009	N	5.00
08	Dutchess	Fishkill (Town)	1.0 MI W JCT RTS I84+9	84I 84I82021050	FISHKILL CREEK	NYSDoT	1963	07/01/2009	N	4.77
08	Dutchess	Fishkill (Town)	0.5 MI W JCT RTS I84+9	84I 84I82021054	CLOVE CREEK	NYSDoT	1963	07/24/2009	N	5.88
08	Dutchess	Fishkill (Town)	0.5 MI W JCT RTS I84+9	84I 84I82021054	CLOVE CREEK	NYSDoT	1963	07/24/2009	N	6.00
08	Dutchess	Fishkill (Town)	JCT RTS I-84 & 9	84I 84I82021060	9 9 82051026	NYSDoT	1998	10/06/2010	FO	5.81
08	Dutchess	Fishkill (Town)	JCT RTS I-84 & 9	84I 84I82021060	9 9 82051027	NYSDoT	1998	10/06/2010	FO	5.80
08	Dutchess	Fishkill (Town)	0.6 MI N JCT RTS I84 & 9	9 9 82051032	FISHKILL CREEK	NYSDoT	1980	06/23/2009	N	5.00
08	Dutchess	Fishkill (Town)	0.6 MI N JCT RTS I84 & 9	9 9 82051032	FISHKILL CREEK	NYSDoT	1980	06/23/2009	N	5.02

NY State Highway Bridge Data: May 31, 2011

Dutchess County

Region	County	Municipality	Location	Feature Carried	Feature Crossed	Owner	Year Built or Replaced	Date of Last Inspection	SD/FO Status	NYS Condition Rating
08	Dutchess	Wappinger (Town)	1 MI W OF NEW HACKENSACK	COUNTY ROAD 110	WAPPINGER CREEK	County	1955	09/09/2009	FO	5.14
08	Dutchess	Wappinger (Town)	0.5MI E OF HUGHSONVILLE	COUNTY ROAD 28	MILLWOOD CREEK	County	1984	05/21/2009	N	6.57
08	Dutchess	Wappinger (Town)	2.1 MI N OF BRINCKERHOFF	COUNTY ROAD 28	SPROUT CREEK	County	1966	05/21/2009	FO	5.26
08	Dutchess	Wappinger (Town)	1.0 MI N.OF HUGHSONVILLE	COUNTY ROAD 91	HUNTER CREEK	County	1986	05/27/2009	N	6.33
08	Dutchess	Wappinger (Town)	IN THE TOWN OF WAPPINGER	MONTFORT ROAD	SPROUT CREEK	County	1995	06/22/2010	FO	6.46
08	Dutchess	Wappinger (Town)	2.4 MI SE OF NEW HACKSACK	ROBINSON LANE	SPROUT CREEK	County	1993	04/05/2011	N	5.71
08	Dutchess	Wappingers Falls (Village)	1.2 MI S JCT RTS 9D+9	9D 9D82033070	WAPPINGER CREEK	NYSDoT	1884	08/11/2009	N	4.95
08	Dutchess	Wappingers Falls (Village)	VILLAGE WAPPINGER FALLS	MCKINLEY STREET	WAPPINGER CREEK	Village	1999	10/21/2009	N	5.78
08	Dutchess	Washington (Town)	1.4 MI E JCT RTE 44+TSP	44 44 82022109	HAM CREEK	NYSDoT	1939	12/17/2009	N	5.39
08	Dutchess	Washington (Town)	1.3 MI E JCT RTE 44+TSP	44 44 82022109	SOUTH BROOK	NYSDoT	1939	12/17/2009	N	5.22
08	Dutchess	Washington (Town)	0.8 MI NW OF MILLBROOK	44A 44A82011020	E BR WAPPINGER CK	NYSDoT	1989	10/19/2009	N	6.19
08	Dutchess	Washington (Town)	2.0 MI NW OF MILLBROOK	CANOE HILL ROAD	E BR WAPPINGER CK	County	1968	06/22/2009	N	4.76
08	Dutchess	Washington (Town)	2.5 MI W OF AMENIA	COUNTY ROAD 86	DEER HILL CREEK	County	1929	08/25/2009	N	5.23
08	Dutchess	Washington (Town)	2.5 MI W OF MILLBROOK	FOWLER ROAD	E BR WAPPINGER CK	County	1979	04/28/2009	N	5.20
08	Dutchess	Washington (Town)	1.1 MI SE OF HIBERNIA	NARDONE ROAD	E BR WAPPINGER CK	County	1939	07/22/2009	N	4.88
08	Dutchess	Washington (Town)	2.5 MILES SW OF MILLBROOK	TYRELL ROAD	SOUTH BROOK	County	1992	06/29/2009	N	5.54
08	Dutchess	Washington (Town)	2.4 MI SW OF MILLBROOK	VERBANK ROAD	NO NAME CREEK	County	1931	04/07/2011	N	4.65

NOTE:

1. Data current as of May 31, 2011
2. Structurally Deficient (SD)/Functionally Obsolete (FO) info is current as of March 30, 2011
3. SD/FO Status
   - SD = Structurally Deficient
   - FO = Functionally Obsolete
   - N = Neither SD/FO
   - Blank = No data available
4. Other Items
   - Blank = Data not available
5. NYS Condition Rating
   - Please refer to the narrative, FAQs and the 'Key to New York State Highway Bridge Data' for additional information.

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TRAFFIC IMPACT STUDY

****

HILLTOP MANOR SUBDIVISION

CREEK BEND ROAD

TOWN OF EAST FISHKILL, NEW YORK

JOB NO. 190

NOVEMBER, 2005

REVISED AUGUST 5, 2010

TABLE OF CONTENTS

SECTION I

INTRODUCTION

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

The Hilltop Manor subdivision is a proposed 23 lot subdivision which will be constructed on property located on the east side of Creek Bend Road in the Town of East Fishkill, New York. Access to the site will be provided via the construction of a new road connection to Creek Bend Road. The location of the site is identified on Figure No. 1. The proposed subdivision is expected to be completed in the next several years and for the purposes of analysis, a design year of 2015 was used for evaluating traffic conditions.

B. SCOPE OF STUDY

This study has been prepared to evaluate the potential traffic impacts associated with the construction of the Hilltop Manor subdivision. In the course of completing this study, traffic volume information was collected for the area roadways including the key intersections identified in the scoping document for the project. The traffic data included detailed turning movement traffic counts collected during the weekday AM and PM peak hours. The Existing Traffic Volumes were compared with other historical data for the area roadways including data from the New York State Department of Transportation.

The Existing Traffic Volumes were then projected to a future design year utilizing a background growth factor of 2% per year. In addition, traffic for other potential developments in the are was estimated and added to the projected traffic volumes to obtain the design year No-Build Traffic Volumes. Based on information published by the Institute of Transportation Engineers (ITE),

estimates of the expected Site Generated Traffic Volumes for the proposed subdivision were computed for each of the peak hours. These Site Generated Traffic Volumes were then assigned to the roadway network and combined with the 2015 No-Build Traffic Volumes to obtain the Build Traffic Volumes.

A capacity analysis was conducted at each of the intersections for each of the peak hours utilizing the Existing, No Build and Build Traffic Volumes to determine Levels of Service and operating conditions. These capacity analyses were conducted utilizing the procedures outlined in the 2000 Highway Capacity Manual. Based on the results of the analysis, recommendations for improvements were made were necessary.

SECTION II

EXISTING ROADWAY AND TRAFFIC CONDITIONS

A. DESCRIPTION OF EXISTING ROADWAY NETWORK

The site will be provided direct access to Creek Bend Road. A description of this and other area roadways is provided below.

1. NYS Route 82 - is a two lane roadway under the jurisdiction of the New York State Department of Transportation which runs throughout Duchess County. In the immediate vicinity of the site, it consists of one lane in each direction plus paved shoulders of approximately 3-4 feet and has a signalized intersection with Beekman Road. The roadway has a posted speed limit of 35mph which increases to 45mph north of Beekman Road.

2. Beekman Road (C.R. 9) - is generally a two lane County roadway which originates at a signalized intersection with NYS Route 82. It traverses in easterly direction intersecting with other roadways including Foster Road, Clover Branch Road, Augusta Drive and has a interchange with the Taconic State Parkway. The roadway consists of one travel lane in each direction plus approximately 2 foot wide shoulders. It has a posted speed limit of 45mph.

3. Foster Road - is generally a two lane roadway which originates at a "stop" sign controlled intersection with Beekman Road opposite Martin Road. The roadway continues in a north and then westerly direction terminating at a "stop" sign controlled intersection with NYS Route 82. The pavement width varies from approximately 20-22 feet and there is no centerline striping.

4. Martin Road - is a local Town road which originates to the west at a "stop" sign controlled "T" intersection with NYS Route 82. The roadway continues in an easterly direction as a narrow roadway consisting of approximately 16 feet. Immediately to the east, the roadway widens and continues in a varying alignment and intersects at a "stop" controlled intersection with Carol Drive. In this area, the roadway has a pavement width of approximately 20 feet.

5. Clove Branch Road (C.R. 29) - runs in a generally northwest/southeast direction. It intersects at a signalized intersection with NYS Route 82 and with Beekman Road opposite Carpenter Road. Clove Brand Road has a speed limit of 40mph and consists of one lane in each direction plus approximately 4 foot shoulders.

6. Carol Drive - is a two lane Town roadway which originates at a "stop" sign controlled intersection with Martin Road. The roadway currently provides access to several residential homes and has a pavement width which varies from approximately 21 to 24 feet. This roadway also intersects with Oak Ridge Road.

B. 2010 EXISTING TRAFFIC VOLUME CONDITIONS (Figures No. 2 and 3)

Based on the scope of document, detailed turning movement traffic counts were collected during the AM (6:30-9:30) and PM (3:30-6:30) peak hours during October 2005. The locations which were surveyed included the following:

1. Beekman Road (C.R. 9) and Carpenter Road and Clove Branch Road (C.R. 29)
2.. Martin Road and Foster Road and Beekman Road (C.R. 9)
3. Foster Road and NYS Route 82
4. Beekman Road and NYS Route 82
5. Turner Street and NYS Route 82
6. Martin Road and NYS Route 82
7. Martin Road and Carol Drive
8. NYS Route 82 and NYS Route 376 (East)
9. NYS Route 82 and NYS Route 376 (West)

These traffic counts were also compared with historical data obtained from the New York State Department of Transportation and from other studies completed in the area. Based upon a review of the traffic counts, the peak hours were determined as follows:

Weekday AM Peak Hour -- 7:45 AM to 8:45 AM
Weekday PM Peak Hour -- 5:00 PM to 6:00 PM

Additional traffic counts were conducted at the intersections of Beekman Road and NYS Route 82 and Beekman Road and Carpenter Road/Clove Branch Road during April, 2010 to ensure the 2005 Traffic Volumes are still representative of current traffic conditions. All existing traffic count data

from both the 2005 Traffic Counts and the more recent 2010 Traffic Counts can be found in Appendix "F." A comparison of the 2005 Traffic Volumes and the Traffic Volumes from the counts conducted in 2010 is shown below.

Existing Traffic Volume Comparison				
	Beekman Road & NYS Route 82		Beekman Road & Carpenter Road/Clove Branch Road	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
2005 Existing Traffic Volumes	1209	1609	795	1072
2010 Existing Traffic Volumes	1028	1531	790	1014

Based on the comparison shown above the 2010 Traffic Volumes were found to be comparable or less than the 2005 Traffic Volumes. Therefore it was determined that the 2005 Traffic Volumes are representative of existing conditions. For the purposes of the report the 2005 Traffic Volumes have now been called the 2010 Traffic Volumes and the Build Year has been changed to 2015. The resulting 2010 Existing Traffic Volumes are shown in Figures No. 2 and 3 for each the AM and PM Peak Hours, respectively.

C. ACCIDENT DATA (Table A)

All available accident data was obtained from the New York State Department of Transportation for the area roadways for the latest available three year period from February 1, 2007 to January 31, 2010. This data was summarized by type, location and other contributing factors. A summary of the accident data is presented in Table A-1 for Beekman Road and Carol Drive accidents and Table A-2 for NYS Route 2 accidents. Based upon a review of these tables it does not appear that there is an underlying cause for the accidents. The majority of the accidents appear to be due to driver error.

SECTION III

EVALUATION OF FUTURE TRAFFIC CONDITIONS

A. 2015 NO-BUILD TRAFFIC VOLUMES (Figures No. 4, 5, 6, 7, 8 and 9)

The 2010 Existing Traffic Volumes were projected to a future design year of 2015 utilizing a background growth factor of 2% per year. These projected traffic volumes are shown on Figures No. 4 and 5. In addition, traffic from other pending or proposed development in the area, including the Springs at Beekman, Moore Farm and the Toll Brothers Subdivision of East Fiskill, was estimated and/or obtained from the studies prepared for those developments. The location of each of these developments is shown on Figures OD-1 and OD-2 contained in Appendix "A". The traffic volumes associated with each of these developments can be found on Figures A through F also contained in Appendix "A". The other development traffic volumes are shown on Figures No. 6 and 7. These volumes were combined with the 2015 Projected Traffic Volumes to obtain the 2015 No-Build Traffic Volumes, which are shown on Figures No. 8 and 9.

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

Estimates of the expected site generated traffic volumes for each of the peak hours were computed based on information published by the Institute of Transportation Engineers (ITE) as contained in their report entitled, "Trip Generation", 7th Edition, 2003. The resulting peak hour trip generation rates and corresponding Site Generated Traffic Volumes for the Hilltop Manor subdivision are summarized in Table No. 1.

C. ARRIVAL AND DEPARTURE DISTRIBUTIONS (Figures No. 10 and 11)

Based upon a review of the traffic volumes on the surrounding roadway network, estimates of the expected arrival and departure distributions of Site Generated Traffic were determined. Figures No. 10 and 11 summarize the expected arrival and departure distributions for the proposed subdivision.

D. 2015 BUILD TRAFFIC VOLUMES (Figures No. 12, 13, 14 and 15)

Utilizing the arrival and departure distributions, the Site Generated Traffic Volumes shown in Table No. 1 where added to the roadway network. These Site Generated Traffic Volumes are shown on Figures No. 12 and 13. These Site Generated Traffic Volumes were then combined with the 2015 No-Build Traffic Volumes to obtain the 2015 Build Traffic Volumes which are shown on Figures No. 14 and 15 for the AM and PM peak hours, respectively.

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. TRAFFIC IMPACT ANALYSIS (Table No. 2)

Utilizing the procedures outlined in the 2000 Highway Capacity Manual, capacity analyses were conducted at each of the key intersections to determine Levels of Service and operating conditions. Table No. 2 provides a summary of the Levels of Service and a description of each intersection is presented below.

3. NYS Route 82 and Foster Road

Foster Road intersects with NYS Route 82 at a "stop" sign controlled "T" intersection. All approaches consist of one lane. The capacity analysis conducted at this intersection indicates that currently a Level of Service "B" is experienced during peak periods. The analysis indicates that under future 2015 No-Build conditions Levels of Service "B" and "C" will be experienced for the AM and PM peak hours, respectively. Similar Levels of Service are expected under the future Build conditions.

4. Beekman Road and NYS Route 82

Beekman Road intersects with NYS Route 82 at a signalized skewed intersection which is under signal control. Immediately east of the main intersection there is a secondary connection which handles primarily right turns from Beekman Road to NYS Route 82 northbound and left turns from NYS Route 82 onto Beekman Road eastbound. The connector intersection with Route 82 is controlled by a "stop" sign. The capacity analysis conducted at this intersection indicates the intersection currently experiences a Level of Service "C" or better during peak periods.

The analysis was recomputed under future No-Build and Build conditions. The analyses indicates that a Level of Service "D" will be experienced under future No-Build conditions with similar Levels of Service under the Build condition. It should be noted that, while the additional traffic generated by the proposed subdivision will not significantly increase the delays experienced at this intersection, the westbound approach will experience longer delays during the PM Peak Hour under future conditions. Therefore it is recommended that 2.5 seconds of green time be added to the westbound phase while the northbound/southbound phase green time is reduced by 2.5 seconds. Analysis conducted with the recommended signal timings indicates that the intersection will operate at an overall Level of Service "D" and the

delays on the westbound approach will be reduced.

5. NYS Route 82 and Turner Street

Turner Street intersects with NYS Route 82 at a "stop" sign controlled "T" intersection. The approaches consist of one lane and this intersection is slightly offset from the intersection with Martin Road. The capacity analysis conducted at this intersection indicates a Level of Service "C" or better is currently experienced at this location.

The analysis was recomputed under future No-Build and Build conditions. The analyses indicates that a Level of Service "D" will be experienced during the AM peak hour and a Level of Service "C" during the PM peak hour.

6. NYS Route 82 and Martin Road

Martin Road intersects with NYS Route 82 at a "stop" sign controlled "T" intersection. The Martin Road approach is a narrow roadway with somewhat limited sight distance. The capacity analysis conducted at this intersection indicates a Level of Service "C" during AM peak hour and "D" during the PM peak hour. Under future conditions, Levels of Service "D" or better is expected for the 2015 No-Build with similar Levels of Service for the 2015 Build conditions.

7. Martin Road and Carol Drive

Martin Road intersects with Carol Drive at a "stop" sign controlled "T" type intersection. The capacity analysis indicates a Level of Service "A" at this intersection under the Existing, No-Build and Build conditions. It is recommended however that some new pavement markings including a painted "stop" bar and a possible double yellow centerline striping be installed at this intersection to better define the travel path and to control traffic movements.

8/9. NYS Route 82 and NYS Route 376 (East and West Legs)

The intersections of NYS Route 82 and NYS Route 376 have been included in the traffic study as requested by the Town's Traffic Consultant. The volumes for these intersections are shown on Figures No. 1A through 15A for the Existing, No-Build and Build conditions. In addition to the AM and PM Peak Hours the Saturday Peak Hour was also analyzed for these intersections. Note that it was assumed that for the Saturday Peak Hour analysis as much as 75 % of the site traffic would travel on NYS Route 82 which approximately 55% going to the south and west towards Hopewell Junction and 20% going to the north towards LaGrange. These intersections were analyzed in a similar fashion to the other area intersections using the Highway Capacity Software to determine the operating Levels of Service and Synchro to perform a queuing analysis.

The analysis results for these intersections are summarized in Table 2-A contained in Appendix "B." A review of this table indicates that the intersection of NYS Route 82 and NYS Route 376 (East Leg) is currently operating at an overall Level of Service "C" during the AM Peak Hour and at an overall Level of Service "B" during the PM and Saturday Peak Hours. Analysis conducted utilizing the 2015 No-Build and 2015 Build Traffic Volumes indicates that Level of Service "C" will be maintained for the AM Peak Hour while the intersection can be expected to experience a Level of Service "C" during the PM and Saturday Peak Hours. It should be noted that the operation of this intersections is controlled by the operation of the Route 376 (West Leg) intersection due to its proximity and therefore likely operates at similar Levels of Service to the Route 376 (West Leg) intersection.

The analysis for the intersection of NYS Route 82 and NYS Route 376 (West Leg) indicates that an overall Level of Service "B" is currently experienced during the AM Peak Hour while an overall Level of Service "C" is experienced during the PM and Saturday Peak Hours. Analysis of this intersection for the future 2015 No-Build and 2015 Build conditions indicates that an overall Level of Service "C" can be expected during the AM and Saturday Peak Hours while the intersection will operate at an overall Level of Service "D" during the PM Peak Hour. It should be noted that during the PM Peak Hour under future conditions longer delays can be expected for the westbound and southbound approaches. Therefore to mitigate these impacts it is recommend that an additional two seconds of green time be given to the southbound left turn movement and the northbound/southbound phase green time should be reduced by two seconds. Analysis conducted with these recommended timing improvements indicates that the intersection will operate at an overall Level of Service "C" and the delays on the westbound and southbound approaches will be reduced.

10. Creek Bend Road and Site Access

The Hilltop Manor Subdivision is proposed to be accessed via a roadway connection to Creek Bend Road. This connection will be controlled by a "Stop" sign on the site access approach and each approach to the intersection will consist of one lane. Creek Bend Road is local road roadway which serves 10 existing residential homes. Analysis of the proposed intersection indicates that a Level of Service "A" will be experienced during each of the peak hours. Approximately 800 ft. from Creek Bend Road the site has a loop road which will allow for circulation of emergency vehicles within the site. An additional emergency access to the site could be provided via an adjacent property which is owned by the applicant. This will be finalized during the site plan review process.

An Automatic Traffic Data recorder was placed along Creek Bend Road in the area of the proposed site access location during April of 2010 to determine the traffic volumes and prevailing speeds along the roadway. Based on this data, which is contained in Appendix "B", it was determined that the 85th Percentile Speeds are 33 MPH in the northbound direction and 29 MPH in the southbound direction. Based on a 35 MPH traveling speed a Stopping Sight Distance (SSD) of 250 feet and an Intersection Sight Distance (ISD) of 390 feet is required by AASHTO. The final site access location will be located such that these sight distance requirements are met. Clearing of trees and shrubs along the site frontage may be necessary to meet the requirements and will be completed accordingly. Figure SD-1 contained in Appendix "A" shows the proposed sight lines at the access driveway. As shown by these sight lines the clearing and pruning would occur within the Right of Way and/or on property controlled by the applicant.

G. QUEUING ANALYSIS

A Synchro analysis has been performed for the signalized study area intersections. The Synchro analysis reports for queuing are contained in Appendix "E." This analysis includes queue lengths as well as storage capacity of each of the approaches to the intersections. Table Q-1 contiained in Appendix "B" summarizes the queue lengths by approach as well as the storage lengths for each intersection. Based on this analysis the proposed development will not have a significant impact on queue lengths at the study area signalized intersections.

H. ROADWAY SEGMENT CONSIDERATIONS

In addition to the individual intersections, the roadway segments in the area were reviewed relative to traffic volumes and operating conditions. The segments considered included the following:

- Creek Bend Road to Oak Ridge Road
- Oak Ridge Road to Carol Drive
- Carol Drive to Martin Road
- Martin Road to Beekman Road
- Martin Road to NYS Route 82

Table RS-1, contained in Appendix "B", summarizes the total volume for each roadway segment under Existing, No-Build and Build conditions for the AM and PM Peak Hours as well as the geometry of the roadway segement. Based upon review of the existing and future traffic volumes on each of these roadways, the roadway segments will accommodate the expected volumes at acceptable Levels of Service. However, in consideration of the alignment and the nature of the existing residential development located along these roadways, traffic calming measures should be considered to control speeds and overall traffic flow. In addition to the recommendations for the intersections identified above, some additional potential traffic calming measures would include the following:

1. Installation of additional signing and striping at the intersection of Carol Drive and Oak Ridge Road in order to better define the traffic movements. The potential of an all-way stop control at this intersection should be considered.

2. The intersection of Creek Bend Road and Oak Ridge Road should be controlled by a "stop" sign.

3. The segment of Carol Drive between Oak Ridge Road and Martin Road has several horizontal alignment changes. Additional signing and striping should be installed in advance of these.

4. Traffic calming measures such as speed tables should be considered for Creek Bend Road and for Carol Drive.

4. Similar traffic calming and signing measures should be considered along the section of Martin Road between Carol Drive and NYS Route 82.

The recommended improvements noted above are also summarized in Table I-1 which also indicates the percentage increase in traffic as a result of the project for each intersection and roadway segment. Where improvements are recommended the applicants Percentage of Fair Share Contribution is noted. The location of the recommended traffic calming measures as well as details pertaining to their design is shown on Figures TC-1 and TC-2. It should also be noted that the New York State Department of Transportation has been contacted to obtain information on the structural rating of the Carol Drive Bridge and will be provided when it is received.

I. PUBLIC TRANSPORTATION

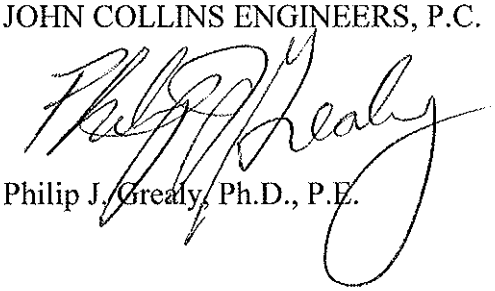
Public Transportation in the vicinity of the site is operated by the Dutchess County Loop Bus System. The loop 4 runs between Hopewell Junction Plaza at the intersection of Route 376 and Route 82 and the Dutchess Mall in Poughkeepsie. The map and schedule for this bus service is contained in Appendix "B". It should be noted that due the the type and size of the proposed development it is not expected that there will be a significant impact on public transportation. The Wappingers Centeral School District also serves the local area and is typical of what are found in residential areas.

J. SUMMARY AND CONCLUSIONS

Based upon a review of the proposed subdivision, the additional traffic generated is not expected to significantly change the Levels of Service on the surrounding roadway network. The capacity analyses indicate no significant traffic impacts resulting from the development of this project. Localized traffic calming measures should be considered for the area roadways with or without this development.

Respectfully Submitted,

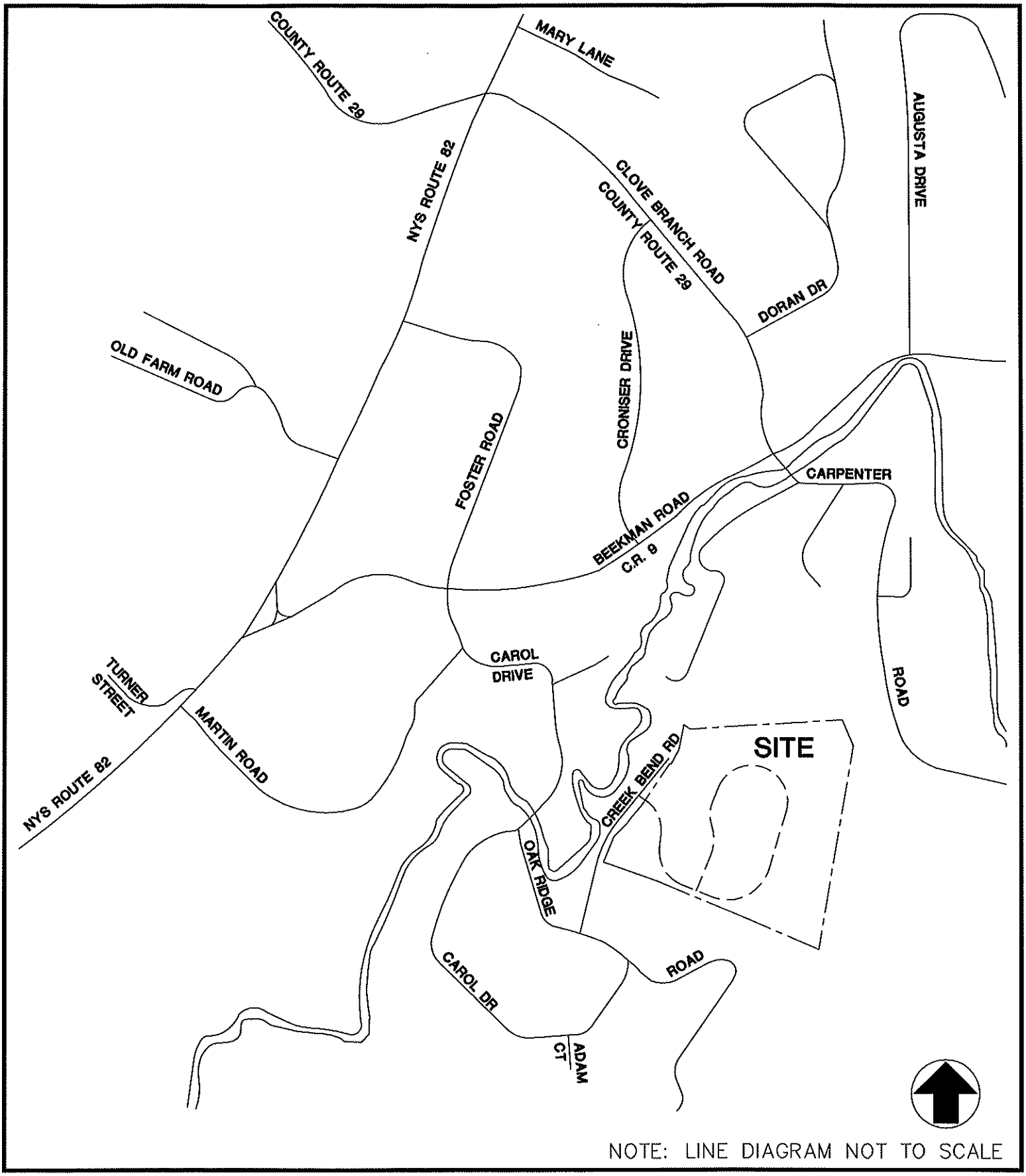
JOHN COLLINS ENGINEERS, P.C.



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

APPENDIX "A"

FIGURES

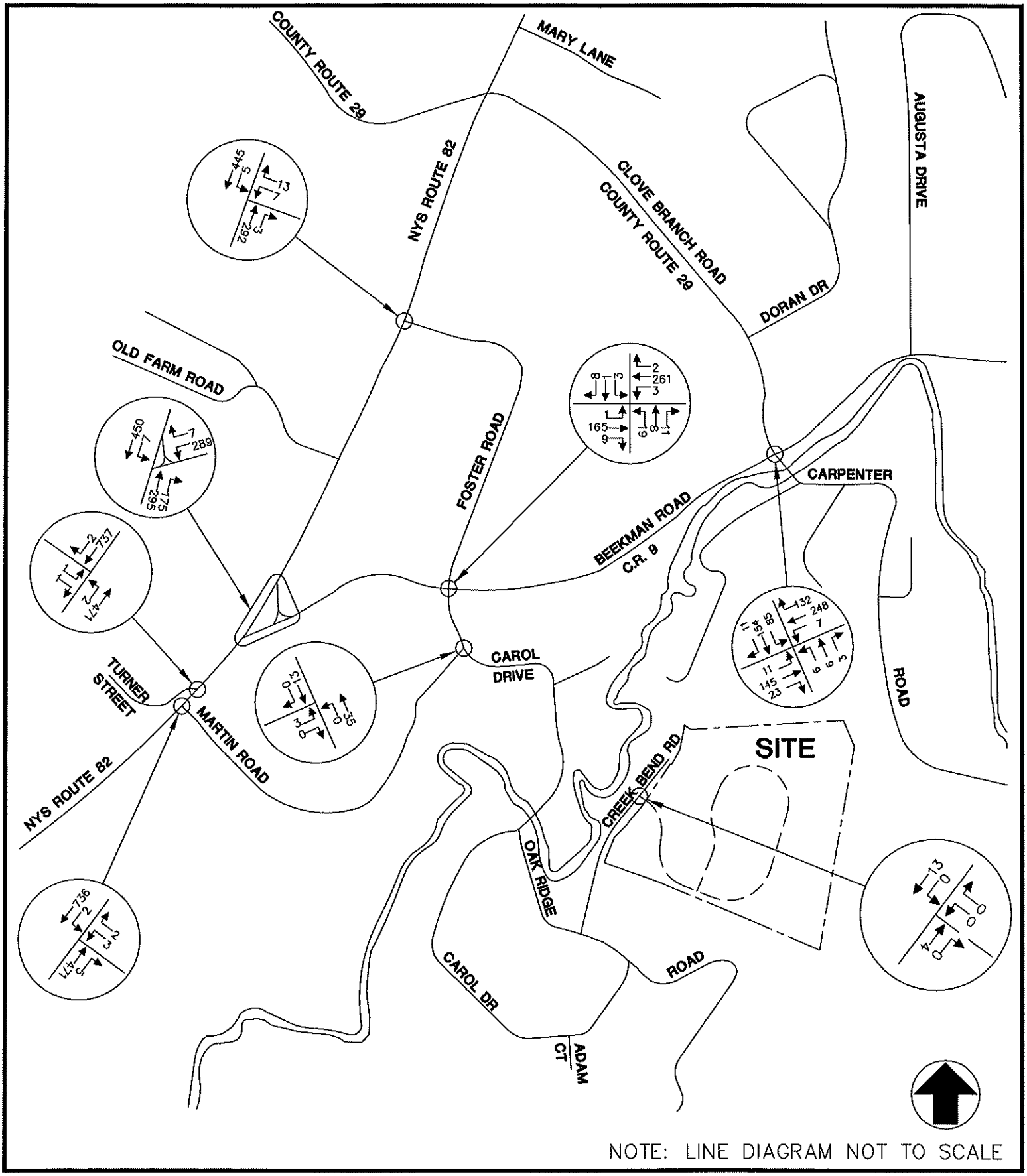


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

SITE LOCATION MAP

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 1

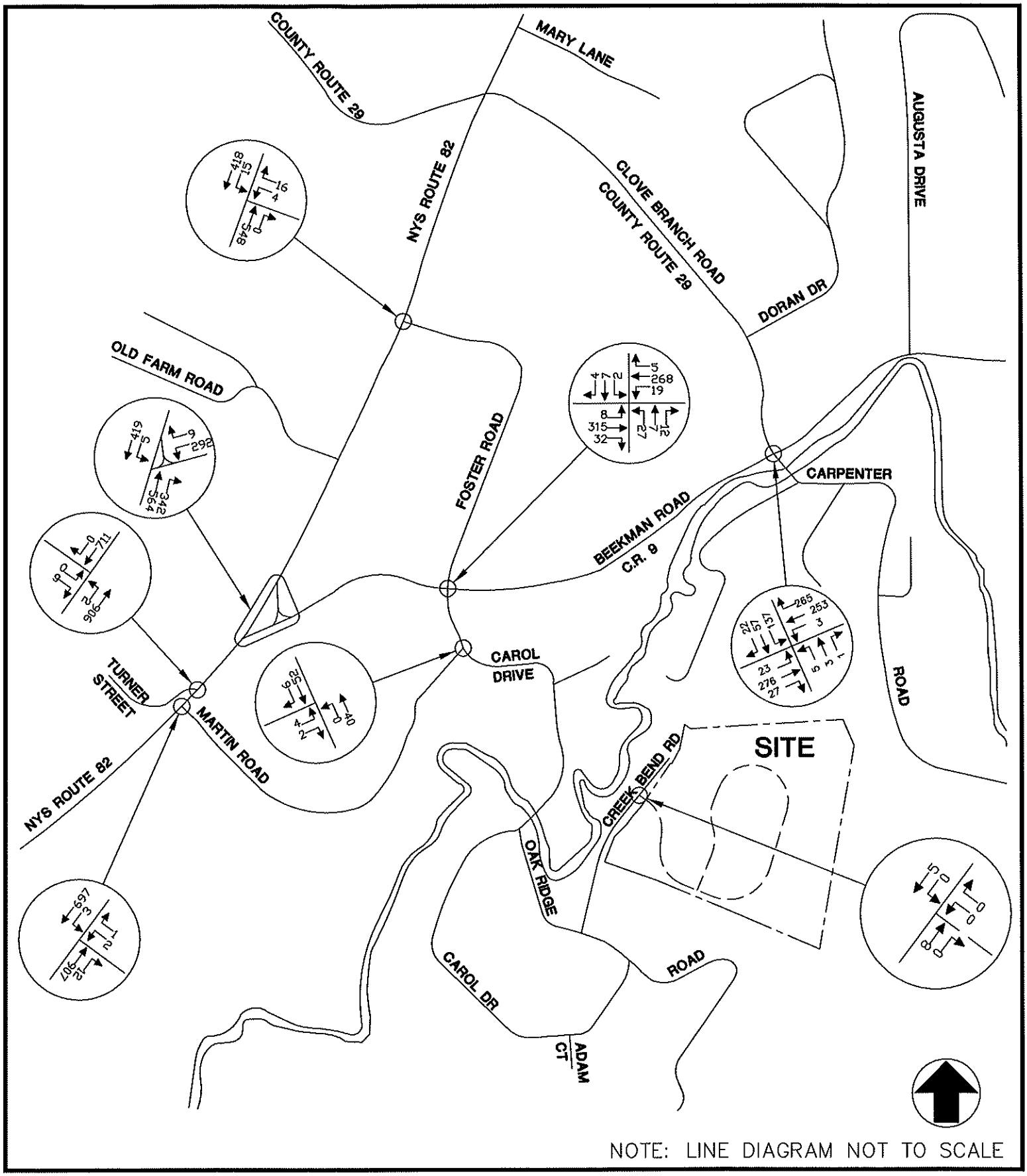


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2010 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 2

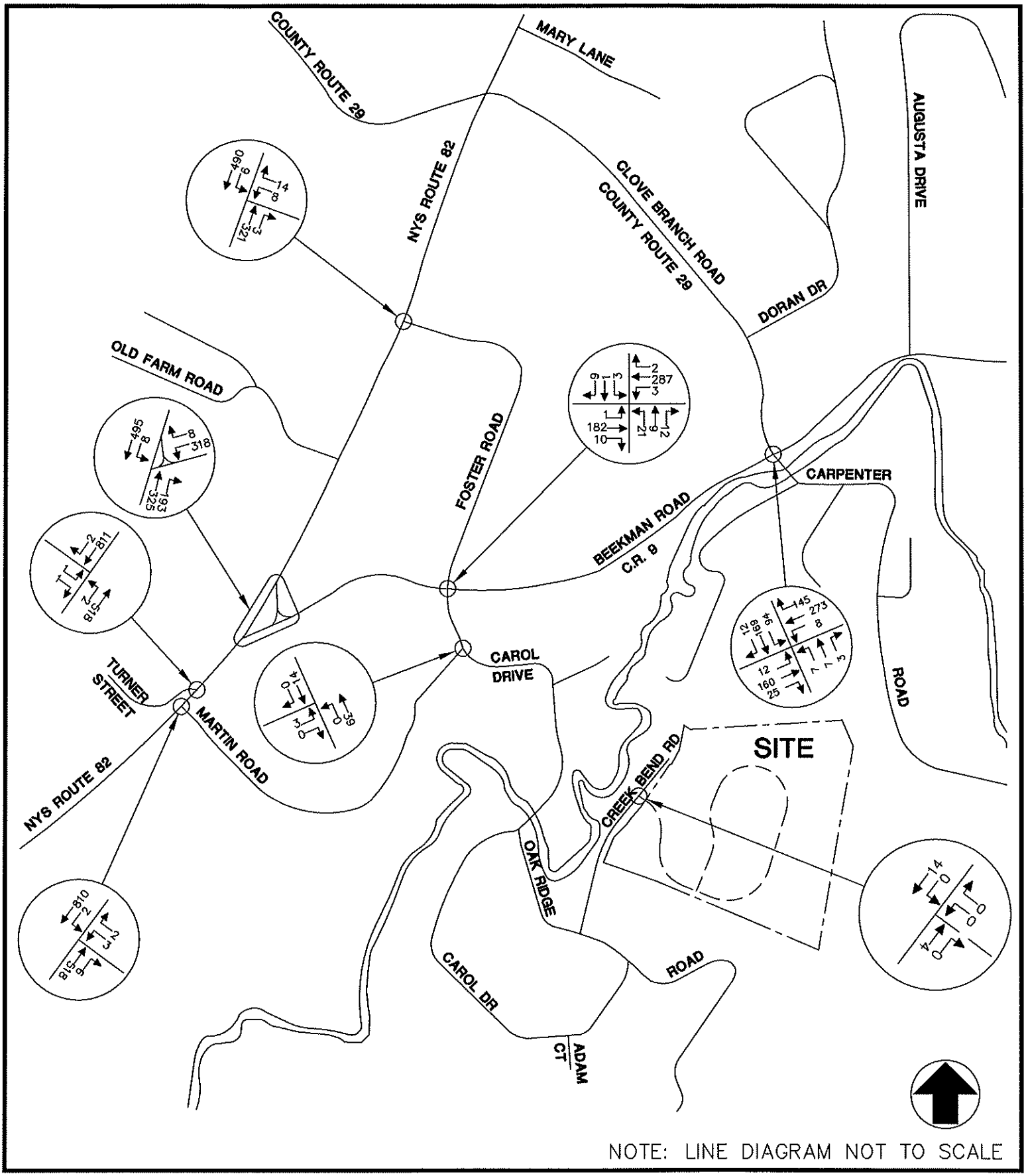


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2010 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 3

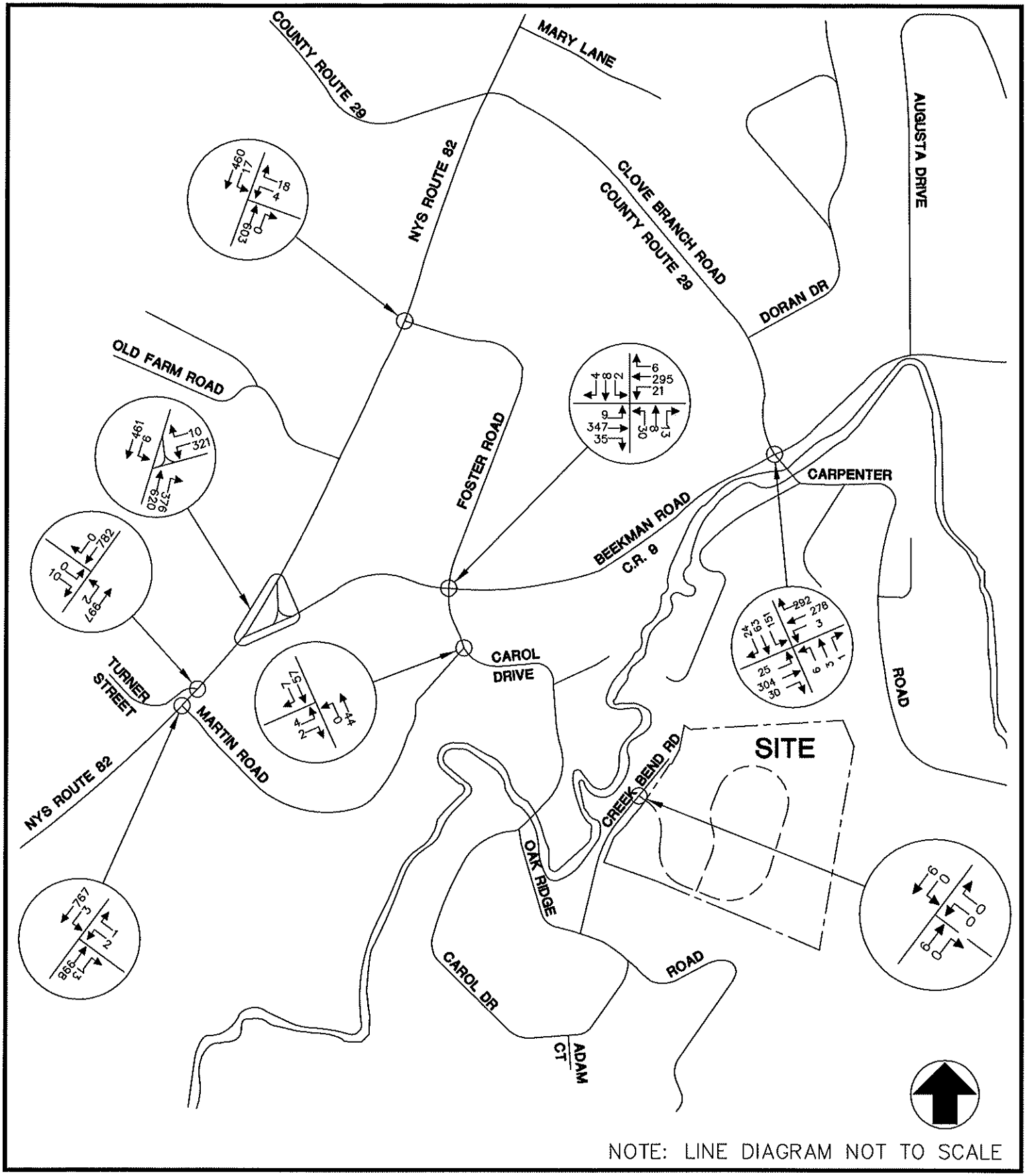


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 4

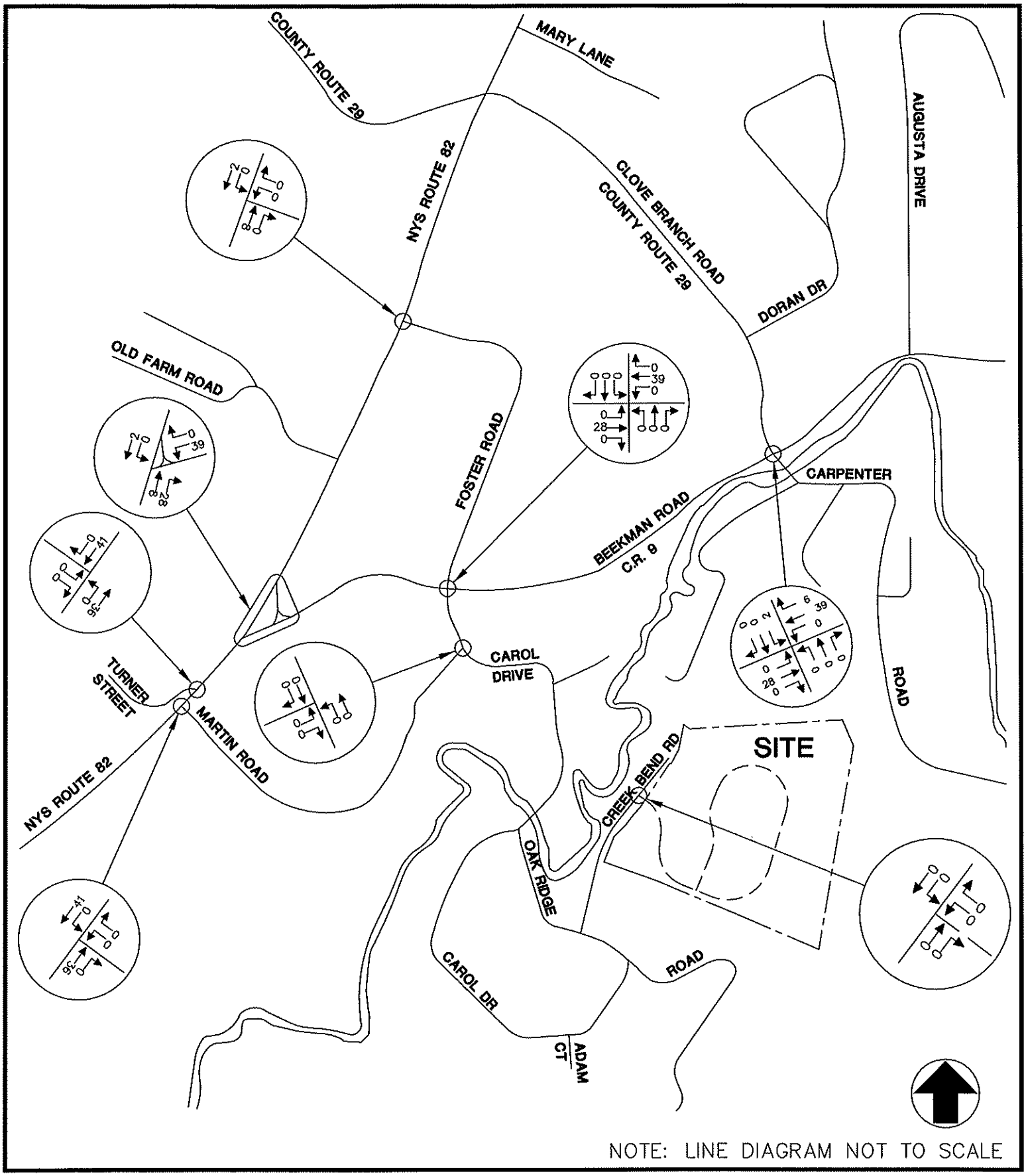


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 5

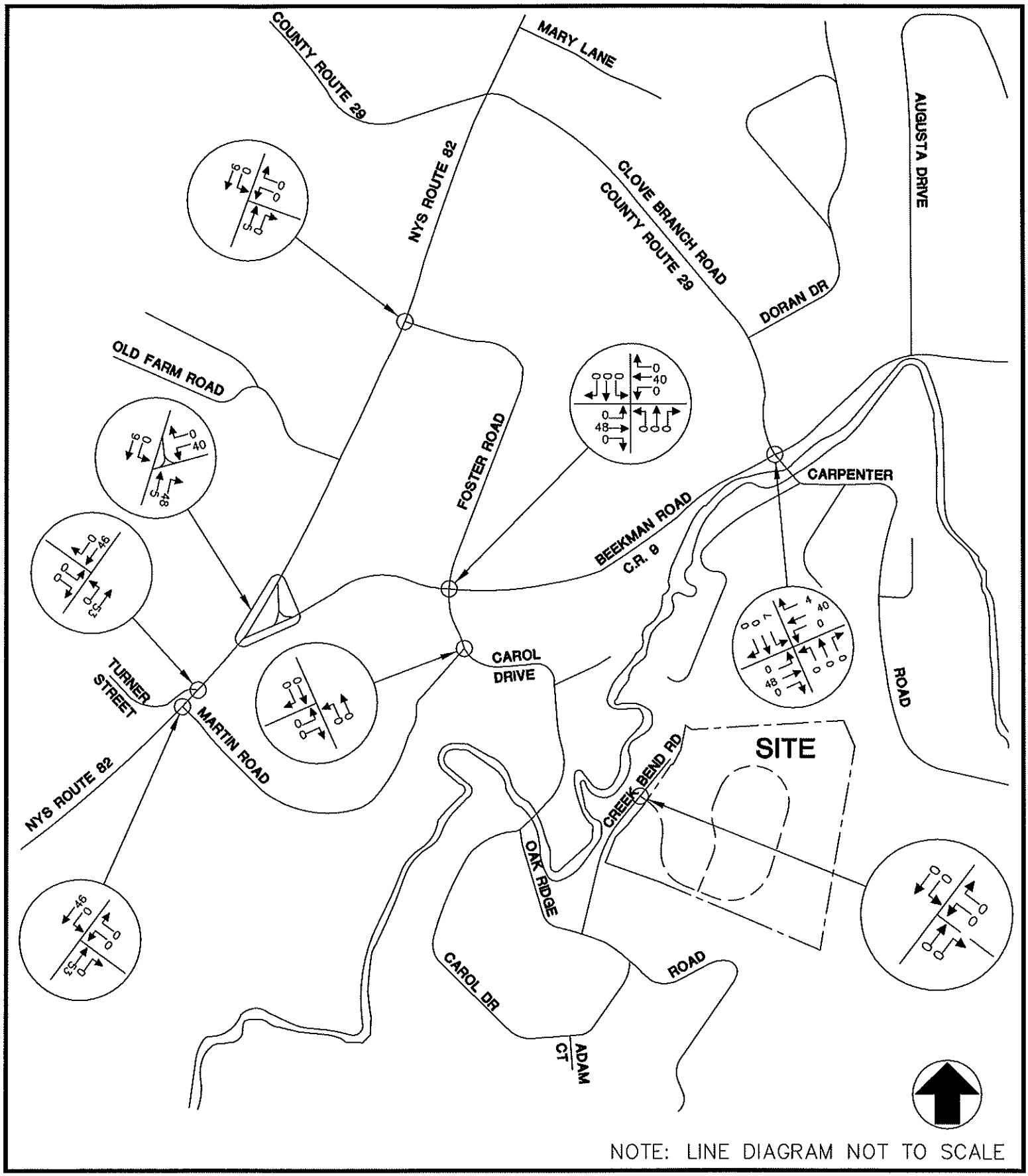


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 6

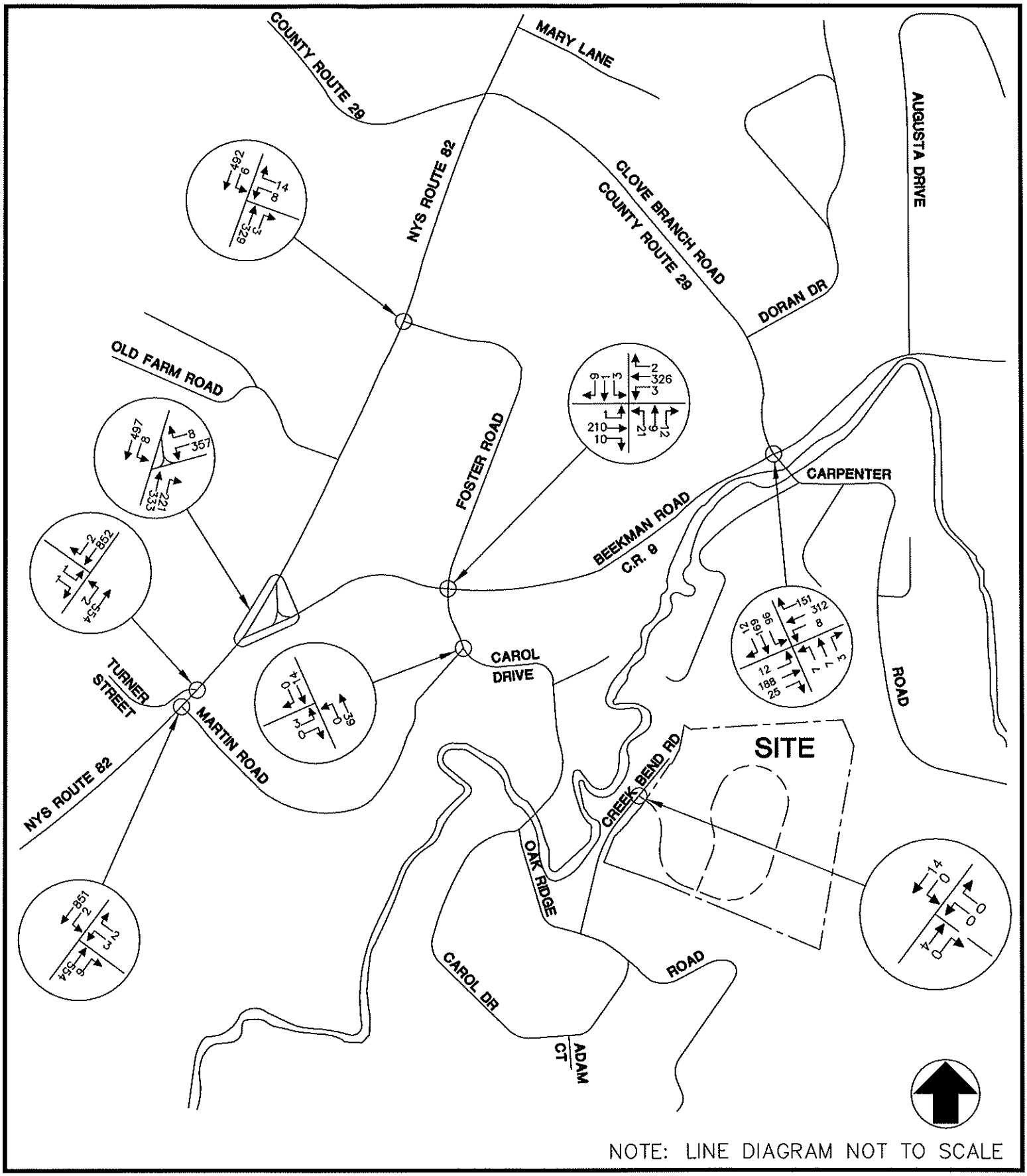


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 7



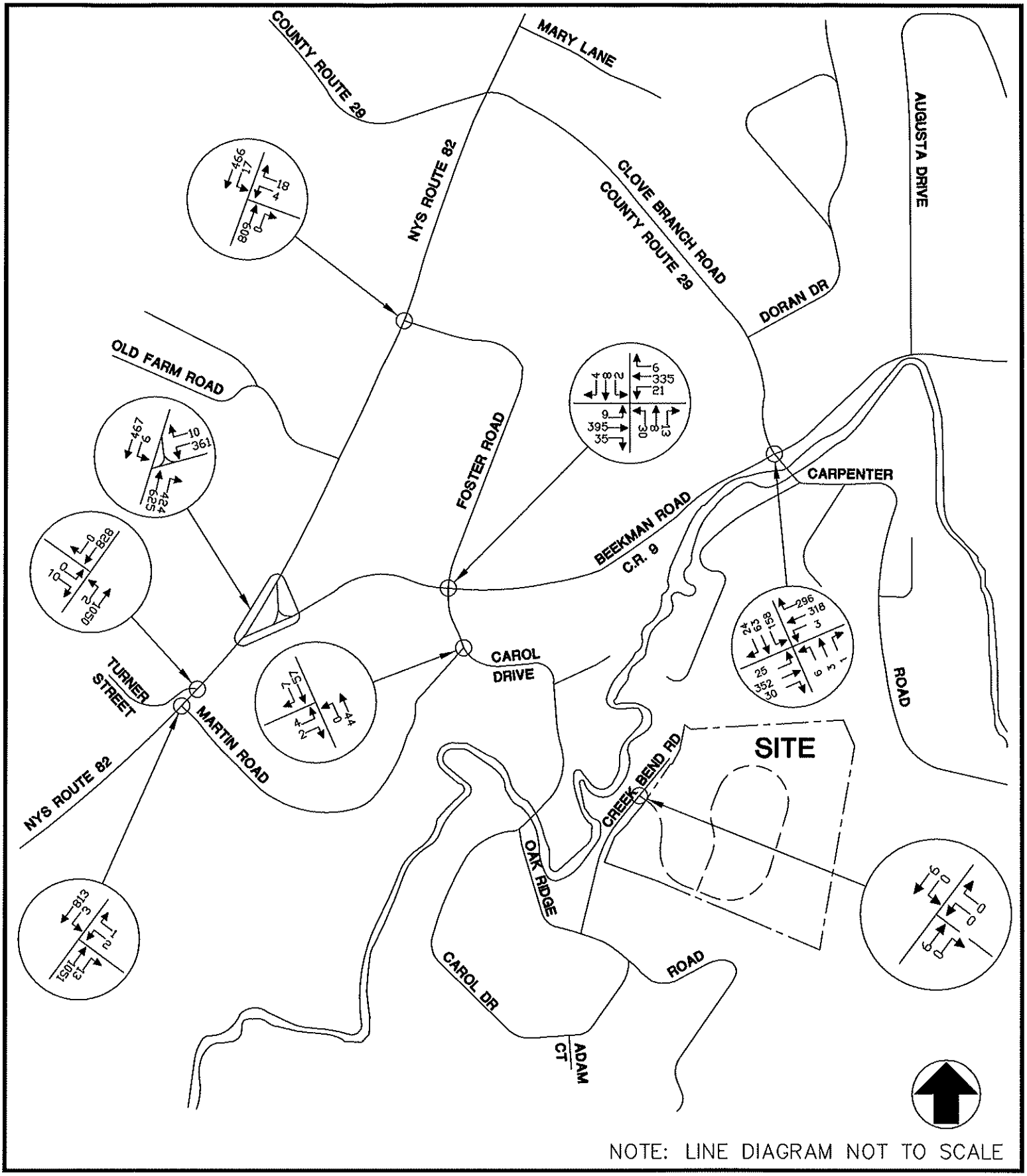
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 8

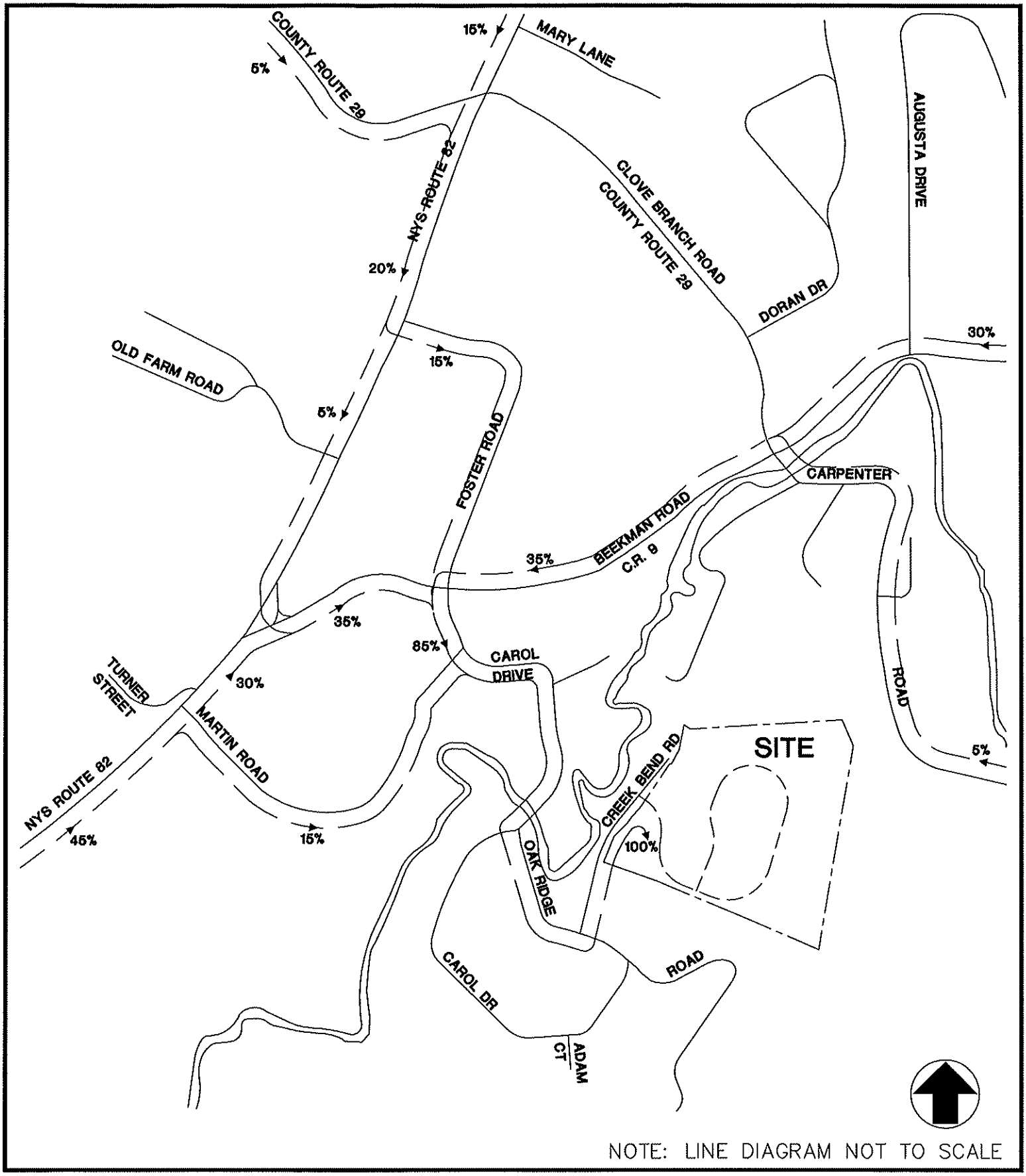


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 9

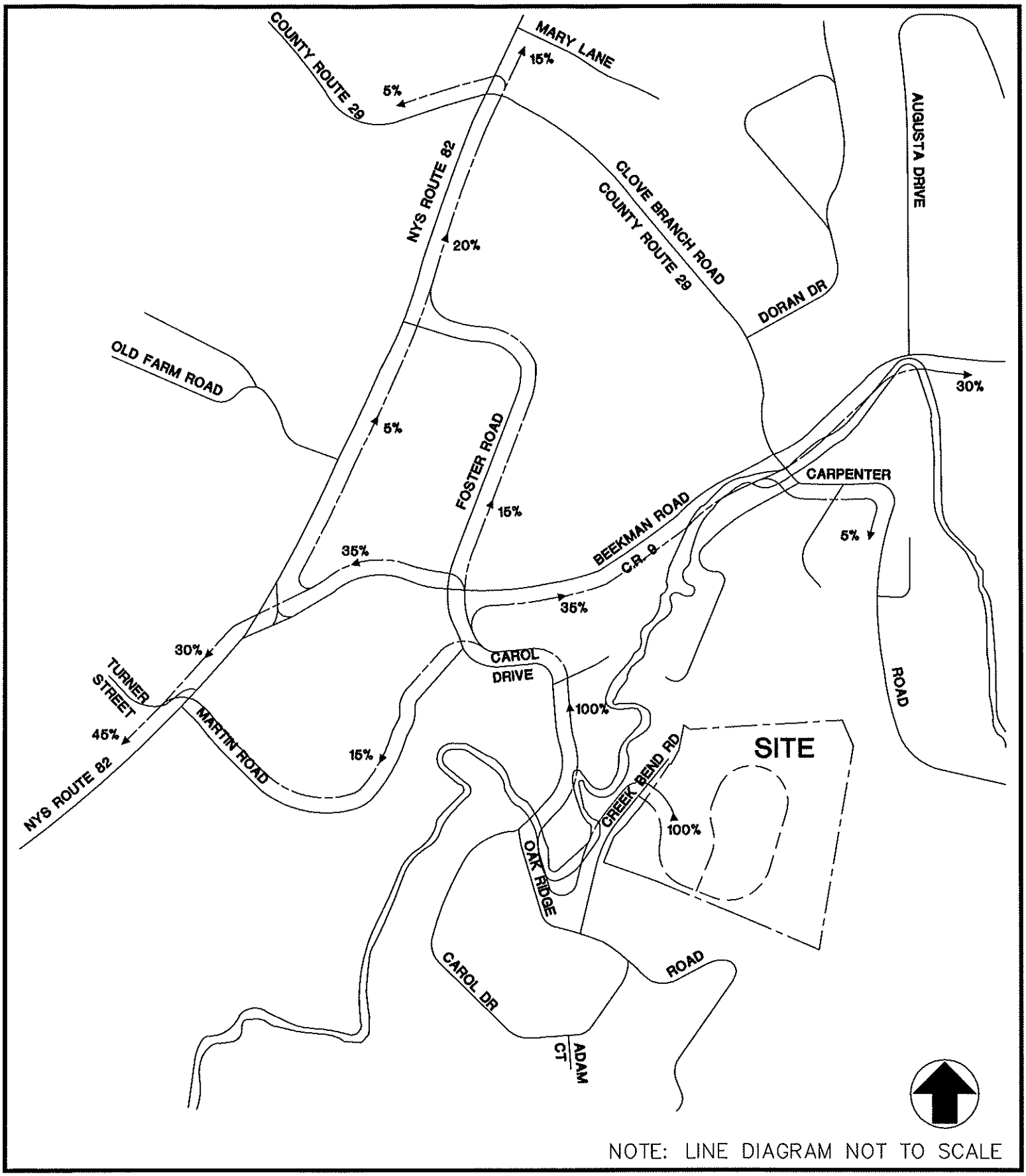


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

ARRIVAL DISTRIBUTION

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 10

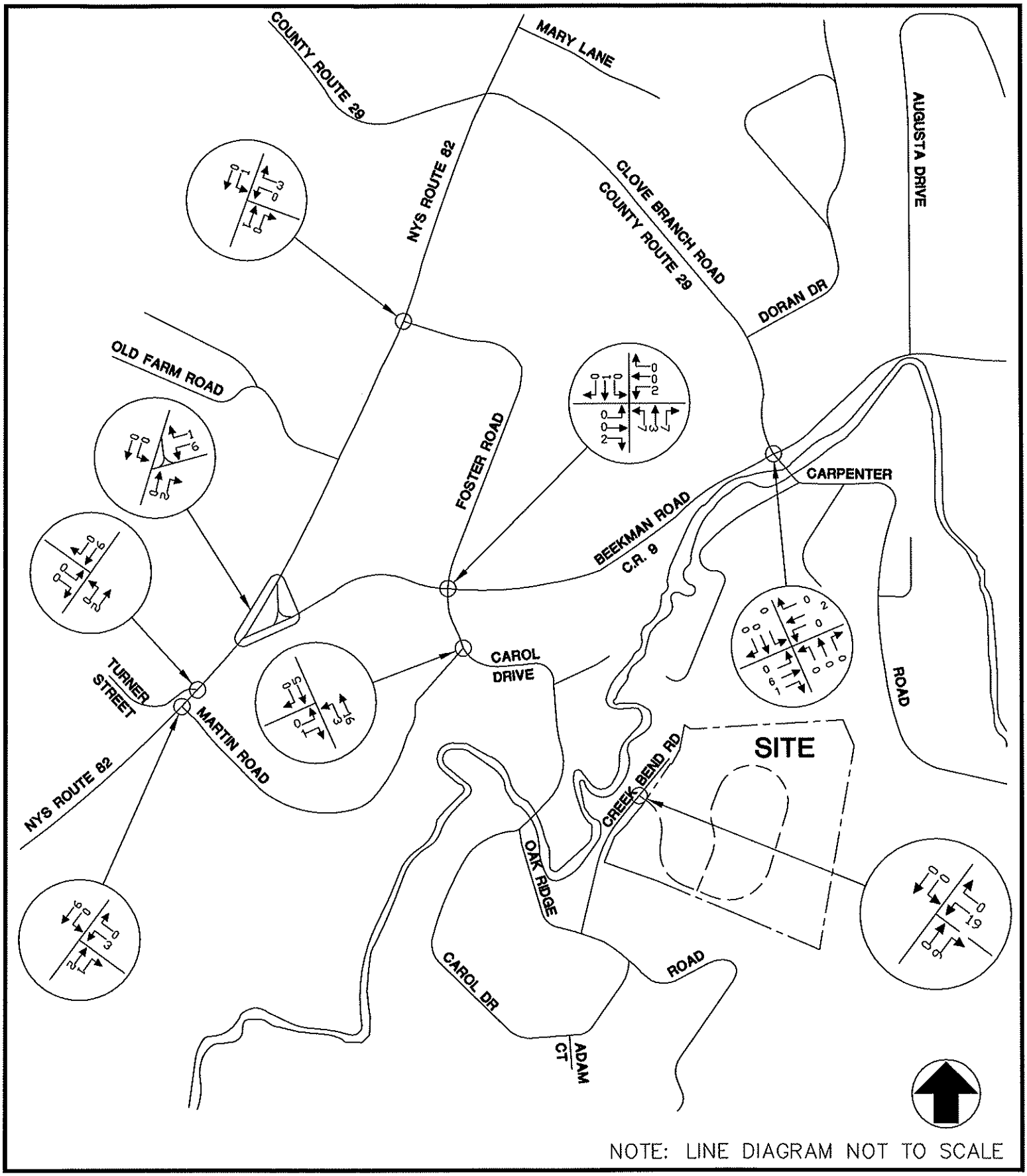


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

DEPARTURE DISTRIBUTION

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 11

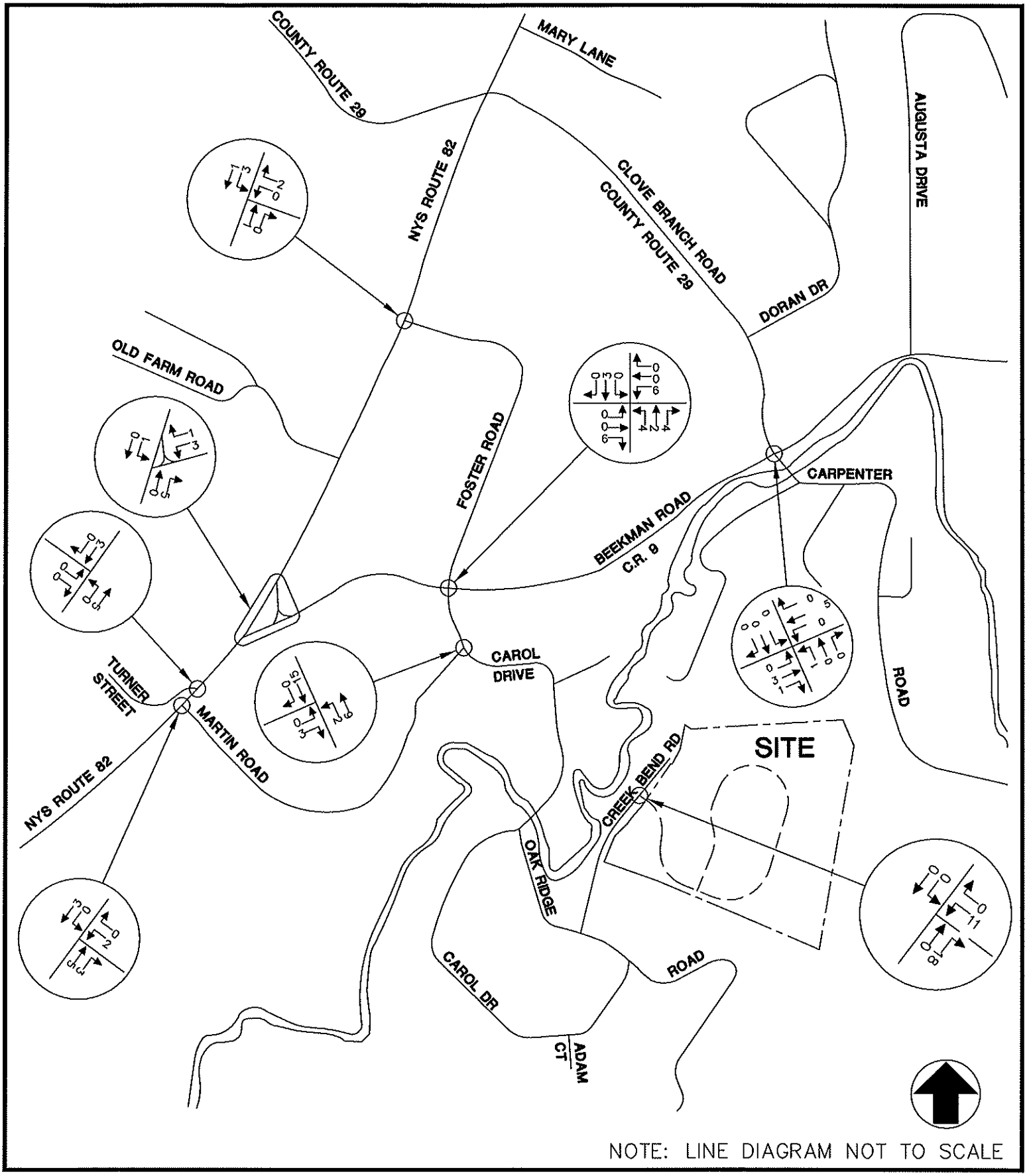


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 12

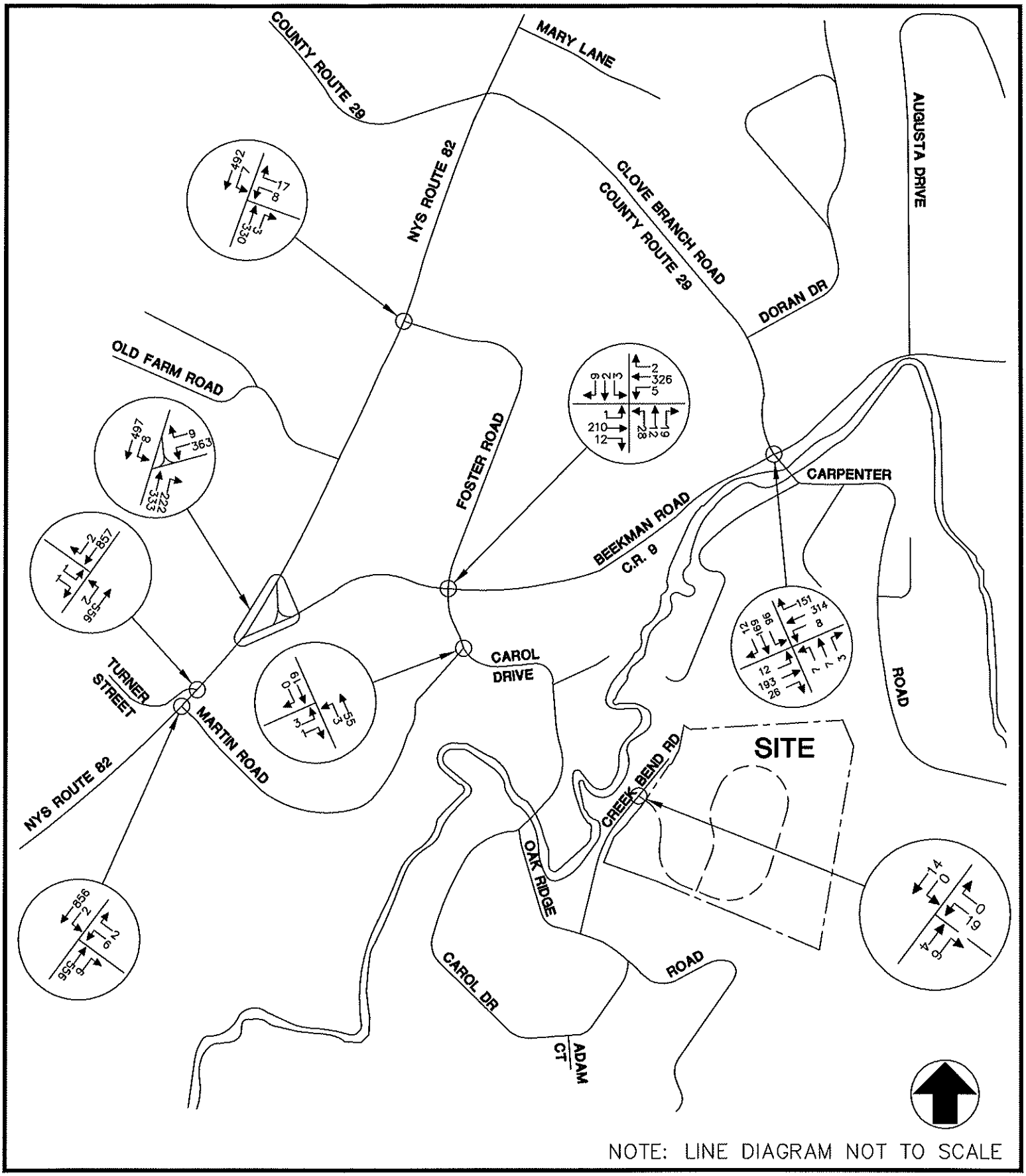


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 13

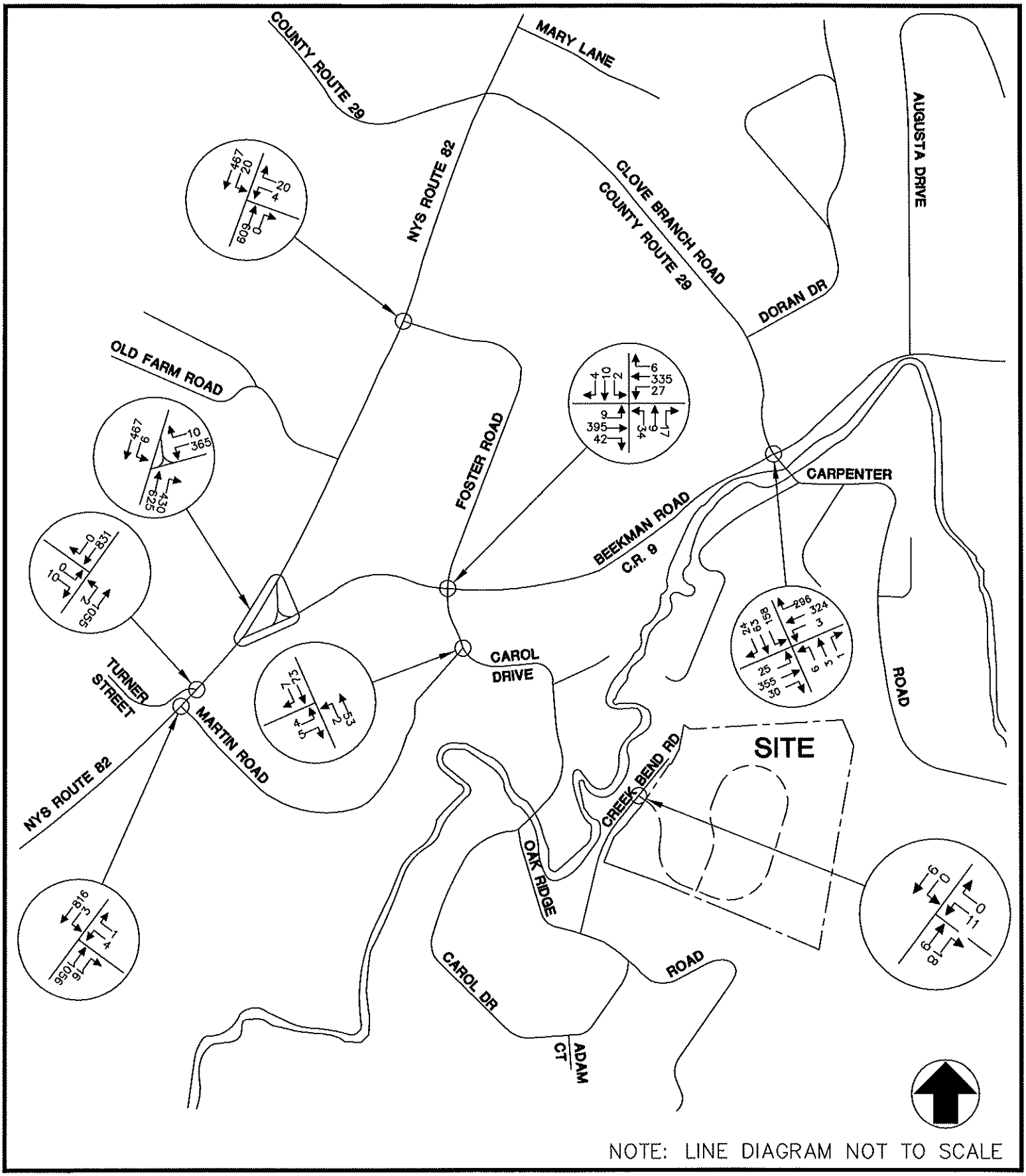


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 14



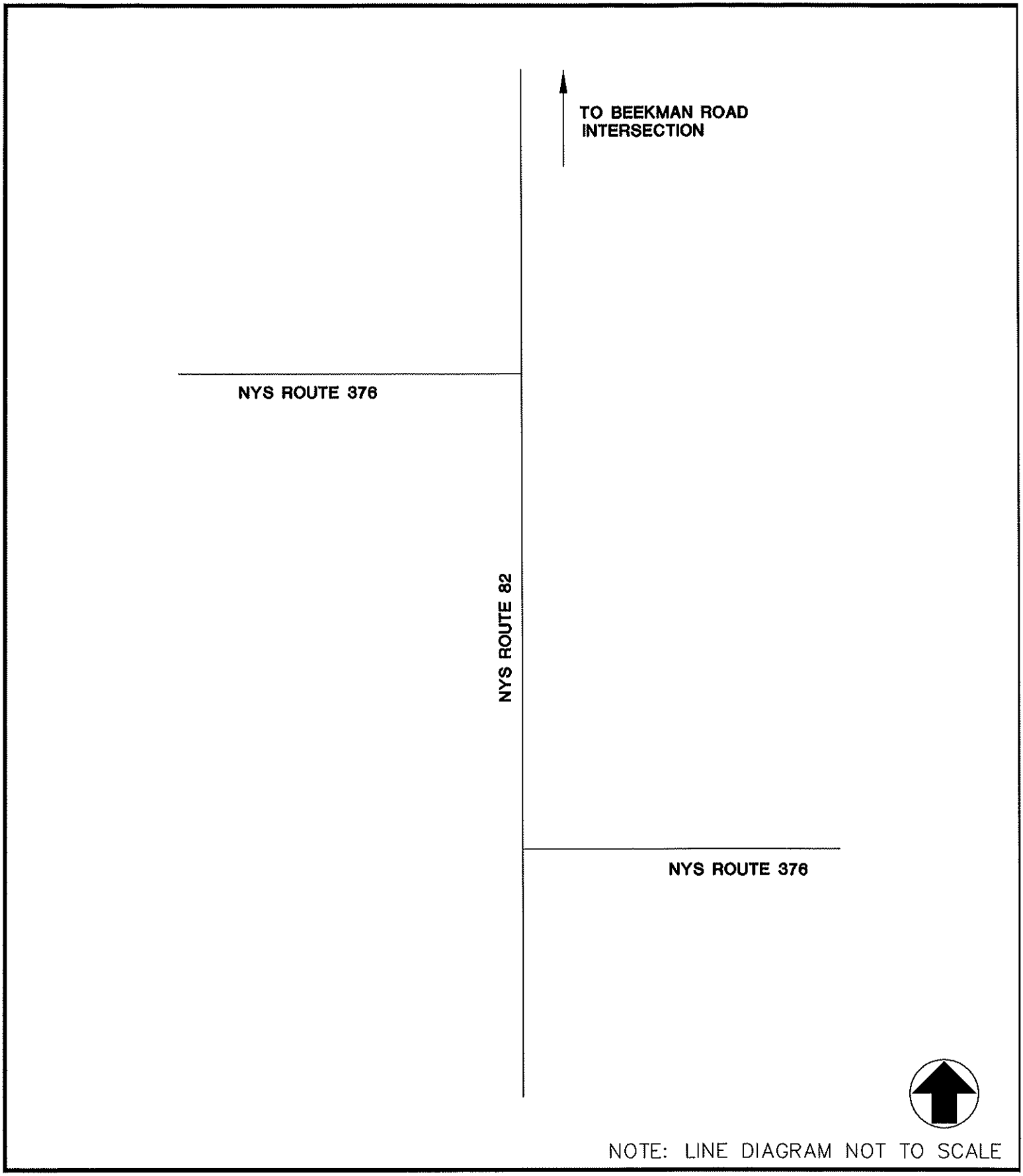
HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 15

NYS ROUTE 82 @ NYS ROUTE 376
TRAFFIC VOLUME FIGURES

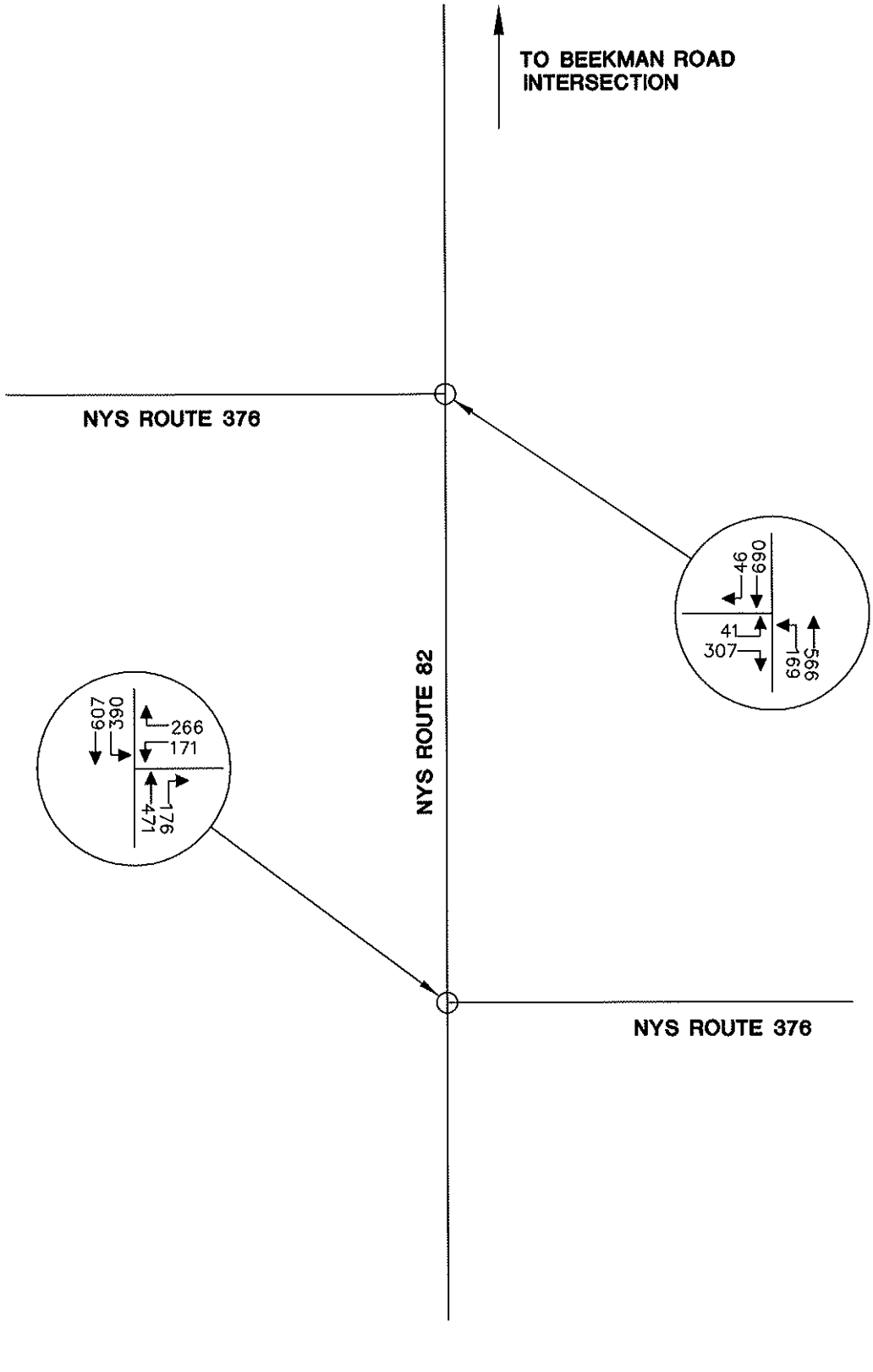


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

SITE LOCATION MAP

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 1A



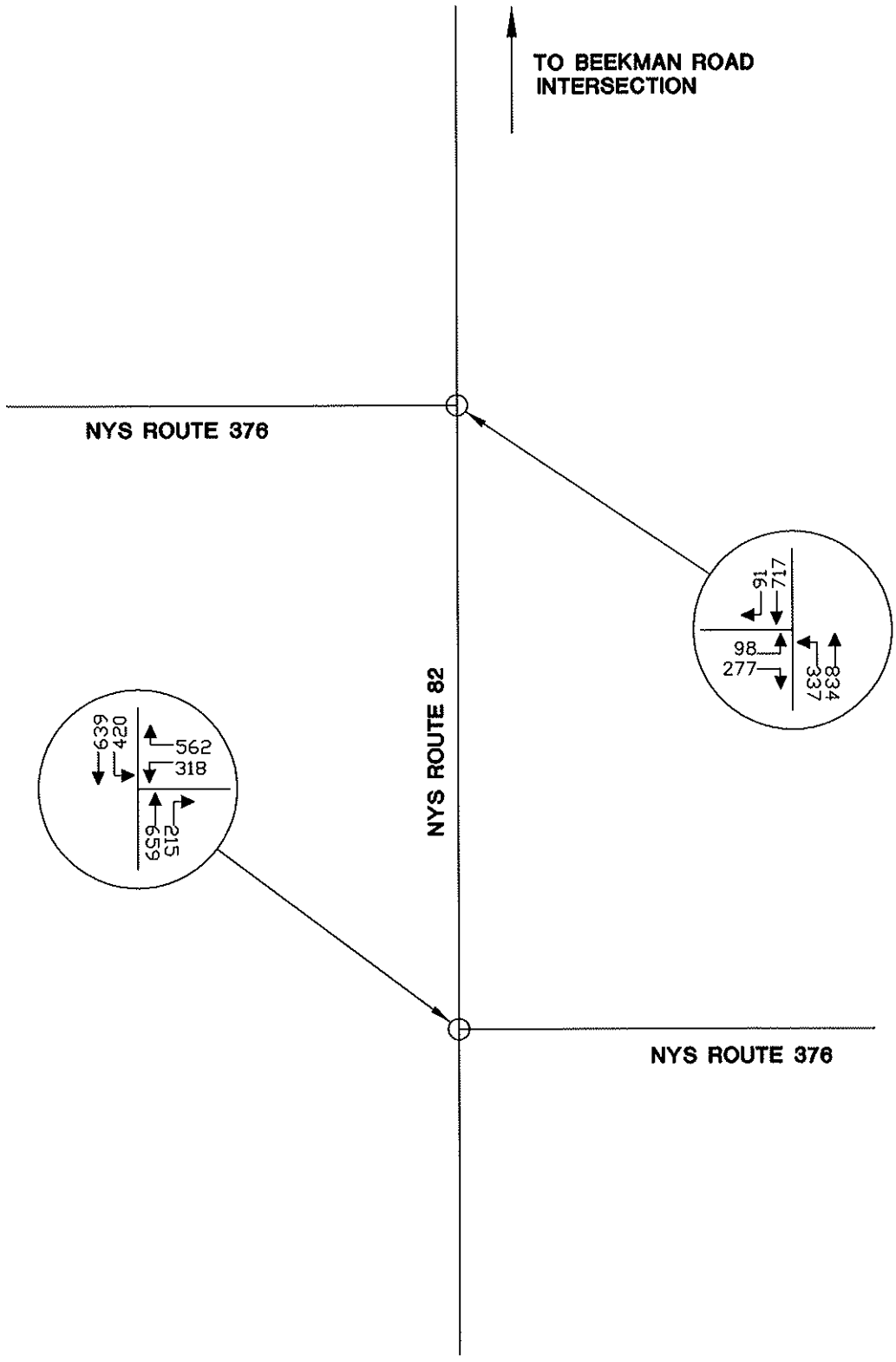
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2010 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 2A



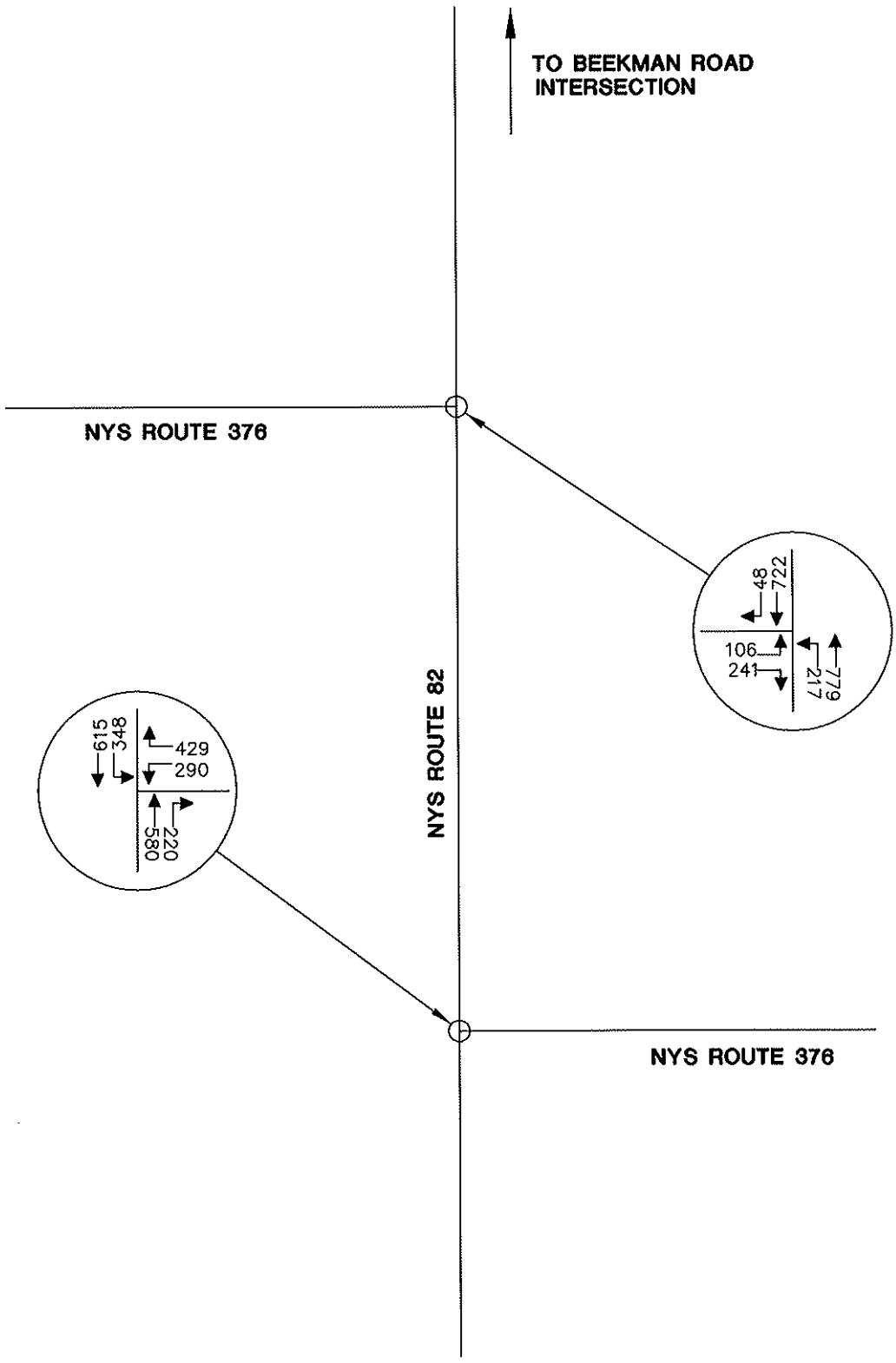
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2010 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 3A



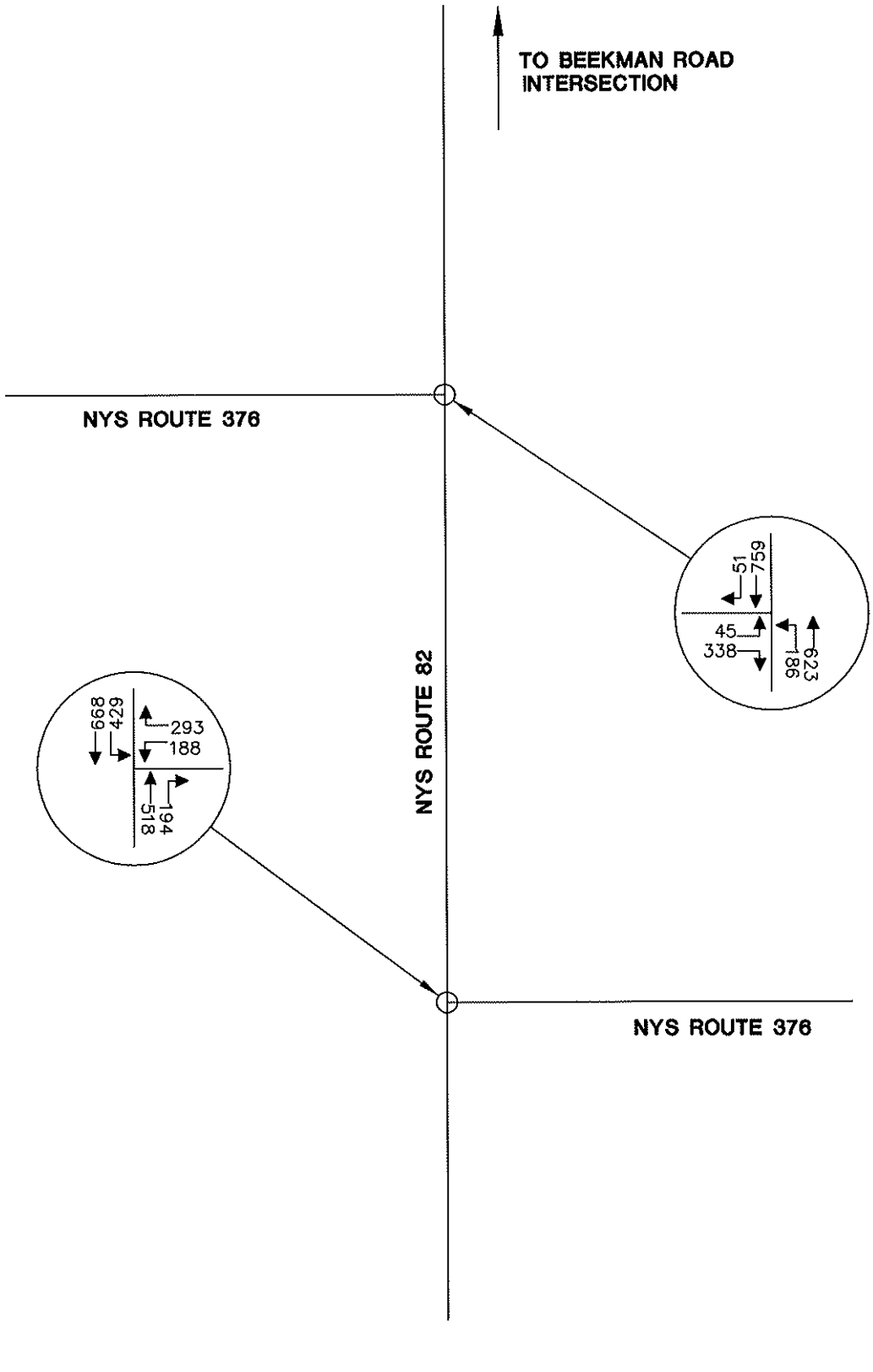
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2010 EXISTING TRAFFIC VOLUMES
SATURDAY PEAK HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 4A



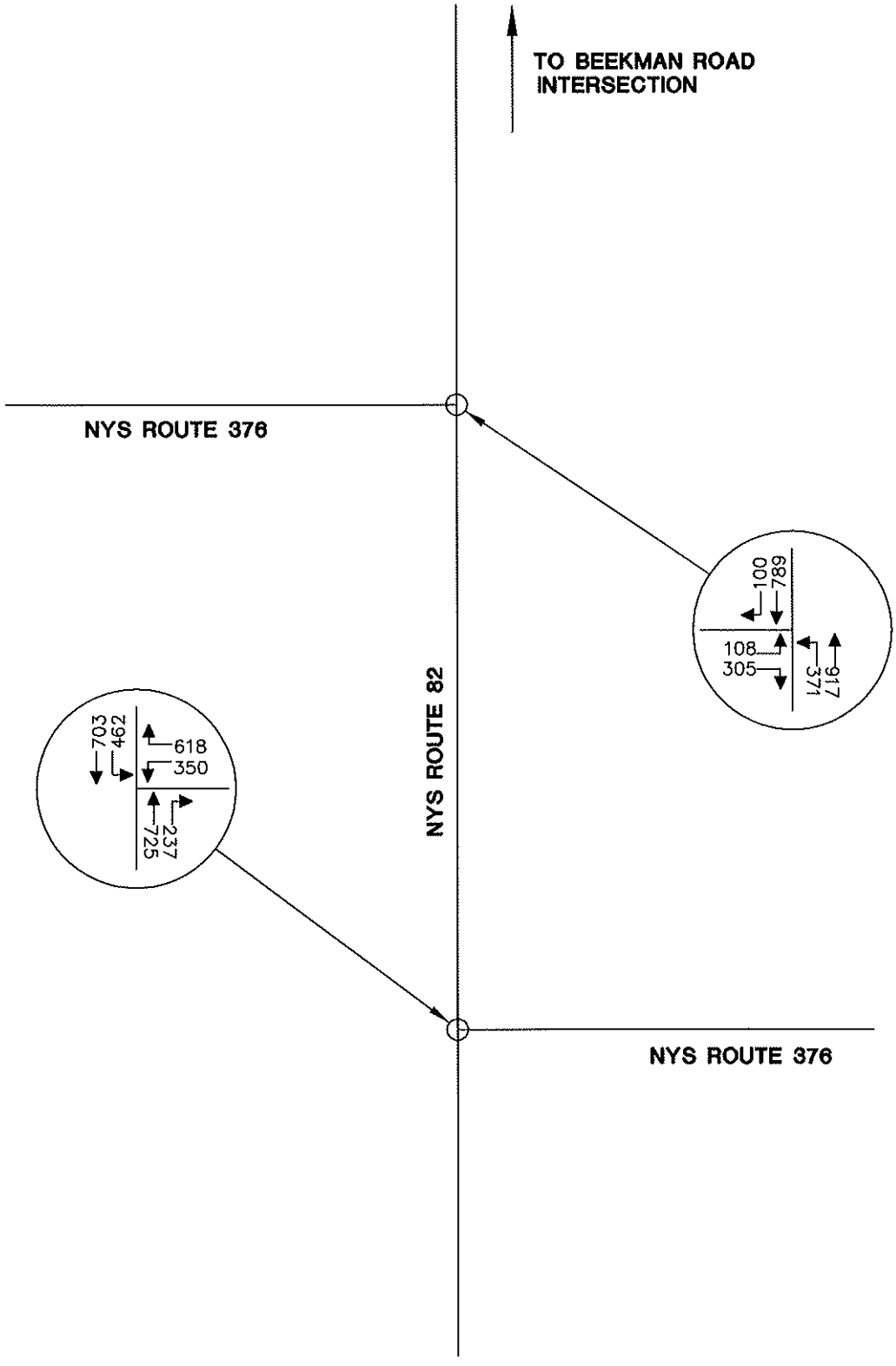
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 5A



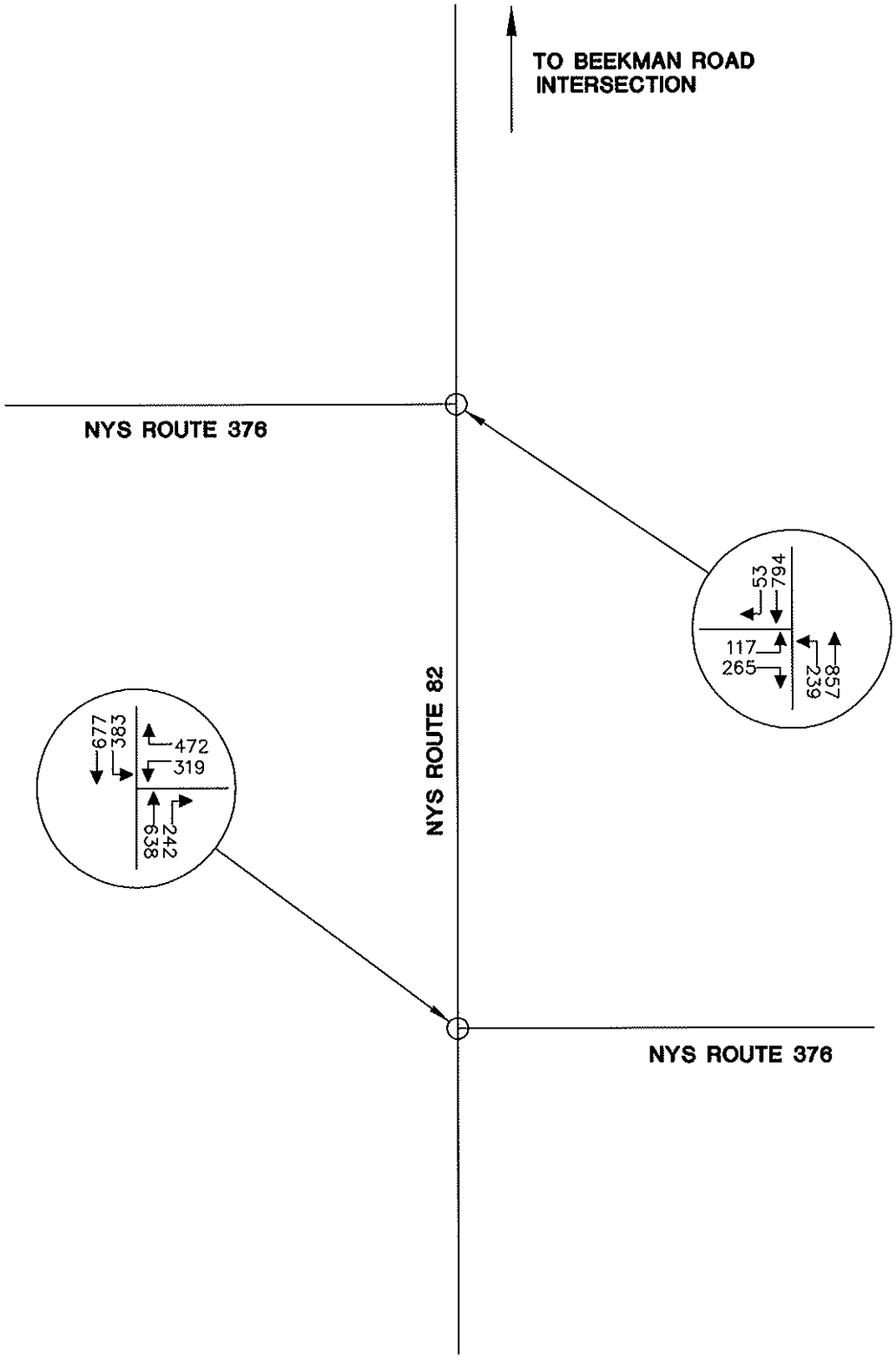
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 6A



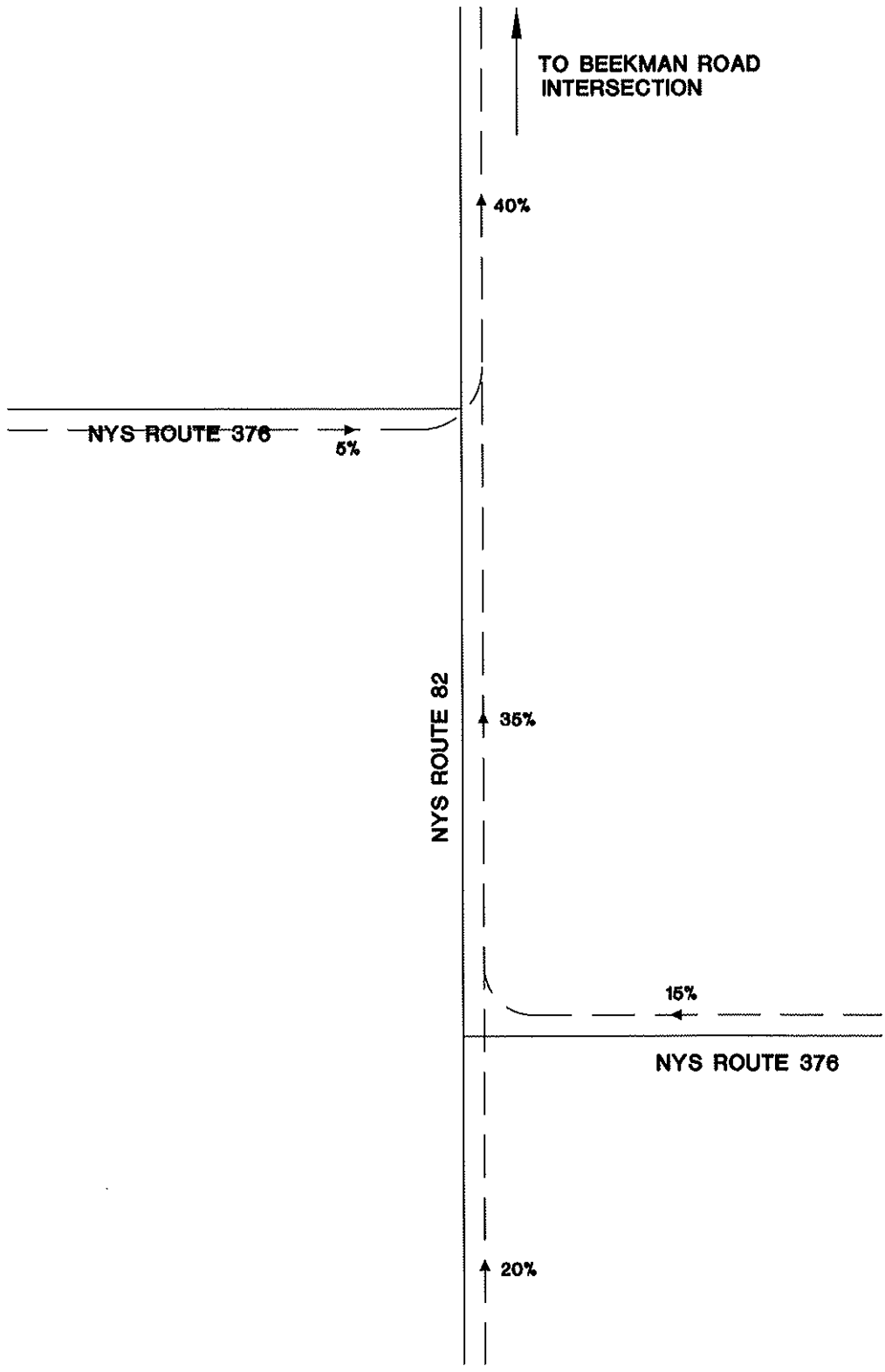
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 NO-BUILD TRAFFIC VOLUMES
SATURDAY PEAK HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 7A



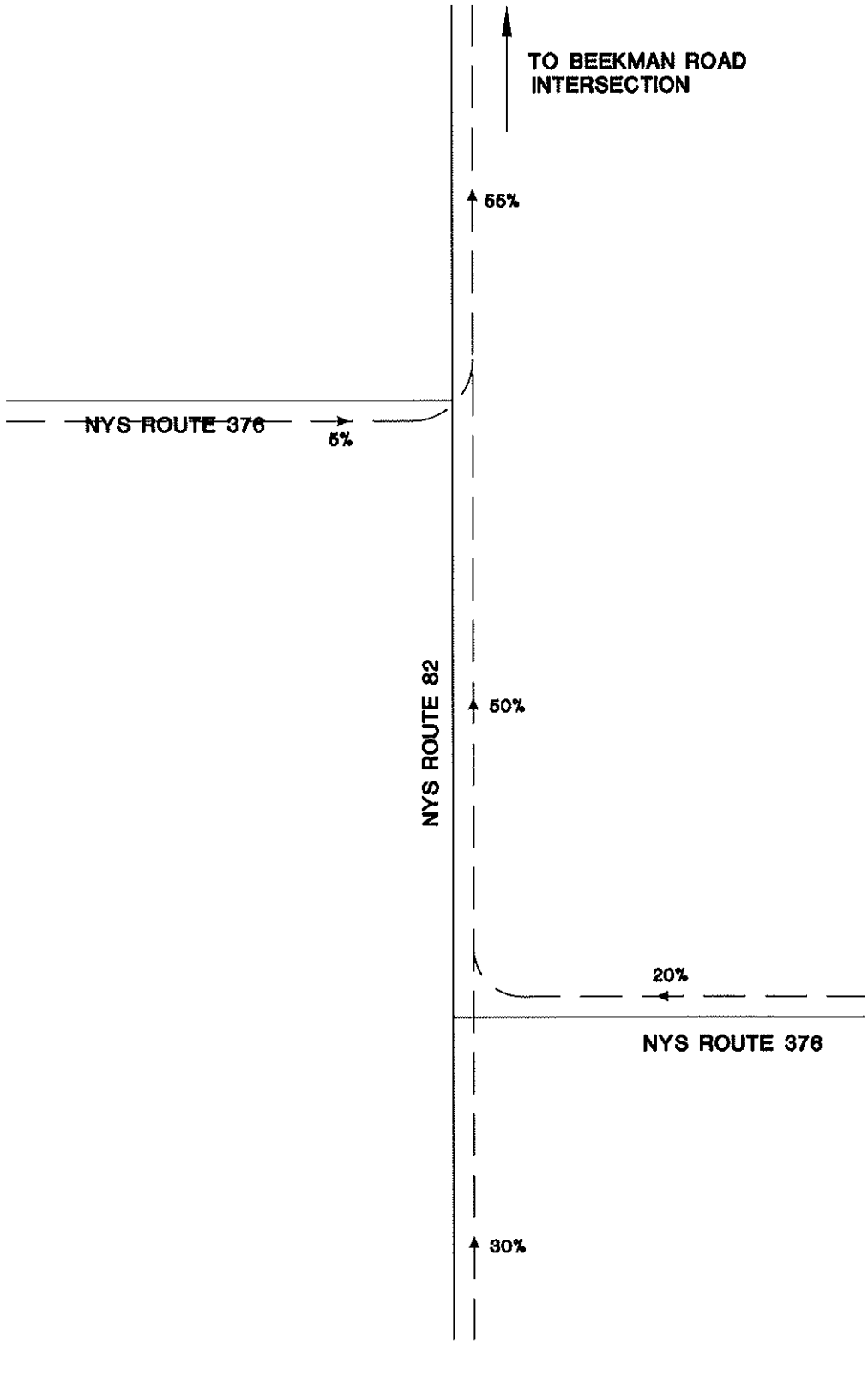
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

ARRIVAL DISTRIBUTION
WEEKDAY

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 8A



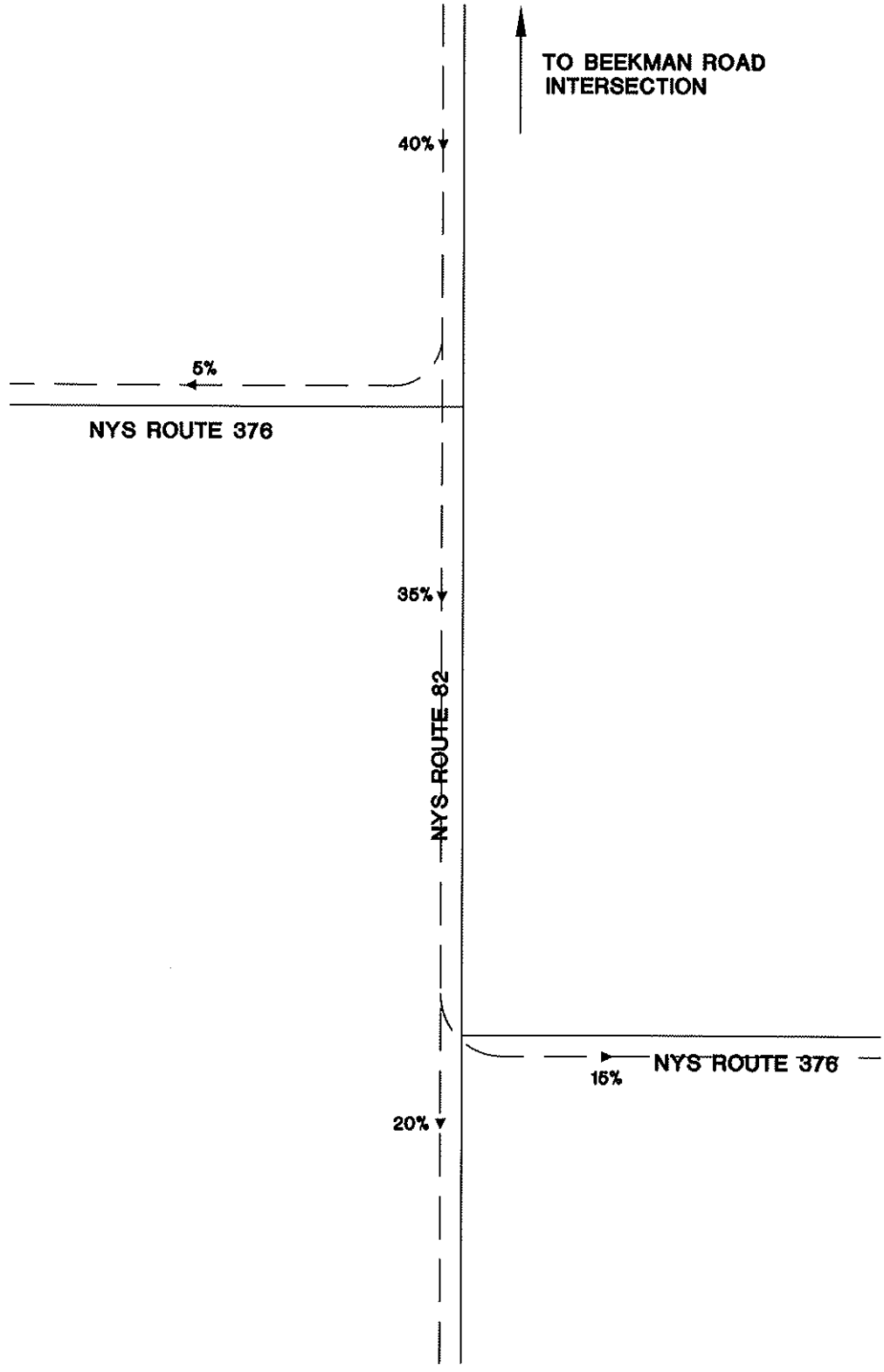
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

ARRIVAL DISTRIBUTION
SATURDAY

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 8B



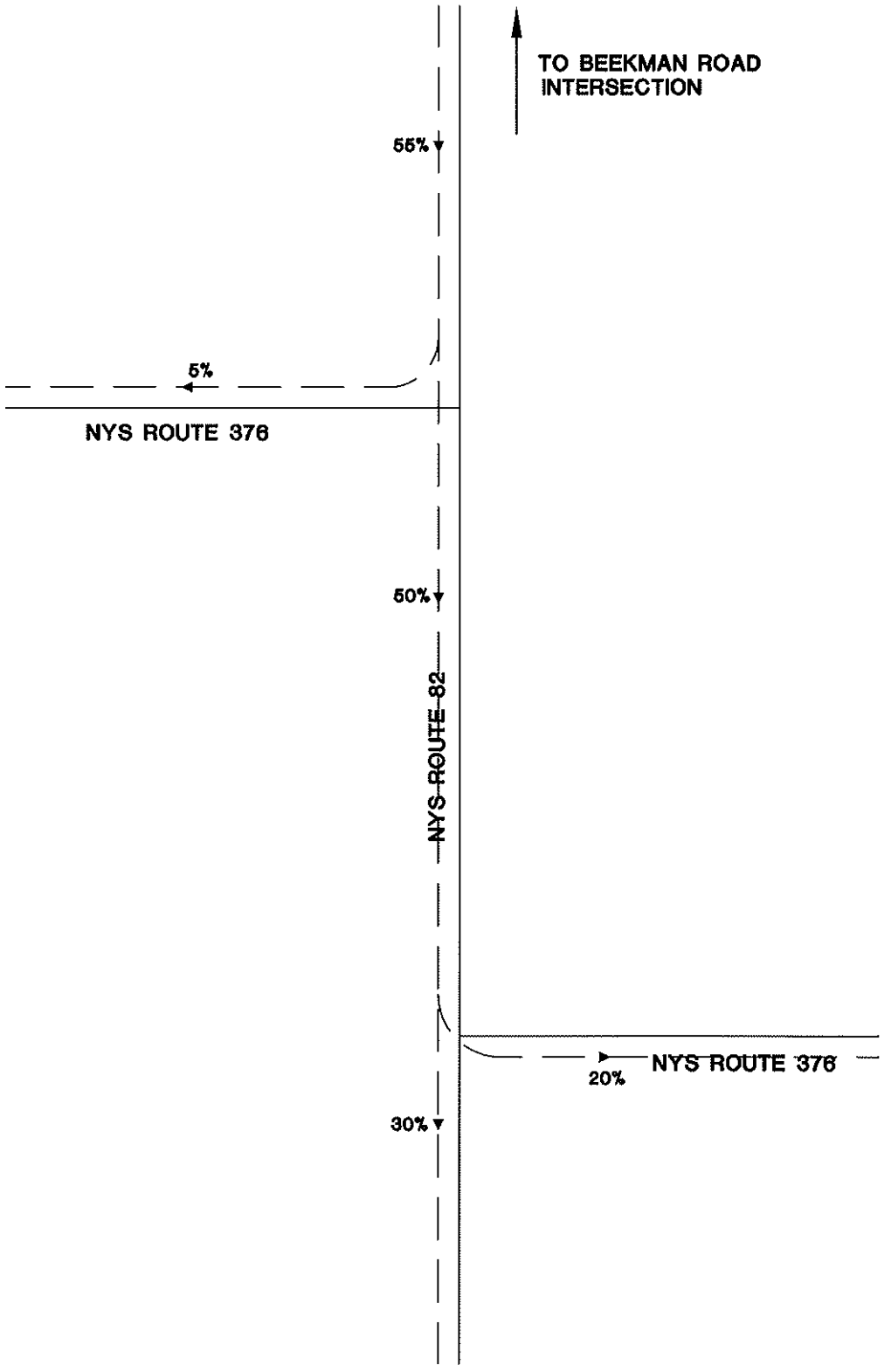
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

DEPARTURE DISTRIBUTION
WEEKDAY

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 9A



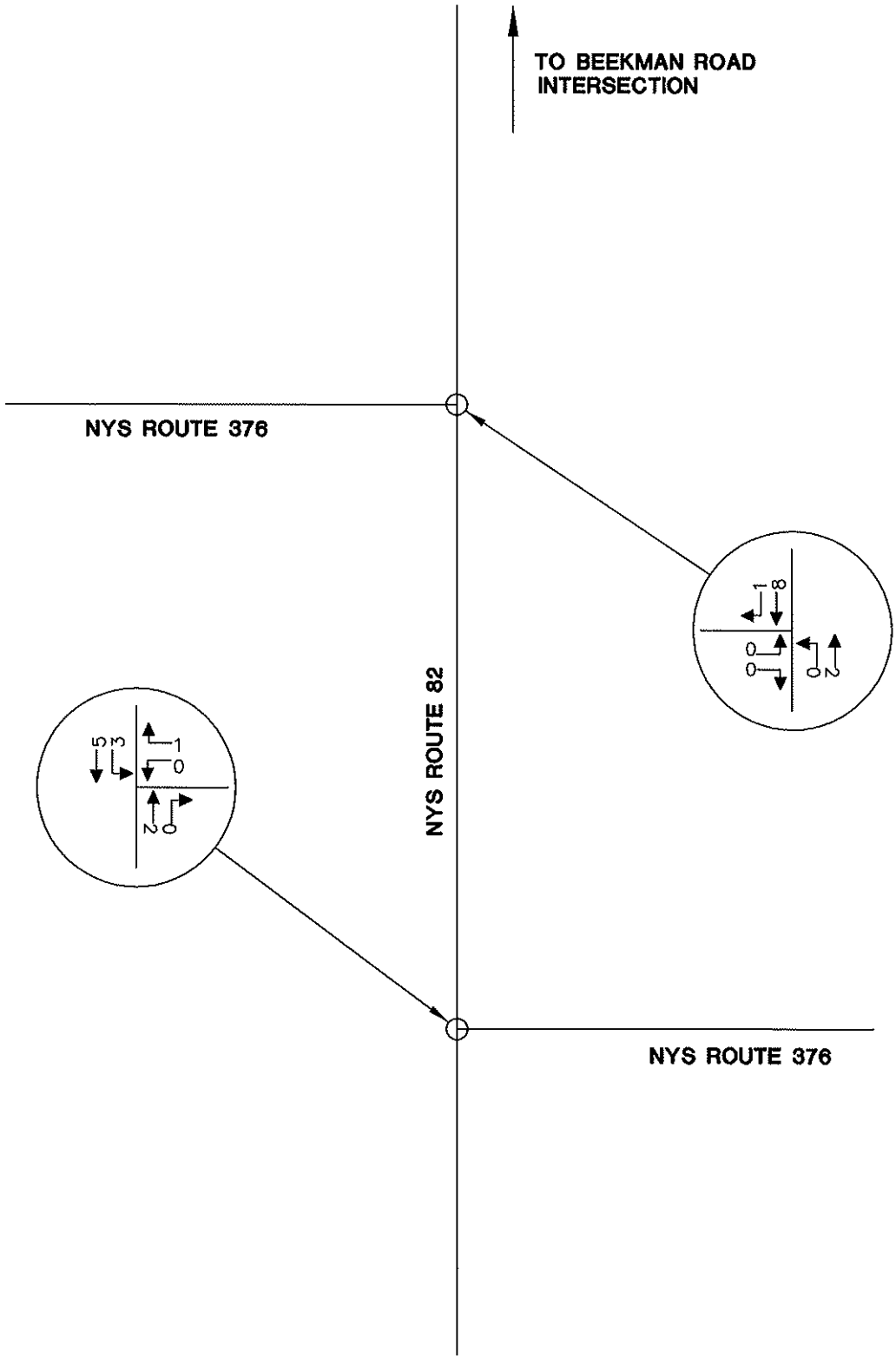
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

DEPARTURE DISTRIBUTION
SATURDAY

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 9B



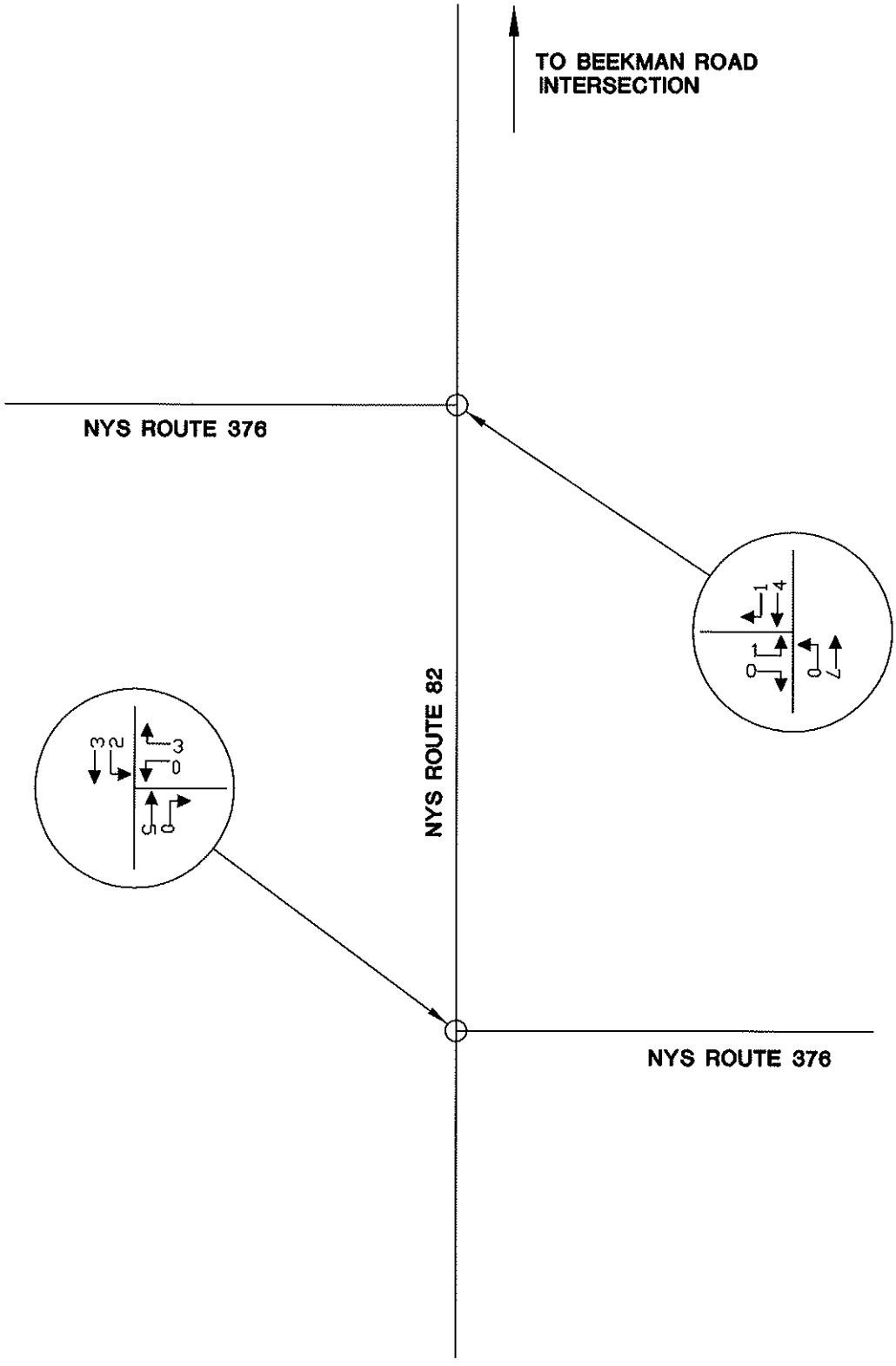
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 10A



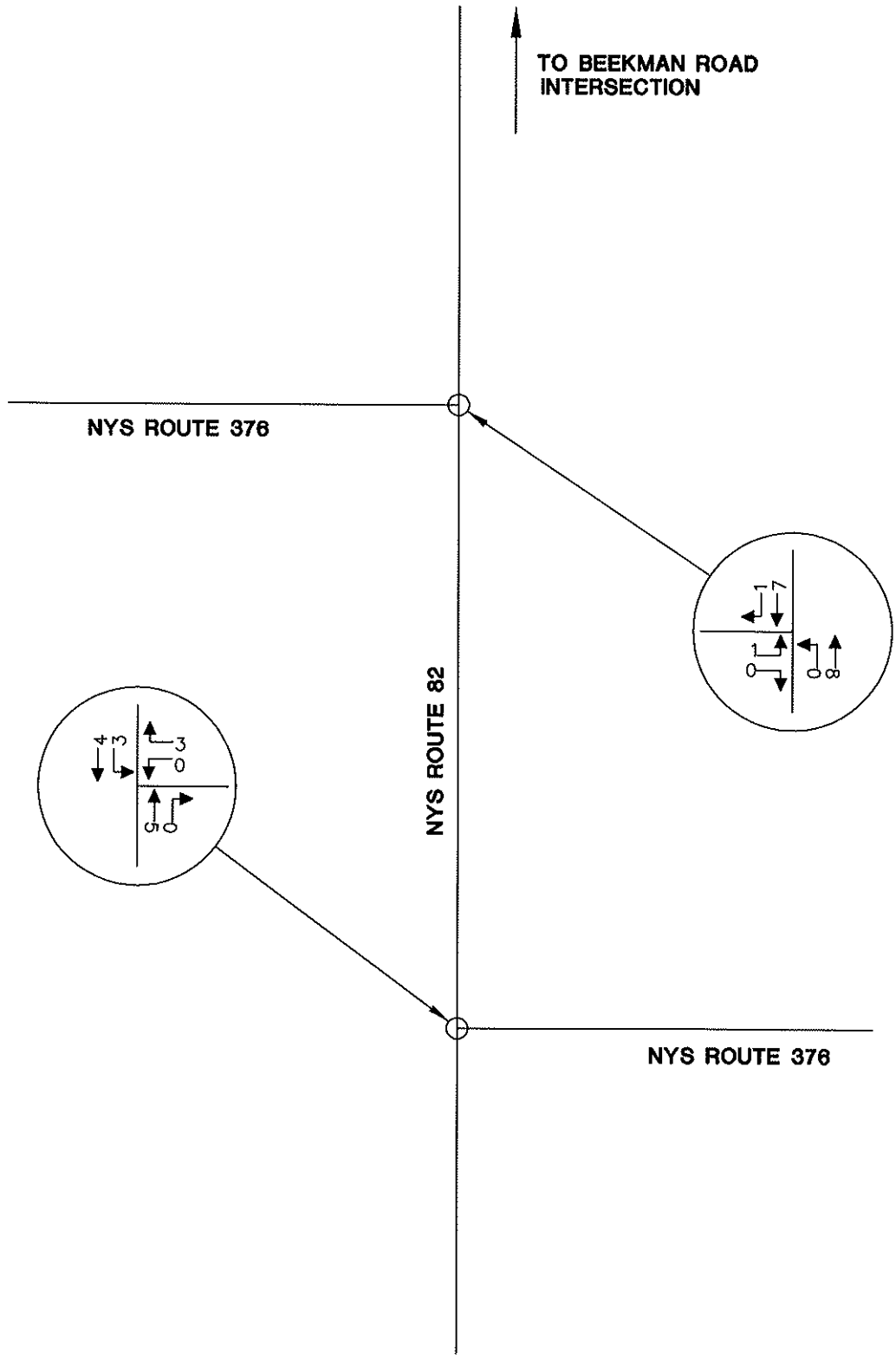
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 11A



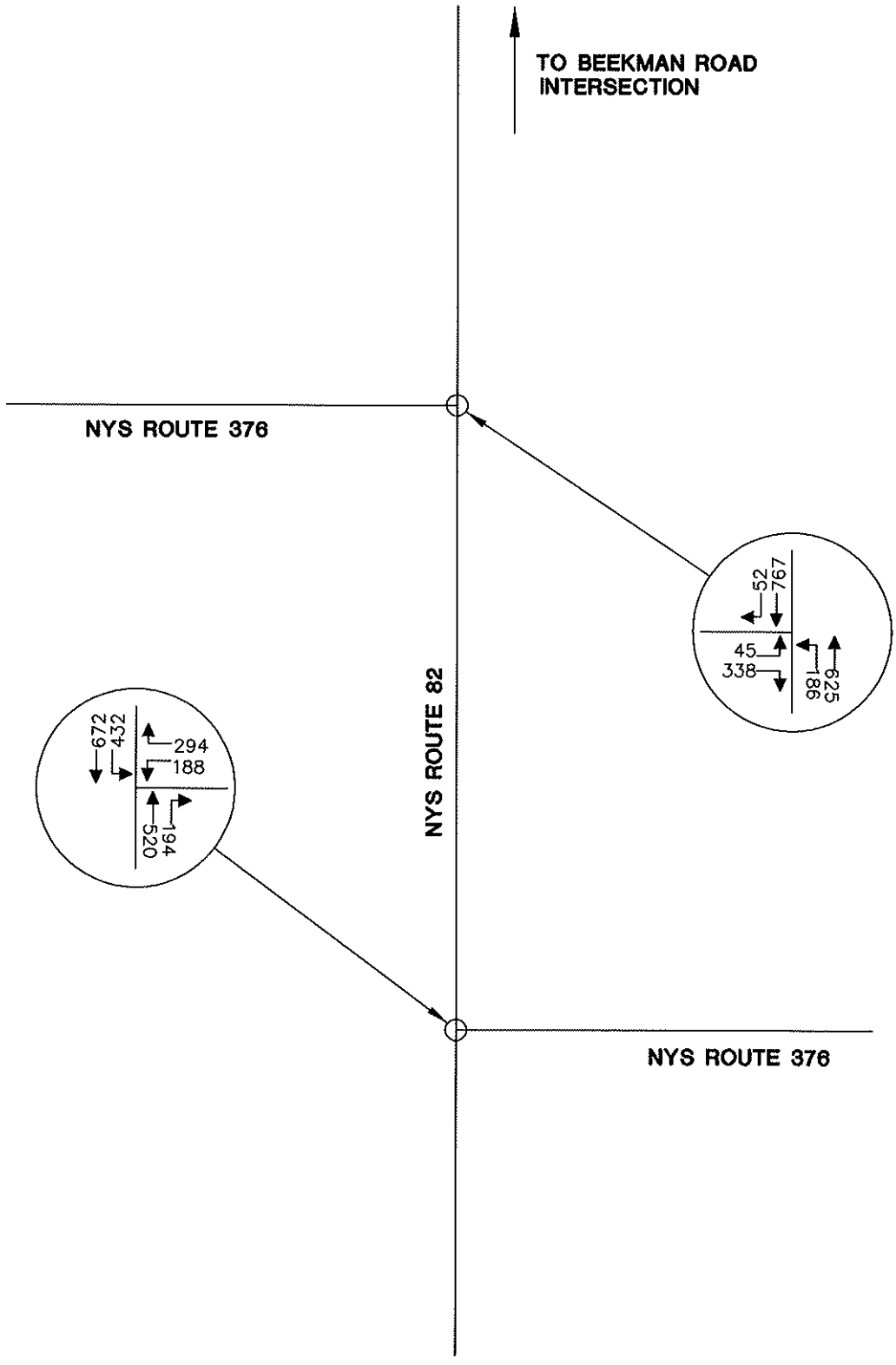
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

SITE GENERATED TRAFFIC VOLUMES
SATURDAY PEAK HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 12A



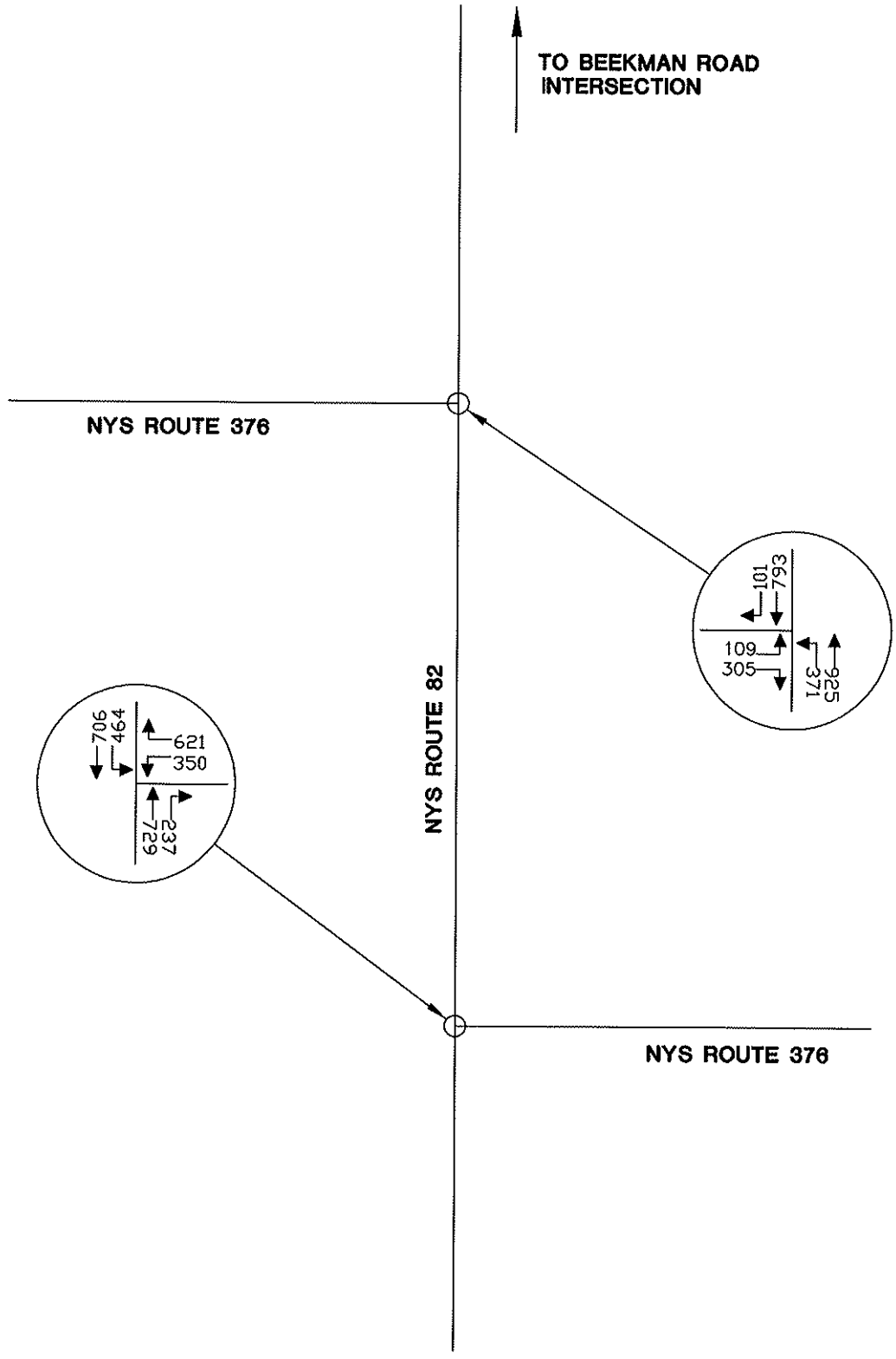
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 13A



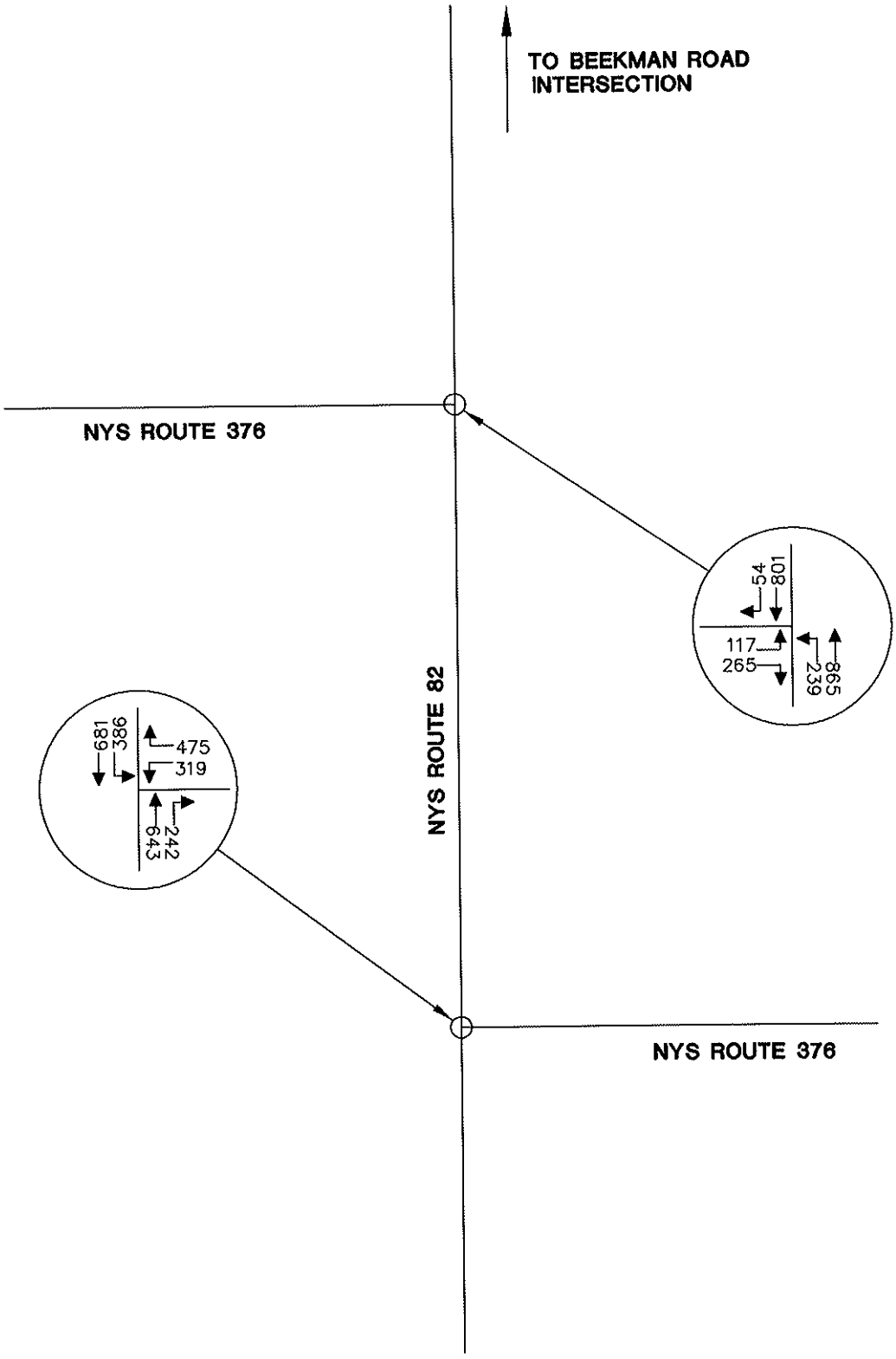
NOTE: LINE DIAGRAM NOT TO SCALE

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HIGHWAY HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 14A



NOTE: LINE DIAGRAM NOT TO SCALE

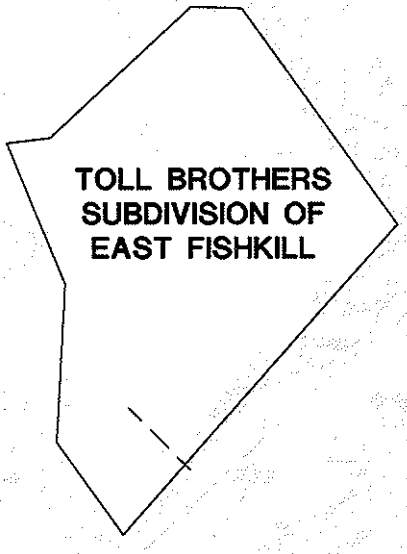
HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

2015 BUILD TRAFFIC VOLUMES
SATURDAY PEAK HOUR

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. 15A

OTHER DEVELOPMENT LOCATIONS AND VOLUME BREAKDOWN



LEGEND

_ _ _ **INDICATES APPROXIMATE SITE ACCESS LOCATION**

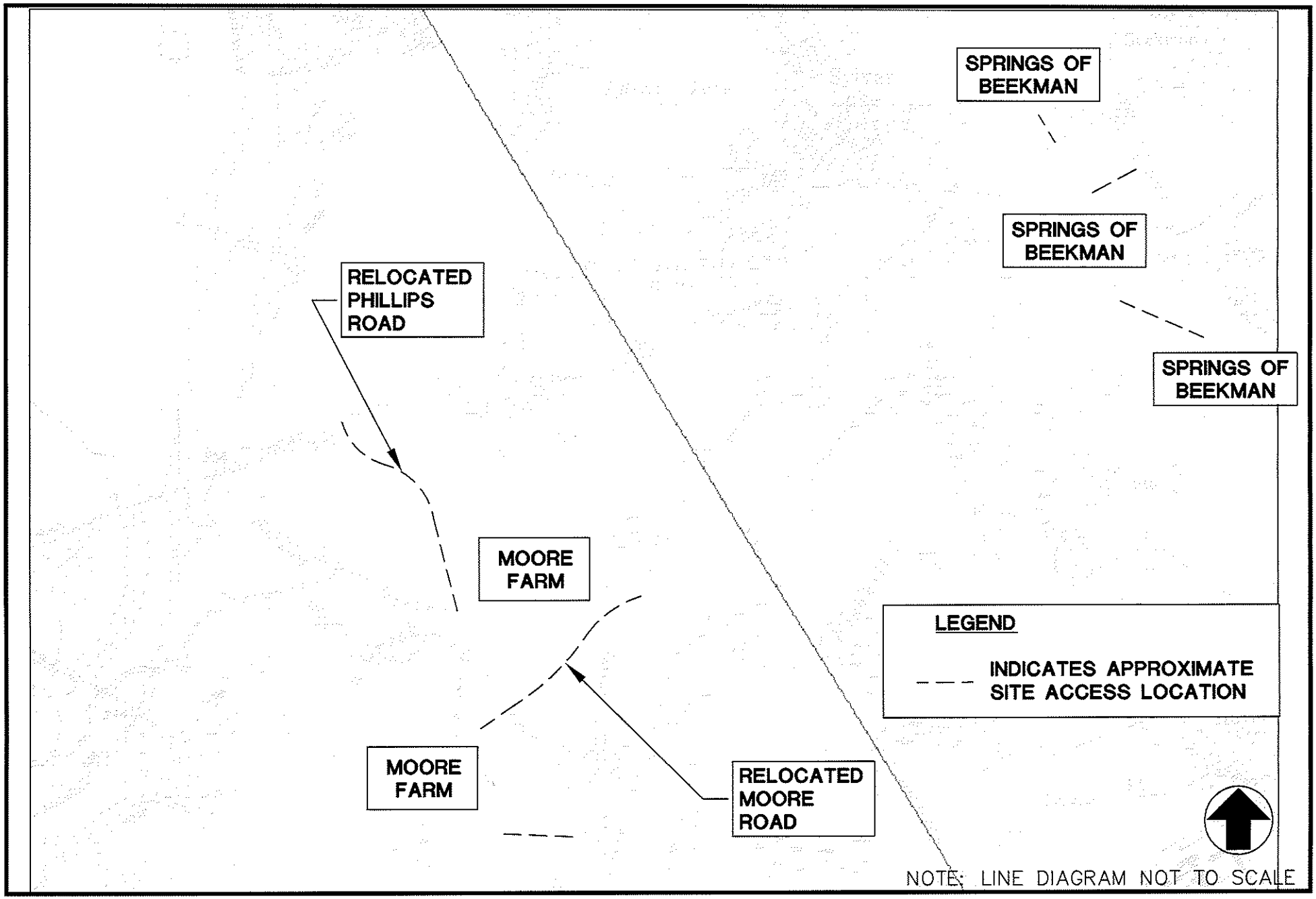
NOTE: LINE DIAGRAM NOT TO SCALE

DUNKIN DONUTS
TOWN OF NEWBURGH, NEW YORK

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

OTHER DEVELOPMENT SITE LOCATION
TOLL BROTHERS SUBDIVISION OF EAST FISHKILL

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. OD-1

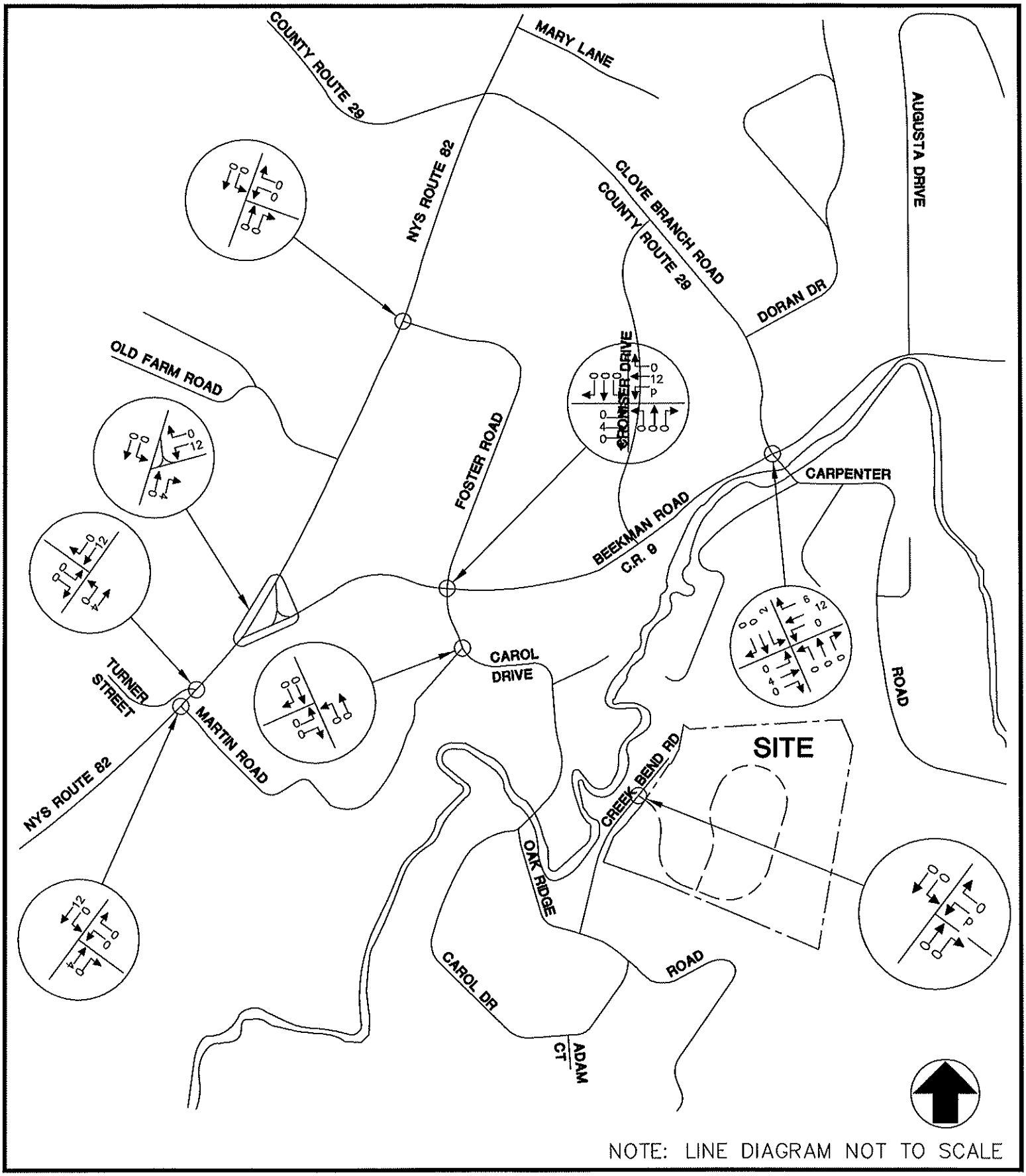


DUNKIN DONUTS
TOWN OF NEWBURGH, NEW YORK

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

OTHER DEVELOPMENT SITE LOCATION
MOORE FARM & SPRINGS AT BEEKMAN

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. OD-2

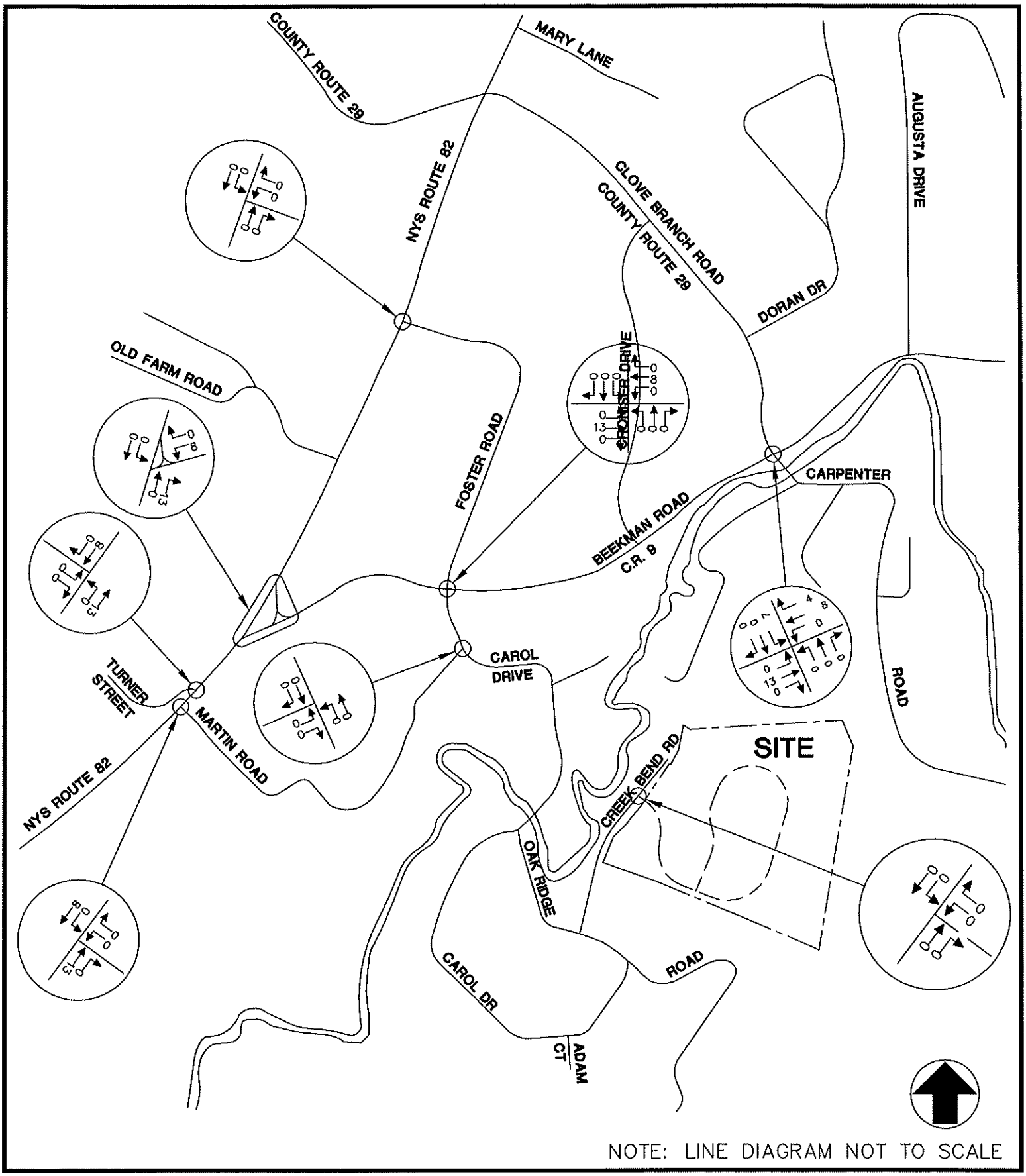


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

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

OTHER DEVELOPMENT TRAFFIC VOLUMES
THE SPRINGS AT BEEKMAN
WEEKDAY PEAK AM HIGHWAY HOUR

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. A

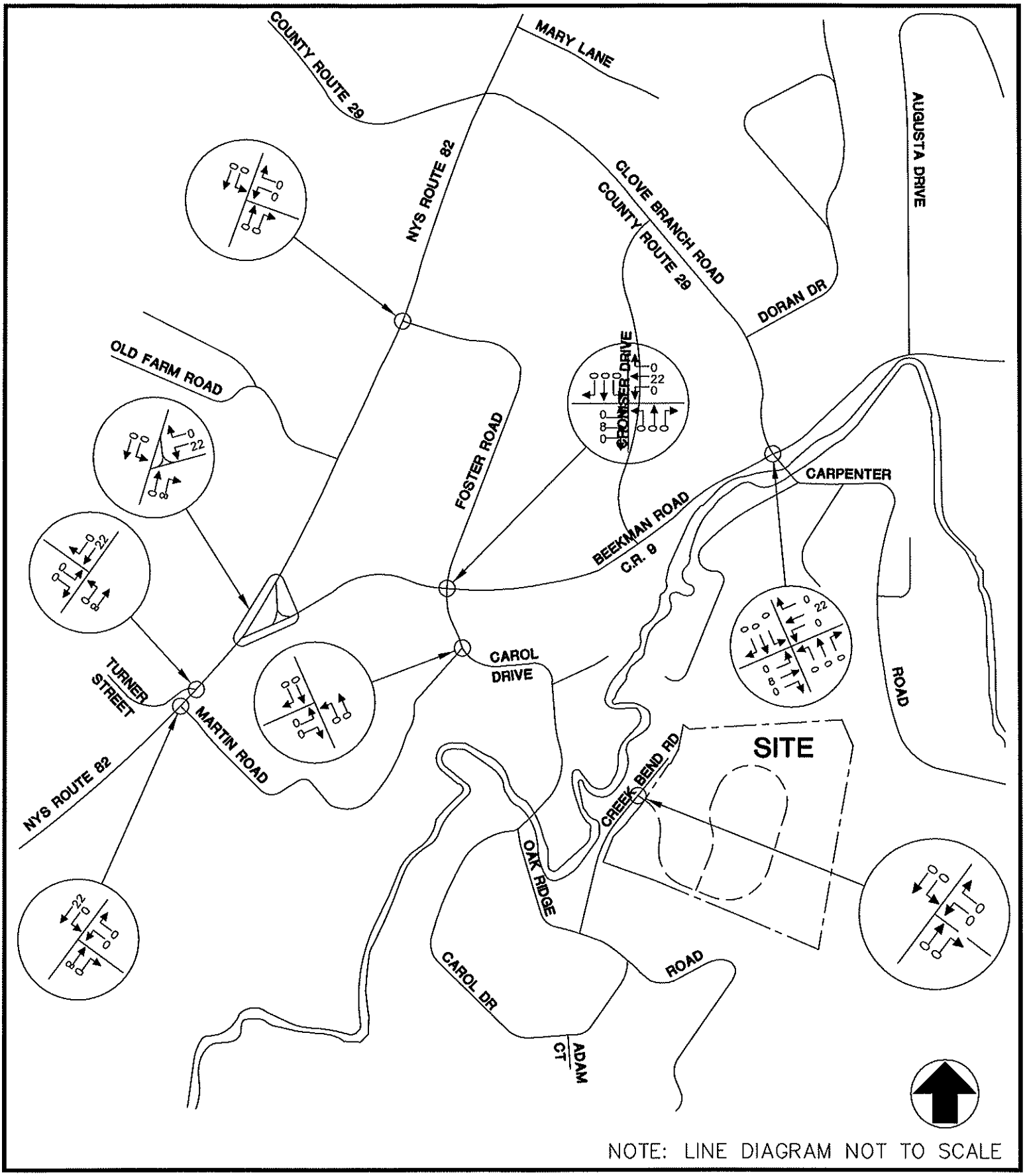


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

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

OTHER DEVELOPMENT TRAFFIC VOLUMES
THE SPRINGS AT BEEKMAN
WEEKDAY PEAK PM PEAK HOUR

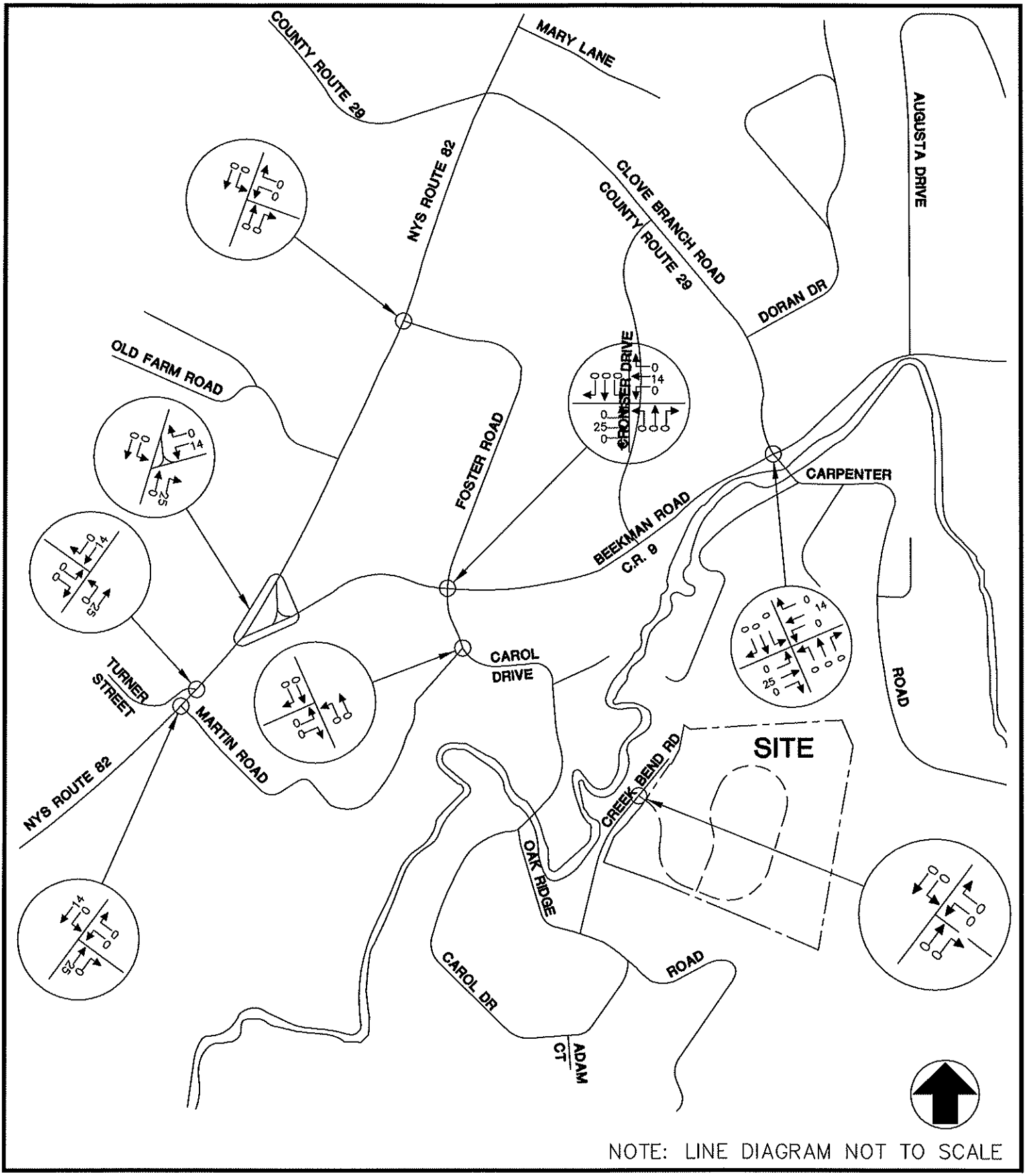
PROJECT NO. 190 DATE: MAY 2010 FIG. NO. B



HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

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

OTHER DEVELOPMENT TRAFFIC VOLUMES
MOORE FARM
WEEKDAY PEAK AM PEAK HOUR
PROJECT NO. 190 DATE: MAY 2010 FIG. NO. C

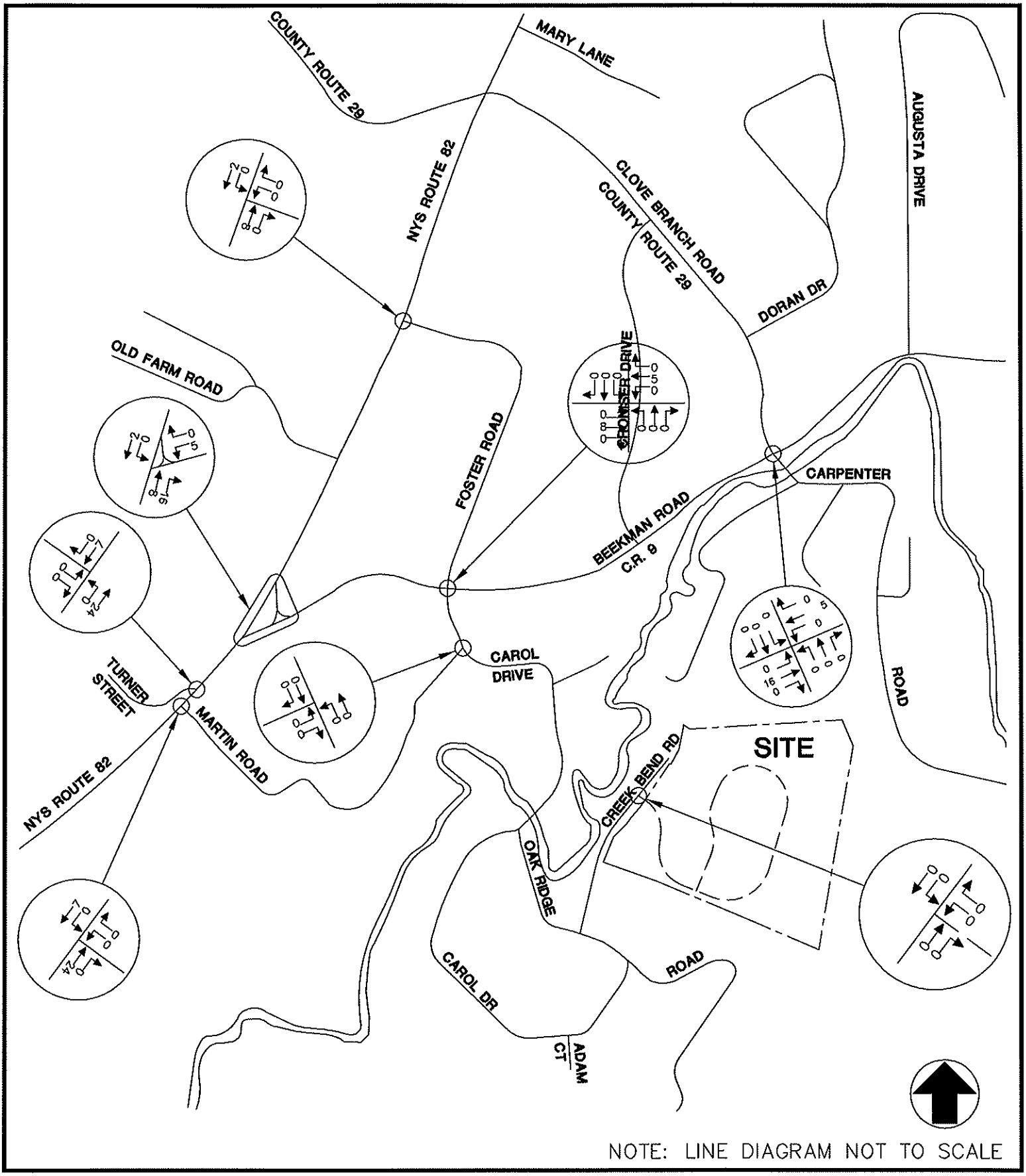


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

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

OTHER DEVELOPMENT TRAFFIC VOLUMES
MOORE FARM
WEEKDAY PEAK PM HOUR

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. D

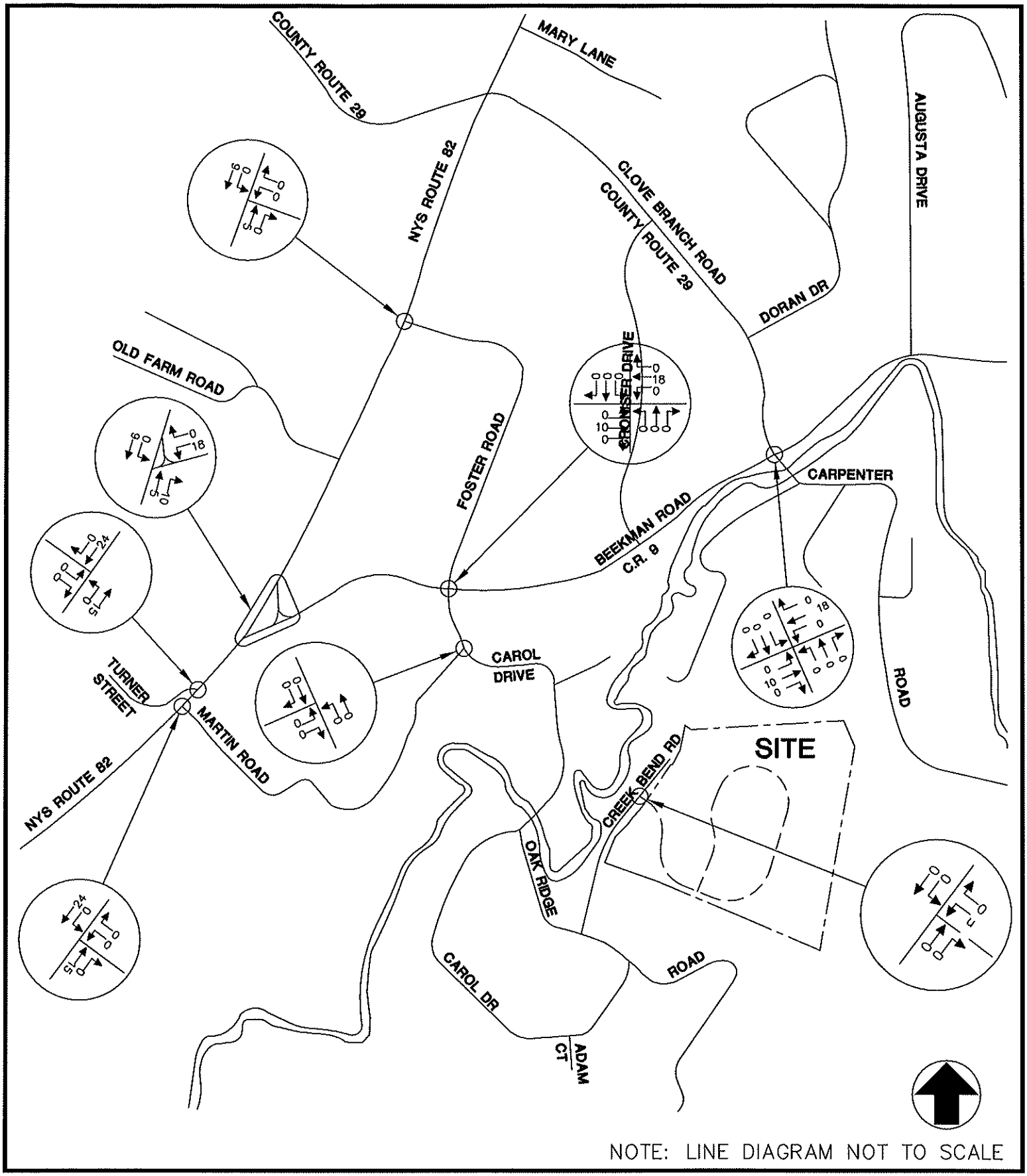


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

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

OTHER DEVELOPMENT TRAFFIC VOLUMES
TOLL BROTHERS EAST FISHKILL
WEEKDAY PEAK AM HOUR

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. E

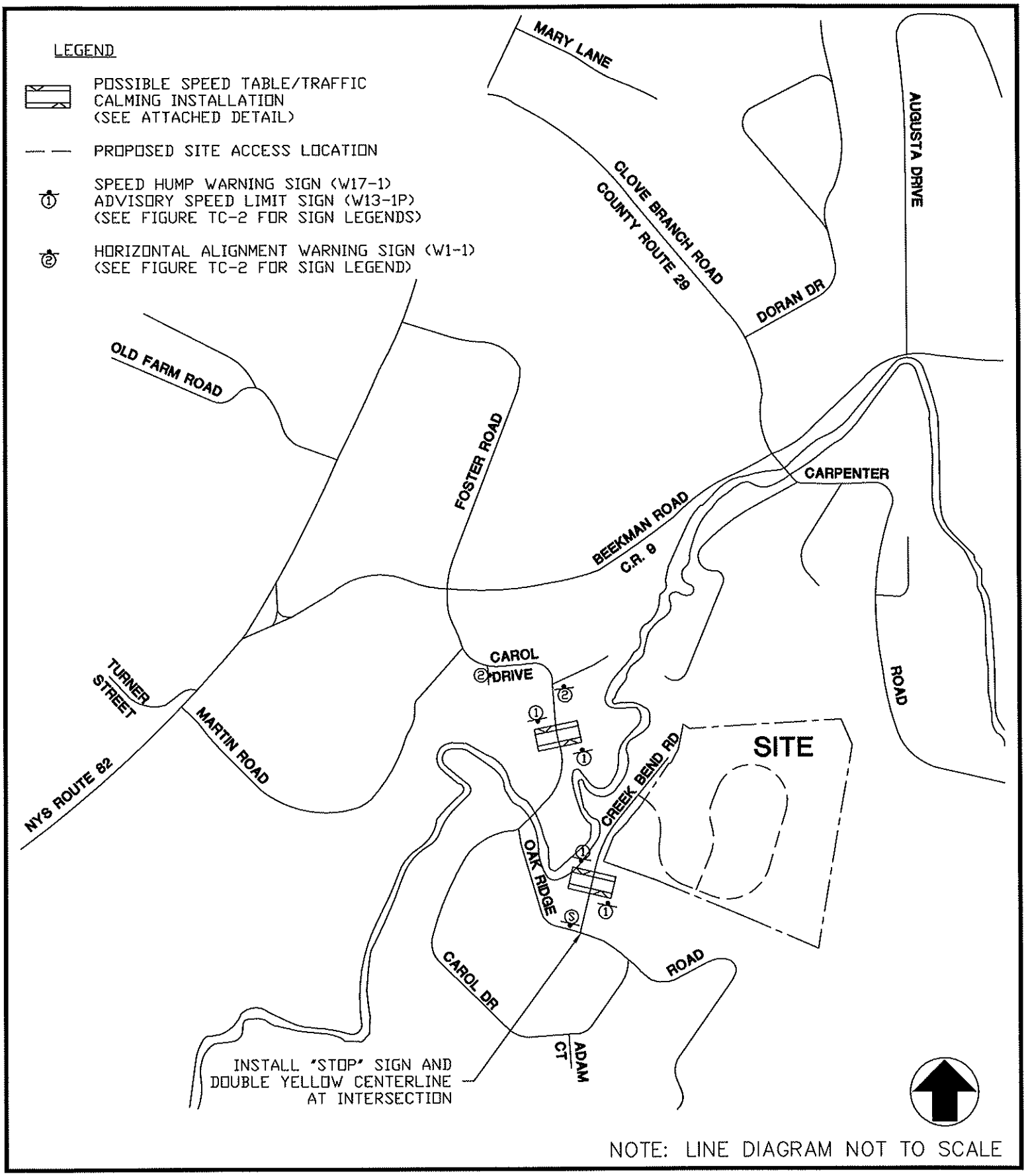


HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

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

OTHER DEVELOPMENT TRAFFIC VOLUMES
TOLL BROTHERS EAST FISHKILL
WEEKDAY PEAK PM PEAK HOUR

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. F



HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

POSSIBLE TRAFFIC CALMING LOCATION

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. TC-1

PROPOSED TRAFFIC CALMING IMPROVEMENTS

SPEED HUMP SIGN
W17-1

ADVISORY SPEED SIGN
W13-1P

HORIZONTAL ALIGNMENT
WARNING SIGN
W1-1

HILLTOP MANOR SUBDIVISION
EAST FISHKILL, NEW YORK

POSSIBLE TRAFFIC CALMING SIGNS

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

PROJECT NO. 190 DATE: MAY 2010 FIG. NO. TC-2

SITE ACCESS PROPOSED
SIGHT DISTANCES

DORSEMENT APPEARS IN THE [illegible]
CLERK OF DUTCHESS COUNTY IN ACCORDANCE WITH
VISIONS OF ARTICLE II TITLE 2 OF THE NEW
TATE PUBLIC HEALTH LAW AND ARTICLE 17 TITLE
HE NEW YORK STATE ENVIRONMENTAL CONSERVA-
W, AND ARTICLE II OF THE DUTCHESS COUNTY
Y CODE.

UPERVISING PUBLIC HEALTH ENGINEER

N/F
ROMANO
FILED MAP NO. 5709

N/F
ALI
FILED MAP NO. 5709

DRAINAGE EASEMENT (TYP)

N/F
DUTCHER
LIBER 1283 PAGE 195

N/F
SCHARA
LIBER 1207 PAGE 921

N/F
WIECK
LIBER 2002 PAGE 435

STREET SIGN

STOP SIGN

CREEK BEND ROAD 00+0

PROPOSED SIGHT DISTANCE 395'

PROPOSED SIGHT DISTANCE 265'

LOWER HOLDING POND

NOT FOR CONSTRUCTION SUBJECT TO AGENCY APPROVAL

BASE SURVEY PREPARED BY:	DATE	REVISED
-		

SITE PLAN PREPARED BY:	DATE	
-		

NO.	REVISION	DATE	REVISED BY:

TITLE:
PROPOSED SIGHT DISTANCES

PROJECT:
HILLTOP MANOR
CREEK BEND ROAD & SITE ACCESS
EAST FISHKILL, NEW YORK

ENGINEER:
JOHN COLLINS ENGINEERS, P.C.
11 BRADHURST AVENUE
HAWTHORNE N.Y. 10532

NORTH

DRAWING NO. SD-1

SHEET	1 OF 1
PROJECT NO.	190
SCALE:	1"=100'
DATE:	6/9/2010
DRAWN BY:	R.G.D.
CHECKED BY:	P.J.G.

APPENDIX "B"

TABLES

1. Beekman Road and Clove Branch Road/Carpenter Road

Carpenter Road and Clove Branch Road intersect with Beekman Road at a signalized full movement intersection. All approaches to the intersection consist of one lane plus shoulders. The capacity conducted at this intersection indicate that under current conditions, an overall Level of Service "B" or better is experienced during peak periods.

The analysis was recomputed utilizing the future No-Build and Build Traffic Volumes. The analysis indicates that an overall Level of Service "C" will be experienced during the AM Peak Hour while an overall Level of Service "B" or better will be maintained during the PM Peak Hour. Based on the analysis it does not appear that any improvements will be required at this intersection.

2. Martin Road/Foster Road and Beekman Road

Foster Road intersects opposite Martin Road at a "stop" sign controlled full movement intersection. All approaches to the intersection consist of one lane. The capacity analyses conducted at the intersection indicate that the intersection operates at a Level of Service "C" or better during peak periods.

The capacity analyses were recomputed utilizing the future No-Build and Build Traffic Volumes. A review of these analyses indicates that a Level of Service "C" or better will be maintained under future conditions. It is recommended however that in order to supplement the "stop" sign control that new pavement markings be added on the Foster Road and Martin Road approaches. These would include a double yellow centerline and a painted "stop" line.

TABLE 1

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

HILLTOP MANOR SUBDIVISION EAST FISHKILL, NEW YORK	ENTRY		EXIT	
	HTGR*	VOLUME	HTGR*	VOLUME
SINGLE FAMILY DWELLING (23 DWELLING UNITS)				
PEAK AM HIGHWAY HOUR	0.28	6	0.83	19
PEAK PM HIGHWAY HOUR	0.78	18	0.46	11

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.

TABLE NO. 2

LEVEL OF SERVICE SUMMARY TABLE

			2010 EXISTING		2015 NO-BUILD		2015 BUILD	
			AM	PM	AM	PM	AM	PM
1	BEEKMAN ROAD (COUNTY ROUTE 9) &	**SIGNALIZED**						
	CLOVE BRANCH ROAD / CARPENTER ROAD	EB	A[6.4]	A[7.5]	A[6.8]	A[8.3]	A[6.8]	A[8.3]
		WB	A[8.9]	A[9.4]	B[10.4]	B[10.9]	B[10.4]	B[11.0]
		SB	B[17.3]	B[17.2]	B[17.3]	B[17.2]	B[17.3]	B[17.2]
		NB	C[34.5]	C[25.9]	D[47.7]	C[32.2]	D[47.7]	C[32.2]
		OVERALL	B[16.4]	B[12.5]	C[20.4]	B[14.6]	C[20.3]	B[14.6]
2	BEEKMAN ROAD (COUNTY ROUTE 9) &	**UNSIGNALIZED**						
	FOSTER ROAD / MARTIN ROAD	EB	A[7.9]	A[7.9]	A[8.0]	A[8.1]	A[8.0]	A[8.1]
		WB	A[7.6]	A[8.1]	A[7.8]	A[8.4]	A[7.8]	A[8.5]
		NB	B[12.0]	C[15.8]	B[13.4]	C[19.8]	B[13.7]	C[20.6]
		SB	B[10.9]	B[14.3]	B[11.6]	C[16.9]	B[11.9]	C[17.7]
3	NYS ROUTE 82 &	**UNSIGNALIZED**						
	FOSTER ROAD	WB	B[12.7]	B[13.7]	B[13.8]	B[14.6]	B[13.6]	C[14.6]
		SB	A[8.0]	A[8.7]	A[8.1]	A[8.9]	A[8.1]	A[8.9]
4	BEEKMAN ROAD (COUNTY ROUTE 9) &	**SIGNALIZED**						
	NYS ROUTE 82	WB	C[31.5]	D[46.4]	D[39.4]	E[74.5]	D[40.3]	E[76.8]
		NB	B[15.1]	B[18.9]	B[18.7]	D[39.6	B[18.7]	D[41.0]
		SB	B[13.3]	A[7.7]	B[14.2]	A[8.0	B[14.2]	A[8.0]
		OVERALL	B[18.5]	C[21.4]	C[22.6]	D[39.1]	C[23.0]	D[40.4]
	WITH SIGNAL TIMING IMPROVEMENTS	WB	-	-	-	D[53.0]	-	D[54.1]
		NB	-	-	-	D[53.0]	-	D[54.7]
		SB	-	-	-	A[9.2]	-	A[9.2]
		OVERALL	-	-	-	D[42.4]	-	D[43.6]
5	NYS ROUTE 82 &	**UNSIGNALIZED**						
	TURNER STREET	EB	C[25.8]	B[14.6]	D[33.8]	C[16.5]	D[34.0]	C[16.6]
		NB	A[9.7]	A[9.3]	B[10.3]	A[9.7]	B[10.3]	A[9.8]
6	NYS ROUTE 82 &	**UNSIGNALIZED**						
	MARTIN ROAD	WB	D[25.1]	D[27.4]	D[33.3]	E[36.0]	D[34.0]	E[40.6]
		SB	A[8.6]	B[10.2]	A[8.9]	B[10.9]	A[8.9]	B[10.9]
7	MARTIN ROAD &	**UNSIGNALIZED**						
	CAROL DRIVE	EB	A[8.7]	A[9.0]	A[8.8]	A[9.1]	A[8.9]	A[9.1]
		NB	A[7.3]	A[7.4]	A[7.3]	A[7.4]	A[7.3]	A[7.4]
10	CREEK BEND ROAD &	**UNSIGNALIZED**						
	CAROL DRIVE	WB	-	-	-	-	A[8.7]	A[8.7]
		SB	-	-	-	-	A[7.3]	A[7.3]

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND AVERAGE VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH APPROACH AS WELL AS FOR THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS AND FOR THE KEY APPROACHES FOR THE UNSIGNALIZED LOCATIONS. SEE APPENDIX "D" FOR ADDITIONAL DETAILS.

TABLE NO. 2A

LEVEL OF SERVICE SUMMARY TABLE

			2010 EXISTING			2015 NO-BUILD			2015 BUILD		
			AM	PM	SAT	AM	PM	SAT	AM	PM	SAT
8	NYS ROUTE 82 &	**SIGNALIZED**									
	NYS ROUTE 376 (EAST)	EB	D[39.8]	C[29.2]	D[37.8]	D[51.2]	C[30.8]	D[44.5]	D[51.2]	C[30.8]	D[44.5]
		NB	A[6.4]	B[15.9]	A[8.0]	A[7.3]	C[30.6]	A[9.9]	A[7.3]	C[31.2]	B[10.1]
		SB	C[27.3]	C[24.8]	B[19.4]	D[42.1]	D[35.9]	C[25.1]	D[44.6]	D[37.0]	C[25.8]
		OVERALL	C[21.9]	C[20.9]	B[18.2]	C[30.6]	C[32.4]	C[22.4]	C[31.7]	C[33.1]	C[22.7]
9	NYS ROUTE 82 &	**SIGNALIZED**									
	NYS ROUTE 376 (WEST)	WB	D[36.9]	D[40.1]	D[35.7]	D[42.3]	D[55.9]	D[43.5]	D[42.4	E[56.6]	D[44.1]
		NB	B[10.6]	B[14.8	B[14.0]	B[10.8]	B[15.2]	B[14.3]	B[10.8]	B[15.2]	B[14.3]
		SB	B[14.1]	C[27.9]	D[14.7]	C[20.9]	D[50.6]	C[25.0]	C[21.3]	D[52.1]	C[26.4]
		OVERALL	B[18.5]	C[27.7]	C[21.1]	C[23.1]	D[41.2]	C[27.1]	C[23.3]	D[41.9]	C[27.7]
	WITH TIMING IMPROVEMENTS	WB	-	-	-	-	D[46.6]	-	-	D[47.2]	-
		NB	-	-	-	-	B[16.6]	-	-	B[16.6]	-
		SB	-	-	-	-	D[36.5]	-	-	D[37.7]	-
		OVERALL	-	-	-	-	C[33.4]	-	-	C[34.1]	-

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND AVERAGE VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH APPROACH AS WELL AS FOR THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS AND FOR THE KEY APPROACHES FOR THE UNSIGNALIZED LOCATIONS. SEE APPENDIX "D" FOR ADDITIONAL DETAILS.

2) * NOTE THAT THE LEVEL OF SERVICE AT LOCATION 8 IS CONTROLLED BY THE OPERATION OF INTERSECTION 9 WHICH IS THE MORE CRITICAL INTERSECTION.

TABLE Q-1
QUEUE LENGTH SUMMARY TABLE

INTERSECTION	DIRECTION	MOVEMENT	STORAGE LENGTH	QUEUE LENGTH					
				2010 EXISTING		2015 NO-BUILD		2015 BUILD	
				AM	PM	AM	PM	AM	PM
BEEKMAN ROAD & CLOVE BRANCH ROAD/ CARPENTER ROAD	EB	LTR	915'	54'	98'	65'	130'	68'	131'
	WB	LTR	1065'	126'	185'	164'	243'	188'	248'
	NB	LTR	500'	11'	9'	13'	9'	13'	9'
	SB	LTR	825'	127'	138'	111'	176'	159'	176'
NYS ROUTE 82 & BEKMAN ROAD	WB	LR	550'	229'	290'	293'	368'	298'	372'
	NB	TR	2215'	171'	674'	311'	909'	311'	.916'
	SB	LT	1345'	243'	158'	280'	251'	280'	255'
NYS ROUTE 82 & NYS ROUTE 376 (EAST)	EB	L	275'	50'	104'	54'	113'	54'	114'
		R	160'	153'	122'	200'	164'	202'	165'
	NB	L	370'	110'	275' *	171'	389' *	171'	390' *
		T	370'	132'	231' *	163'	281' *	163'	286' *
	SB	TR	2215'	488'	655'	697'	756'	710'	764'
NYS ROUTE 82 & NYS ROUTE 376 (WEST)	WB	L	1080'	164'	403'	182'	349'	182'	349'
		R	400'	29'	468'	60'	547'	62'	551'
	NB	T	330'	102'	147'	113'	205'	114'	206'
		R	300'	0'	0'	0'	0'	0'	0'
	SB	L	370'	86' *	170'	89' *	264' *	98' *	265' *
		T	370'	159' *	166'	158' *	225' *	156' *	255' *

NOTE:

1) * QUEUE IS METERED BY UPSTREAM SIGNAL

2) RESULTS ARE BASED ON SYNCHRO ANALYSIS 95TH PERCENTILE QUEUES AS CONTAINED IN APPEDIX "E"

TABLE RS-1
ROADWAY SEGMENT ANALYSIS

ROADWAY SEGMENT	2010 EXISTING VOLUME		2015 NO-BUILD VOLUME		2015 BUILD VOLUME		SEGMENT GEOMETRY
	AM	PM	AM	PM	AM	PM	
CREEK BEND ROAD TO OAK RIDGE ROAD	17	13	18	15	43	44	TWO LANE ROADWAY
OAK RIDGE ROAD TO CAROL DRIVE	19	62	24	71	49	103	TWO LANE ROADWAY
CAROL DRIVE TO MARTIN ROAD	48	94	53	103	78	135	TWO LANE ROADWAY
MARTIN ROAD TO BEEKMAN ROAD	51	104	56	115	78	139	TWO LANE ROADWAY
MARTIN ROAD TO NYS ROUTE 82	12	18	13	19	16	24	TWO LANE ROADWAY

TABLE NO. I-1

PROPOSED AREA IMPROVEMENTS

		2015 NO-BUILD IMPROVEMENTS	2015 BUILD IMPROVEMENTS	% TRAFFIC INCREASE
BY INTERSECTION				
1	BEEKMAN ROAD (COUNTY ROUTE 9) & CLOVE BRANCH ROAD / CARPENTER ROAD	NONE	NONE	1.0%
2	BEEKMAN ROAD (COUNTY ROUTE 9) & FOSTER ROAD / MARTIN ROAD	NONE	NEW PAVEMENT MARKINGS INCLUDING DOUBLE YELLOW CENTERLINE AND PAINTED STOP LINE	3.0%
3	NYS ROUTE 82 & FOSTER ROAD	NONE	NONE	0.5%
4	BEEKMAN ROAD (COUNTY ROUTE 9) & NYS ROUTE 82	ADD 2.5 SECONDS GREEN TIME TO WB PHASE, REDUCE NB/SB PHASE GREEN TIME BY 2.5 SECONDS (NYSDOT)	ADD 2.5 SECONDS GREEN TIME TO WB PHASE, REDUCE NB/SB PHASE GREEN TIME BY 2.5 SECONDS (NYSDOT)	0.6%
5	NYS ROUTE 82 & TURNER STREET	NONE	NONE	0.6%
6	NYS ROUTE 82 & MARTIN ROAD	NONE	NONE	0.8%
7	MARTIN ROAD & CAROL DRIVE	NONE	NEW PAVEMENT MARKINGS INCLUDING DOUBLE YELLOW CENTERLINE AND PAINTED STOP LINE	45.0%
8	NYS ROUTE 82 & NYS ROUTE 376 (EAST)	NONE	NONE	0.8%
9	NYS ROUTE 82 & NYS ROUTE 376 (WEST)	ADD 2 SECONDS GREEN TIME TO SB LEFT PHASE, REDUCE NB/SB PHASE GREEN TIME BY 2 SECONDS (NYSDOT)	ADD 2 SECONDS GREEN TIME TO SB LEFT PHASE, REDUCE NB/SB PHASE GREEN TIME BY 2 SECONDS (NYSDOT)	0.7%
10	CREEK BEND ROAD & CAROL DRIVE	NONE	SIGHT DISTANCE IMPROVEMENTS TO MEET AASHTO REQUIREMENTS	200% (APPLICANT FAIR SHARE)
BY ROADWAY SEGMENT				
1	CREEK BEND ROAD TO OAK RIDGE ROAD	NONE	INSTALL "STOP" SIGN AT INTERSECTION CREEK BEND ROAD & OAK RIDGE ROAD AND CONSIDER TRAFFIC CALMING MEASURES (APPLICANT TO FUND IF APPROVED BY TOWN OF EAST FISHKILL)	200% (APPLICANT FUNDED)
2	OAK RIDGE ROAD TO CAROL DRIVE	INSTALL SIGNING AND STRIPING MEASURES TO DELINEATE TRAFFIC MOVEMENTS AT INTERSECTION OF OAK RIDGE ROAD AND CAROL DRIVE	INSTALL SIGNING AND STRIPING MEASURES TO DELINEATE TRAFFIC MOVEMENTS AT INTERSECTION OF OAK RIDGE ROAD AND CAROL DRIVE	100% (APPLICANT FAIR SHARE)
3	CAROL DRIVE TO MARTIN ROAD	IMPROVE SIGNING AND STRIPING ALONG CAROL DRIVE IN ADVANCE OF HORIZONTAL ALIGNMENT CHANGES. POTENTIAL TRAFFIC CALMING MEASURES	IMPROVE SIGNING AND STRIPING ALONG CAROL DRIVE IN ADVANCE OF HORIZONTAL ALIGNMENT CHANGES. POTENTIAL TRAFFIC CALMING MEASURES	47% (APPLICANT FAIR SHARE)
4	MARTIN ROAD TO BEEKMAN ROAD	NONE	NONE	20.0%
5	MARTIN ROAD TO NYS ROUTE 82	CONSIDER TRAFFIC CALMING MEASURES	CONSIDER TRAFFIC CALMING MEASURES	26.0%

NOTE:

1. FIGURES TC-1 AND TC-2 SHOW THE LOCATION OF POSSIBLE TRAFFIC CALMING IMPROVEMENTS FOR THE STUDY AREA.

2. * % TRAFFIC INCREASE INDICATES THE INCREASE IN TRAFFIC AS RESULT OF THE PROPOSED DEVELOPMENT AS COMPARED TO THE 2015 NO-BUILD TRAFFIC VOLUMES

ACCIDENT DATA SUMMARY TABLES

TABLE A-1
ACCIDENT SUMMARY TABLE
BEEKMAN ROAD AND CAROL DRIVE ACCIDENTS

A. By Accident Type

Year	Location	Accident Type					
		Vehicle-Vehicle	Vehicle-Pedestrian	Vehicle-Object	Other	Non-Reportable	Total
2007	**Intersection Locations**						
	NYS Route 82 and Beekman Road	0	0	1	1	0	2
	Beekman Road and Angela Court	0	0	0	0	0	0
	Beekman Road and Foster Road/Martin Road	1	0	0	1	0	2
	Beekman Road and Croniser Drive	0	0	0	1	0	1
	Beekman Road and Clove Branch Road	1	0	0	0	0	1
	Carol Drive and Oak Ridge Road	0	0	0	0	0	0
	Non-Intersection Locations						
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	0	0	0	0	0	0
	Beekman Road between Foster Road to Clove Branch Road	1	0	0	0	0	1
	Carol Drive between Martin Road and Oak Ridge Road	0	0	0	0	0	0
2008	**Intersection Locations**						
	NYS Route 82 and Beekman Road	0	0	2	0	0	0
	Beekman Road and Angela Court	1	0	0	1	0	2
	Beekman Road and Foster Road/Martin Road	1	0	0	0	0	0
	Beekman Road and Croniser Drive	0	0	0	2	0	2
	Beekman Road and Clove Branch Road	2	0	0	0	0	2
	Carol Drive and Oak Ridge Road	0	0	0	0	0	0
	Non-Intersection Locations						
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	0	0	0	1	0	1
	Beekman Road between Foster Road to Clove Branch Road	0	0	0	0	0	0
	Carol Drive between Martin Road and Oak Ridge Road	0	0	0	0	0	0
2009	**Intersection Locations**						
	NYS Route 82 and Beekman Road	2	1	0	0	0	3
	Beekman Road and Angela Court	0	0	0	0	0	0
	Beekman Road and Foster Road/Martin Road	2	0	0	0	0	2
	Beekman Road and Croniser Drive	0	0	0	0	0	0
	Beekman Road and Clove Branch Road	0	0	1	1	0	2
	Carol Drive and Oak Ridge Road	0	0	0	0	0	0
	Non-Intersection Locations						
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	0	0	0	1	0	1
	Beekman Road between Foster Road to Clove Branch Road	0	0	2	0	0	2
	Carol Drive between Martin Road and Oak Ridge Road	0	0	0	0	0	0
2010	**Intersection Locations**						
	NYS Route 82 and Beekman Road	0	0	0	0	0	0
	Beekman Road and Angela Court	0	0	0	0	0	0
	Beekman Road and Foster Road/Martin Road	0	0	0	0	0	0
	Beekman Road and Croniser Drive	0	0	0	0	0	0
	Beekman Road and Clove Branch Road	0	0	0	0	0	0
	Carol Drive and Oak Ridge Road	0	0	1	0	0	1
	Non-Intersection Locations						
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	0	0	0	0	0	0
	Beekman Road between Foster Road to Clove Branch Road	0	0	0	0	0	0
	Carol Drive between Martin Road and Oak Ridge Road	0	0	0	0	0	0

B. Injury/Fatality Data

Year	Location	# of Injuries	# of Fatalities
1997	**Intersection Locations**		
	NYS Route 82 and Beekman Road	3	0
	Beekman Road and Angela Court	0	0
	Beekman Road and Foster Road/Martin Road	0	0
	Beekman Road and Croniser Drive	0	0
	Beekman Road and Clove Branch Road	0	0
	Carol Drive and Oak Ridge Road	0	0
	Non-Intersection Locations		
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	0	0
	Beekman Road between Foster Road to Clove Branch Road	0	0
	Carol Drive between Martin Road and Oak Ridge Road	0	0
1998	**Intersection Locations**		
	NYS Route 82 and Beekman Road	0	0
	Beekman Road and Angela Court	2	0
	Beekman Road and Foster Road/Martin Road	1	0
	Beekman Road and Croniser Drive	1	0
	Beekman Road and Clove Branch Road	0	0
	Carol Drive and Oak Ridge Road	0	0
	Non-Intersection Locations		
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	2	0
	Beekman Road between Foster Road to Clove Branch Road	0	0
	Carol Drive between Martin Road and Oak Ridge Road	0	0
1999	**Intersection Locations**		
	NYS Route 82 and Beekman Road	2	0
	Beekman Road and Angela Court	0	0
	Beekman Road and Foster Road/Martin Road	0	0
	Beekman Road and Croniser Drive	0	0
	Beekman Road and Clove Branch Road	0	0
	Carol Drive and Oak Ridge Road	0	0
	Non-Intersection Locations		
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	0	0
	Beekman Road between Foster Road to Clove Branch Road	2	0
	Carol Drive between Martin Road and Oak Ridge Road	0	0
2000	**Intersection Locations**		
	NYS Route 82 and Beekman Road	0	0
	Beekman Road and Angela Court	0	0
	Beekman Road and Foster Road/Martin Road	0	0
	Beekman Road and Croniser Drive	0	0
	Beekman Road and Clove Branch Road	0	0
	Carol Drive and Oak Ridge Road	0	0
	Non-Intersection Locations		
	Beekman Road between NYS Route 82 and Foster Road/Martin Road	0	0
	Beekman Road between Foster Road to Clove Branch Road	0	0
	Carol Drive between Martin Road and Oak Ridge Road	0	0

NOTE:

ACCIDENT DATA COVERS PERIOD FROM FEBUARY 1, 2007 TO JANUARY 31, 2010.

TABLE A-2
ACCIDENT SUMMARY TABLE
NYS ROUTE 82

A. By Accident Type

Year	Location	Accident Type					
		Vehicle-Vehicle	Vehicle-Pedestrian	Vehicle-Object	Other	Non-Reportable	Total
2007	**Intersection Locations**						
	NYS Route 82 & NYS Route 376	7	0	0	1	0	8
	NYS Route 82 and Martin Road	0	0	0	0	0	0
	NYS Route 82 and Beekman Road	0	0	0	3	0	3
	NYS Route 82 and Clove Branch Road	4	0	0	2	0	6
	Non-Intersection Locations						
	NYS Route 82 between NYS Route 376 and Martin Road	4	0	0	0	0	4
	NYS Route 82 between Martin Road and Beekman Road	2	0	0	0	0	2
	NYS Route 82 between Beekman Road and Clove Branch Road	4	0	0	1	0	5
2008	**Intersection Locations**						
	NYS Route 82 & NYS Route 376	8	0	0	0	0	8
	NYS Route 82 and Martin Road	1	0	0	0	0	1
	NYS Route 82 and Beekman Road	1	0	1	1	0	3
	NYS Route 82 and Clove Branch Road	5	0	0	0	0	5
	Non-Intersection Locations						
	NYS Route 82 between NYS Route 376 and Martin Road	4	0	0	0	0	4
	NYS Route 82 between Martin Road and Beekman Road	3	0	0	0	0	3
	NYS Route 82 between Beekman Road and Clove Branch Road	5	0	0	0	0	5
2009	**Intersection Locations**						
	NYS Route 82 & NYS Route 376	4	0	0	0	0	4
	NYS Route 82 and Martin Road	2	0	0	0	0	2
	NYS Route 82 and Beekman Road	2	1	0	0	0	3
	NYS Route 82 and Clove Branch Road	4	0	0	1	0	5
	Non-Intersection Locations						
	NYS Route 82 between NYS Route 376 and Martin Road	7	0	0	0	0	7
	NYS Route 82 between Martin Road and Beekman Road	3	0	0	0	0	3
	NYS Route 82 between Beekman Road and Clove Branch Road	3	0	0	0	0	3
2010	**Intersection Locations**						
	NYS Route 82 & NYS Route 376	1	0	0	0	0	1
	NYS Route 82 and Martin Road	0	0	0	0	0	0
	NYS Route 82 and Beekman Road	0	0	0	0	0	0
	NYS Route 82 and Clove Branch Road	1	0	0	0	0	1
	Non-Intersection Locations						
	NYS Route 82 between NYS Route 376 and Martin Road	1	0	0	0	0	1
	NYS Route 82 between Martin Road and Beekman Road	0	0	0	0	0	0
	NYS Route 82 between Beekman Road and Clove Branch Road	0	0	0	0	0	0

B. Injury/Fatality Data

Year	Location	# of Injuries	# of Fatalities
1997	**Intersection Locations**		
	NYS Route 82 & NYS Route 376	3	0
	NYS Route 82 and Martin Road	0	0
	NYS Route 82 and Beekman Road	3	0
	NYS Route 82 and Clove Branch Road	0	0
	Non-Intersection Locations		
	NYS Route 82 between NYS Route 376 and Martin Road	3	0
	NYS Route 82 between Martin Road and Beekman Road	2	0
	NYS Route 82 between Beekman Road and Clove Branch Road	4	0
1998	**Intersection Locations**		
	NYS Route 82 & NYS Route 376	2	0
	NYS Route 82 and Martin Road	1	0
	NYS Route 82 and Beekman Road	0	0
	NYS Route 82 and Clove Branch Road	3	0
	Non-Intersection Locations		
	NYS Route 82 between NYS Route 376 and Martin Road	0	0
	NYS Route 82 between Martin Road and Beekman Road	2	0
	NYS Route 82 between Beekman Road and Clove Branch Road	2	0
1999	**Intersection Locations**		
	NYS Route 82 & NYS Route 376	1	0
	NYS Route 82 and Martin Road	0	0
	NYS Route 82 and Beekman Road	2	0
	NYS Route 82 and Clove Branch Road	1	0
	Non-Intersection Locations		
	NYS Route 82 between NYS Route 376 and Martin Road	0	0
	NYS Route 82 between Martin Road and Beekman Road	3	0
	NYS Route 82 between Beekman Road and Clove Branch Road	1	0
2000	**Intersection Locations**		
	NYS Route 82 & NYS Route 376	1	0
	NYS Route 82 and Martin Road	0	0
	NYS Route 82 and Beekman Road	0	0
	NYS Route 82 and Clove Branch Road	0	0
	Non-Intersection Locations		
	NYS Route 82 between NYS Route 376 and Martin Road	2	0
	NYS Route 82 between Martin Road and Beekman Road	0	0
	NYS Route 82 between Beekman Road and Clove Branch Road	0	0

NOTE:

ACCIDENT DATA COVERS PERIOD FROM FEBUARY 1, 2007 TO JANUARY 31, 2010.

DUTCHESS COUNTY LOOP 4
BUS SCHEDULE AND MAP

LOOP 4

MONDAY - FRIDAY

HOPEWELL JUNCTION → DUTCHESS MALL

HOPEWELL JUNCTION - *Rte 376 & 82*	6:45 A.M.	7:45 A.M.		1:45 P.M.	4:15 P.M.
EAST FISHKILL - *IBM*	6:55	7:55		1:55	4:25
FISHKILL - *Main Street & Rte. 9*	*7:05	**8:05		2:05	4:35
DUTCHESS MALL - *Main Entrance*	7:15	8:15		2:15	4:45

DUTCHESS MALL → HOPEWELL JUNCTION

DUTCHESS MALL - *Main Entrance*	7:15 A.M.	8:15 A.M.	1:15 P.M.	2:15 P.M.	***4:45 P.M.
FISHKILL - *Main Street & Rte. 9*	7:20	8:20	1:20	2:20	*4:50
EAST FISHKILL - *Rte. 52 & CountyRte: 31*	7:25	8:25	1:25	2:25	4:55
EAST FISHKILL - *IBM*	7:30	8:30	DEMAND	DEMAND	5:00
HOPEWELL JUNCTION - *Rte 376 & 82*	7:45	8:45	1:45	2:45	5:15

Fare - .75 One Way

*CONNECTS WITH EXPRESS B
**CONNECTS WITH SW EXPRESS
*** 4:45 from Dutchess Mall services GAP