

The latest one-day count made by WCDOT at the Lozza Drive bus stops recorded 0 boarding and 22 disembarking passengers on the northbound runs, and 12 boarding and 0 disembarking on the southbound runs, over the course of one full day. Peak hour counts were not available.

Rail passengers arriving from the south would most likely use the Valhalla station to transfer to the Number 6 bus, which takes a direct route to the site via North Broadway and Columbus Avenue. Rail passengers arriving from the north would most likely use the Pleasantville station to transfer to the Number 6 bus. This latter route is slightly longer, as the bus travels north and east from the Pleasantville station to Route 141, and then south on Route 141, to reach Kensico Road and Columbus Avenue. Both bus route segments are relatively direct, but they are part of multi-modal trips, which also include travel from the trip origin to the railroad station and a walk from the bus stop to the site. Based on the boarding/disembarking count, it appears that all of the present rail-bus traffic is to and from the south via the Valhalla station. However, it is not anticipated that significant numbers of trips to and from Westchester University will be made by the rail/bus route, and they have not been used in the analysis to reduce generated traffic volumes.

c. **Future Conditions**

1. **No-Build Condition**

The No-Build Condition represents the conditions that would be present in the year that the project is expected to be completed, but without the traffic estimated to be generated by the project. It consists of the existing traffic projected to the design year by a background growth factor, plus traffic expected to be generated by major new projects under construction or others for which there is reasonable expectation that they will be generating traffic prior to or during the 2010 Build Year. For this analysis the year 2010 has been established as the year of project completion (Build Year). The base 2010 traffic volumes were established by applying an annual growth increase of 1.5 percent for five years to the existing traffic counts. Note that, in order

to maintain consistency, the five-year projection period, 2005 to 2010, was used for all locations, even though several intersections were counted in 2006.

The following three new projects were stipulated in the Scoping Document for inclusion in the No-Build analysis.

- UV Plant at Eastview
- Filling of Aerators at Kensico Dam
- Summit Office Park - The Planning Board's comment letter on the first DEIS submission requested that the office parks in the Columbus Avenue Corridor - at 95 percent occupancy - should be added.

Traffic generation from the first two projects is covered in the Draft Environmental Impact Statement for the Catskill/Delaware Ultraviolet Light Disinfection Facility, dated May 2004, produced for the New York City Department of Environmental Protection by the Joint Venture of Hazen and Sawyer and CDM. This study projects the amount of construction activity projected to occur during the years 2006 and 2010. According to this DEIS, the new screen chamber and the filling of the aerators would be completed over a four month period in 2010. No additional traffic would be generated after the work is completed, and no new employment would be generated by the rehabilitated structures and the new screen chamber. The new building is expected to generate very little activity when it is completed in 2010. Since Westchester University is not expected to start full activities until 2010, presumably with the Fall term, it is not expected that traffic generation from the filling of the aerators and the opening of Westchester University will coincide. As a result, additional traffic generation from these two projects was not included in the 2010 No-build condition. Any minor additional activity would be incorporated into the annual area traffic growth rate.

The Planning Board's comment letter on the initial DEIS submission requested that the No-Build condition to be analyzed should include additional traffic generated by increasing the occupancy rate in the office buildings in the Columbus Avenue and adjacent corridor to 95 percent occupancy. Based on information furnished by CB Richard Ellis, nine office buildings are included in this corridor. These buildings, their total floor area, 5 percent of the total, area available for rental and the area to be included in the No-Build condition to bring the total occupancy up to 95 percent are shown in Table III/E-3.

Building Complex	Total Floor Area (SF)	5% of Total (SF)	Available for Rental (SF)	Add to No-Build (SF)
Sutton Park North 465 Columbus Avenue	95,000	5,000	28,000	23,000
Sutton Park South 465 Columbus Avenue	120,000	6,000	120,000	114,000
Summit at Westchester 100 Summit Lake Drive	210,000	11,000	36,000	25,000
Summit at Westchester 200 Summit Lake Drive	241,000	12,000	3,000	0
Summit at Westchester 500 Summit Lake Drive	209,000	11,000	52,000	41,000
Diamond Corporate Park 400 Columbus Avenue	146,000	7,000	22,000	15,000
Mt. Pleasant Corporate Center 115 Stevens Avenue	126,000	6,000	43,000	37,000
Mt. Pleasant Corporate Center 117 Stevens Avenue	52,000	3,000	15,000	12,000
Carl Zeiss, Inc. 1 Zeiss Drive	121,000	6,000	0	0

Estimates of traffic to be generated by this additional office occupancy were based on standard trip generation rates for office buildings, Land Use Category 710, developed by the Institute of Transportation Engineers.¹ In this analysis it was assumed that traffic from both the presently-occupied floor space and the additional occupied floor space would be generated at the trip generation rate for the total building floor area. The estimated traffic to be generated by the 95 percent occupancy of these buildings is shown in Table III/E-3A.

<u>Building Complex</u>	<u>A.M. Peak Hour</u>		<u>P.M. Peak Hour</u>	
	<u>Arrive</u>	<u>Depart</u>	<u>Arrive</u>	<u>Depart</u>
Sutton Park North 465 Columbus Avenue	38	5	8	37
Sutton Park South 465 Columbus Avenue	181	25	34	168
Summit at Westchester 100 Summit Lake Drive	36	5	6	31
Summit at Westchester 200 Summit Lake Drive	0	0	0	0
Summit at Westchester 500 Summit Lake Drive	58	8	10	51
Diamond Corporate Park 400 Columbus Avenue	23	3	4	21
Mt. Pleasant Corporate Center 115 Stevens Avenue	72	10	11	54
Mt. Pleasant Corporate Center 117 Stevens Avenue	23	3	5	26
Carl Zeiss, Inc. 1 Zeiss Drive	0	0	0	0
Total	431	59	79	387

¹ "Trip Generation," 7th Edition, Institute of Transportation Engineers, Washington, D.C., 2003

This traffic was then assigned to the surrounding road system based on existing traffic patterns. Because virtually all of this traffic would be commuter traffic to and from the offices, an imaginary cordon line was drawn around the study area, and the traffic volumes entering the cordon in the A.M. peak hour and leaving in the P.M. peak hour, with some adjustments for purely local traffic, were used as the basis for the traffic assignment. These directional percentages are shown in Table III/E-4.

**Table III/E-4
DIRECTIONAL DISTRIBUTION FOR TRAFFIC GENERATED BY OTHER
OFFICE OCCUPANCY**

Marble Avenue north	16%
Saw Mill River Parkway	28%
Broadway	7%
Route 120	5%
Chelsea Street West	1%
Taconic Parkway North	13%
Taconic Parkway South via Stevens	3%
Taconic Parkway South via Lakeview	2%
Lakeview	3%
Columbus south	15%
West Lake Drive	3%
Route 22	4%
	100%

The assigned additional traffic from the 95 percent occupancy of these office buildings is shown in Figures III/E-4 and III/E-5. The 2010 No-Build condition traffic is shown in Figures III/E-6 and III/E-7.

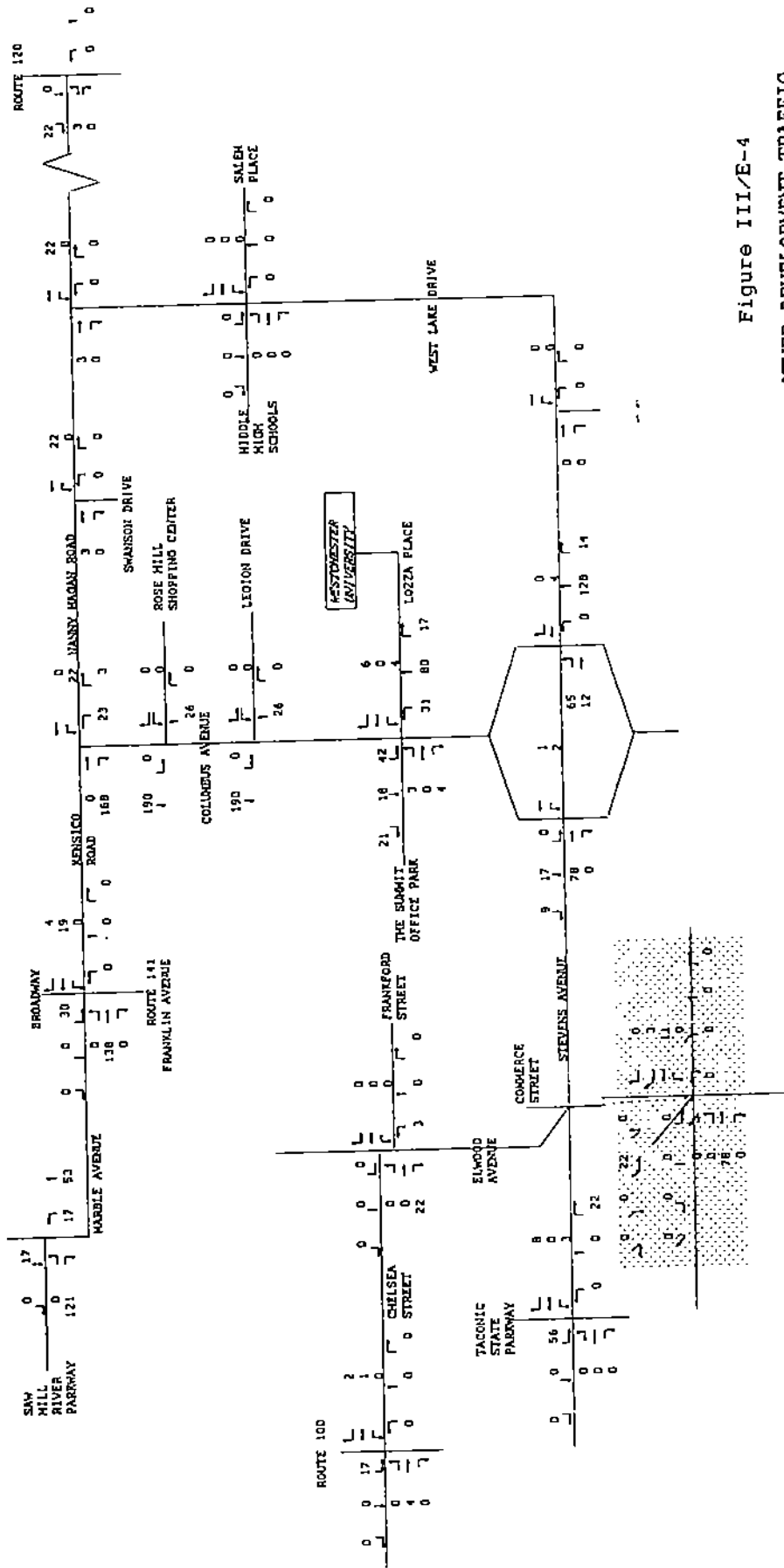


Figure III/E-4
 OTHER DEVELOPMENT TRAFFIC
 WEEKDAY A.M. PEAK HOUR

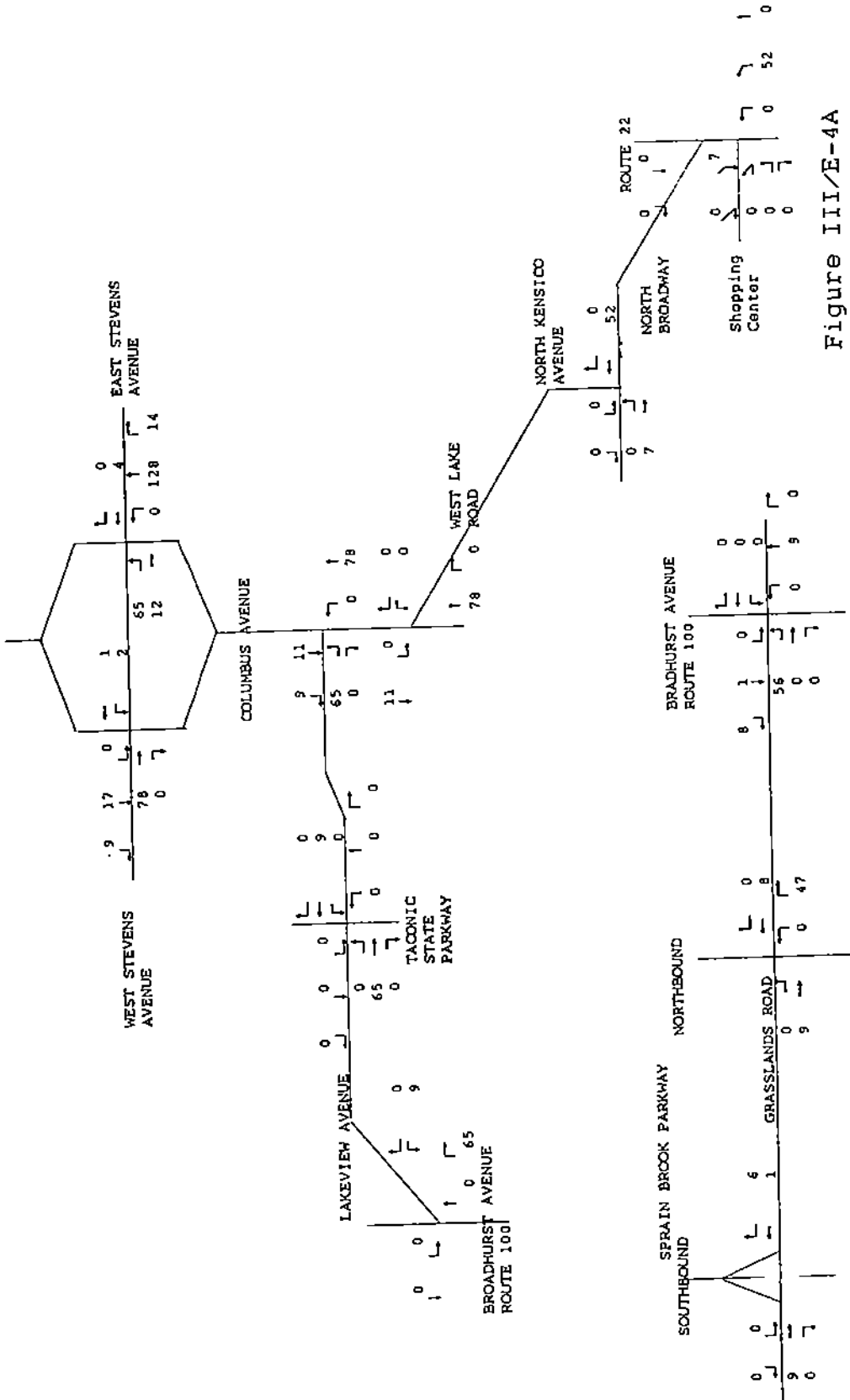


Figure III/E-4A
 OTHER DEVELOPMENT TRAFFIC
 WEEKDAY A.M. PEAK HOUR

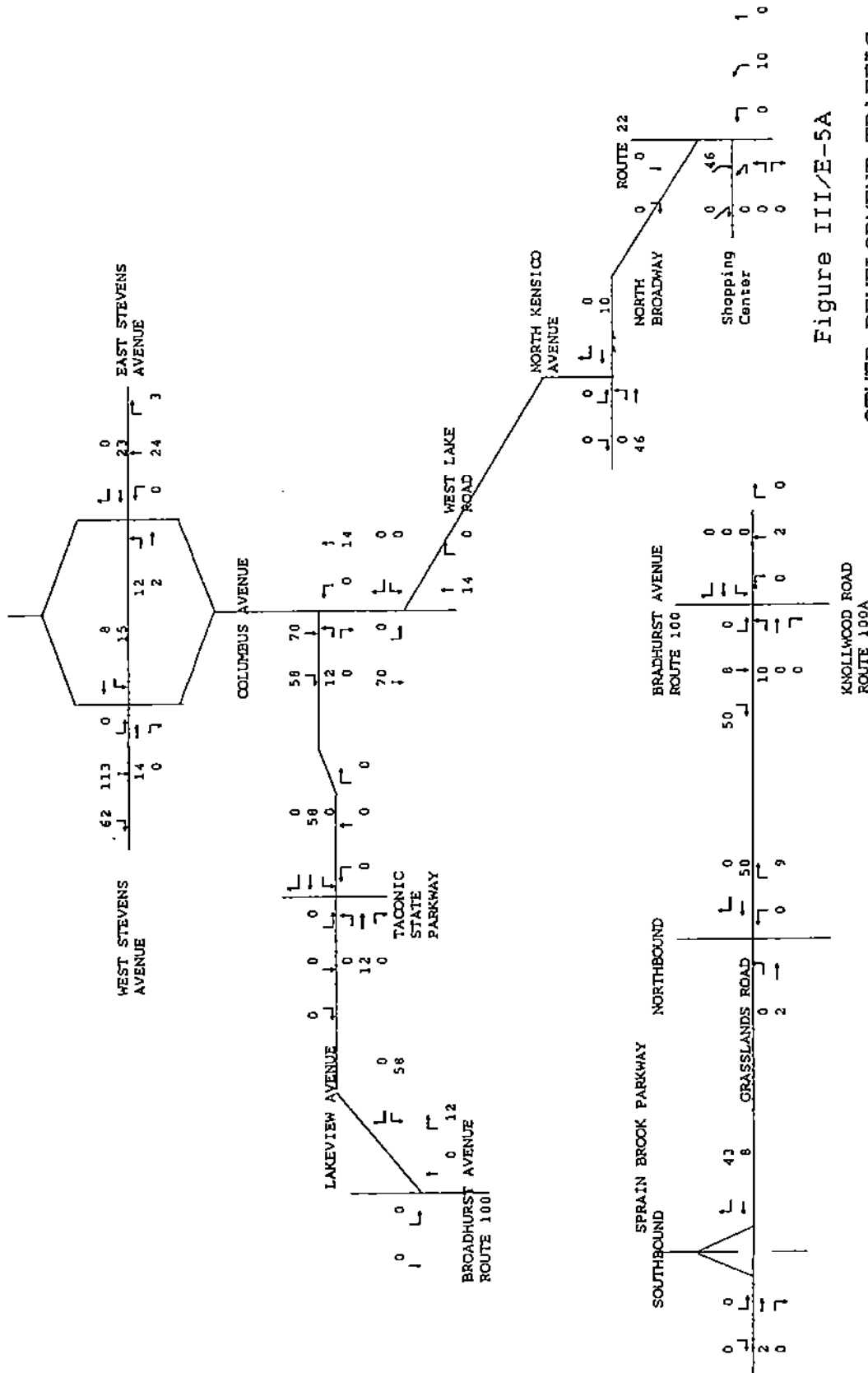


Figure III/E-5A

OTHER DEVELOPMENT TRAFFIC
WEEKDAY P.M. PEAK HOUR

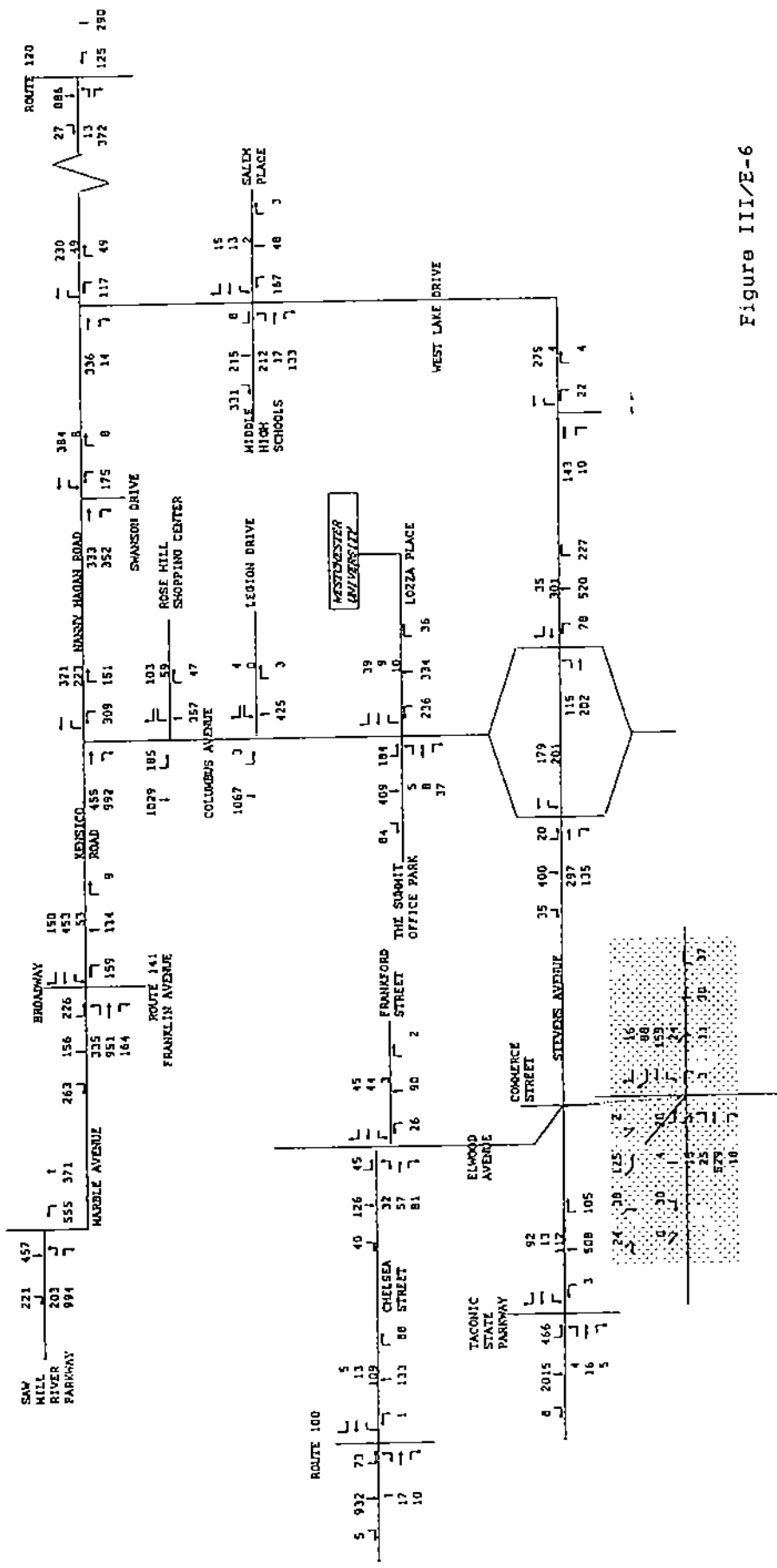


Figure III/E-6
 2010 NO-BUILD TRAFFIC
 WEEKDAY A.M. PEAK HOUR

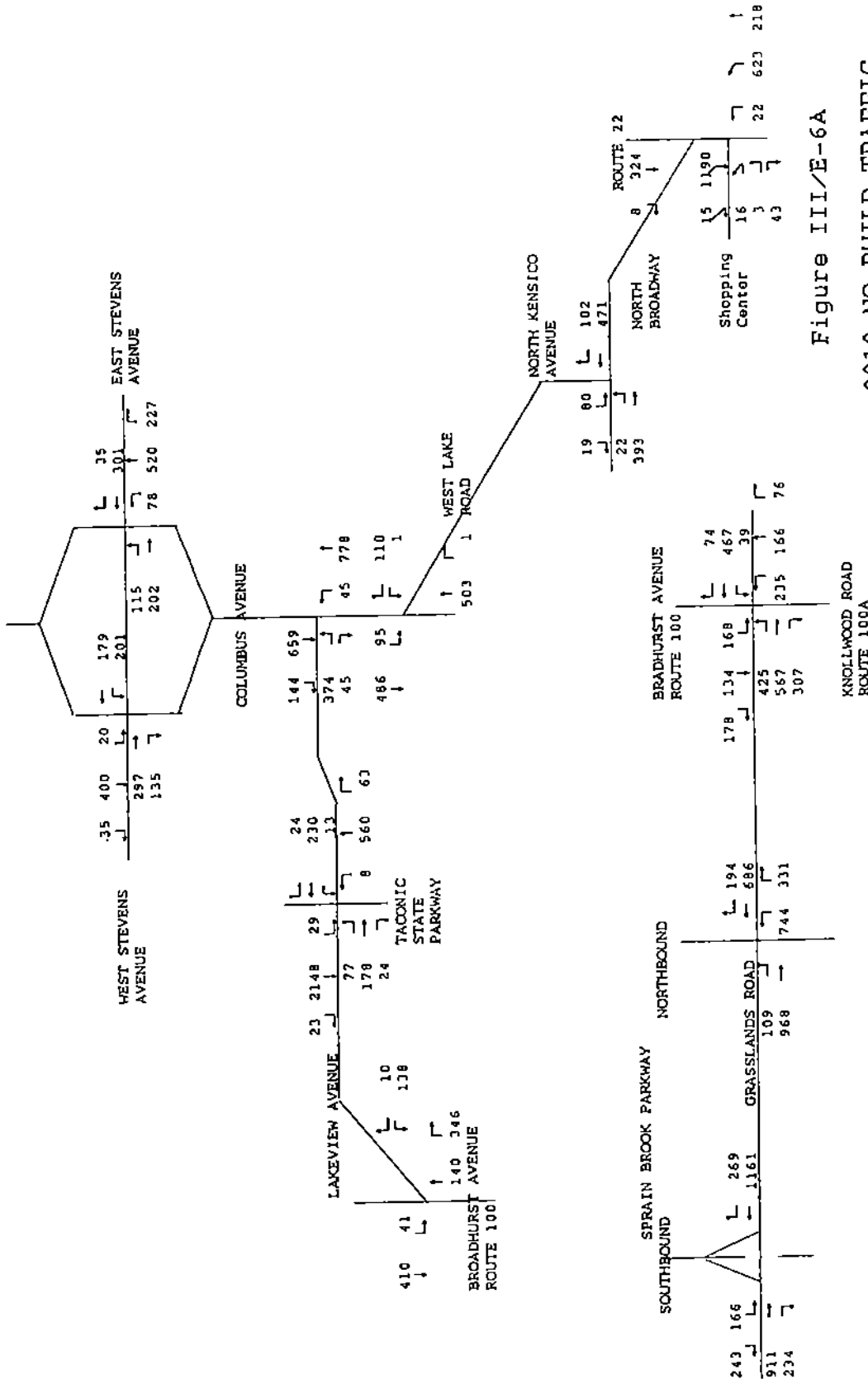


Figure III/E-6A

2010 NO-BUILD TRAFFIC
WEEKDAY A.M. PEAK HOUR

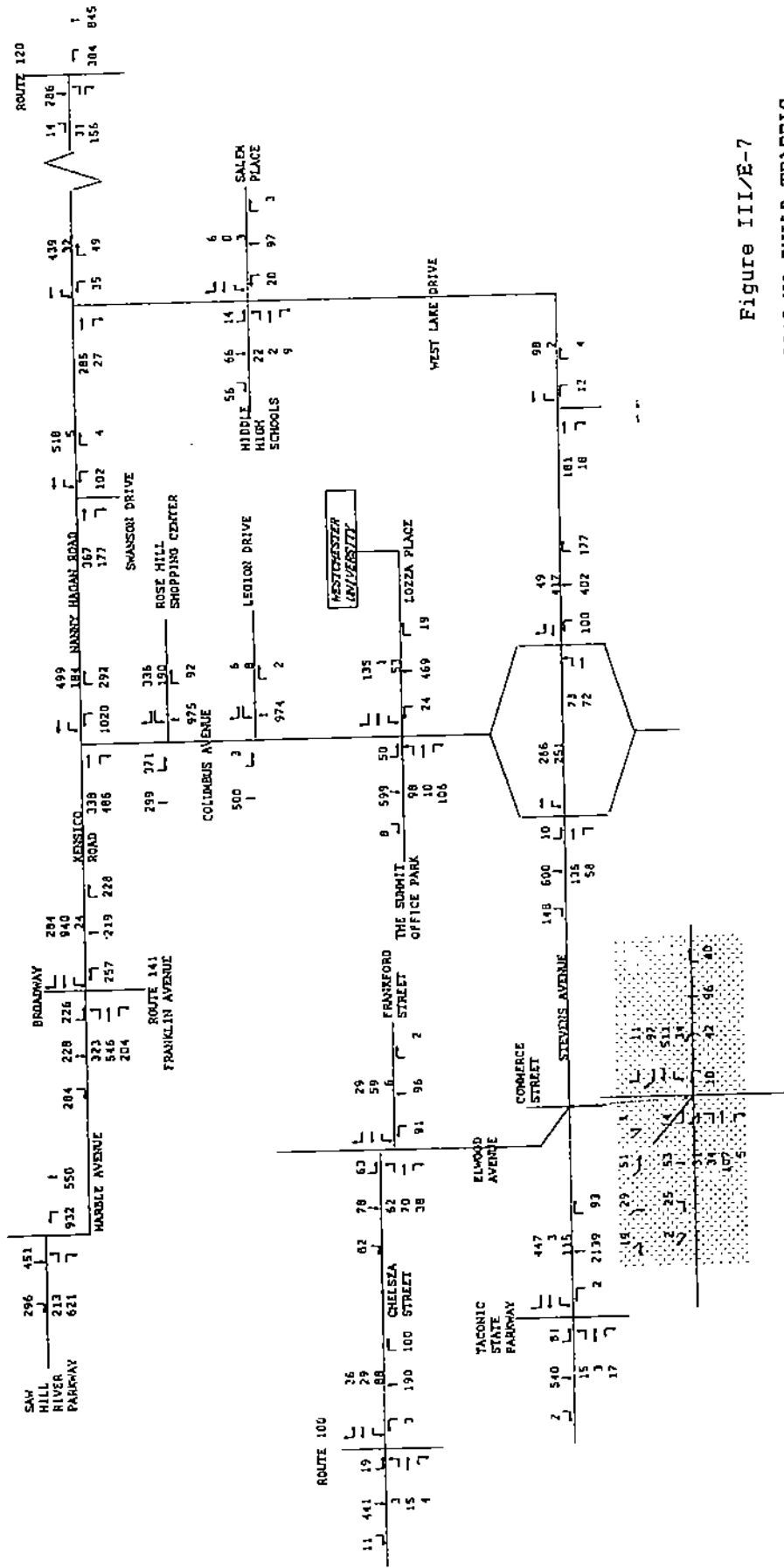


Figure III/E-7
 2010 NO-BUILD TRAFFIC
 WEEKDAY P.M. PEAK HOUR

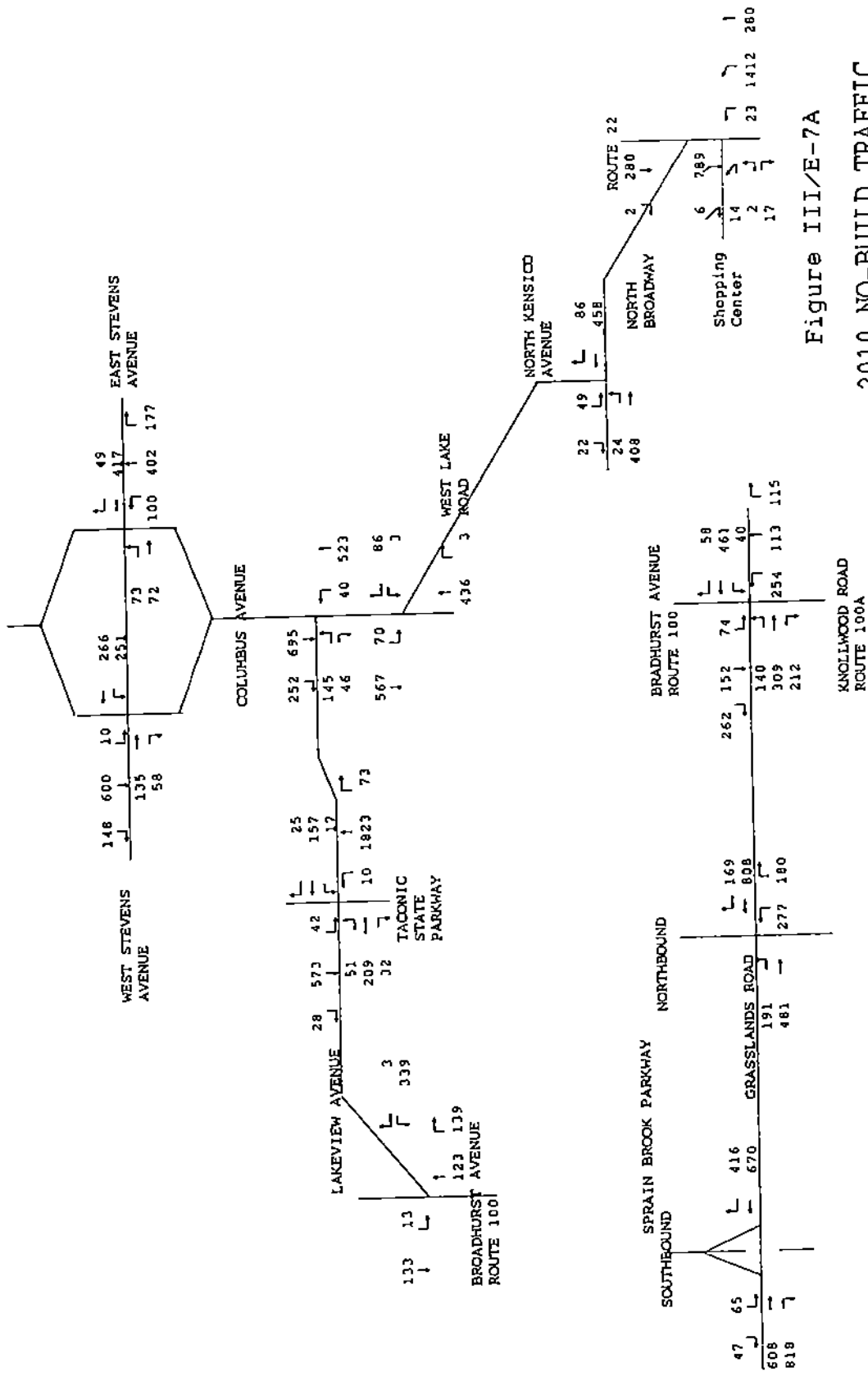


Figure III/E-7A

2010 NO-BUILD TRAFFIC
WEEKDAY P.M. PEAK HOUR

2. Site Generated Traffic

Estimates of traffic to be generated by the proposed Westchester University development are based on traffic counts made on Tuesday, March 14, 2006, at Mercy College on Broadway/Route 9 in Dobbs Ferry, NY, and at Manhattanville College on Purchase Street/Route 120 in Purchase, NY. These counts covered the time periods 7:00–9:00 A.M. and 4:00–6:00 P.M. The count volumes were recorded by 15-minute intervals, with the highest four consecutive 15-minute counts taken as the peak hour. At both colleges the peak hours were 8:00–9:00 A.M. and 4:15–5:15 P.M. The results of these counts, and the calculated trip generation rates, expressed as trips per student, are shown in Table III/E-5.

Table III/E-5

TRIP GENERATION AT MERCY AND MANHATTANVILLE COLLEGES

	<u>Traffic Volumes</u> <u>Count on March 14, 2006</u>		<u>Trip Generation Rate</u> <u>Trips per Student</u>	
	<u>Mercy</u> <u>College</u>	<u>Manhattanville</u> <u>College</u>	<u>Mercy</u> <u>College</u>	<u>Manhattanville</u> <u>College</u>
Number of Students			2,700	2,500
A.M. Peak Hour				
Arrive	165	243	.06	.10
Depart	87	37	.03	.01
Total	252	280	.09	.11
P.M. Peak Hour				
Arrive	57	48	.02	.02
Depart	349	292	.13	.12
Total	406	340	.15	.14

Of the two colleges, Manhattanville College is probably most similar to the facility proposed for Westchester University. Manhattanville has an enrollment of 1,500 undergraduate and 1,000 graduate students. The undergraduates are mostly on-campus residents, with the dormitories providing accommodations for 1,234 students.

The Mercy College campus in Dobbs Ferry is one of four located in Westchester County. It has a reported enrollment of 2,700 students in its undergraduate and graduate divisions at the Dobbs Ferry Campus, of whom 172 reside on campus. The trip generation rates are similar to those at Manhattanville College. Because of the lower resident student population, the trip generation rates would be expected to be higher. However, this is counterbalanced by the fact that Mercy College holds more evening and weekend classes, and these students are counted in the overall enrollment. These figures are further complicated by the fact that students enrolled at one campus can and do take courses at the other campuses.

On the basis of the above discussion, and in order to maintain a conservative methodology, it was determined that the highest trip generation rates calculated for Manhattanville College and Mercy College for each of the peak hours (Manhattanville College for the A.M. peak hour, Mercy College for the P.M. peak hour) would be used for the generated traffic projections and for the subsequent analyses.

Westchester University, in the Development Plan under consideration in this report, is proposed to have an enrollment of 1,000 full-time students residing on campus, and the equivalent of 500 full-time non-resident students. This latter group may include both full-time and part-time students, so the total number may exceed 500. The part-time students might not attend classes every day, or might be on campus for only part of the day. For the purpose of this traffic analysis, and to maintain a conservative analysis procedure, an effective student population of 1,700 has been assumed. The resultant estimated traffic volumes to be generated by Westchester College are shown in Table III/E-6.

Table III/E-6

**ESTIMATED GENERATED TRAFFIC AT
WESTCHESTER UNIVERSITY**

	<u>Trip Generation Rates</u> <u>Trips per Student</u>	<u>Generated Traffic</u> <u>Vehicles per Hour</u>
Number of Students*	1,700	
A.M. Peak Hour		
Arrive	.10	170
Depart	.01	17
Total	.11	187
P.M. Peak Hour		
Arrive	.02	34
Depart	.13	221
Total	.15	255

* This is a conservative estimate, used only for traffic projection purposes.

It is noted that the trip generation rates measured at Manhattanville and Mercy Colleges are lower than the trip generation rates presented in the ITE Trip Generation publication – see reference above in Footnote 1. The ITE average rate is 0.21 vehicle-trips per student in both the A.M. and P.M. peak hours. The counted trip generation factors from the two surveys were used for the Westchester University trip generation for the following reasons.

- The Institute of Transportation Engineers Trip Generation Manual suggests using results from actual local surveys where they exist.
- Task 2, Section C (page 8) of the Scoping Document, it is stated that “For purposes of measuring impacts, it will be assumed that Westchester University will have impacts similar to Manhattanville College (Purchase) and Mercy College (Dobbs Ferry).

- The calculated trip generation rates from the Manhattanville and Mercy College surveys represent actual local conditions, while the ITE rates are based on counts from 6-7 locations all over the country and of all sizes, only three of which were under 5,000 students.

- Two-thirds of the students at Westchester University will be full-time on-campus residents, which normally results in lower peak hour trip generation. This is a higher resident percentage than at either Manhattanville or Mercy Colleges. ;

3. Distribution of Generated Traffic

The traffic estimated to be generated by Westchester University in the peak hours was distributed to the road system based on the population in the various cities and towns in Westchester County (2000 census figures), distance of these population centers from the site, demographic characteristics related to college traffic, and existing traffic patterns. This concept is similar to the more sophisticated gravity model methodology, in which the relative trip attraction of a generator is directly proportional to its size (in this case its population) and inversely proportional to the distance (raised to a calibrated exponent). In the application for this project the population of each of the Westchester County municipalities was multiplied by a distance factor, ranging from 0.5 for the southern cities such as Yonkers and Mount Vernon to 2.0 for the nearby areas in Mount Pleasant. The resultant products were then summed, and a percentage distribution for each municipality calculated, which was applied to the total generated trip volume. It is noted that since much of the student population will be on-campus residents. Faculty and staff traffic and part time local commuting students will comprise a large percentage of the generated trips. Municipalities to the north were generally assigned higher distance factors than those to the south. Based on these considerations, the directional distributions used in this study are as shown in Table III/E-7.

Table III/E-7

DIRECTIONAL DISTRIBUTION OF SITE-GENERATED TRAFFIC

Saw Mill River Parkway North via Marble Avenue	15%
Saw Mill River Parkway South via Marble Avenue	15%
Marble Avenue North	1%
Franklin Avenue/Route 141 North	1%
Route 120 via Nanny Hagen Road	4%
Chelsea Street/Bradhurst Avenue/Route 100	2%
Taconic State Parkway North via Stevens Avenue ;	16%
Taconic State Parkway South via Stevens Avenue	5%
Taconic State and Bronx River Parkways South via Lakeview Avenue	
Route 22 South via North Broadway and Columbus Avenue	13%
Columbus Avenue (excluding above) South	6%
Sprain Brook Parkway South via Route 100C	18%
and Lakeview Avenue	
Route 100C west via Lakeview Avenue	2%
Knollwood Road/Route 100A via Lakeview Avenue	<u>2%</u>
Total	100%

Note that since this traffic is not office-generated, the distribution is different than that shown for the office occupancy in Table III/E-4.

The site-generated trips were then assigned to the most likely travel routes. In some cases the trips were distributed to more than one approach route.

The resultant assigned 2010 Site-Generated traffic volumes are shown on Figures III/E-8 and III/E-9. The 2010 Build Condition traffic volumes, combining the 2010 No-Build and the site-generated traffic volumes are shown on Figures III/E-10 and III/E-11.

d. Capacity Analysis

Traffic conditions at the 15 Signalized intersections and 11 unsignalized intersections specified in the Scoping Document have been analyzed using the methodology in the 2000 Edition of the Highway Capacity Manual² and Highway Capacity Software, HCS+ Release 5.2.

² Highway Capacity Manual, HCM2000, Transportation Research Board, Washington, D.C., 2000