3.5 Traffic & Transportation

Introduction

The project site is located in the Town of Clarkstown, Rockland County, New York. The site location and regional transportation network are shown in Figure 3.5-1. As has been discussed, the Applicant initially proposed the Hemlock Drive Access Plan, where the main access to the Orchard Ridge Development was to be located across from Hemlock Drive onto NYS Route 303. It was anticipated that property owners along Hemlock Drive and the adjacent property owners to the south, Kohl's Industrial Development, would be making traffic related improvements to NYS Route 303 in the vicinity of Hemlock Drive. The timing and certainty of the anticipated improvements are beyond the control of the applicant, thus the applicant has proposed the Meola Road Access Alternative which appropriately mitigates traffic impacts directly related to the Orchard Ridge project, and which *are* under the direct control of the applicant. In the Hemlock Drive Access Plan a new access road would be constructed opposite the existing Hemlock Drive. In the Meola Road Access Preferred Alternative, the main access will be provided via the existing Meola Road, and an emergency access will be provided in the vicinity of Building 1.

The Meola Road Access Alternative is the Applicant's preferred alternative since it utilizes the existing Meola Road Access and allows for road improvements to NYS Route 303 that will better serve the existing and the future commercial development in the project vicinity. The Meola Road Access Alternative also results in marginally reduced environmental impacts compared to the Hemlock Drive Access Plan and allows for better circulation around the Club House Area.

To assess the traffic impacts of both of these plans, A *Traffic Impact Study, (TIS)* was conducted by John Collins Engineer's, P.C. for each alternative. The TIS for the Hemlock Drive Access Plan, most recently revised July 28, 2010 assesses the traffic impacts associated with the Orchard Ridge development including construction of a new access road opposite Hemlock Drive. The TIS for the Meola Road Access Preferred Alternative, most recently revised December 19, 2011, assesses the traffic impacts associated with the Orchard Ridge development utilizing the existing Meola Road as the main access. Both of these Traffic Impact Studies are included in their entirety in Appendix E.

Since the Meola Road Access Alternative is the Applicant's preferred alternative; and since trip generation is identical for both alternatives; and since the traffic operation levels of service are similar between the two alternatives, the only difference being the location of the main site access; the DSEIS primarily discusses the traffic impacts of the Meola Road Access Alternative. Both Traffic Impact Studies are included in their entirety in Appendix E of this DEIS. A comparison of traffic operating levels of service at Hemlock Drive and Meola Road under both the Hemlock Drive Access Plan and the Meola Road Access alternative is included later in this chapter.

The *Traffic Impact Study* - Meola Road Access Alternative evaluates existing and future traffic conditions at six intersections which are proximate to the Orchard Ridge property, and which were identified in the project scope adopted June 30, 2010. The following intersections were analyzed, the locations of which are shown in Figure 3.5-1:

1. Intersection of NYS Route 9W & NYS Route 303
2. Intersection of NYS Route 303 & Hemlock Drive
3. Intersection of NYS Route 303 & Brenner Drive
4. Intersection of NYS Route 303 & Lake Road (CR 80)
5. Intersection of NYS Route 303 & Meola Road (Site Access)
6. Intersection of NYS Route 303 & Randi Lane/Hilltop Road

3.5.1 Existing Traffic Conditions

The Orchard Ridge project site is located on the west side of NYS Route 303 between Brenner Drive and US Route 9W, just south of Meola Road. Regional transportation access is provided via I-287/I-87 (the New York State Thruway) approximately 5 miles to the south via NYS Route 303. US Route 9W is the primary north south arterial corridor in the area.

In order to establish the existing traffic volumes for the study intersections in the vicinity of the Orchard Ridge property, manual turning movement traffic counts were conducted by John Collins Engineers, P.C., in February and June 2009, to determine the existing traffic volumes for the Weekday Peak AM and Weekday Peak PM hours for the study intersections. These count data were compared to information contained from the New York State Department of Transportation (NYSDOT) and other data previously collected by John Collins Engineers of the NYS Route 303 corridor.

Based upon a review of these counts, the weekday morning peak hour period of 7:30 AM to 8:30 AM was determined to be critical with respect to traffic analysis. The critical period for the weekday evening peak hour was identified as 4:30 PM to 5:30 PM.

3.5.2 Existing Roadway Network

Under both the Hemlock Drive Access Plan and the Meola Road Access Preferred Alternative Orchard Ridge will have direct access to NYS Route 303. The following is a description of the primary roads within the project vicinity: NYS Route 303, US Route 9W, and Lake Road (CR80).

NYS Route 303 - is generally a two lane roadway with paved shoulders. The roadway originates at the New Jersey State Line in the Town of Orangetown and continues in a northerly direction intersecting with the NYS Thruway and continuing through the Town of Clarkstown. It terminates at a signalized intersection with U.S. Route 9W. In the immediate vicinity of the site, the roadway has a posted speed limit of 45 mph south of the site and an unposted 55 mph north of the site. There are southbound passing zones both north and south of the site.

U.S Route 9W - is a major north/south roadway which traverses throughout Rockland County and into Orange County. In the vicinity of the site it consists of one lane per direction and it has signalized intersections with NYS Route 303 and NYS Route 304.

Lake Road (CR 80) - intersects with NYS Route 303 south of this site at a signalized intersection. This roadway generally consists of one lane per direction, plus turning lanes, and has a posted speed limit of 30 mph.

Meola Road - intersects with NYS Route 303 at a "T" Intersection. It consists of two lanes and currently provides access to the existing Congers Colonial Plaza Shopping Center. Meola Road is an existing access connection for the project site to NYS Route 303. The road alignment is approximately 50 foot wide and is currently a Town of Clarkstown road from the Congers Colonial Plaza driveway to it's connection with Route 303. The road alignment parallel to Route 303 beyond the Congers Colonial Plaza driveway is currently under private ownership.

Other Roadways - Brenner Lane is an existing roadway which provides access to an existing industrial park, located south of the site. Hemlock Drive is an existing roadway which intersects with Route 303 as a “T” intersection opposite the site.

3.5.3 Level of Service Criteria

Peak hour vehicle delays were calculated to establish the quality of operation (level of service) at intersection approach lanes under the existing conditions. Future conditions without the project and future conditions with the project were also analyzed.

In order to determine existing and future traffic operating conditions at the study area intersections, capacity analyses were performed based on procedures from the latest I.T.E. Highway Capacity Manual. The following is a brief description of the methodology:

Signalized Intersection Capacity Analysis

The capacity analysis for a signalized intersection was performed in accordance with the procedure 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.

Unsignalized Intersection Capacity Analysis

The unsignalized intersection capacity analysis was performed in accordance with the procedures described in the 2000 Highway Capacity Manual. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the level of service, the average amount of vehicle delay is computed for each critical movement to the intersection as well as for the overall intersection.

Additional information concerning signalized and unsignalized levels of service can be found in Appendix E of this DEIS.

Table 3.5-1 presents the levels of service criteria for signalized and unsignalized intersections.

Table 3.5-1
Level of Service Criteria

UNSIGNALIZED INTERSECTIONS		SIGNALIZED INTERSECTIONS	
Level of Service	*Average Total Delay (Seconds Per Vehicle)*	Level of Service	Stopped Delay Per Vehicle (Sec)
A	*≤ 10*	A	≤ 10
B	*>10 and ≤ 15*	B	>10 and ≤ 20
C	*>15 and ≤ 25*	C	>20 and ≤ 35
D	*>25 and ≤ 35*	D*	>35 and ≤ 55
E	*>35 and ≤ 50*	E	>55 and ≤ 80
F	*> 50*	F	> 80.0

Source: Highway Capacity Manual, Transportation Research Board, National Research Council, Special Report 209, Washington, D.C..
* For urban areas, the minimum level of service for design of lane-groups (one or more movements) assuming reasonable costs and impacts.

The NYSDOT generally seeks a minimum level of service D (delay of 55 seconds or less for a signalized intersection) for all lane groups. The NYSDOT Highway Design Manual notes: "*In some cases, it may be necessary to accept level of service E or F on individual lane groups due to unreasonable costs or impacts associated with improving the level of service*." A lane group is a set of lanes on an approach having the same common movement(s).

For all intersections, the volume to capacity ratio is an indication of the unused capacity or the ability of the intersection to process more traffic. It is possible to have a movement with an adequate level of service (level of service A, B, C or D) and be at capacity for the movement. It is also possible to have a movement with a level of service E or F, with additional capacity available on the movement. The NYSDOT goal for volume to capacity (V/C) ratios at signalized intersections for lane groups is generally below 0.95. The ability of an entire intersection to handle more traffic is a complex issue as traffic can be added to under capacity movements without impacting over capacity movements.

3.5.4 Existing Levels of Service

Existing traffic volumes for the roadway network are shown in Figures 3.5-2, and 3.5-3. A summary of the capacity analyses for the area intersections under Existing Conditions is provided in the Level of Service Summary Table 3.5-2.

Table 3.5-2
Level of Service Summary Table
Meola Road Access Alternative

	LOCATION	EXISTING		NO-BUILD		Senior Housing BUILD		Maximum Impact Scenario Townhouses & Commercial Parcel BUILD	
		AM	PM	AM	PM	AM	PM	AM	PM
1.	**N.Y.S. Route 303 & US Route 9W - SIGNALIZED**								
	NORTHBOUND LEFT	A [6.6]	A [4.5]	A [7.9]	A [4.6]	A [8.0]	A [4.7]	A [8.1]	A [4.8]
	NORTHBOUND THROUGH- RIGHT	B [13.1]	B [19.0]	B [13.4]	C [27.0]	B [13.6]	C [28.8]	B [13.9]	C [32.1]
	SOUTHBOUND LEFT	C [19.5]	B [10.5]	C [31.1]	C [23.0]	D [35.5]	C [25.8]	D [42.6]	C [30.9]
	SOUTHBOUND THROUGH-RIGHT	B [18.9]	B [13.2]	C [24.0]	B [13.6]	C [24.5]	B [13.7]	C [24.7]	B [14.0]
	EASTBOUND LEFT-THROUGH-RIGHT	C [23.4]	C [23.7]	C [23.4]	C [23.8]	C [23.4]	C [23.8]	C [23.4]	C [23.8]
	WESTBOUND LEFT-THROUGH	C [23.2]	C [23.9]	C [23.8]	C [24.1]	C [23.9]	C [24.3]	C [23.9]	C [24.6]
	WESTBOUND RIGHT	B [14.1]	C [34.6]	B [14.3]	D [43.7]	B [14.3]	D [43.7]	B [14.3]	D [43.7]
	OVERALL INTERSECTION	**B [17.8]**	**C [23.7]**	**C [23.4]**	**C [28.4]**	**C [24.9]**	**C [29.3]**	**C [27.1]**	**C [31.0]**
2.	**N.Y.S. ROUTE 303 & HEMLOCK DRIVE - UNSIGNALIZED**								
	SOUTHBOUND LEFT-THROUGH	A [8.9]	A [8.7]	A [9.2]	A [9.1]	A [9.3]	A [9.3]	A [9.3]	A [9.5]
	WESTBOUND LEFT-RIGHT	C [18.0]	C [19.9]	C [21.7]	D [26.8]	C [23.5]	D [31.5]	C [25.0]	E [41.2]

Table 3.5-2
Level of Service Summary Table
Meola Road Access Alternative

	LOCATION	EXISTING		NO-BUILD		Senior Housing BUILD		Maximum Impact Scenario Townhouses & Commercial Parcel BUILD	
		AM	PM	AM	PM	AM	PM	AM	PM
	WITH IMPROVEMENTS								
3.	**N.Y.S. ROUTE 303 & MEOLA ROAD/Site Access - UNSIGNALIZED**								
	NORTHBOUND LEFT-THROUGH	A [8.9]	A [8.2]	A [9.3]	A [8.3]	A [9.4]	A [8.4]	A [9.6]	A [9.0]
	EASTBOUND LEFT-RIGHT	B [14.7]	B [13.8]	C [16.6]	C [15.2]	C [21.8]	C [15.6]	E [36.3]	F [86.0]
	WITH IMPROVEMENTS								
	NORTHBOUND LEFT	--	--	--	--	A [9.4]	A [8.5]	A [9.5]	A [9.0]
	EASTBOUND LEFT	--	--	--	--	C [17.5]	C [19.9]	C [19.3]	D [31.6]
	EASTBOUND RIGHT	--	--	--	--	C [16.0]	B [11.8]	C [18.2]	B [12.8]
4.	**N.Y.S. ROUTE 303 & BRENNER DRIVE / INTERCOS DRIVEWAY - UNSIGNALIZED**								
	NORTHBOUND LEFT-THROUGH-RIGHT	A [8.4]	A [8.3]	A [8.6]	A [8.8]	A [8.7]	A [8.9]	A [8.9]	A [9.1]
	SOUTHBOUND LEFT-THROUGH-RIGHT	A [8.2]	A [8.4]	A [8.6]	A [8.6]	A [8.7]	A [8.8]	A [8.7]	A [9.0
	EASTBOUND LEFT-THROUGH-RIGHT	C [15.6]	C [18.7]	C [18.8]	D [26.8]	C [20.5]	D [31.3]	C [22.2]	E [39.7]
	WESTBOUND LEFT-THROUGH-RIGHT	C [19.5]	C [20.7]	C [24.7]	D [27.6]	D [26.7]	D [31.4]	D [28.8]	E [38.2]

Table 3.5-2
Level of Service Summary Table
Meola Road Access Alternative

	LOCATION	EXISTING		NO-BUILD		Senior Housing BUILD		Maximum Impact Scenario Townhouses & Commercial Parcel BUILD	
		AM	PM	AM	PM	AM	PM	AM	PM
5.	**N.Y.S. ROUTE 303 & LAKE ROAD - SIGNALIZED**								
	NORTHBOUND LEFT	B [14.0]	B [17.2]	B [15.0]	C [22.3]	B [15.7]	C [23.6]	B [16.6]	C [25.7]
	NORTHBOUND THROUGH-RIGHT	B [13.5]	B [15.3]	B [15.5]	B [16.6]	B [15.9]	B [17.8]	B [16.0]	B [19.8]
	SOUTHBOUND LEFT-THROUGH-RIGHT	C [25.0]	C [26.1]	C [27.4]	C [33.2]	C [29.8]	C [37.1]	C [33.4]	D [46.1]
	EASTBOUND LEFT-THROUGH	C [26.3]	C [26.9]	C [28.6]	C [27.9]	C [29.0]	C [28.8]	C [29.0]	C [30.3]
	EASTBOUND RIGHT	C [22.7]	C [23.9]	C [23.0]	C [24.2]	C [23.0]	C [24.2]	C [23.0]	C [24.2]
	WESTBOUND LEFT-THROUGH-RIGHT	C [31.6]	C [31.4]	D [38.0]	C [34.7]	D [38.4]	C [35.8]	D [38.7]	D [37.3]
	OVERALL INTERSECTION	**C [22.4]**	**C [23.1]**	**C [24.9]**	**C [26.8]**	**C [25.8]**	**C [28.5]**	**C [27.1]**	**C [32.2]**
6.	**N.Y.S. ROUTE 303 & RANDI LANE / HILL TOP ROAD - UNSIGNALIZED**								
	NORTHBOUND LEFT-THROUGH-RIGHT	A [8.2]	A [8.7]	A [8.3]	A [9.2]	A [8.4]	A [9.3]	A [8.6]	A [9.3]
	SOUTHBOUND LEFT-THROUGH-RIGHT	A [8.3]	A [8.5]	A [8.7]	A [8.7]	A [8.8]	A [8.8]	A [8.8]	A [8.9]
	EASTBOUND LEFT-THROUGH-RIGHT	C [21.9]	D [27.6]	D [29.3]	E [41.0]	D [33.0]	E [49.2]	E [37.0]	E [49.8]
	WESTBOUND LEFT-THROUGH-RIGHT	C [21.3]	D [25.6]	D [29.9]	E [38.1]	D [34.0]	E [45.7]	E [38.2]	E [46.2]

Source: John Collins Engineers, 2010.

3.5.5 No-Build Traffic Conditions

The Existing traffic volumes were projected to a 2014 design year utilizing a growth rate of 2% per year to account for background traffic growth in the area. The 2014 Projected Traffic volumes are shown on Figures 3.5-4 and 3.5-5 for the weekday a.m. and p.m. peak hours respectively.

Other specific planned area development traffic volumes were also added to the roadway network, which included traffic from the Kohl Industrial Development and development anticipated on Hemlock Drive. The traffic volumes from these developments is shown on Figures 3.5-6 and 3.5-7 for the weekday a.m. and p.m. peak hours respectively.

The 2014 No-Build Traffic Volumes were obtained by adding the Other Development Traffic Volumes to the 2014 Projected Traffic Volumes. The resulting No-Build traffic volumes are shown on Figures 3.5-8, and 3.5-9, Weekday Peak a.m. and Weekday Peak p.m. hours, respectively. No-Build levels of service are shown in the Level of Service Summary Table 3.5-2.

3.5.6 Build Traffic Conditions - Potential Impacts

In order to estimate the anticipated amount of traffic to be generated by the Orchard Ridge development during peak hours, information published by the Institute of Transportation Engineers (ITE) as contained in their publication entitled, “Trip Generation”, 8th Edition, November 2008, was utilized.

The Active Adult nature of the proposed project is somewhat of a hybrid between Senior Housing which has very limited trip generation characteristics and non-age restricted Townhouse residences. Trip generation for both of these land use categories was assessed. Table 3.5-2, Level of Service Summary shows the results of both of these analyses. In order to provide a conservative analysis, the trip generation of the non-age restricted townhouses was used to determine maximum project impacts.

Tables 3.5-3 and 3.5-4 summarize trip generation rates and the number of trips anticipated as a result of development of the Orchard Ridge project, based upon the unrestricted Townhouse Trip Rates. The project will generate approximately 131 vehicular trips in the weekday a.m. peak hour, and 157 vehicular trips in the weekday p.m. peak hour.

Table 3.5-3
Orchard Ridge Trip Generation Rates

Land Uses (size) {ITE Code}[1]	Trip Rates			
	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
Townhouse Units - 320 units {230}*	0.07	0.34	0.33	0.16

[1]Trip Generation, Institute of Transportation Engineers, 8th edition, Washington DC, 2008.
*Trip generation rates for residential are per unit.

Table 3.5-4
Orchard Ridge Trip Generation

Land Uses (size) {ITE Code}[1]	Trips					
	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Townhouse Units - 320 units {230}	22	109	131	105	51	156

[1]Trip Generation, Institute of Transportation Engineers, 8th edition, Washington DC, 2008.

Based upon a review of the Existing Traffic Volumes, a review of the other existing traffic volumes on the area roadway, and other pertinent population data, the expected arrival/departure distributions were developed to assign the site generated traffic volumes to the roadway network and adjacent intersections. These distributions are shown on Figures 3.5-10 and 3.5-11.

The Site Generated Traffic Volumes were assigned to the roadway network utilizing the above referenced arrival and departure distributions. The resulting Site Generated Traffic Volumes for the Weekday a.m. and p.m. Peak Hours are shown on Figures 3.5-12 and 3.5-13, respectively.

These Site Generated Traffic Volumes were then combined with the Design Year No-Build Traffic Volumes to obtain the Build Traffic Volumes, which are shown on Figures 3.5-14 and 3.5-15.

In order to evaluate existing and future traffic operating conditions for the area intersections, capacity analyses were conducted utilizing the procedures described above. The capacity analysis worksheets are contained in Appendix E of the DEIS. The following is a brief description of each of the intersections analyzed, the results of the capacity analyses and any corresponding recommended improvements. Build Traffic Levels of Service are shown in the Level of Service Summary Table 3.5-2.

1. NYS Route 303 and U.S. Route 9W

   U.S. Route 9W intersects with NYS Route 303 at a signalized full movement intersection. The northbound approach consists of separate left and a through/right turn lane (with the right turn channelized) while the southbound approach consists of a separate left and a through/right turn lane. The Route 9W westbound approach consists of a left/through and separate right turn lane and the eastbound approach consists of one lane exiting the residential access drive.

   Capacity analysis conducted at this intersection indicates that the intersection currently experiences an overall Level of Service “C” or better under existing conditions.

   This intersection was re-analyzed under future No-Build and Build conditions. A review of the analysis indicates that an overall Level of Service “C” will be maintained at the intersection during peak periods.

2. NYS Route 303 and Hemlock Drive

Hemlock Drive intersects with NYS Route 303 at a “T” intersection. All approaches to the intersection consist of one lane.

Capacity analysis conducted at this intersection indicates that on the Hemlock Drive approach, a Level of Service “C” is experienced for exiting traffic during the AM and PM Peak Hours. These Levels of Service under the No-Build and Build conditions are “D”.

3. NYS Route 303 and Meola Road

Orchard Ridge will be provided access via Meola Road. Meola Road is also an access to Congers Colonial Plaza. Meola Road intersects with NYS Route 303 at a “T” intersection. All approaches to the intersection consist of one lane.

The capacity analysis for the existing traffic conditions during the AM and PM Peak Hours for the Meola Road approach indicates a Level of Service “B.”

It is recommended that Meola Road be widened to provide additional width including two exiting lanes at Route 303. In addition, NYS Route 303 should be widened to provide a separate left turn lane northbound. This will serve the traffic destined to the existing shopping plaza as well as Orchard Ridge.

The capacity analysis conducted at this intersection utilizing the future No-Build and Build Traffic Volumes indicates that Levels of Service "C" or better will be obtained at Meola Road.

4. NYS Route 303 and Brenner Drive/Intercos Drive

This intersection is a four-way intersection which includes Brenner Drive on the eastbound approach and Intercos Drive on the westbound approach. All approaches consist of one lane and traffic is controlled by “stop” signs on the side road approaches.

Capacity analysis conducted at this intersection indicates that Levels of Service “C” or better are currently experienced at this intersection.

The capacity analysis was recomputed utilizing the 2014 No-Build and 2014 Build Traffic Volumes. A review of this analysis indicates Level of Service "D" or better will be experienced on the side road approaches.

5. NYS Route 303 and Lake Road (CR 80)

   Lake Road intersects with NYS Route 303 at a signalized four-way intersection. The Lake Road eastbound approach widens at the intersection to provide a right turn lane. Also, on the NYS Route 303 northbound approach, there is a wide shoulder lane which is used as a bypass lane. The intersection currently operates at an overall Level of Service "C" or better during peak periods.

   The analysis was recomputed for future No-Build and Build conditions. The analysis indicated that some signal timing modifications will be required to accommodate future traffic volumes with or without the proposed development. With these signal modifications, an overall Level of Service "C" will be experienced during both the AM and PM Peak Hours for both the No-Build and Build conditions.

6. NYS Route 303 and Randi Lane/Hilltop Road

   Randi Lane/Hilltop Road intersect with NYS Route 303 at an unsignalized four-way intersection. Hilltop Road is located on the west approach of NYS Route 303 and Randi Lane on the east approach. All approaches consist of one lane and traffic is controlled by "stop" signs on the side road approaches. The exiting capacity analysis conducted at this intersection indicates that Levels of Service "D" or better are experienced. The capacity analysis was computed utilizing the 2014 No-Build and 2014 Build Traffic Volumes. A review of this analysis indicates a Level of Service "E" will be experienced on the side road approaches.

3.5.7 Comparison of LOS Summary Hemlock Drive vs. Meola Road

Tables 3.5-5 and 3.5-6 compare the level of Service Summary for Traffic operating conditions of the Hemlock Drive Access Plan vs. Meola Road Access Alternative. Based upon a change in the distribution of site generated traffic, only two of the studied intersections are impacted by the choice of Alternative Plans. The intersection of Hemlock Drive with NYS Route 303 and the intersection of Meola Road with NYS Route 303. All other studied intersections remain constant under either alternative.

Tables 3.5-5 shows that under the Hemlock Drive Access Plan the majority of movements will operate at level of service D or better with the exception of the westbound Hemlock Drive movement which is projected to operate at level of service F. By comparison, under the Meola Road Access Alternative all movements will operate at level of service C or better, thus the Meola Road Access Alternative results in improved traffic operating conditions.

Both the Hemlock Drive Access Plan and the Meola Road Access Alternative include exclusive left and right turn lanes at the main access from the project site onto NYS Route 303. As indicated in Table 3.5-6, the Meola Road Access Alternative includes construction of a northbound dedicated left turn lane to further improve traffic operating conditions on NYS Route 303. The details of this construction are shown in Figure 3.5-16.

Table 3.5-5
Level of Service Summary All Conditions
Hemlock Drive Access Plan - Senior Housing

Intersection Road	Lane Group Approach Direction - Movement	Levels of Service (Delay in seconds per vehicle)					
		Weekday A.M. Peak Hour			Weekday PM Peak Hour		
		Existing	No Build	Build	Existing	No Build	Build
NYS Route 303 and Hemlock Drive / Site Access							
NYS Route 303	NB - L,T,R	--	--	A (8.6)	--	--	A (8.5)
	SB - L,T,R	A (8.9)	A (9.2)	A (9.2)	A (8.7)	A (9.1)	A (9.1)
Hemlock Drive	WB - L,T,R	C (18.0)	C (21.7)	D (31.8)	C (19.9)	D (26.8)	D (26.8)
Site Access	EB - L,T,R	--	--	D (33.2)	--	--	F (81.8)
With Improvements							
NYS Route 303	NB - L,T,R	--	--	A (8.6)	--	--	A (8.5)
	SB - L,T,R	--	A (9.2)	A (9.2)	--	A (9.1)	A (9.1)
Hemlock Drive	WB - L,T,R	--	C (15.5)	C (19.2)	--	C (19.4)	C (17.1)
Site Access	EB - L,T,R	--	--	C (19.3)	--	--	D (29.7)
NYS Route 303 and Meola Road							
NYS Route 303	NB - L,T	A (8.9)	A (9.3)	A (9.3)	A (8.2)	A (8.3)	A (8.4)
Meola Road	EB - L,R	B (14.7)	C (16.6)	C (16.9)	B (13.8)	C (15.2)	C (15.6)

NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound.
L = left, R= right, T = through, (e.g. WB-L = Westbound left).

Table 3.5-6
Level of Service Summary All Conditions
Meola Road Access Alternative - Senior Housing

Intersection Road	Lane Group Approach Direction - Movement	Levels of Service (Delay in seconds per vehicle)					
		Weekday A.M. Peak Hour			Weekday PM Peak Hour		
		Existing	No Build	Build	Existing	No Build	Build
NYS Route 303 and Hemlock Drive							
NYS Route 303	SB - L,T,R	A (8.9)	A (9.2)	A (9.3)	A (8.7)	A (9.1)	A (9.2)
Hemlock Drive	WB - L,T,R	C (18.0)	C (21.7)	C (23.5)	C (19.9)	D (26.8)	D (31.5)
NYS Route 303 and Meola Road							
NYS Route 303	NB - L,T	A (8.9)	A (9.3)	A (9.4)	A (8.2)	A (8.3)	A (8.5)
Meola Road	EB - L,R	B (14.7)	C (16.6)	C (21.8)	B (13.8)	C (15.2)	C (20.3)
With Improvements							
NYS Route 303	NB - L	--	--	A (9.4)	--	--	A (8.5)
Meola Road	EB - L	--	--	C (17.5)	--	--	C (19.9)
	EB - R	--	--	C (16.0	--	--	B (11.8)

NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound.
L = left, R= right, T = through, (e.g. WB-L = Westbound left).

3.5.8 Consideration of Potential Commercial Parcel

North of the proposed residential access and south of Meola Road, there is a separate parcel which is zoned for commercial development. While there are no current plans for the development of this parcel, a separate evaluation of the potential impact of this development as an approximately 14,000 s.f. retail development was completed and is contained in Appendix "E". As can be seen from a review of this analysis as presented in Table No. 2A, with the completion of the improvements planned for this residential portion of the project, similar Levels of Service will be experienced at the intersections analyzed.

3.5.9 Sight Distance

Stopping sight distance is the distance a vehicle would require to be able to stop on wet pavement to avoid a collision with a vehicle entering the traffic stream. Intersection sight distance provides an additional margin of safety above stopping sight distance.

The NYSDOT *Policy and Standards for the Design of Entrances to State Highways* discusses both stopping and intersections sight distance. "Driveways should be located where the stopping sight distance meets or exceeds the values in American Association of State Highway and Transportation Officials' (AASHTO) latest (2004) *A Policy on Geometric Design of Highways and Streets*." Where stopping sight distance is nonstandard, mitigation needs to be "considered".

The NYSDOT policies and standards note that intersection sight distance from *A Policy on Geometric Design of Highways and Streets* should also be met or exceeded where possible, although "Lower sight distances may be used if the Regional Traffic Engineer determines that they will not significantly degrade traffic safety and operations and there is no reasonable alternative."

A Policy on Geometric Design of Highways and Streets states "The provision of stopping sight distance at all locations along the highway or street, including intersection approaches is fundamental to intersection operation." As stopping sight distance may require major street traffic to stop or slow for minor road vehicles it also states "To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."

Intersection sight distance is defined as the sight distance that is necessary for a vehicle to safely enter the traffic stream requiring only minor speed adjustments by vehicles in the traffic stream. Stopping and Intersection Sight Distances are recommended by the American Association of State Highway and Transportation Officials (AASHTO).

Sight Distance - Site Access at NYS Route 303

The speed limit on NYS Route 303 is 45 miles per hour in the vicinity of the proposed Meola Road site access. As shown on Figure 3.5-16 the sight distance that will be provided at the main entrance driveway on NYS Route 303 is greater than 1,000 feet looking both to the north and the south. Based upon the AASHTO recommended sight distance requirements, the available sight distance would meet the guidelines for vehicles traveling more than 60 miles per hour, thus sight distance limitations are not considered critical to this analysis. Similar sight lines are available from the site access in the Hemlock Drive Access Plan.

3.5.10 Traffic from Construction Activity

The greatest volume of construction traffic is expected to occur at the beginning of the construction when rough grading is conducted, and when asphalt and building materials are transported to the site. Since grading is both time consuming and costly, cut and fill has been minimized. The Applicant will continue to refine the grading plan in an effort to achieve an earthwork balance for the project as far as practical.

It is anticipated that most construction trips would travel to and from the site via US Route 9W and /or NYS Route 303. All construction vehicles will use the proposed main access for ingress and egress. Construction vehicles and employees will park on-site at all times. Materials and equipment will be stored on site to minimize vehicle trips.

3.5.11 Pedestrian Access

As shown in Figure 2-2 Preliminary Site Plan, the project has been designed in a pedestrian friendly manner. Sidewalks are proposed at the fronts of all eight residential buildings. A continuous network of sidewalks will be provided along Road "A" which provides access from NYS Route 303 to the rear or west side of the property. All residential buildings will be connected via sidewalks to the clubhouse and recreation building located near the project entrance and Route 303. The sidewalks will encourage residents to walk to the community clubhouse for recreation and social events. A sidewalk will also be provided on Road "J" which connects to existing Meola Road and an existing sidewalk on that street. A natural one-half mile looped walkway consisting of wood chips will be provided through and at the edges of the on-site wetland and wetland buffer. The walkway will provide a pleasant and scenic pedestrian amenity to encourage walking.

3.5.12 Mass Transit Access

Rockland County has an extensive public transportation network which includes buses, and train service, providing service and connections within Rockland County, as well as surrounding destinations including northern New Jersey, Westchester County and New York City. The project site will be served by an existing Transport of Rockland (TOR) bus route, Route 97. This route travels north-south from Stoney Point and Haverstraw on Route 9W, and then on Route 303, through Congers to Nyack, Orangeburg and Tappan in the south. Connections are available in Nyack to the Tappan Zee express bus route, providing access to Metro North train service at Tarrytown or White Plains stations. The existing bus service would also provide access to shopping opportunities at the Palisades Center mall.

The availability of existing mass transit routes for the project would enable residents to readily access mass transit thus reducing dependence on private vehicle trips and would make shopping at the Palisades Center accessible without using a private auto. As stipulated in the AAR zone change approval resolution, a bus shelter will be installed in the vicinity of the main access drive to facilitate residents access to mass transportation. These efforts will be further coordinated during the site plan approval process.

3.5.13 Mitigation Measures

Mitigation - Meola Road Access Alternative

The Meola Road Access Alternative will not create any new curb cuts on NYS Route 303, but will utilize the existing Meola Road to provide access to the Orchard Ridge Project. This existing intersection is an unsignalized three way, T shaped intersection. As shown in Table 3.5-6 all movements at this intersection will operate at level of service C or better. Under this scenario there will be no changes made to the geometric configuration of Hemlock Drive with NYS Route 303. There is no change in operating level of service at the Meola Road access location nor at the intersection of Hemlock Drive with NYS Route 303.

As identified above, under the Build scenario, the intersection will benefit from a separate left turn lane on Route 303 at the Meola Road access. The project will also require dedicated left and right turn lanes from Meola Road onto NYS Route 303. The Applicant has included construction of the recommended roadway changes as part of the proposed project.

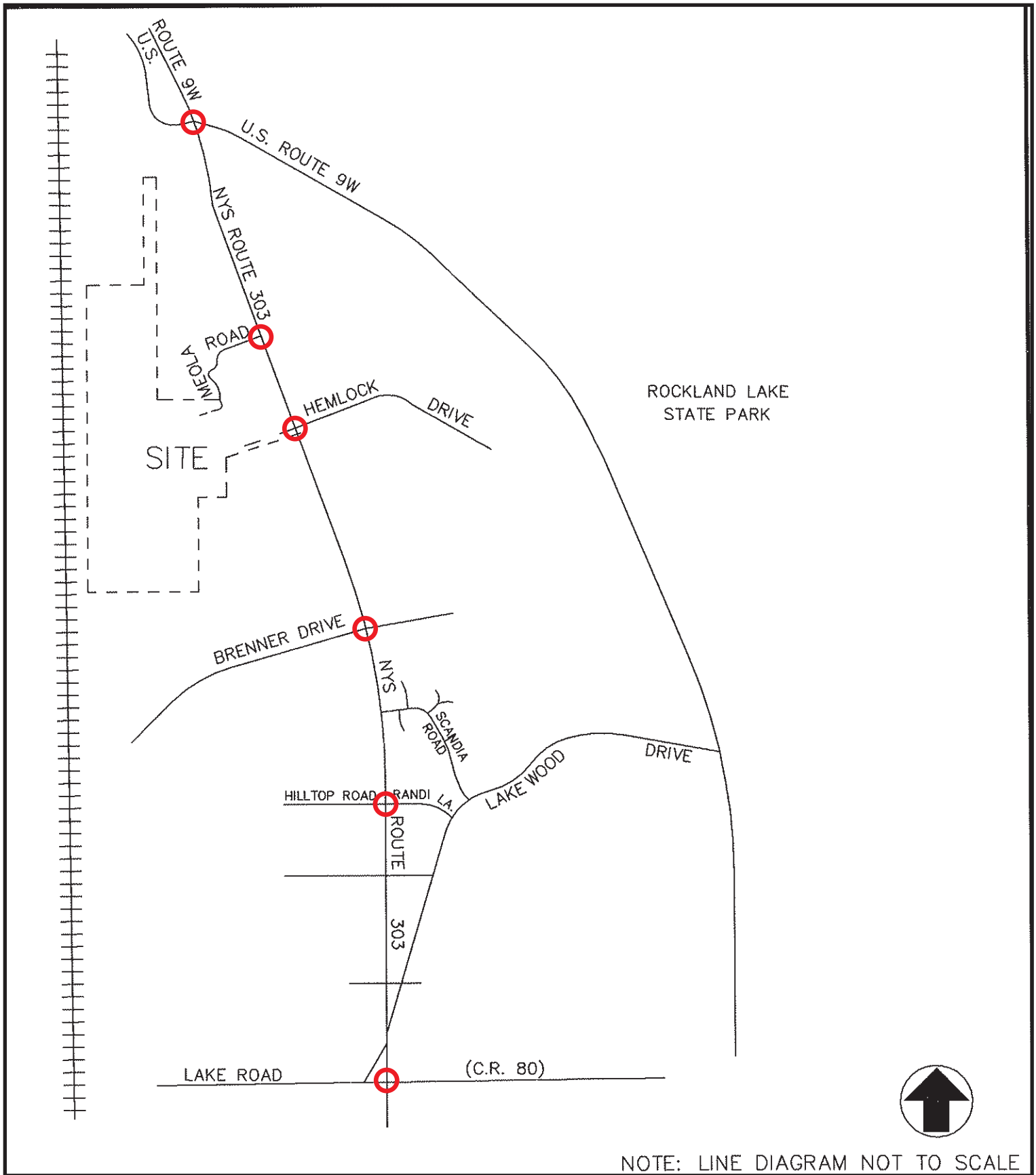
According the results of the *Traffic Impact Study* - Meola Road Access Alternative, the additional traffic generated by the Orchard Ridge Site will not result in a significant negative impact on the surrounding intersections assuming that the identified improvements are implemented. The Meola Road Access Alternative includes construction of a northbound dedicated left turn lane to improve traffic operating conditions on NYS Route 303. The details of this construction are shown in Figure 3.5-16 NYSDOT Details. The final design of the access will be reviewed with NYSDOT as part of the Highway Work Permit Process.

Mitigation - Hemlock Drive Access Plan

The Hemlock Drive Access Plan would construct a new leg at the Hemlock Drive / Route 303 intersection, making the current three way T intersection into a four way intersection. As shown in Table 3.5-5, traffic improvements, specifically a southbound left turn lane from NYS Route 303 to Hemlock Road, would be required under No-build conditions to maintain existing levels of service due to background growth and development of the surrounding properties.

As shown in Table 3.5-5, construction of the Orchard Ridge access at Hemlock Drive would require additional improvements, specifically a northbound left turn lane, to achieve acceptable levels of service. This is due to the increase in the volume of turning movements as a result of the Orchard Ridge Development.

It was anticipated that property owners along Hemlock Drive and the adjacent property owners to the south, Kohl's Industrial Development, would be making traffic related improvements to NYS Route 303 in the vicinity of Hemlock Drive. The timing and certainty of those anticipated improvements are beyond the control of the applicant, and the provision of traffic mitigation necessitated as a result of either the Kohl's project or development along Hemlock Drive is beyond the scope of the Orchard Ridge project. Thus he Applicant cannot commit to all the necessary traffic mitigation for the Hemlock Drive Access Plan.



LEGEND

Intersections Studied

Figure 3.5-1: Location Map

Orchard Ridge

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: June, 2009

File 10024 01/23/12
JS:\10024

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

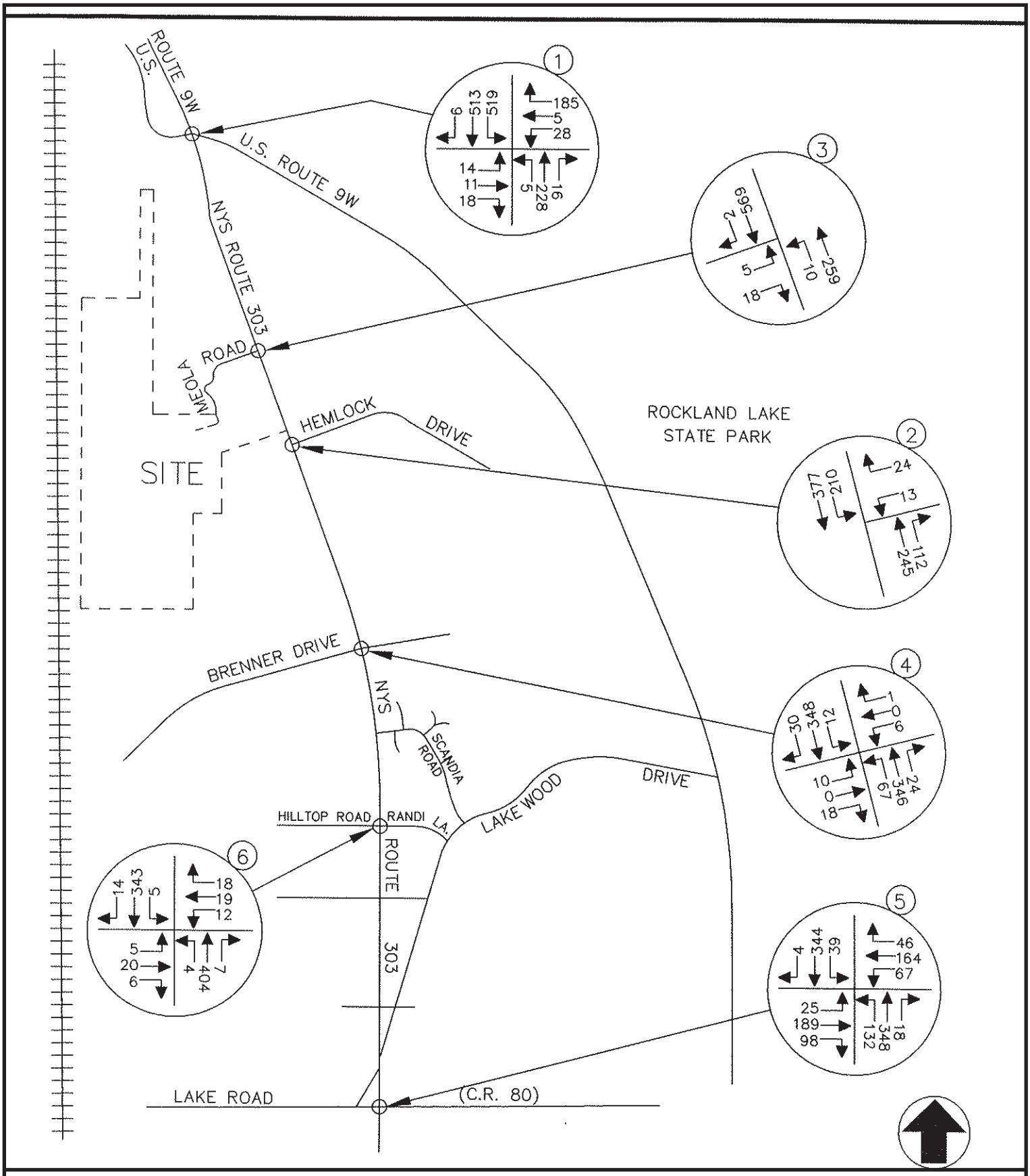


Figure 3.5-2: 2009 Existing Traffic Volumes, Weekday Peak AM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

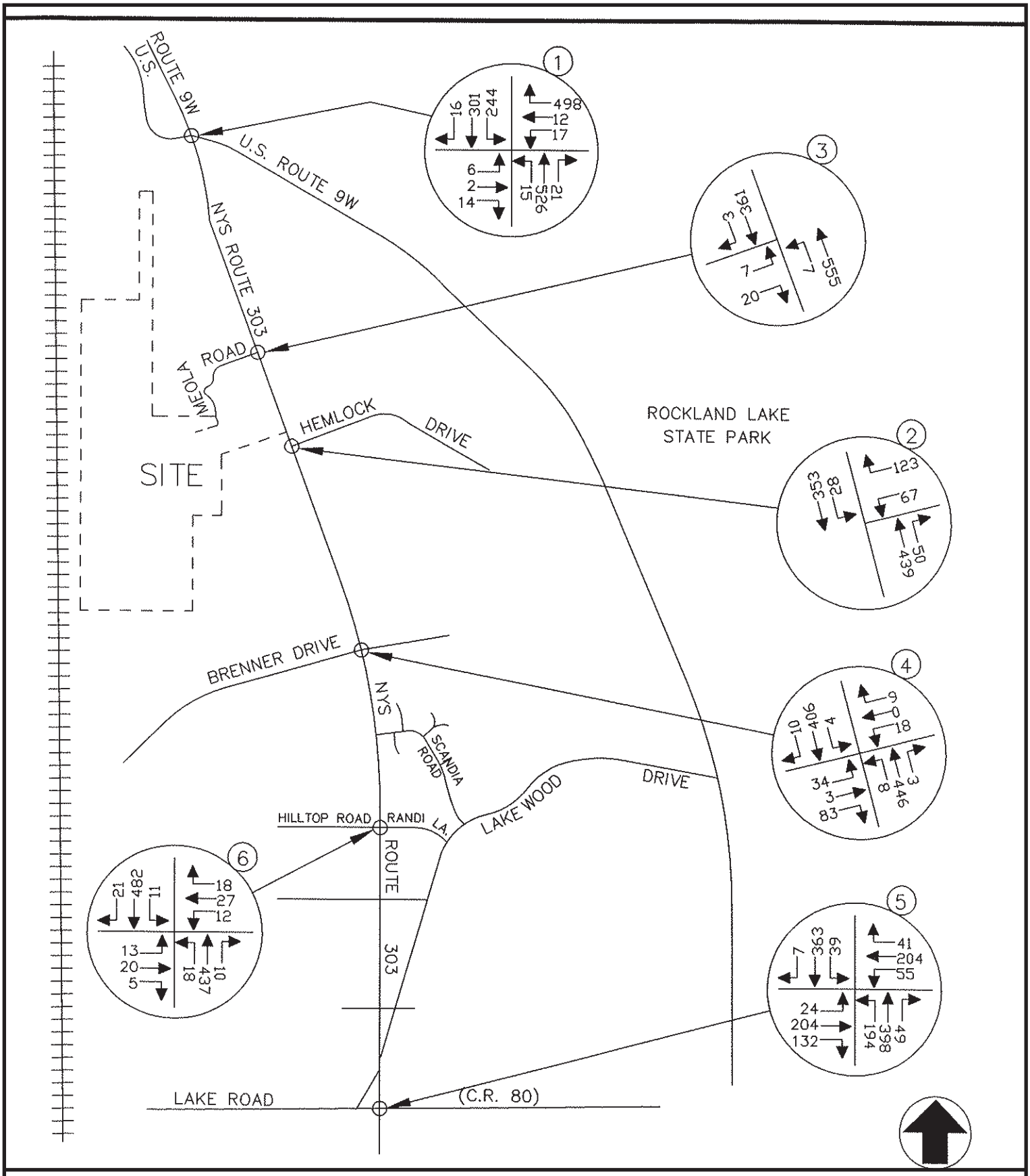


Figure 3.5-3: 2009 Existing Traffic Volumes, Weekday Peak PM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

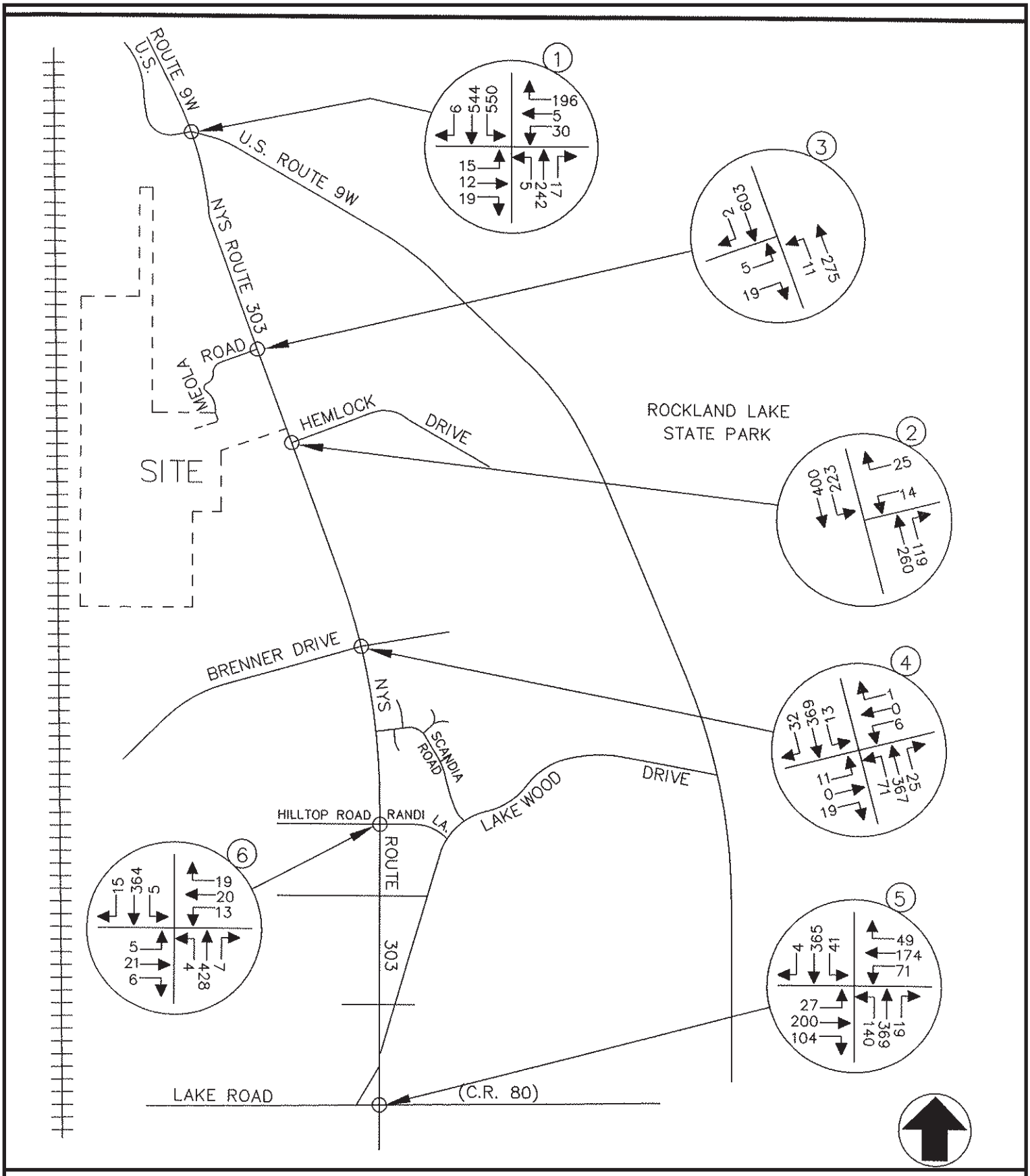


Figure 3.5-4: 2012 Projected Traffic Volumes, Weekday Peak AM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

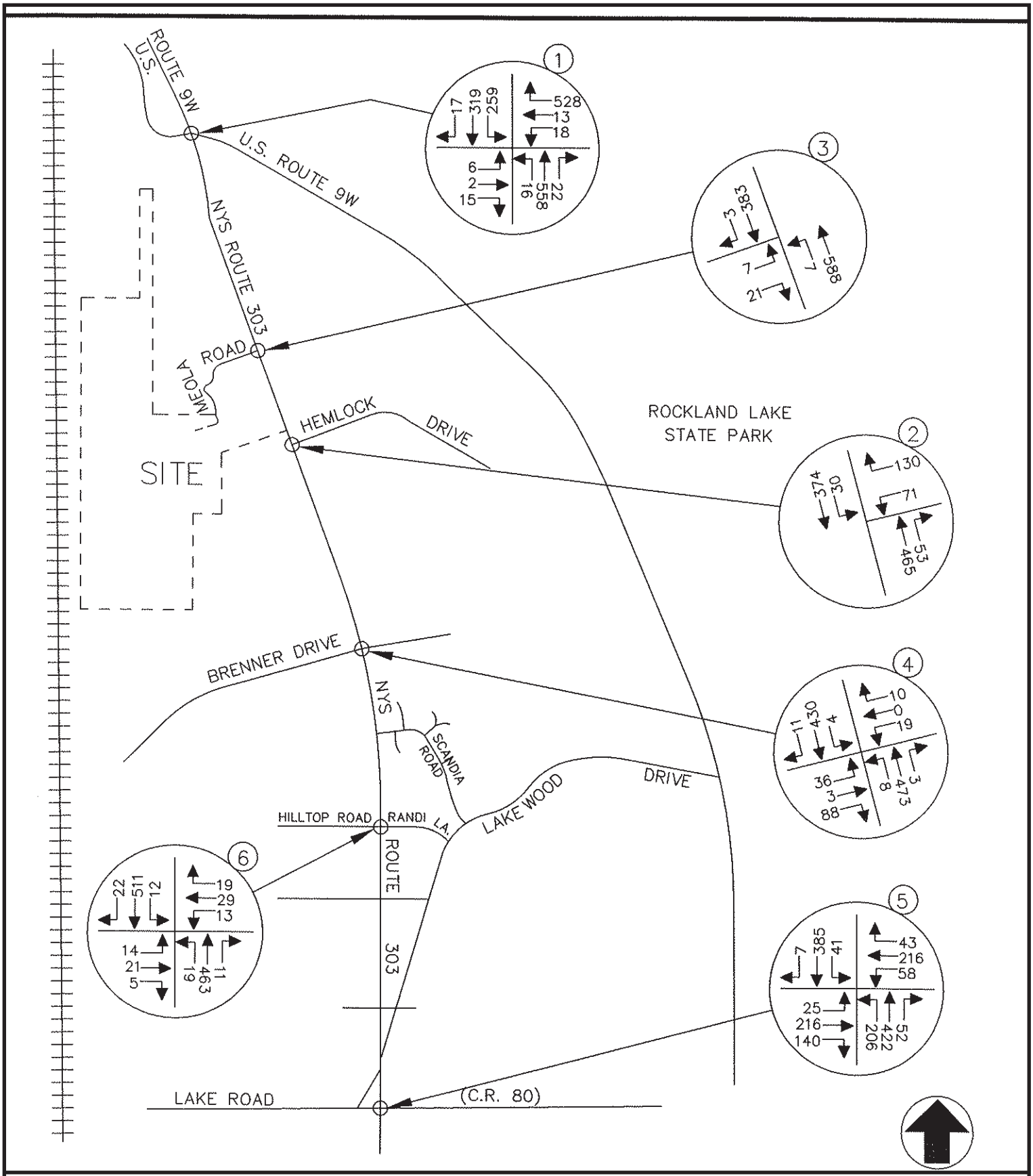


Figure 3.5-5: 2012 Projected Traffic Volumes, Weekday Peak PM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

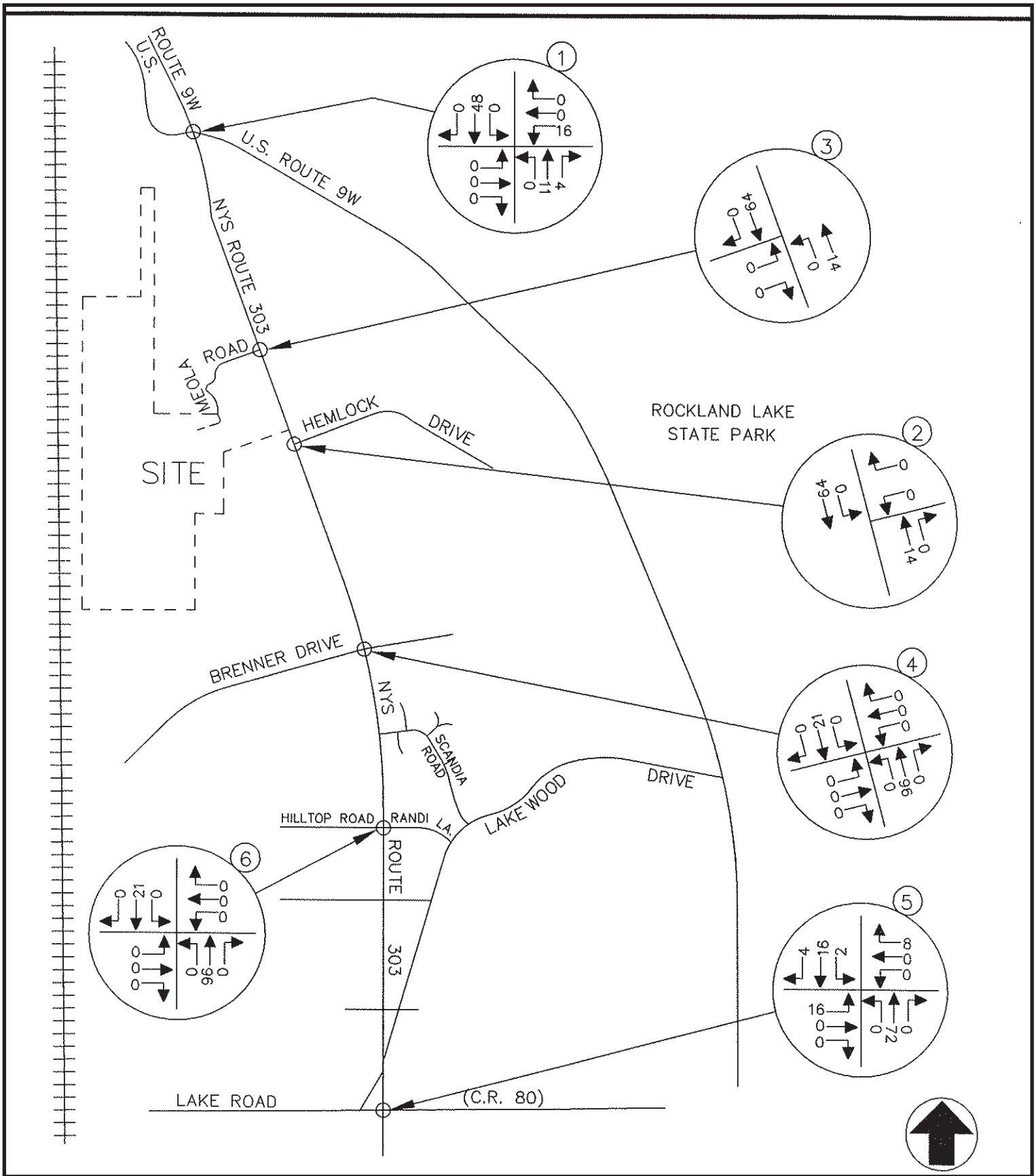


Figure 3.5-6: Other Development Traffic Volumes, Weekday Peak AM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

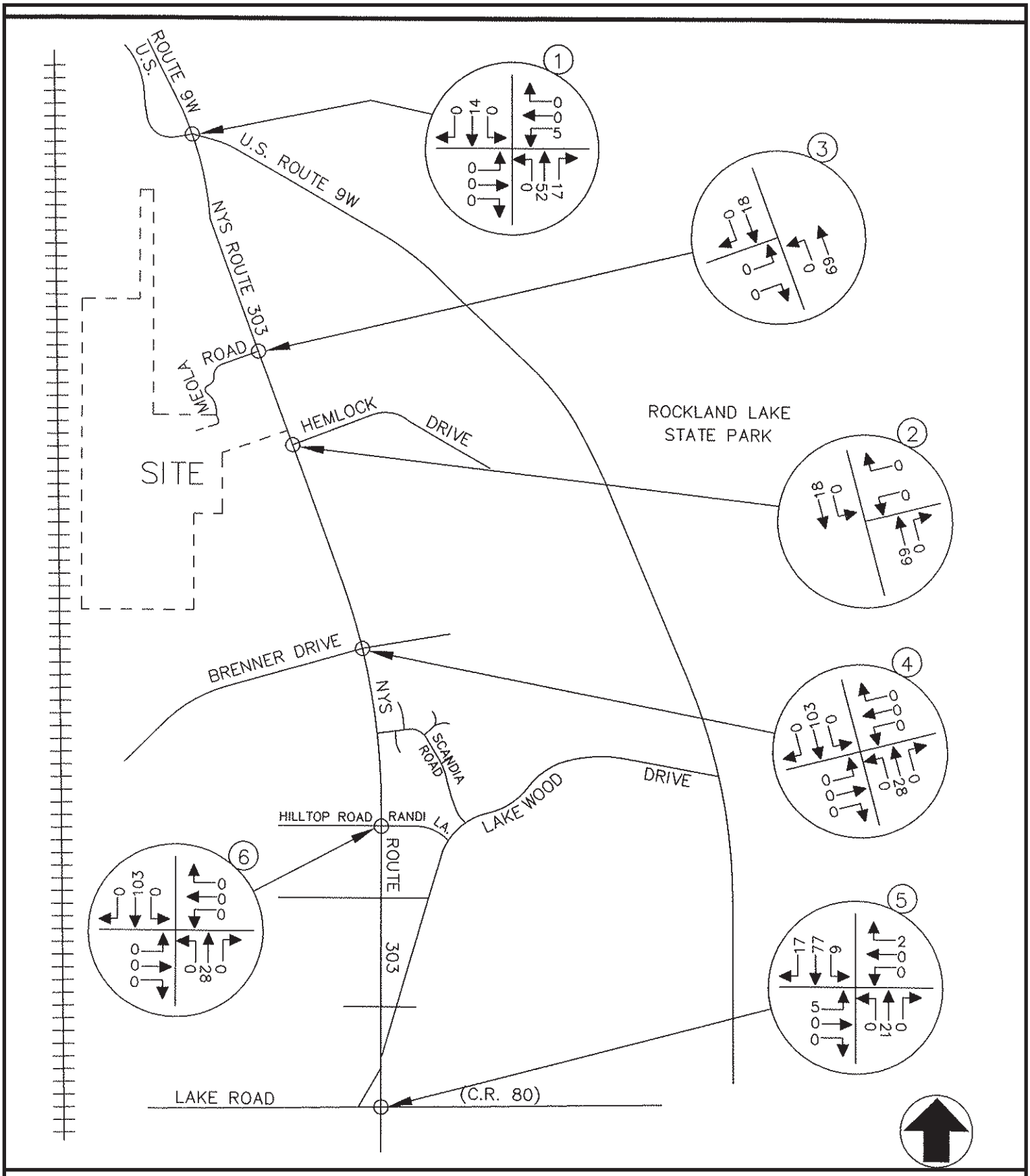


Figure 3.5-7: Other Development Traffic Volumes, Weekday Peak PM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

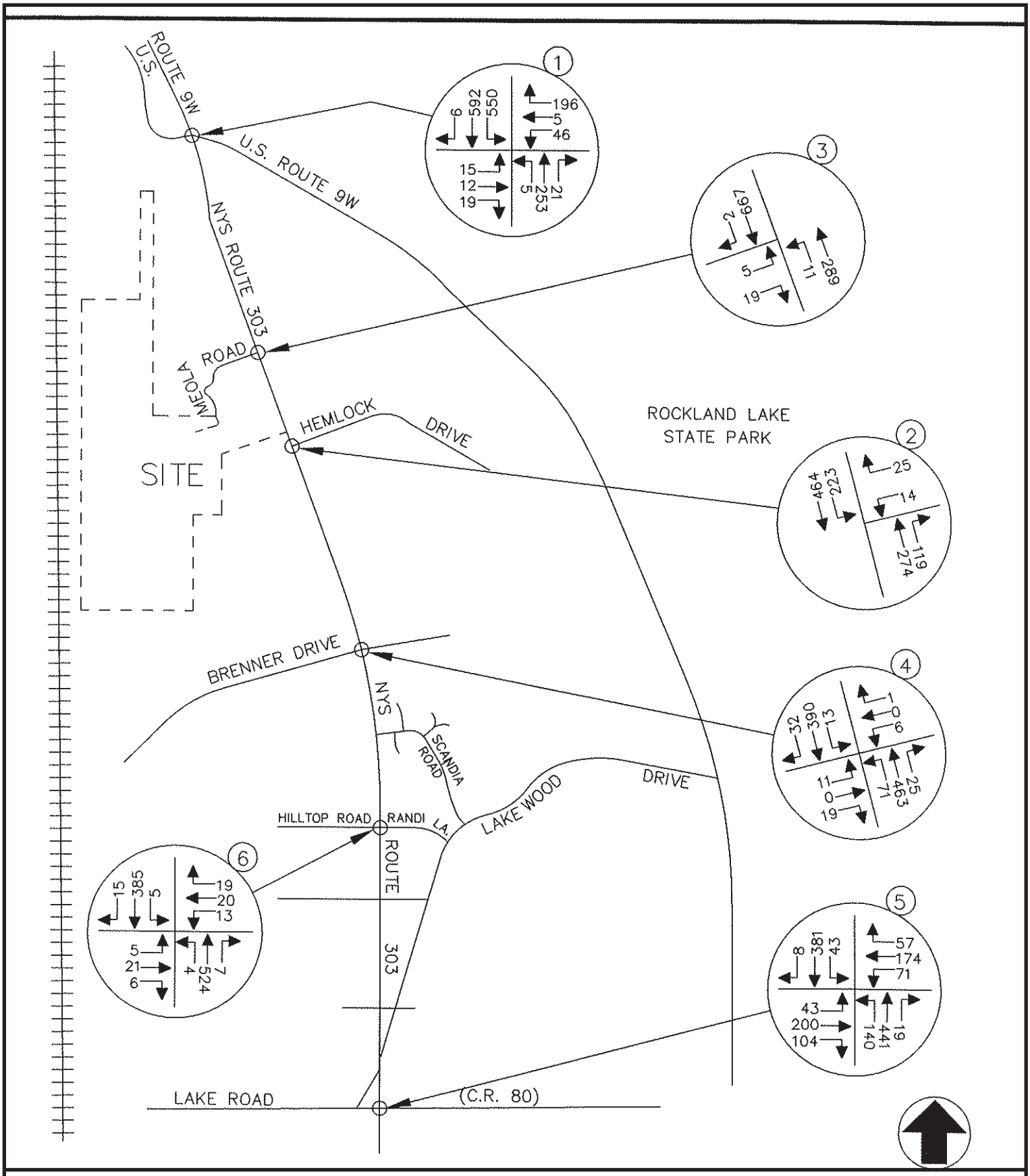


Figure 3.5-8: 2012 No Build Traffic Volumes, Weekday Peak AM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

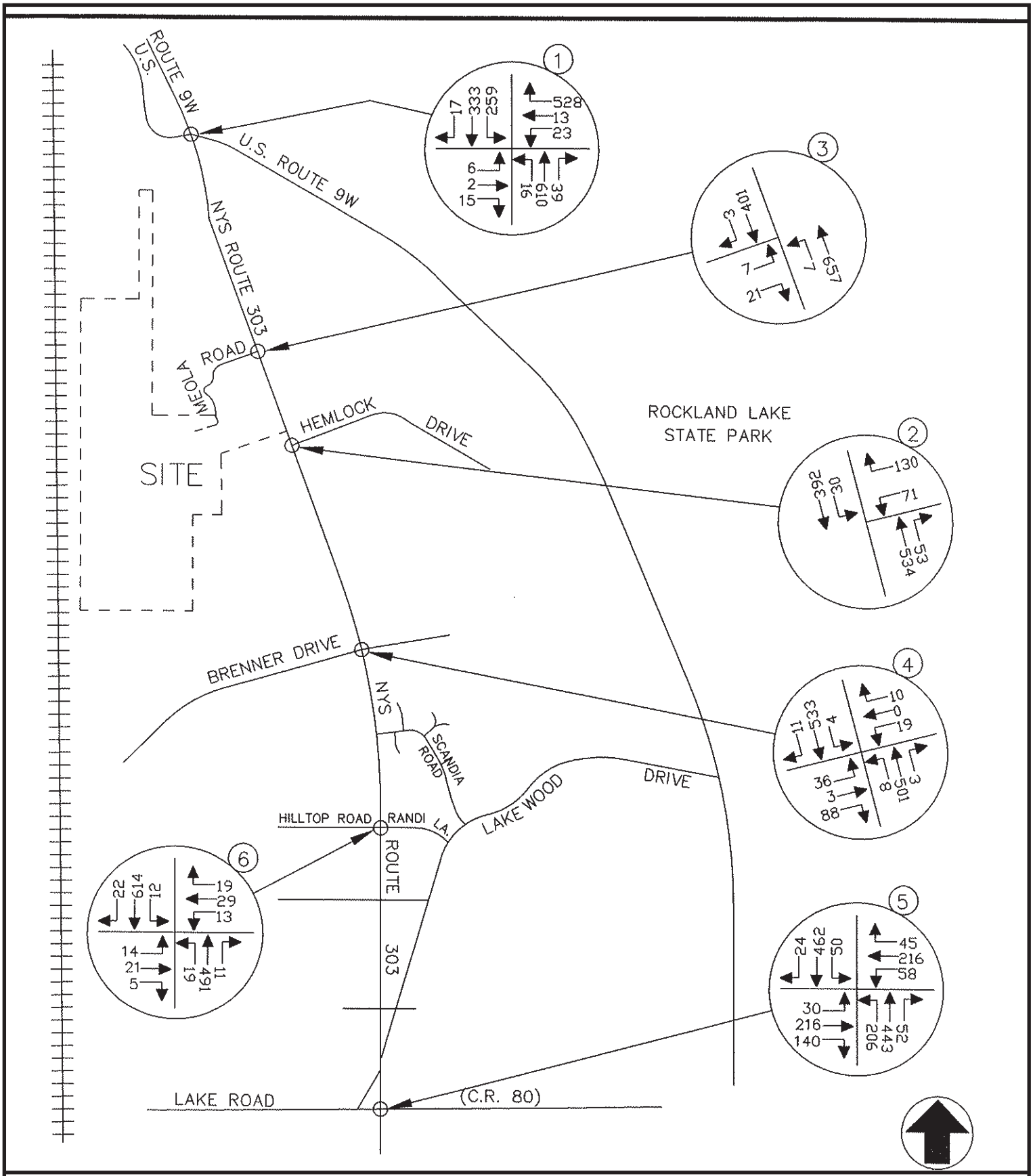


Figure 3.5-9: 2012 No Build Traffic Volumes, Weekday Peak PM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

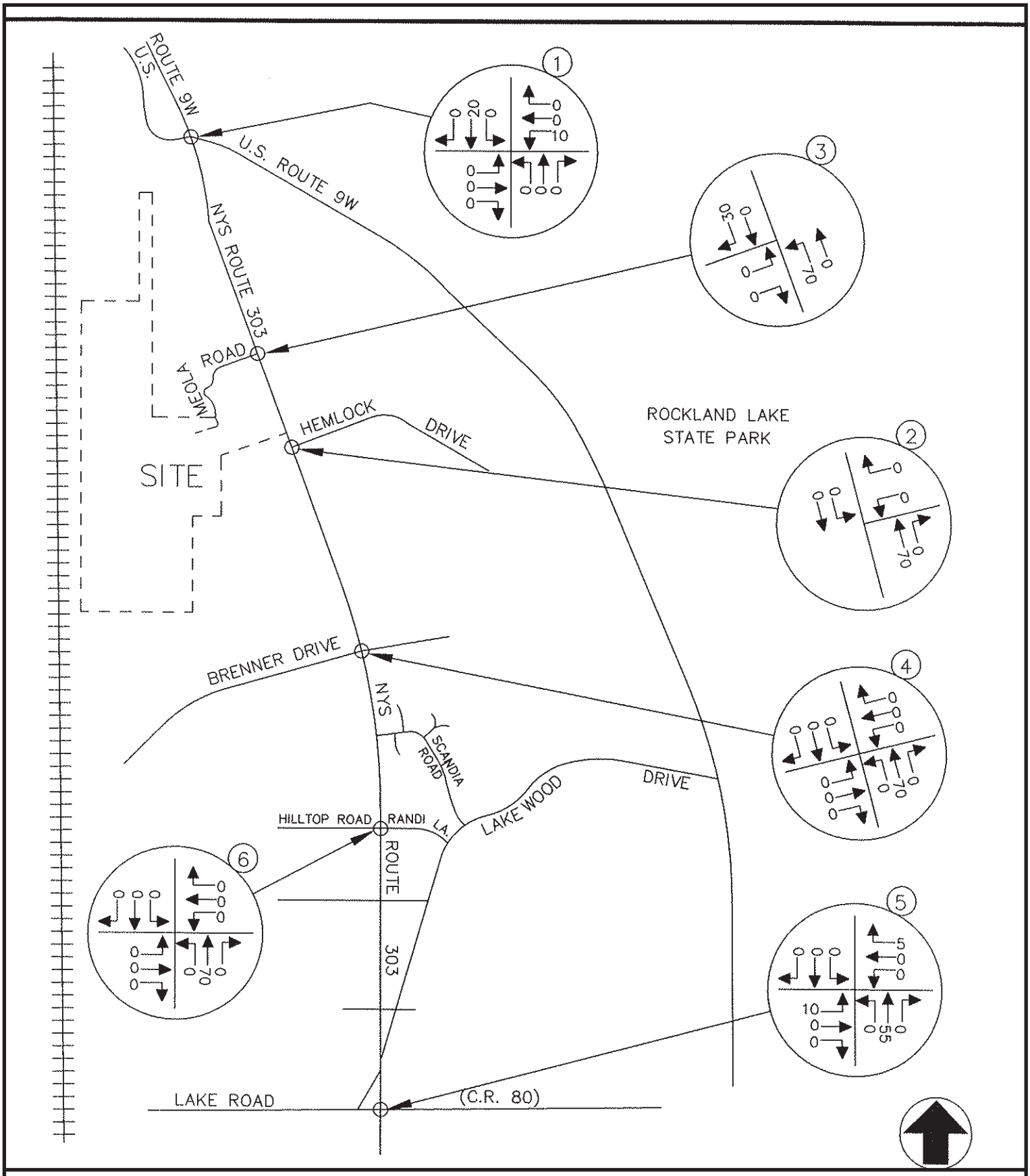


Figure 3.5-10: Arrival Distribution (All Values Expressed as %)

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

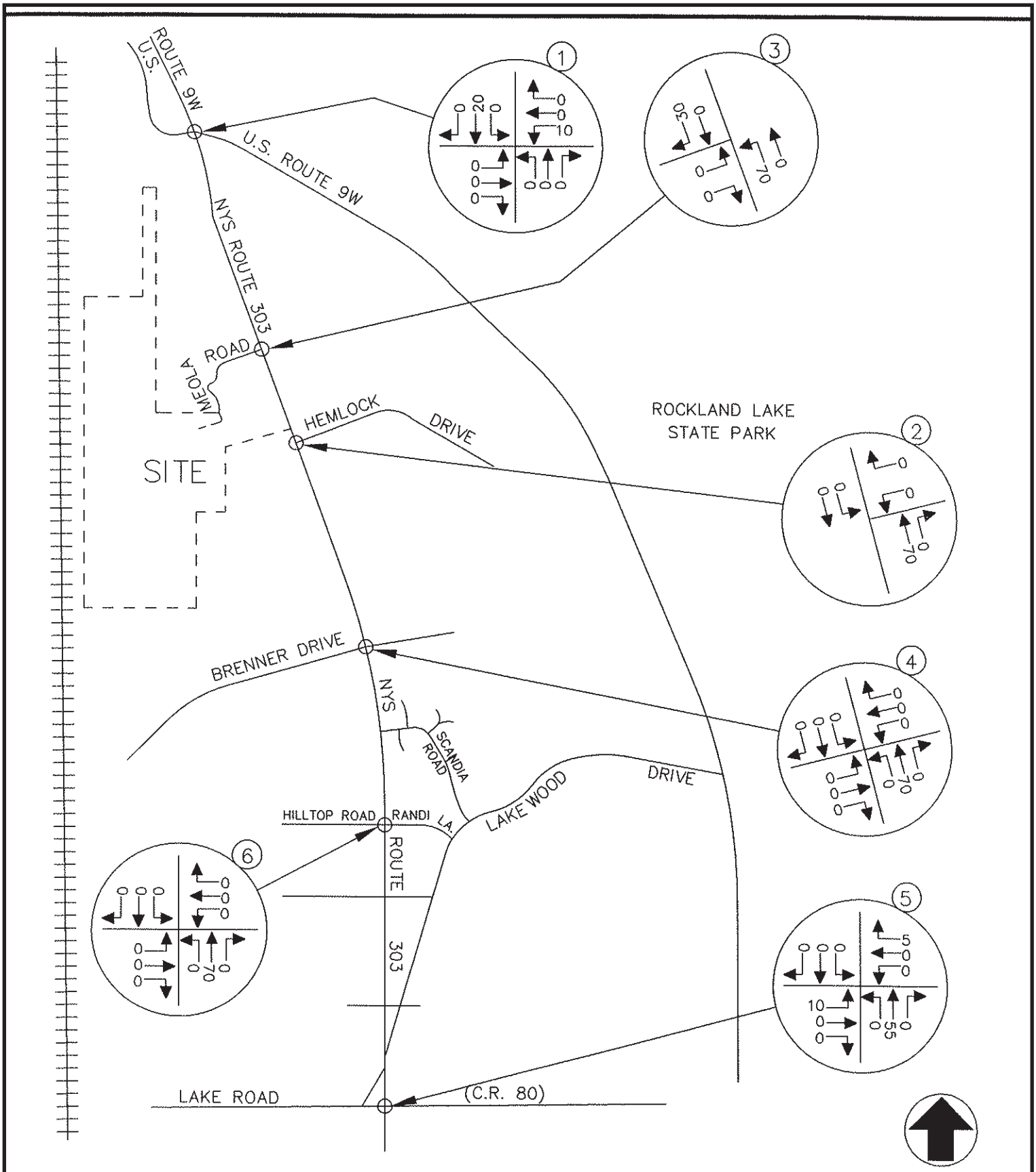


Figure 3.5-10A: Arrival Distribution with Commercial Parcel
(All values expressed as a %)
Orchard Ridge - Meola Road Access
Town of Clarkstown, Rockland County, New York
Source: John Collins Engineers, P.C.
Date: Sept,. 2011

File 10024 01/23/12
JS:\10024

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

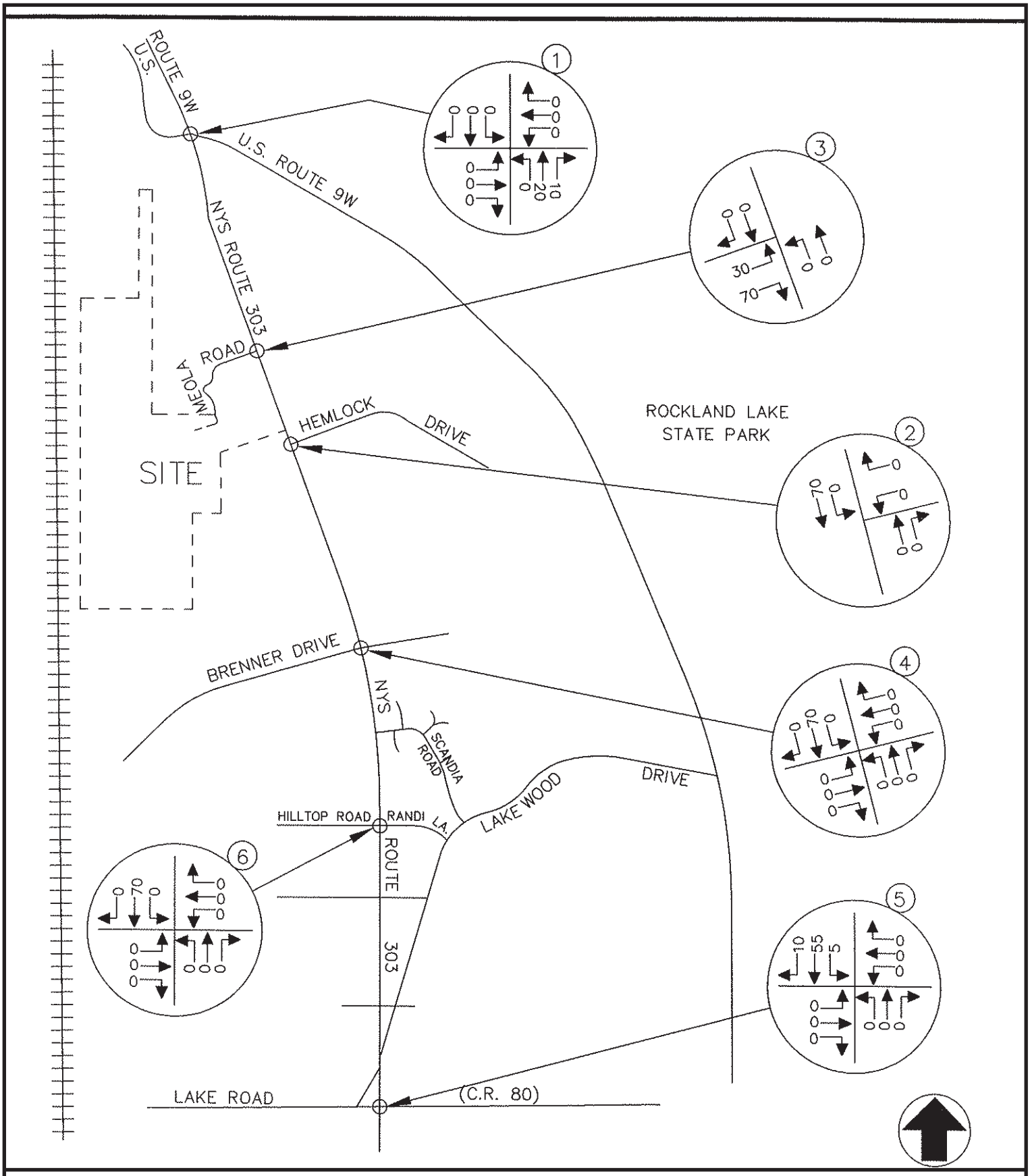


Figure 3.5-11: Departure Distribution (All Values Expressed as %)

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

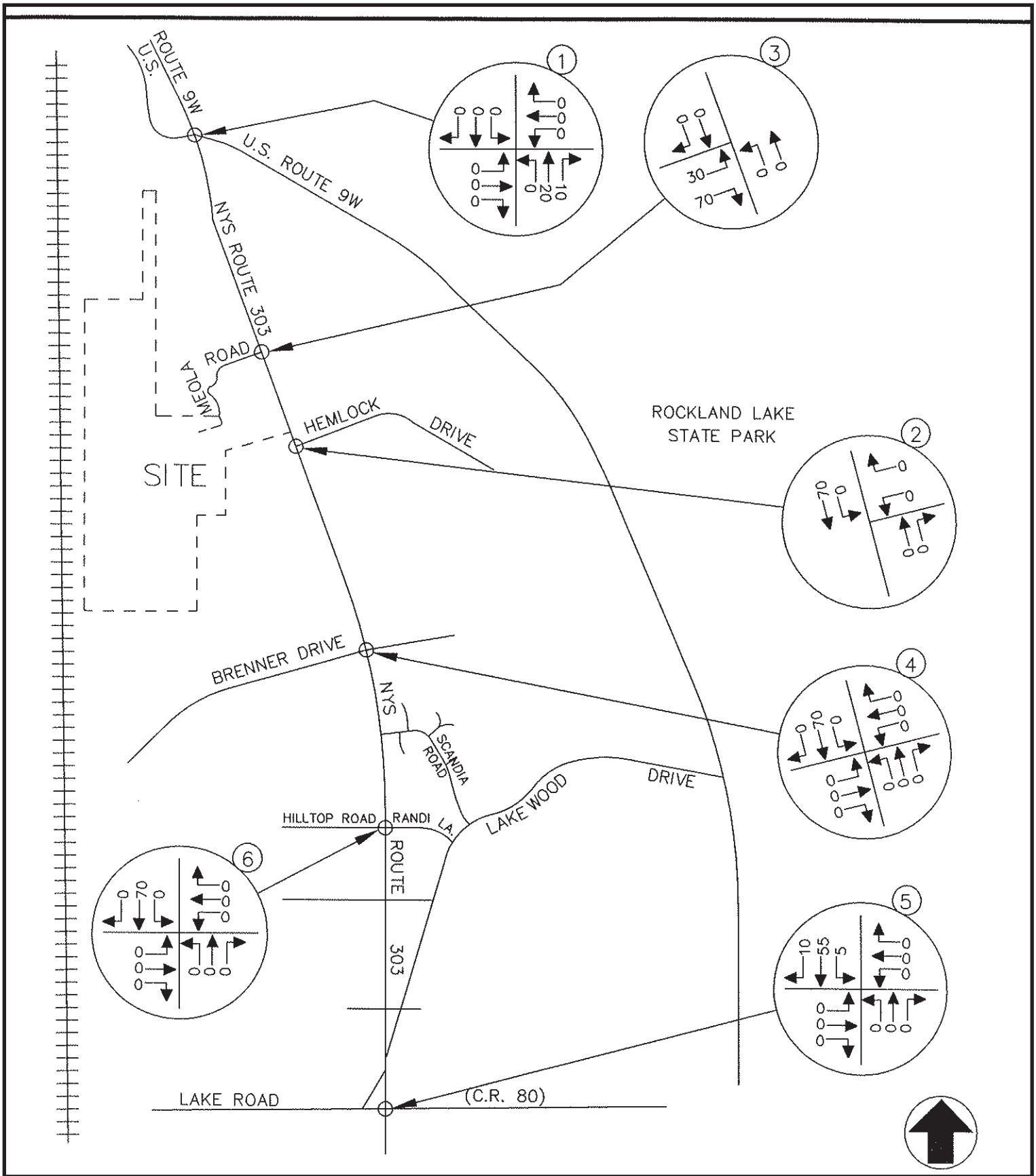


Figure 3.5-11A: Departure Distribution with Commercial Parcel
(All values expressed as a %)
Orchard Ridge - Meola Road Access
Town of Clarkstown, Rockland County, New York
Source: John Collins Engineers, P.C.
Date: Sept, 2011

File 10024 01/23/12
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Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

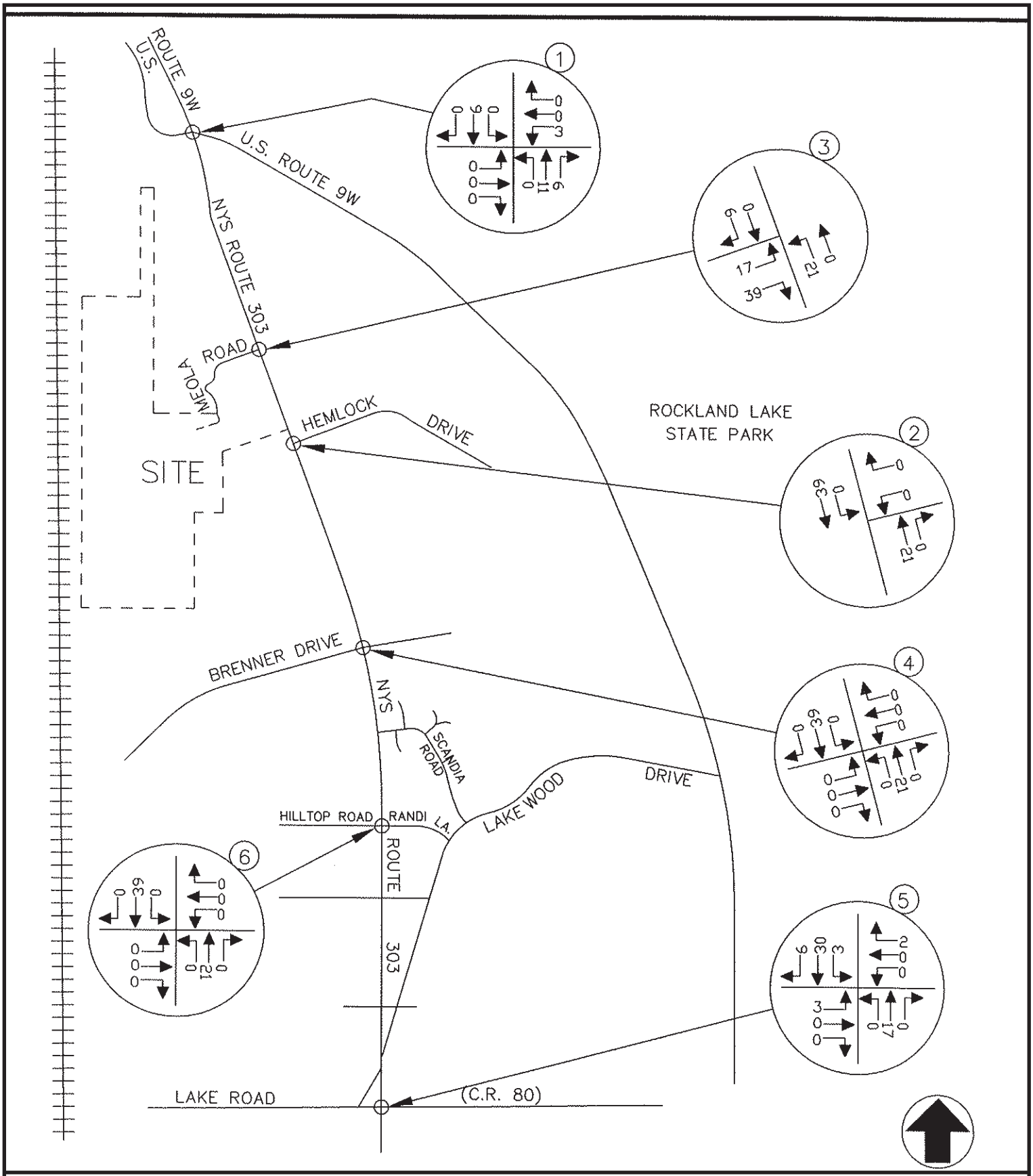

Figure 3.5-12: Site Generated Traffic Volumes, Weekday Peak AM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

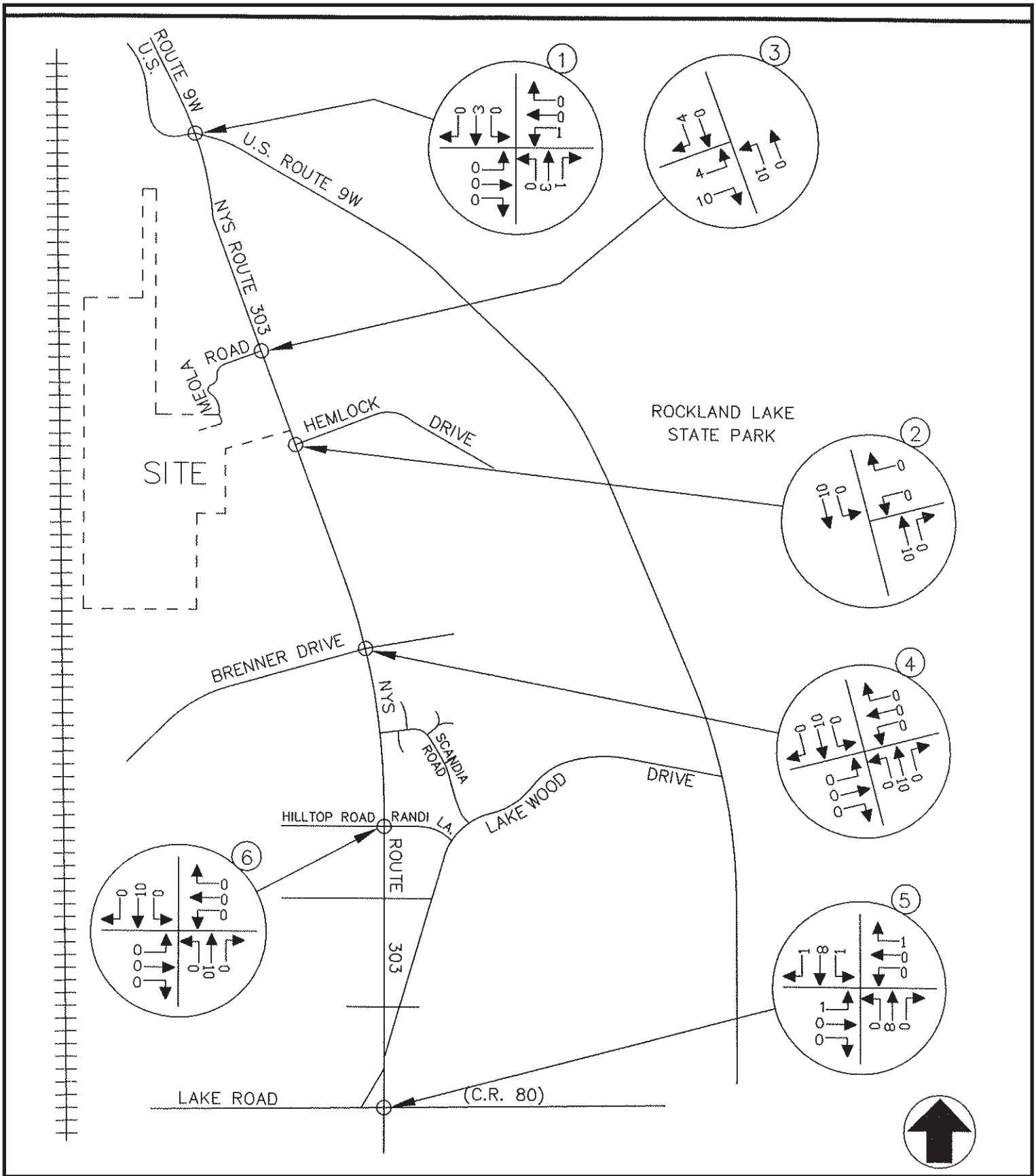

Figure 3.5-12A: Site Generated Traffic Volumes, Weekday Peak AM Hour (with Commercial Parcel)

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: Sept, 2011

File 10024 01/23/12
JS:\10024

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

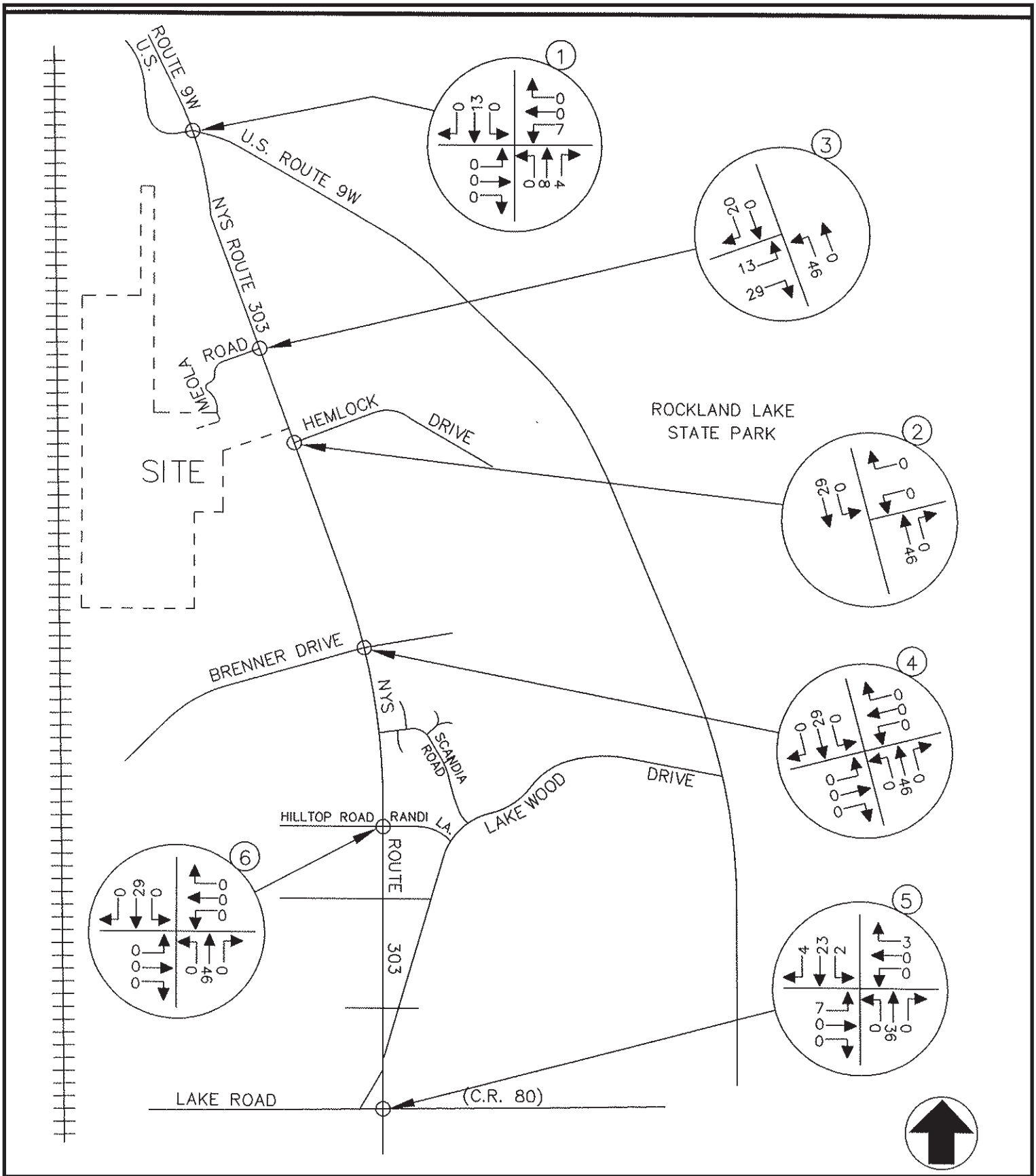

Figure 3.5-13: Site Generated Traffic Volumes, Weekday Peak PM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

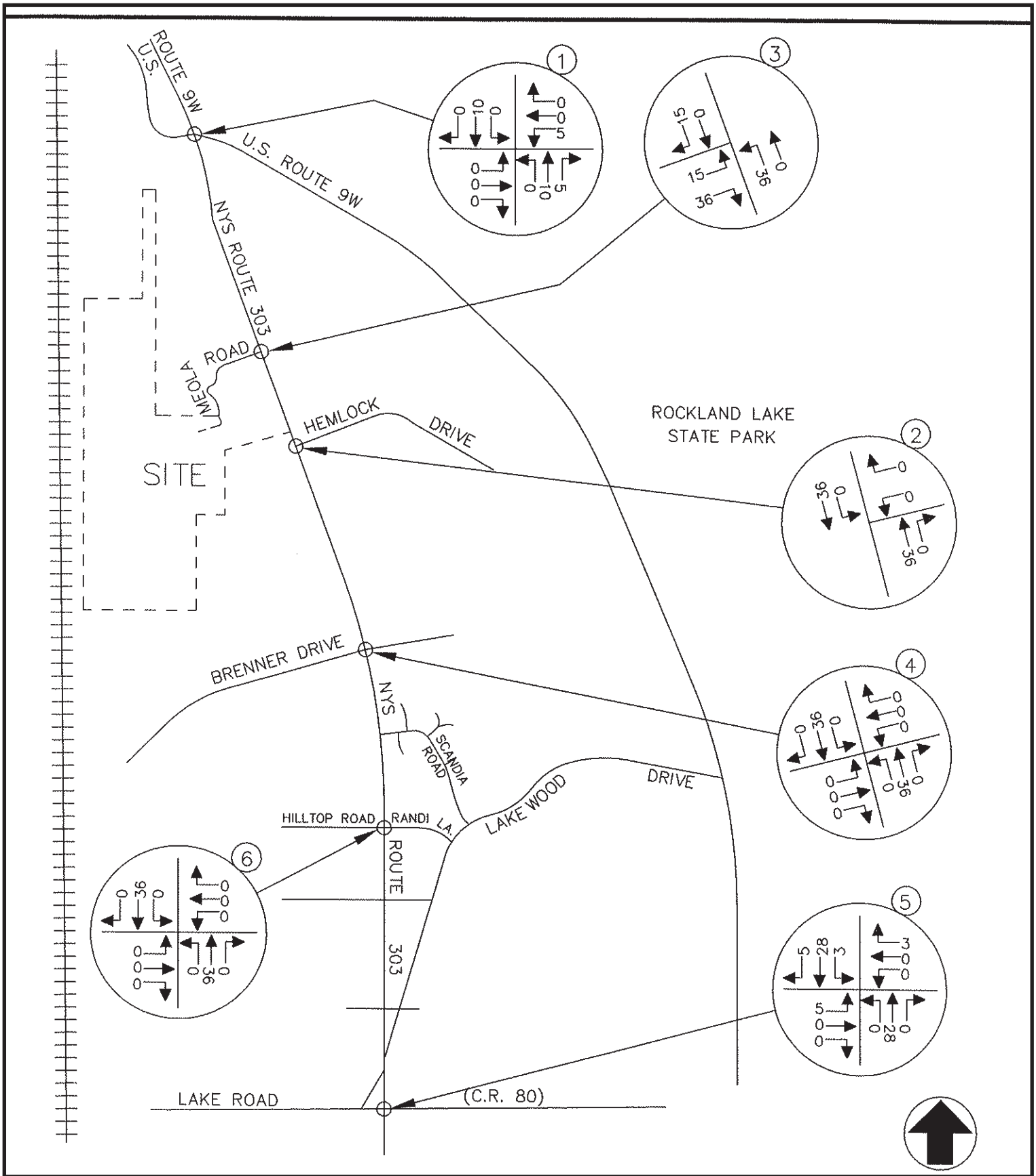

Figure 3.5-13A: Site Generated Traffic Volumes, Weekday Peak PM Hour (with Commercial Parcel)

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: Sept, 2011

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Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

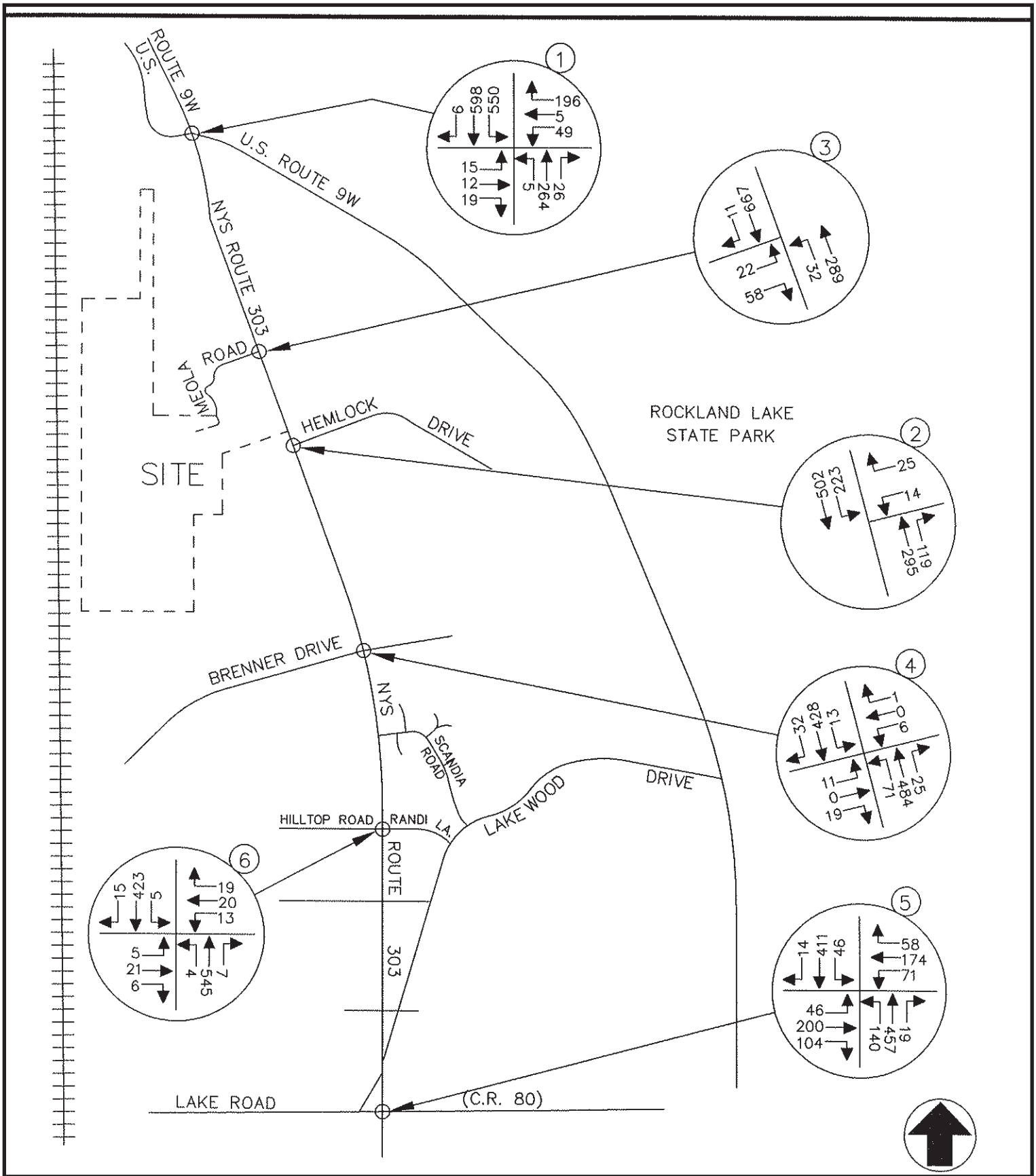

Figure 3.5-14: 2012 Build Traffic Volumes, Weekday Peak Am Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

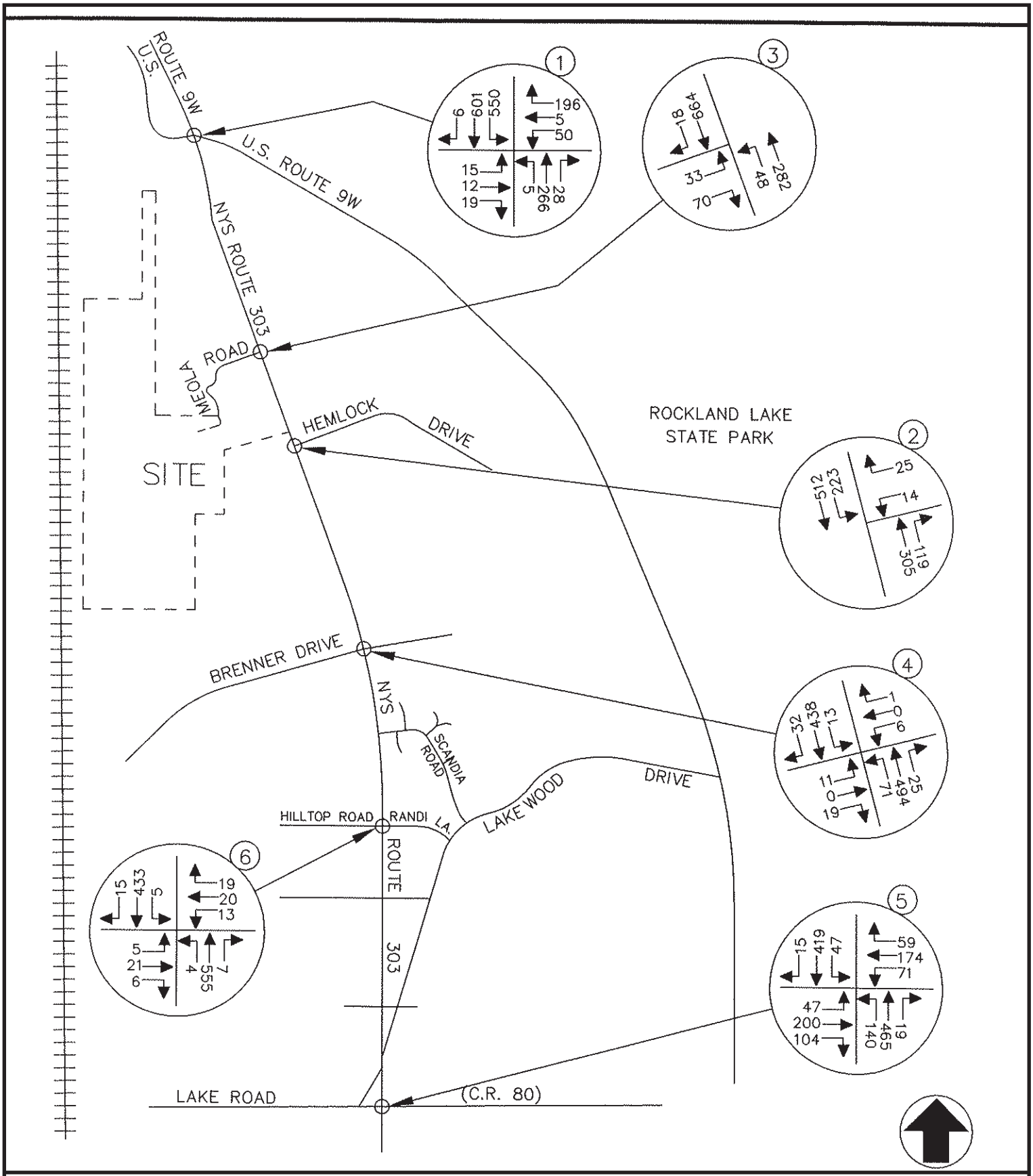

Figure 3.5-14A: 2012 Combined Build Traffic Volumes, Weekday Peak AM Hour (with Commercial Parcel

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: Sept, 2011

File 10024 01/23/12
JS:\10024

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

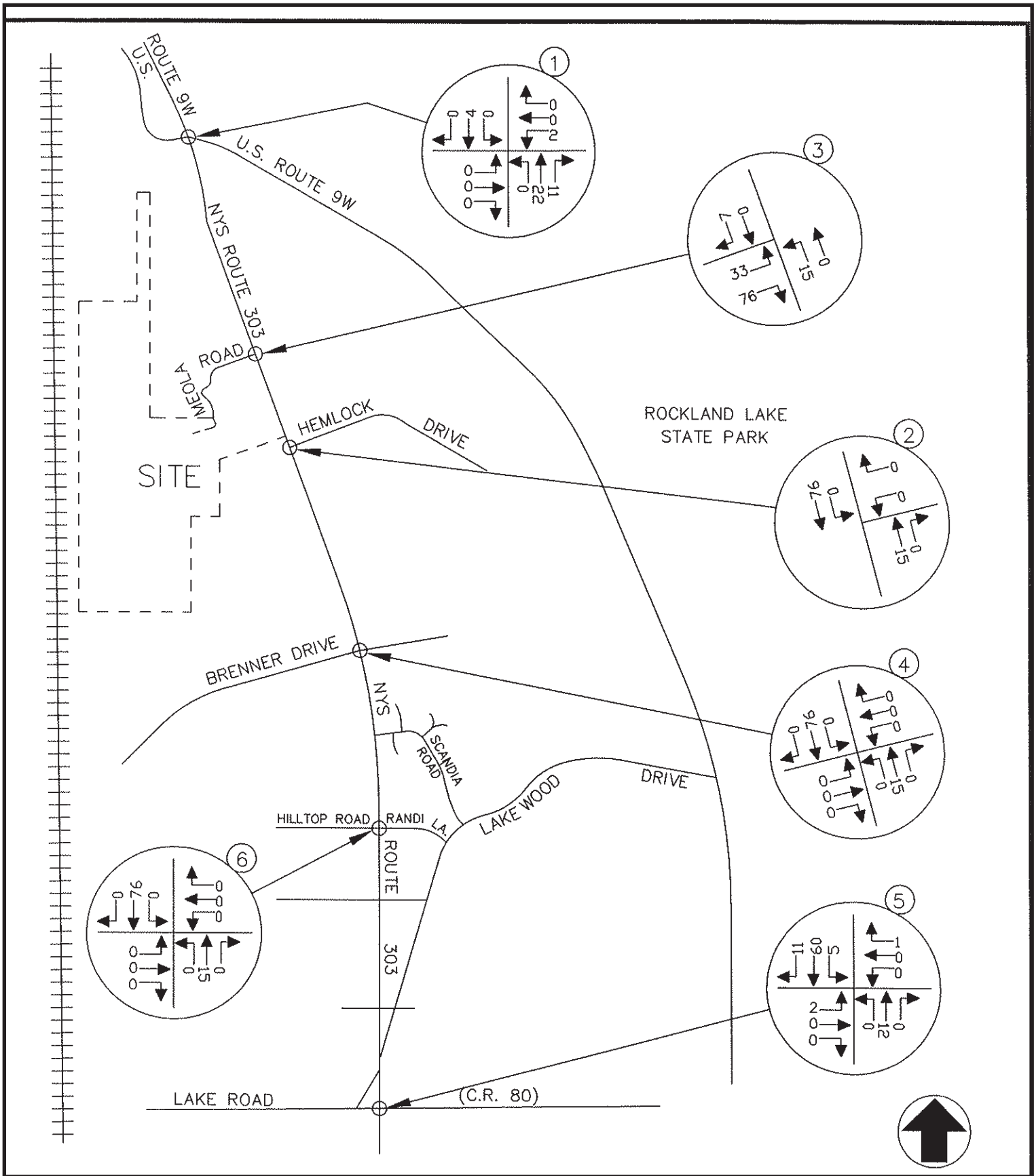

Figure 3.5-14B: 2012 Combined Build Traffic Volumes, Weekday Peak AM Hour
(with Commercial Parcel & Townhouse Rates)

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: Sept,. 2011

File 10024 01/23/12
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Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

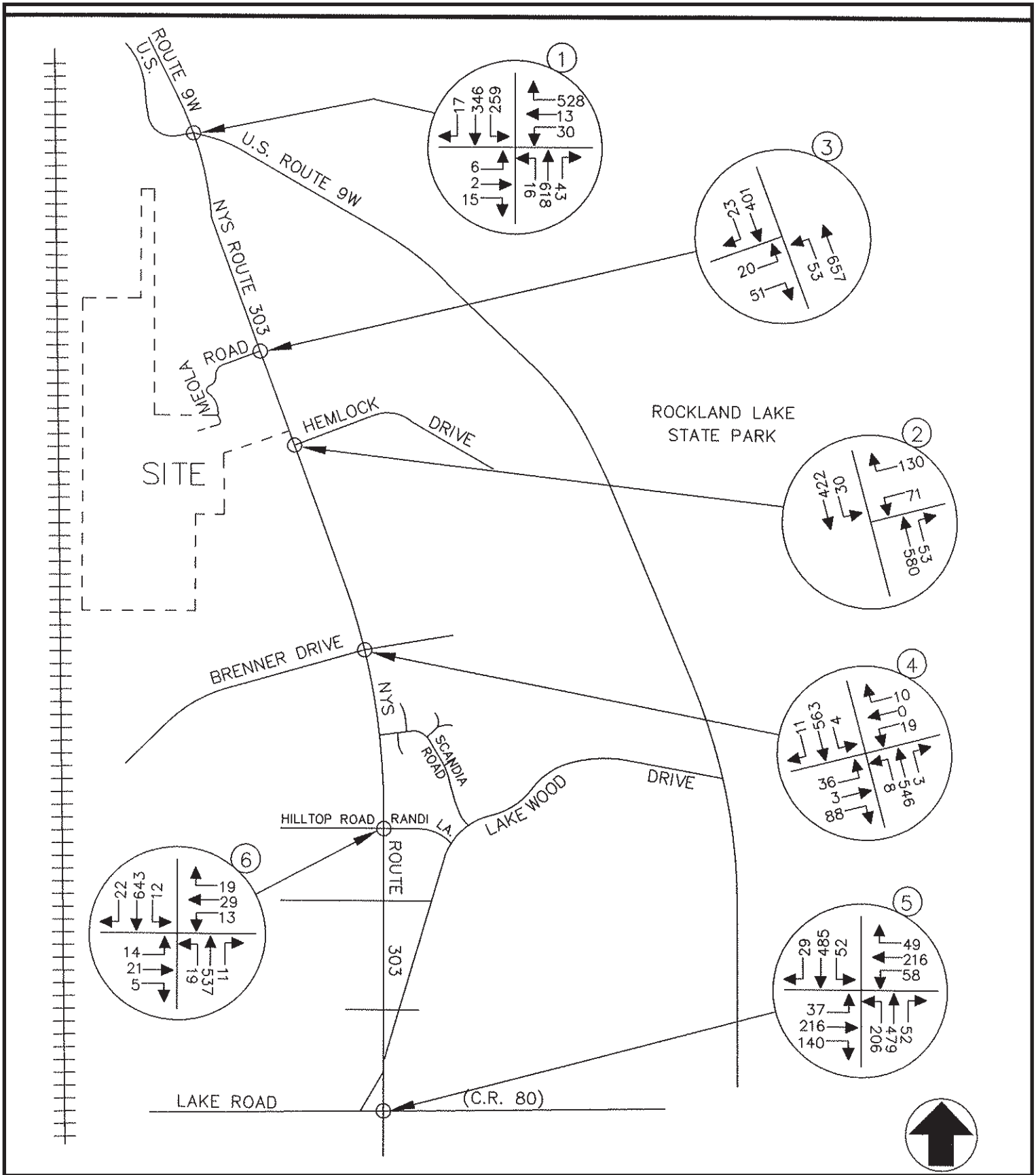


Figure 3.5-15: 2012 Build Traffic Volumes, Weekday Peak PM Hour

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: September, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

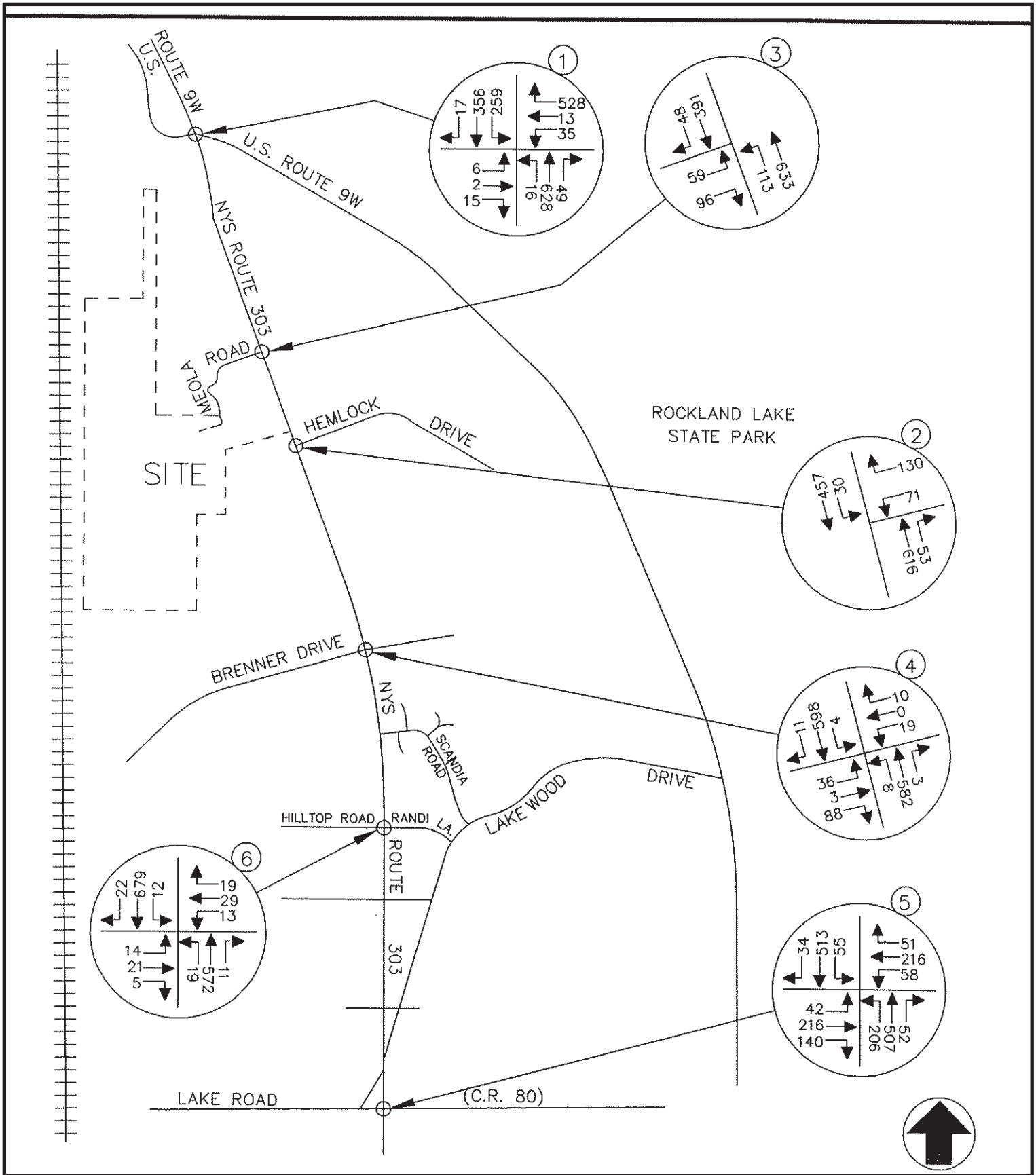


Figure 3.5-15A: 2012 Combined Build Traffic Volumes, Weekday Peak PM Hour (with Commercial Parcel

Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

Source: John Collins Engineers, P.C.

Date: Sept, 2011

File 10024 01/23/12
JS:\10024

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

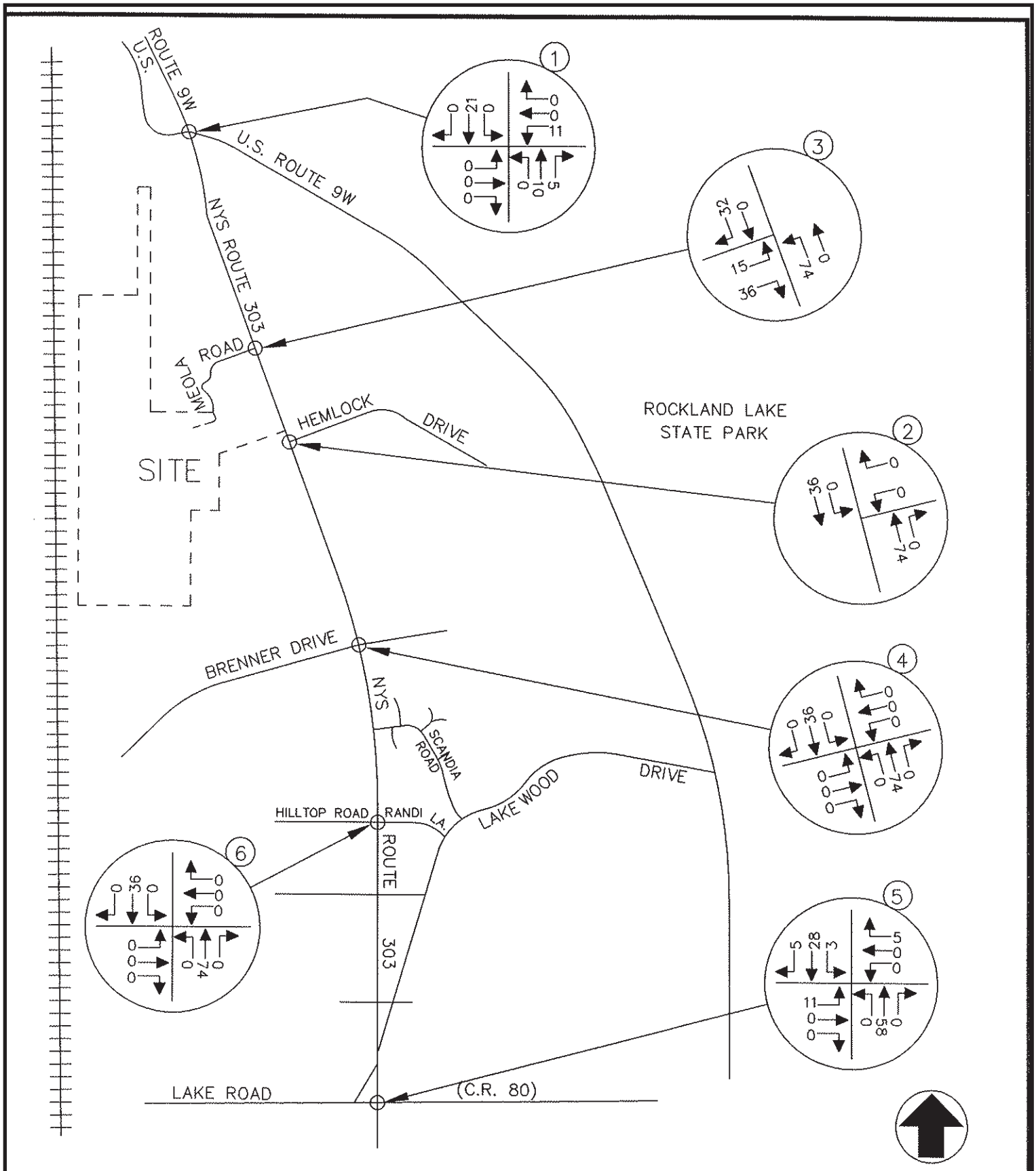


Figure 3.5-15B: 2012 Combined Build Traffic Volumes, Weekday Peak PM Hour
(with Commercial Parcel & Townhouse Rates)

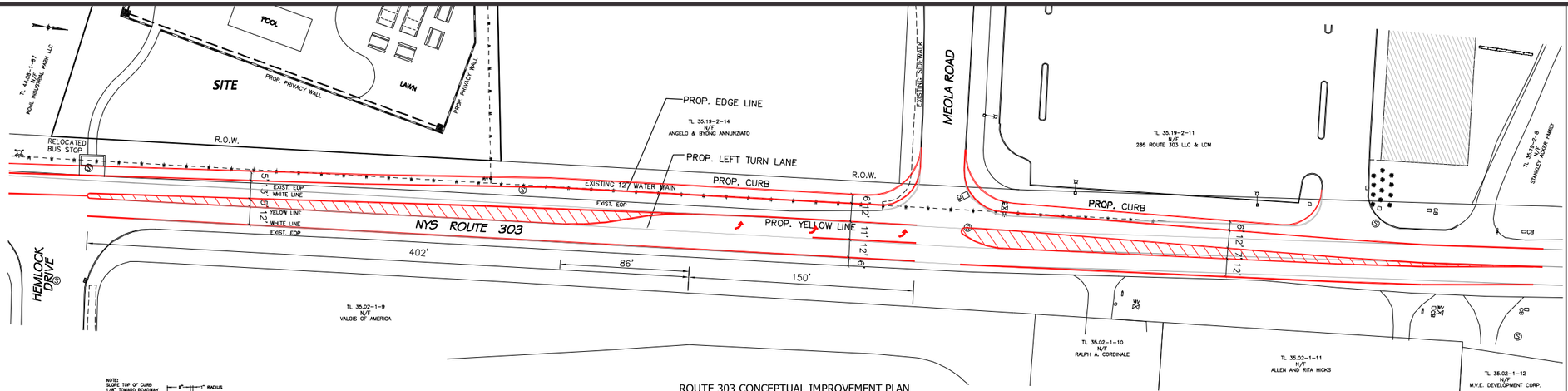
Orchard Ridge - Meola Road Access

Town of Clarkstown, Rockland County, New York

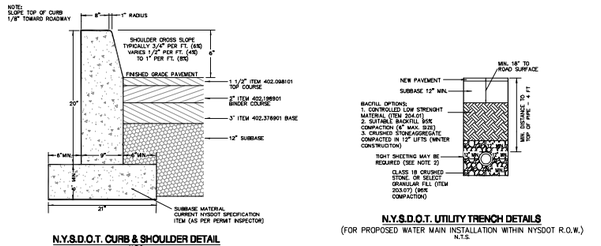
Source: John Collins Engineers, P.C.

Date: Sept, 2011

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

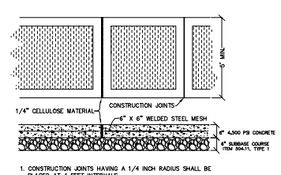


ROUTE 303 CONCEPTUAL IMPROVEMENT PLAN
SCALE: 1"=30'



N.Y.S.D.O.T. CURB & SHOULDER DETAIL
N.T.S.

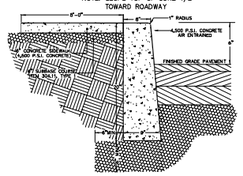
N.Y.S.D.O.T. UTILITY TRENCH DETAILS
(FOR PROPOSED WATER MAIN INSTALLATION WITHIN NYSDOT R.O.W.)
N.T.S.



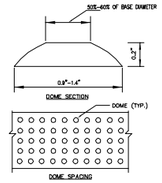
1. CONSTRUCTION JOINTS HAVING A 1/4 INCH RADIUS SHALL BE PLACED AT 4 FEET INTERVALS.
2. INSTALL EXPANSION JOINTS OF 1/4 INCH CELLULOSE MATERIAL OR EQUAL AT 20 FEET INTERVALS.
3. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS.
4. CONCRETE SHALL BE AIR ENTRAINED 6% PLUS or MINUS 1%
5. SIDEWALK REINFORCEMENT SHALL CONSIST OF #6 GUAGE 6" X 6" STEEL MESH PLACED 2 INCHES FROM THE BOTTOM OF THE SIDEWALK SLAB.

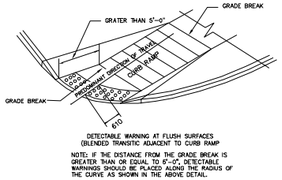
CURB SPECIFICATIONS
CURB SHALL BE CAST IN PLACE. EXPANSION JOINTS OF BITUMINOUS IMPREGNATED PREFORMED JOINT FILLER TO BE INSTALLED AT 10'-0" INTERVALS.

NOTE: SLOPE TOP OF CURB 1/8" TOWARD ROADWAY



N.Y.S.D.O.T. ASPHALTIC CONCRETE CURB & WALK DETAIL
N.T.S.

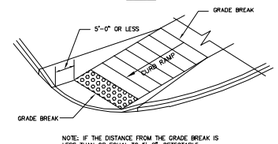




DETECTABLE WARNING AT FLUSH SURFACES
(BLENDED TRANSITIC ADJACENT TO CURB RAMP

NOTE: IF THE DISTANCE FROM THE GRADE BREAK IS GREATER THAN OR EQUAL TO 5'-0", DETECTABLE WARNINGS SHOULD BE PLACED ALONG THE RADIUS OF THE CURVE AS SHOWN IN THE ABOVE DETAIL.

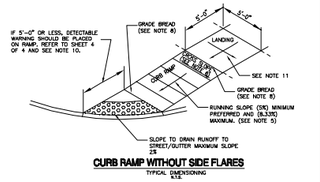
DETAIL 1



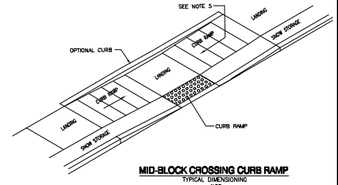
NOTE: IF THE DISTANCE FROM THE GRADE BREAK IS LESS THAN OR EQUAL TO 5'-0", DETECTABLE WARNINGS SHOULD BE PLACED ON THE CURB RAMP ALONG THE BOTTOM GRADE BREAK WITH ONE COURNER 5" TO 8" FROM THE FRONT OF THE CURB OR EDGE OF THE ROADWAY.

DETAIL 2

N.Y.S.D.O.T. DETECTABLE WARNING PLACEMENT DETAILS
N.T.S.



CURB RAMP WITHOUT SIDE FLARES
TYPICAL DIMENSIONING
N.T.S.



MID-BLOCK CROSSING CURB RAMP
TYPICAL DIMENSIONING
N.T.S.

NOTES:

1. THE DIMENSIONS AND SLOPES PRESENTED IN THE DETAILS ARE THE MINIMUM NECESSARY TO COMPLY WITH THE ADA AND DOT STANDARDS. ANY DEVIATION LESS THAN THE MINIMUM WIDTH OR GREATER THAN THE MAXIMUM SLOPE FROM THESE STANDARDS MUST BE DOCUMENTED WITH THE STANDARD BEING MET TO THE GREATEST EXTENT PRACTICABLE AND CONSISTENT WITH THE MOST CURRENT ADAAG.
2. CURB RAMPS, LANDINGS AND BLENDED TRANSITIONS MAY REQUIRED THE USE OF DETECTABLE WARNINGS. REFER TO THE DETECTABLE WARNINGS DETAILS FOR DETAILS ON PLACEMENT, ORIENTATION & DIMENSIONS. REFER TO CHAPTER 18 OF THE HIGHWAY DESIGN MANUAL FOR MORE INFORMATION.

CURB RAMP NOTES:

3. THE MINIMUM WIDTH FOR SIDEWALK CURB RAMPS IS 5'-0".
4. THE RUNNING SLOPE OF A CURB RAMP SHALL BE 1:20 (5%) MINIMUM (PREFERRED) AND 1:12 (8.33%) MAXIMUM.
5. WHERE THE SLOPE OF THE ROADWAY EXCEEDS 8.33% THE CURB RAMP LENGTH IS THE LENGTH NECESSARY TO MEET THE EXISTING SIDEWALK. IT IS NOT NECESSARY THAT THE RAMP LENGTH EXCEED 15'-0".
6. THE CROSS SLOPE OF CURB RAMPS SHOULD BE AS FLAT AS POSSIBLE, NOT TO EXCEED 1:50 (2%). THE CROSS SLOPE AT MIDBLOCK CROSSINGS MAY BE WARPED TO MEET STREET OR HIGHWAY GRADE
7. THE VERTICAL ALIGNMENT OF A CURB RAMP, EXCLUDING THE FLARES, SHALL BE PLANAR. GRADE BREAKS SHALL BE FLUSH AND PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN.
8. RAMP TRANSITIONS BETWEEN WALKS, LANDINGS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES (¼" MAX.)
9. WHERE A PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP, FLARED SIDES WITH A SLOPE OF 10% MAX., MEASURED PARALLEL TO THE CURB LINE, SHALL BE PROVIDE.

LANDING NOTES:

10. LANDINGS SHALL HAVE A MINIMUM CLEAR DIMENSION OF A 5'-0" BY 5'-0" EXCEPT AT THE BOTTOM OF RAMPS TYPE 1 & 2 ON NYSDOT ITEM 608.01102.
11. THE RUNNING AND CROSS SLOPES ON LANDINGS AT INTERSECTIONS IS 1:50 (2%) MAXIMUM. THE RUNNING AND CROSS SLOPES AT MIDBLOCK CROSSINGS MAY BE WARPED TO MEET STREET OR HIGHWAY GRADE.

N.Y.S.D.O.T. CURB RAMP DETAIL
N.T.S.

ROUTE 303 ENTRANCE DETAIL
SCALE: 1"=20'

LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- EXISTING WATER MAIN
- EXISTING FIRE HYDRANT
- EXISTING GAS LINE
- EXISTING CATCH BASIN
- EXISTING STORM DRAIN LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER LINE
- EXISTING SPOT ELEVATION
- EXISTING RETAINING WALL
- EXISTING TREE LINE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN

Figure 3.5-16: NYS DOT Details
Orchard Ridge - Meola Road Access
Town of Clarkstown, Rockland County, New York
Source: Atzl, Scatassa & Zigler P.C., 05/08/09, last rev. 12/21/11
Scale: As shown

RAYMOND AHMADJIAN, P.E.
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File 10024 01/25/12
JS/10024

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