

**Table E-6. Recreational Areas within the EPZ (continued)**

Protective Action Area	Distance (miles)	Direction	Facility Name	Street Address	Municipality	Transients	Vehicles
Harriman State Park	7.6	WSW	Harriman State Park: Lake Welch Beach	800 Kanawauke Rd	Stony Point	8,000	2,500
Harriman State Park	10.5	WSW	Harriman State Park: Sebago Cabin Camp	7 Seven Lakes Dr	Sloatsburg	250	84
Northeastern & Eastern Town of Clarkstown	10.2	SSE	Nyack Beach State Park	698 N. Broadway St	Upper Nyack	1,000	50
Northeastern & Eastern Town of Clarkstown	9.2	S	Rockland Lake State Park	N/A	Clarkstown	6,500	1,500
Northwestern Town of Clarkstown	7.1	SSW	Kennedy - Dells County Park	355 North Main St	New City	150	52
Tompkins Cove	2.3	SSW	Stony Point Battlefield State	44 Battlefield Rd	Stony Point	75	26
Village of Haverstraw	5.6	SSW	High Tor State Park	417 S Mountain Rd	New City	700	190
Village of Pomona	8.3	WSW	Provident Bank Park	1 Provident Bank Park Dr	Pomona	4,500	1,200
<b>WESTCHESTER COUNTY</b>					<i>Rockland County Subtotals:</i>		
City of Peekskill	1.2	E	Blue Mountain Park	435 Welcher Ave	Peekskill	1,500	521
Montrose	2.1	S	Georges Island Park	N/A	Cortlandt Manor	1,000	347
Ossining Town & Village	6.8	SE	Gerlach Park	N/A	Ossining	200	69
Ossining Town & Village	9.6	SE	Ryder Park	N/A	Ossining	400	139
Ossining Town & Village	8.5	SE	Veterans Park	N/A	Ossining	400	139
Town of Cortlandt	5.1	NE	Cortlandt Town Center	N/A	Cortlandt	1,548	538
Town of Cortlandt	5.7	ESE	Croton Gorge Park	Rt 129	Cortlandt Manor	900	313
Yorktown	7.9	ESE	Camp Kiryas Pupa-yeshiva Kehilath yakov	341 Illington Rd.	Ossining	222	50
Yorktown	7.6	E	Franklin D Roosevelt State Park	2957 Crompond Rd	Yorktown Heights	2,500	868
Yorktown	8.6	ENE	Jefferson Valley Mall	650 Lee Blvd	Yorktown Heights	1,981	688

Table E-6. Recreational Areas within the EPZ (continued)

Protective Action Area	Distance (miles)	Direction	Facility Name	Street Address	Municipality	Transients	Vehicles
Yorktown	7.3	E	Mohansic Park and Golf Course	1500 Baldwin Rd	Yorktown Heights	340	118
<i>Westchester County Subtotals:</i>						10,991	3,790
<b>TOTAL:</b>						<b>60,469</b>	<b>20,823</b>

Table E-7. Lodging Facilities within the EPZ

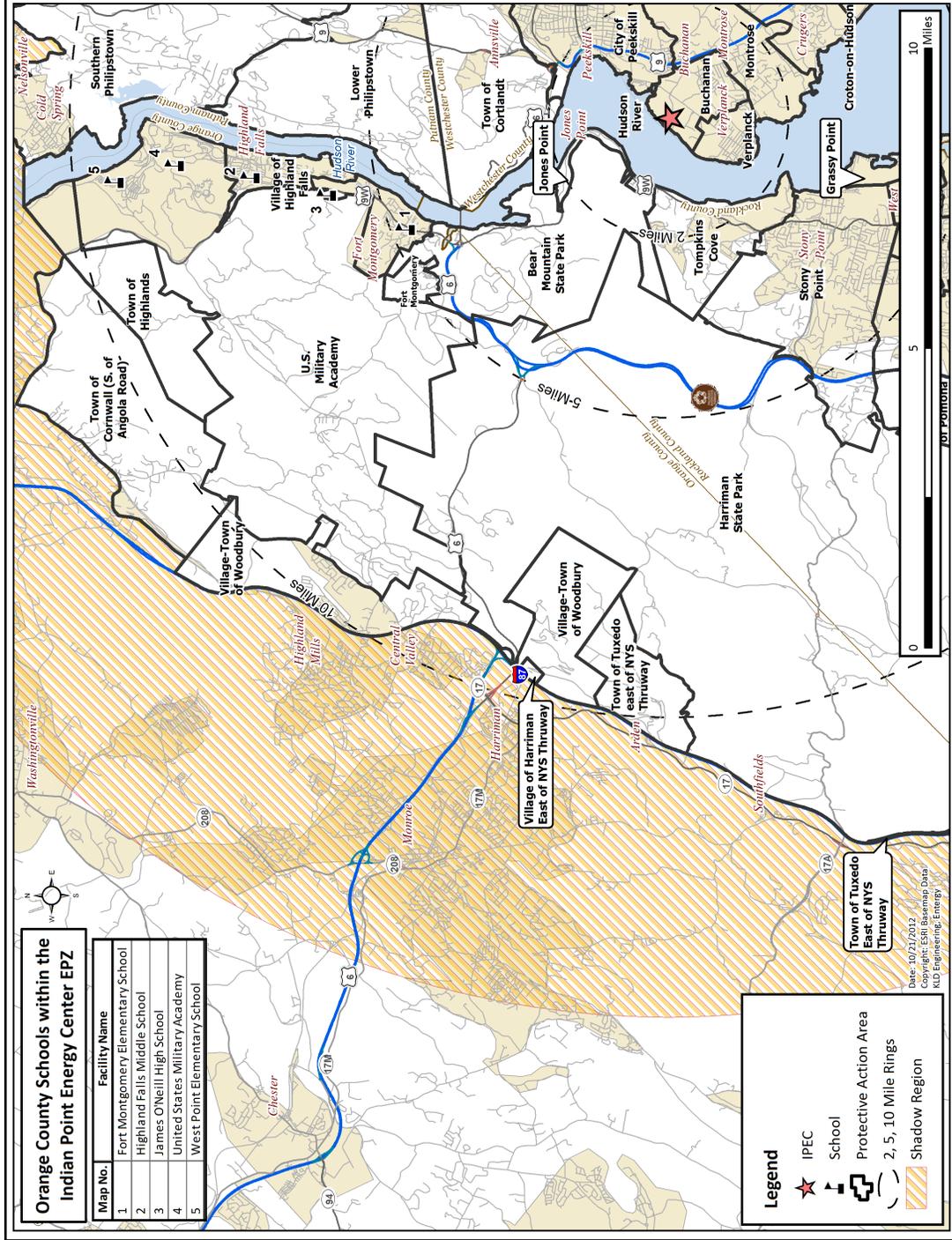
Protective Action Area	Distance (miles)	Direction	Facility Name	Street Address	Municipality	Transients	Vehicles
<b>ORANGE COUNTY</b>							
Fort Montgomery	4.9	NNW	Holiday Inn Express Hotel & Suites West Point	1106 Rt 9W	Fort Montgomery	111	55
Fort Montgomery	5.0	NNW	Pointer's Echo Motel	1610 Rt 9W North	Highland Falls	12	6
U.S. Military Academy	7.5	N	The Thayer Hotel at West Point	674 Thayer Rd	West Point	292	97
Village of Highland Falls	7.0	N	Best Western-Palisade Motel	NY 218	Highland Falls	110	55
Village of Highland Falls	6.0	N	Econo Lodge Near West Point	17 Main St	Highland Falls	69	32
Village of Highland Falls	6.1	N	US Academy Motel	41 Main St	Highland Falls	16	8
Village of Highland Falls	6.5	N	West Point Motel	156 Main St	Highland Falls	65	30
<i>Orange County Subtotals:</i>						<b>675</b>	<b>283</b>
<b>PUTNAM COUNTY</b>							
Southern Philipstown	11.0	N	Hudson House Inn	2 Main St	Cold Spring	2	1
Southern Philipstown	10.2	N	The Pig Hill Inn	73 Main St	Cold Spring	9	4
<i>Putnam County Subtotals:</i>						<b>11</b>	<b>5</b>
<b>ROCKLAND COUNTY</b>							
Bear Mountain State Park	3.6	NW	Bear Mountain Inn	55 Hessian Dr	Bear Mountain	120	30
Northeastern & Eastern Town of Clarkstown	8.3	S	Green Inn Motel On the Lake	65 N Rt 9W	Congers	30	15
Northeastern & Eastern Town of Clarkstown	8.5	S	Holiday Court Motel	30 N Rt 9W	Congers	78	39
Northeastern & Eastern Town of Clarkstown	9.0	S	Raintree Motel	972 S Rt 9W	Congers	40	20
Stony Point	3.7	SSW	Budget Motor Inn	87 South Liberty Dr	Stony Point	68	34
Unincorporated Areas of the Town of Haverstraw	5.9	SSW	Rockland Motel	152 U.S. 202	Garnerville	20	10
<i>Rockland County Subtotals:</i>						<b>356</b>	<b>148</b>
<b>WESTCHESTER COUNTY</b>							
Briarcliff Manor	10.4	SE	Edith Macy Conference Center	550 Old Chappaqua Rd	Briarcliff Manor	45	35
City of Peekskill	1.8	NE	Inn on the Harbor	640 Main St	Peekskill	159	53

Table E-7. Lodging Facilities within the EPZ (continued)

Protective Action Area	Distance (miles)	Direction	Facility Name	Street Address	Municipality	Transients	Vehicles
City of Peekskill	1.9	NE	Peekskill Inn	634 Main St	Peekskill	90	45
City of Peekskill	1.6	NE	Union Hotel	59 Hudson Ave	Peekskill	48	24
Croton-on-Hudson	5.4	SE	Alexander Hamilton House	49 Van Wyck St	Croton-on-Hudson	11	6
Town of Cortlandt	3.8	ENE	Town Lyne Motel	2381 Crompond Rd	Cortlandt	76	38
Town of Cortlandt	3.6	SE	Watergate Inn	Furnace Dock Rd & North Riverside Ave	Croton-on-Hudson	90	30
<i>Westchester County Subtotals:</i>					<b>TOTAL:</b>	<b>519</b>	<b>231</b>
						<b>1,561</b>	<b>667</b>

Table E-8. Correctional Facilities within the EPZ

Protective Action Area	Distance (miles)	Direction	Facility Name	Street Address	Municipality	Capacity
<b>ROCKLAND COUNTY</b>						
Central Town of Clarkstown	8.6	SSW	Rockland County Jail	53 New Hempstead Rd	New City	305
<i>Rockland County Subtotal:</i>						
<b>WESTCHESTER COUNTY</b>						
Ossining Town & Village	9.1	SSE	Sing Sing Correctional Facility	354 Hunter St	Ossining	1,813
<i>Westchester County Subtotal:</i>						
<b>TOTAL:</b>						<b>2,118</b>



**Orange County Schools within the Indian Point Energy Center EPZ**

Map No.	Facility Name
1	Fort Montgomery Elementary School
2	Highland Falls Middle School
3	James O'Neill High School
4	United States Military Academy
5	West Point Elementary School

**Legend**

- IPEC
- School
- Protective Action Area
- 2, 5, 10 Mile Rings
- Shadow Region

**Figure E-1. Orange County Schools within the EPZ**

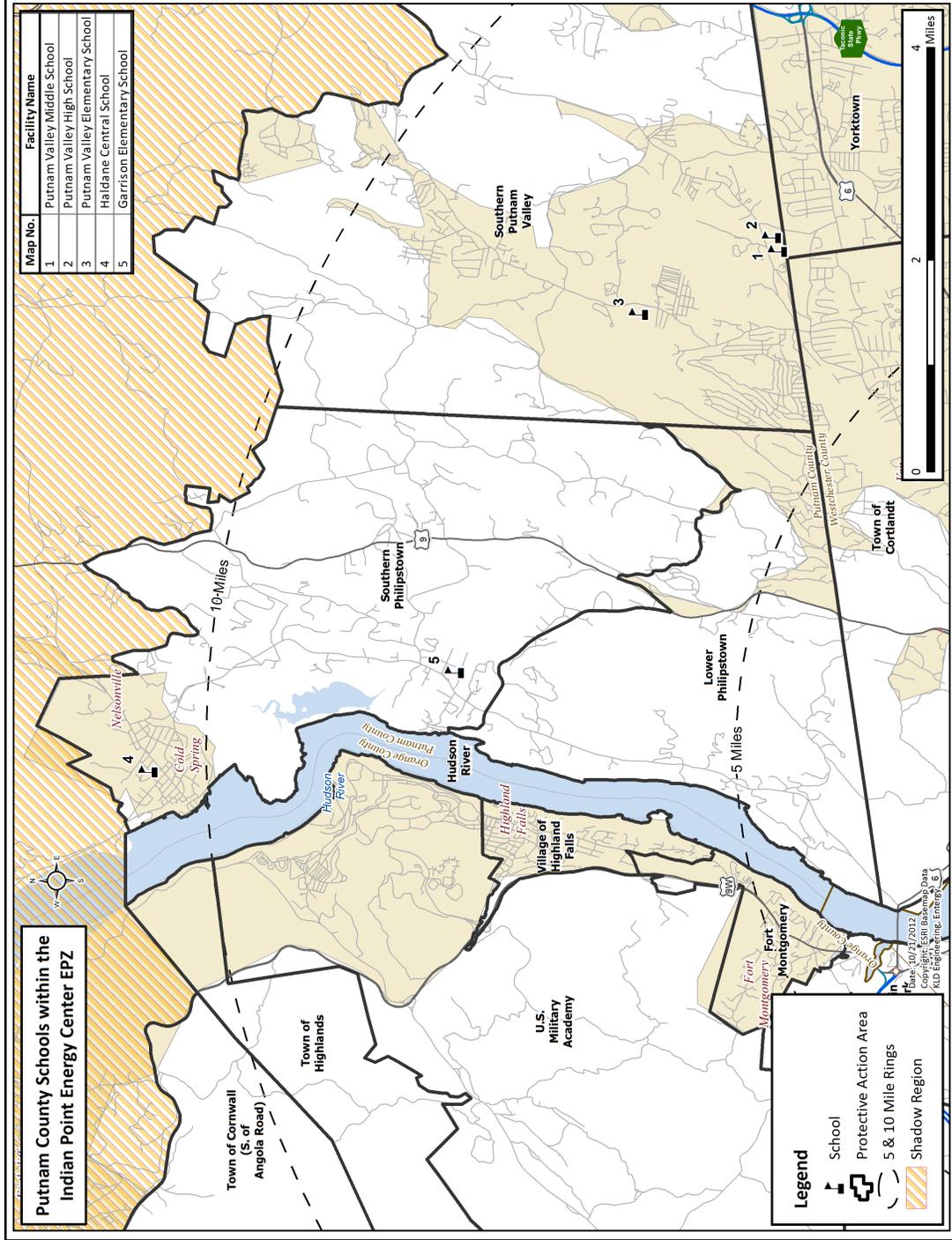


Figure E-2. Putnam County Schools within the EPZ

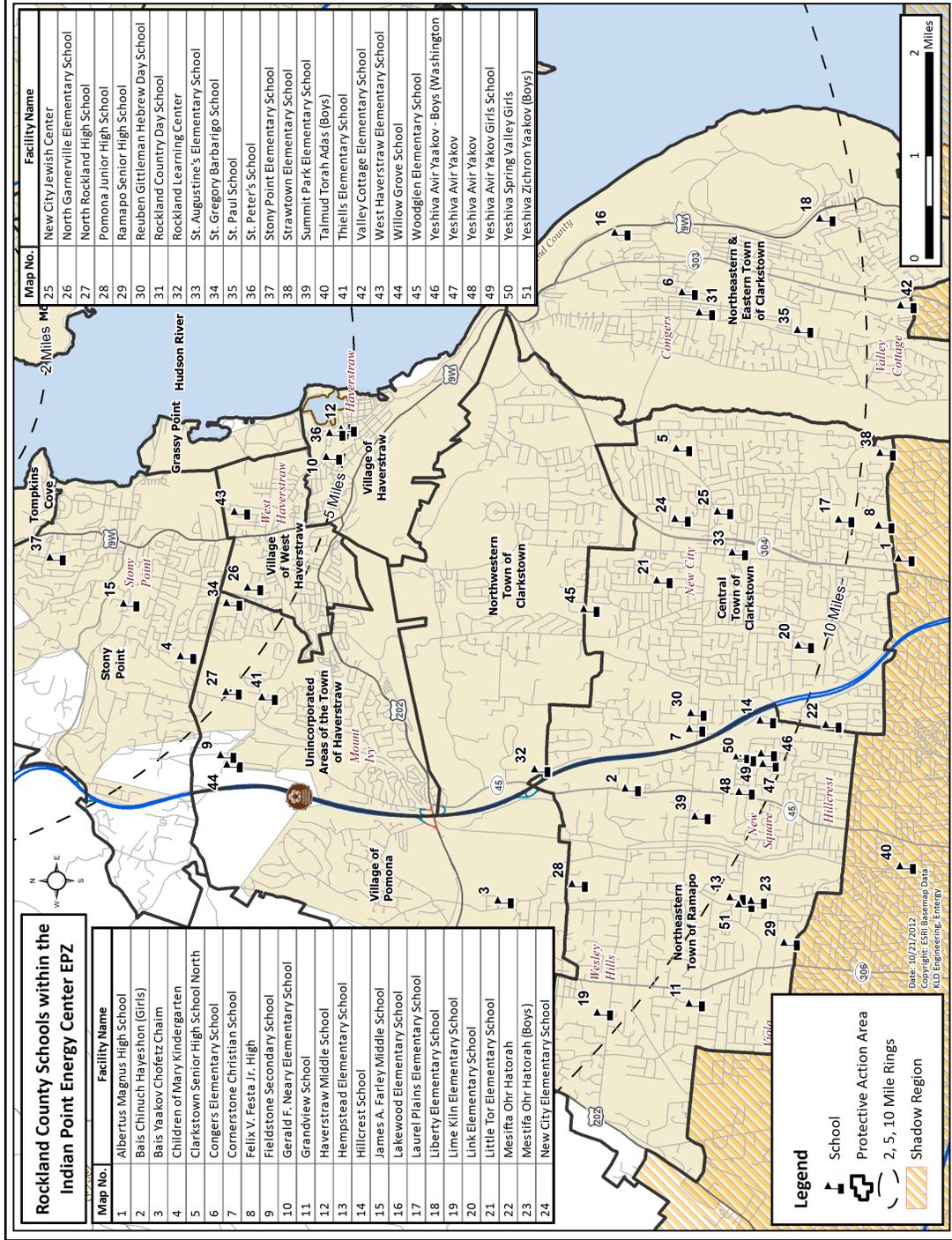


Figure E-3. Rockland County Schools within the EPZ

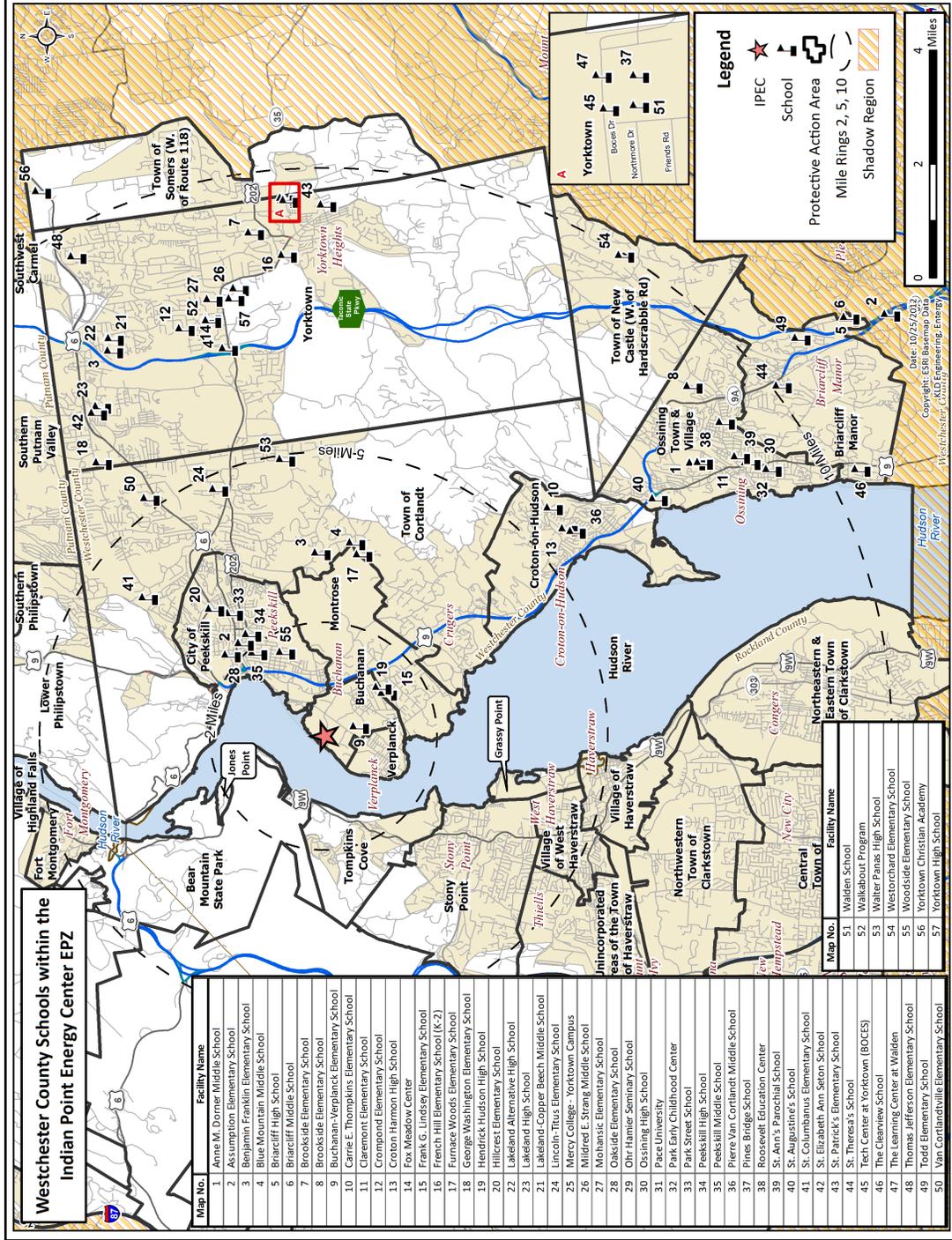


Figure E-4. Westchester County Schools within the EPZ

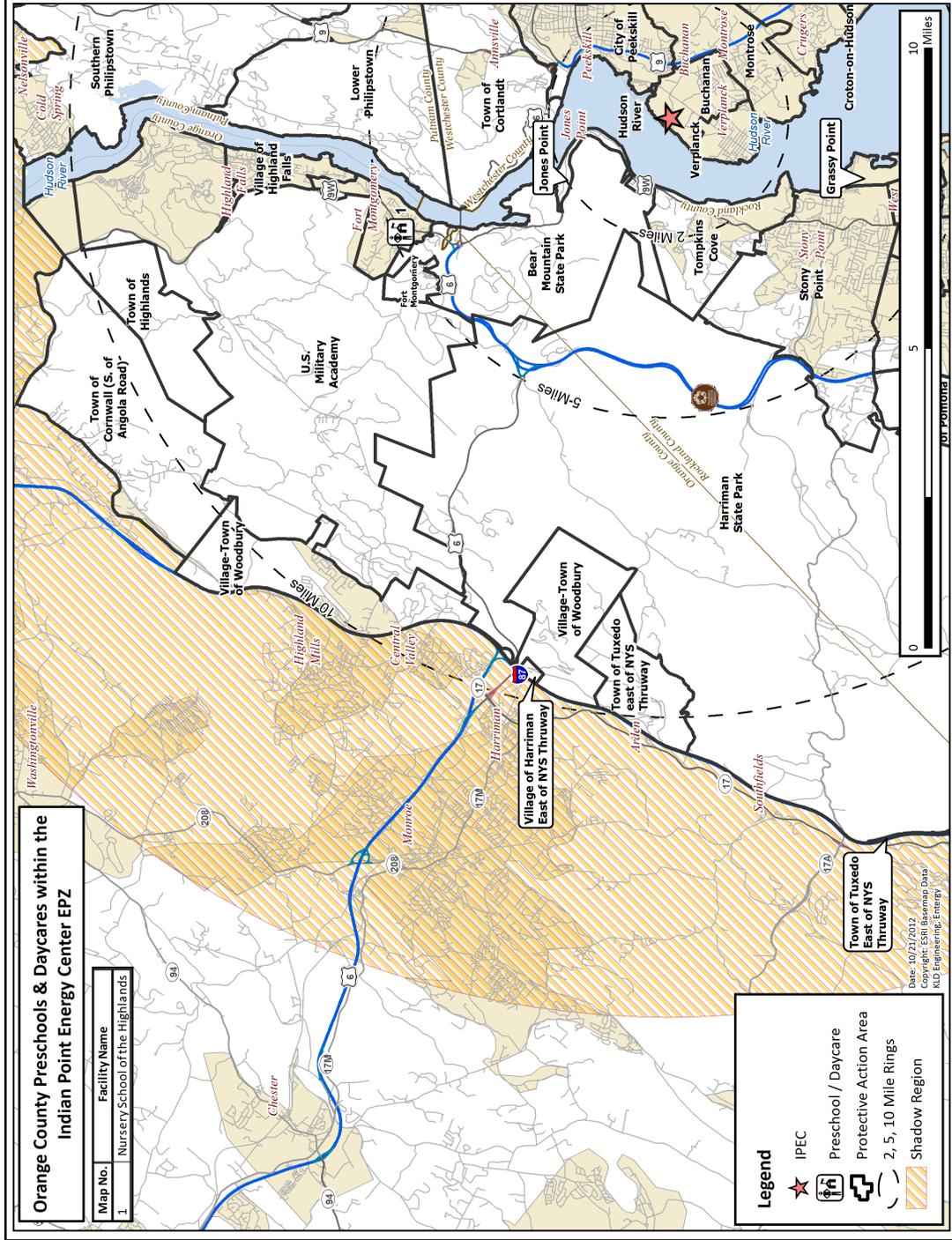


Figure E-5. Orange County Preschools and Daycares within the EPZ

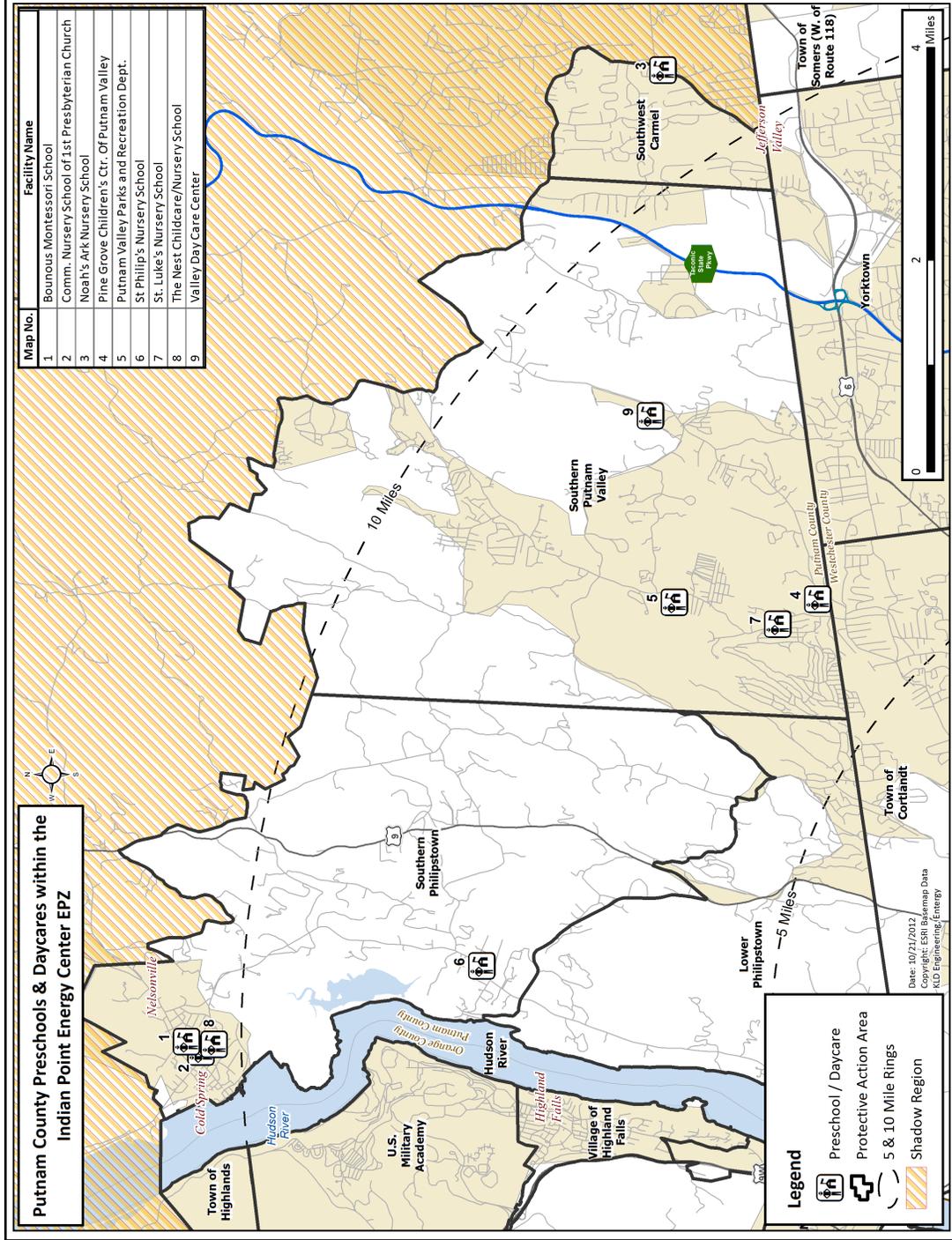


Figure E-6. Putnam County Preschools and Daycares within the EPZ

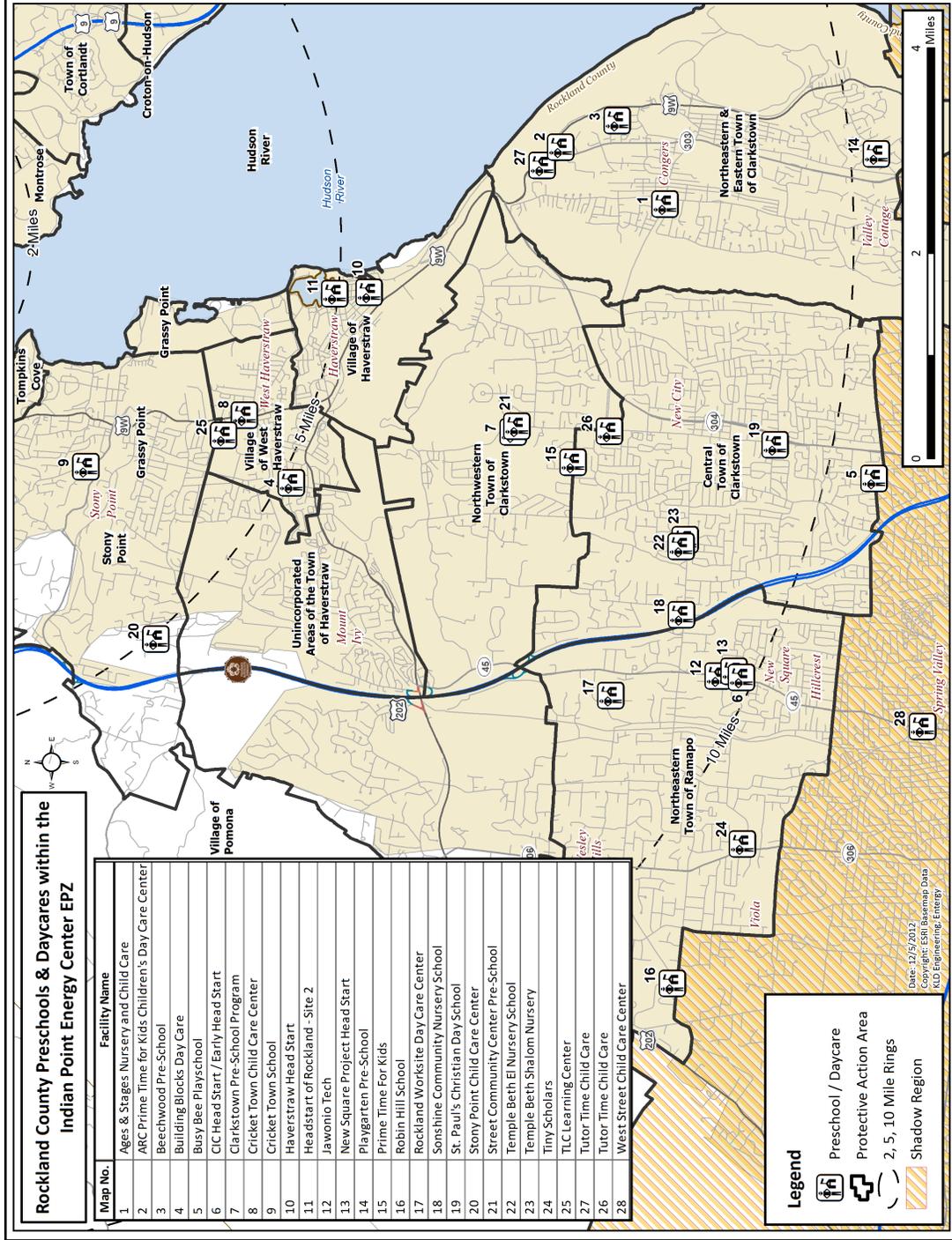


Figure E-7. Rockland County Preschools and Daycares within the EPZ

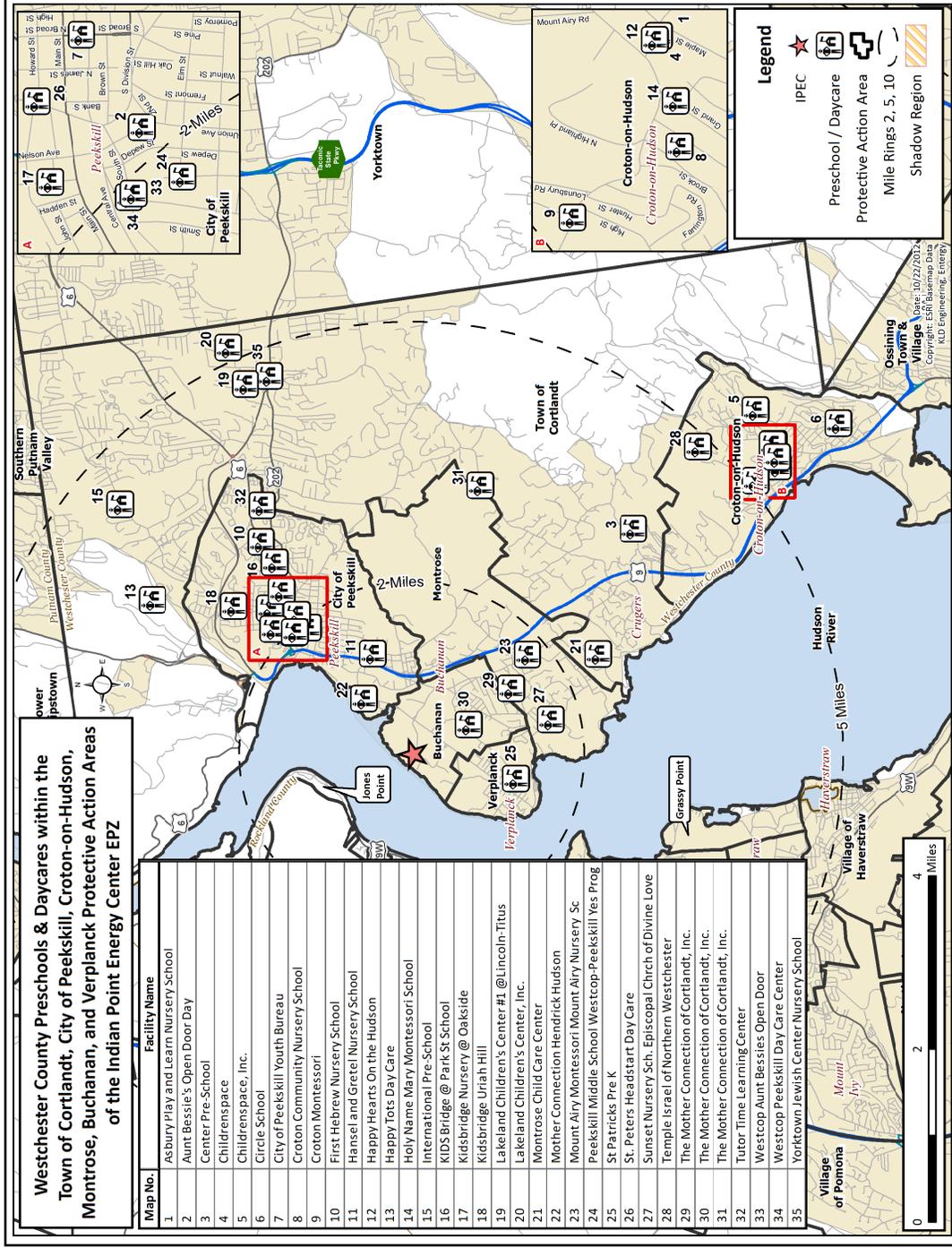


Figure E-8. Westchester County Preschools and Daycares within the Town of Cortlandt, City of Peekskill, Croton-on-Hudson, Montrose, Buchanan, and Verplanck Protective Action Areas

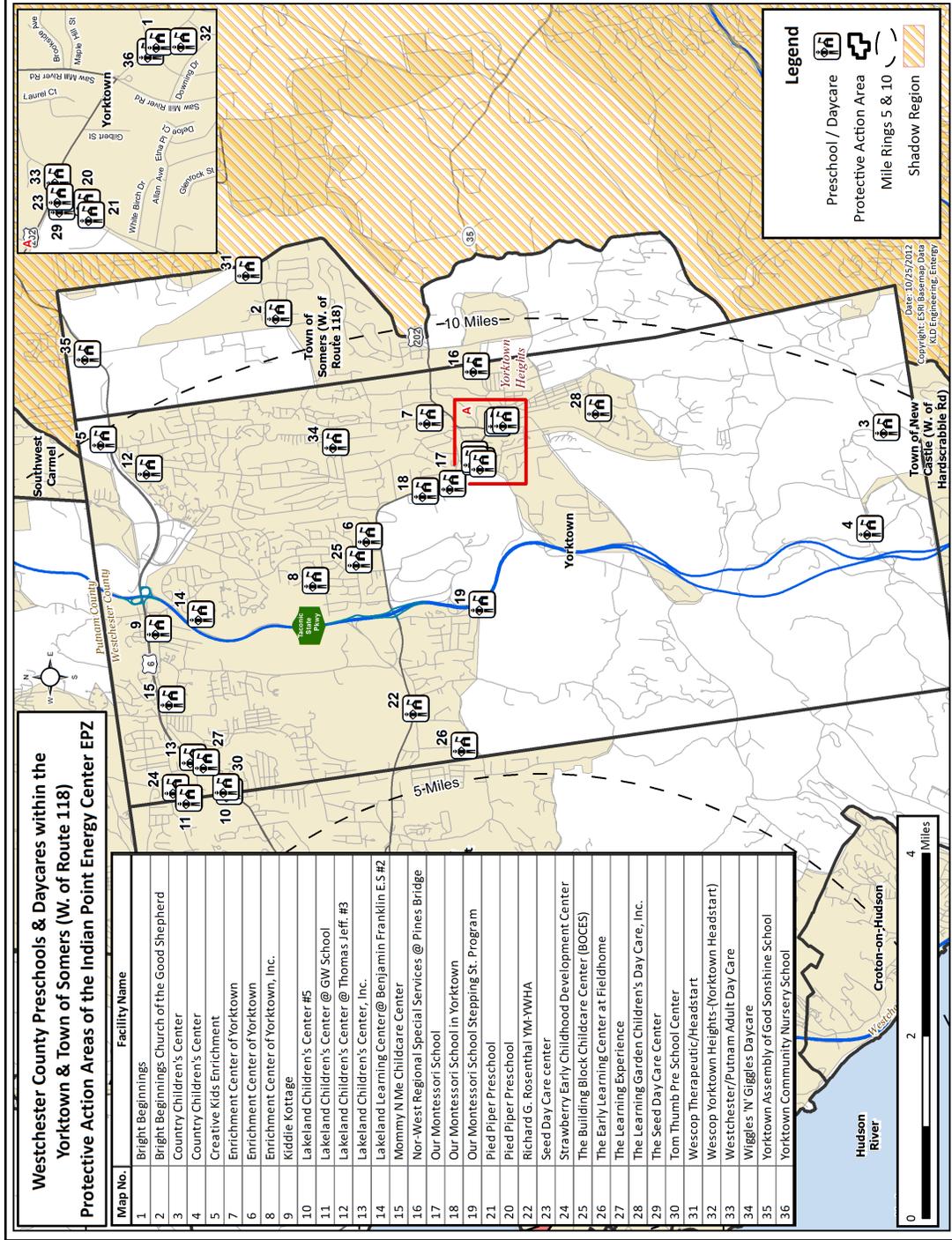
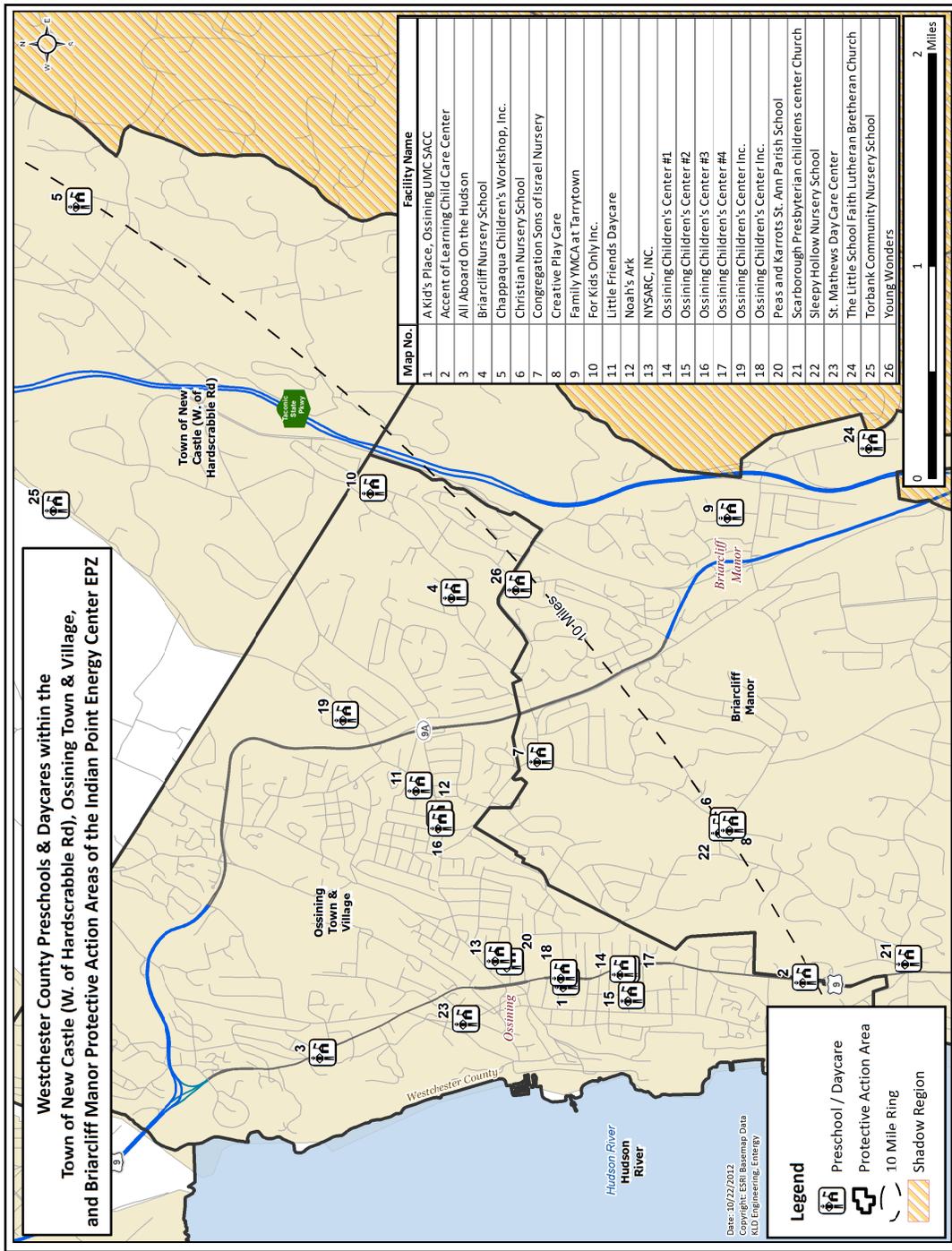


Figure E-9. Westchester County Preschools and Daycares within the Yorktown & Town of Somers Protective Action Areas



**Figure E-10. Westchester County Preschools and Daycares within the Town of New Castle (W. of Hardscrabble Rd), Ossining Town and Village, and Briarcliff Manor Protective Action Areas**

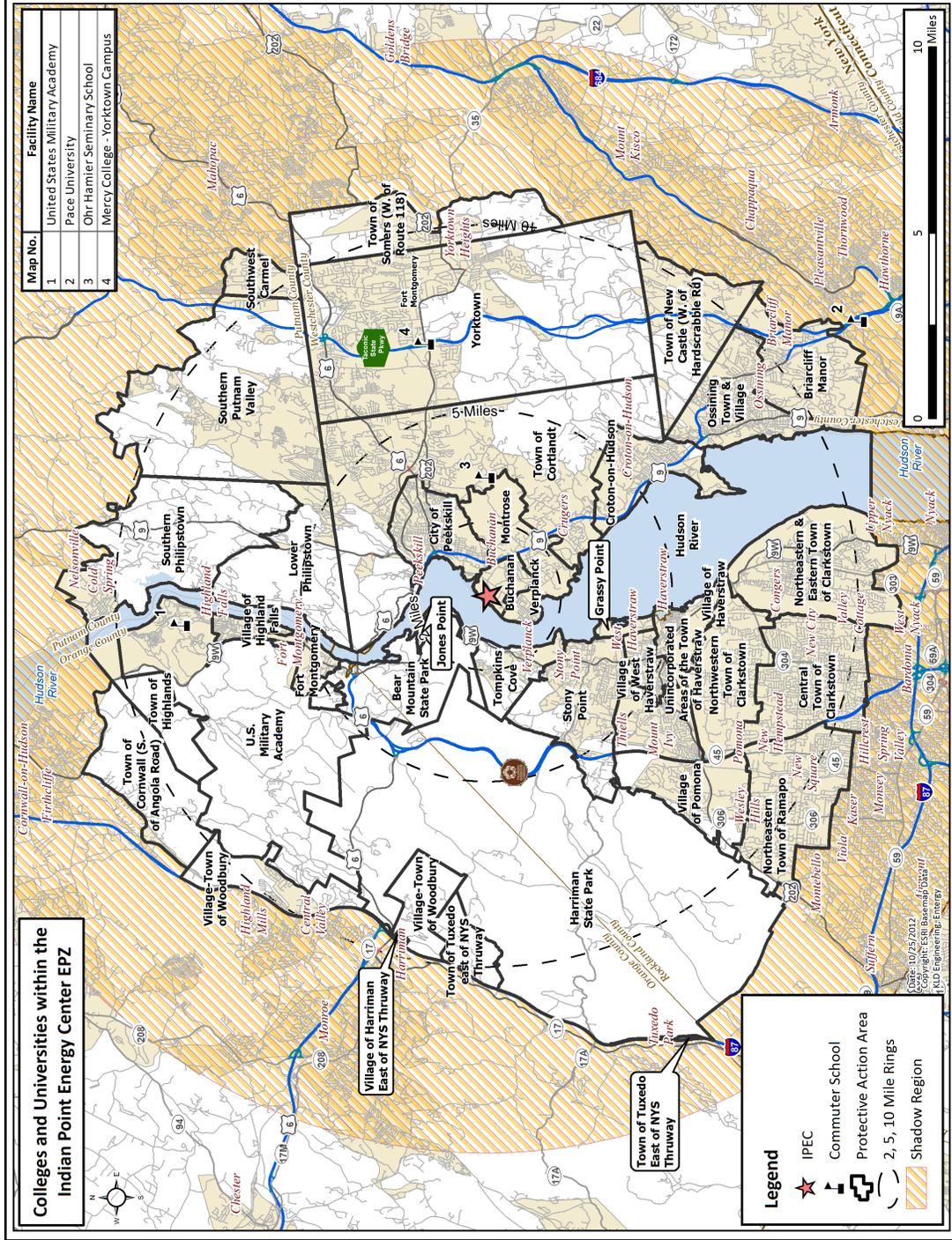


Figure E-11. Colleges and Universities within the EPZ

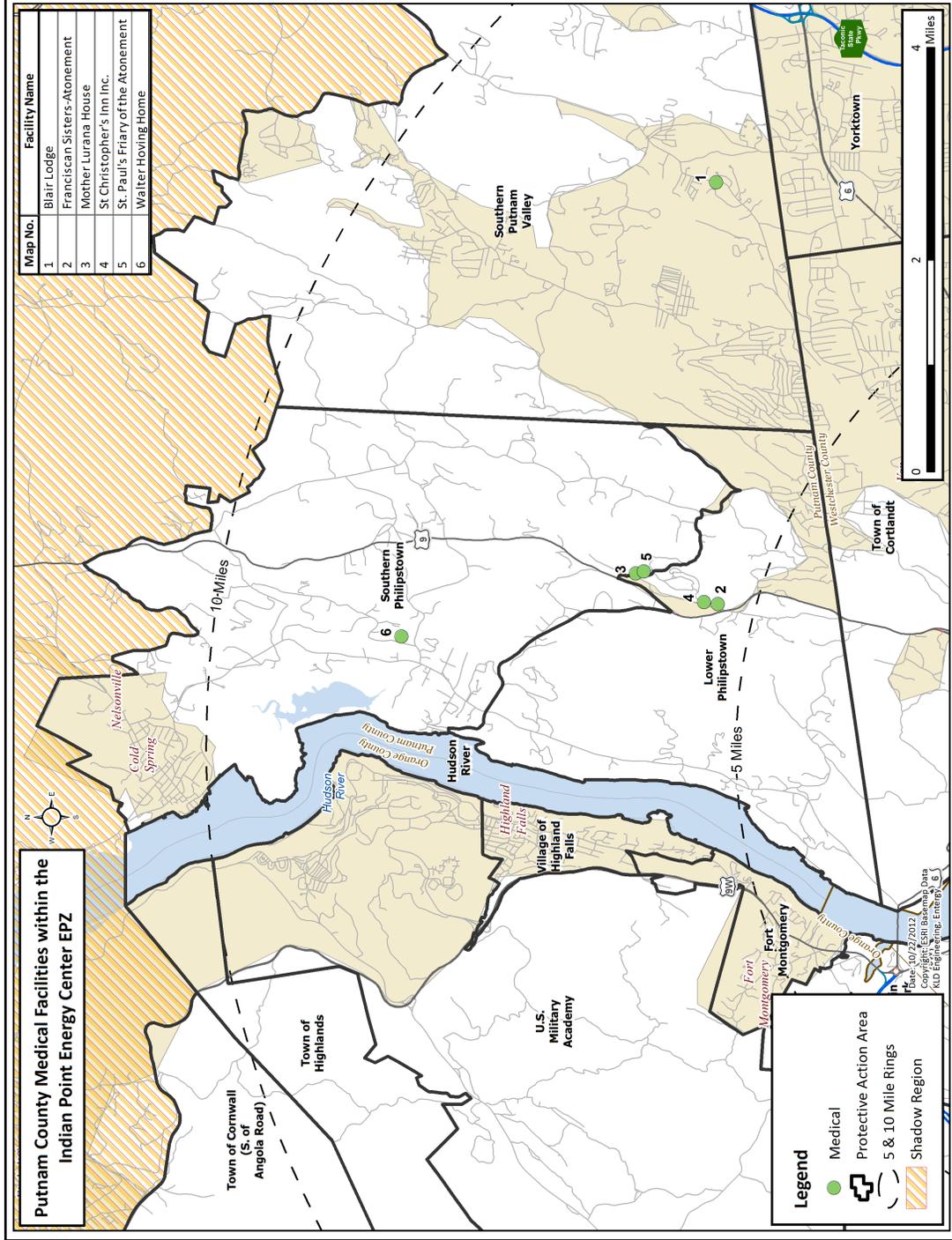


Figure E-12. Putnam County Medical Facilities within the EPZ

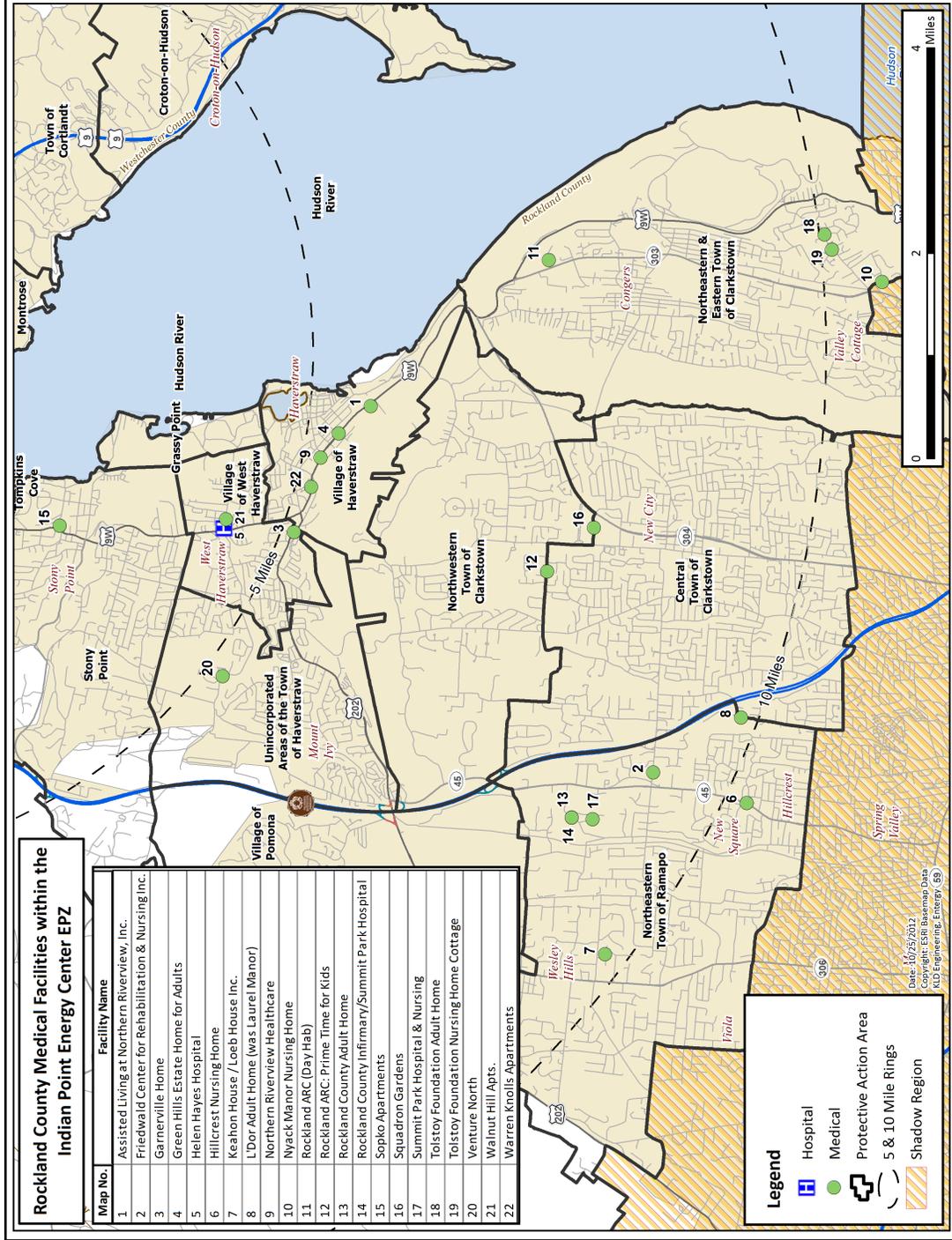


Figure E-13. Rockland County Medical Facilities within the EPZ

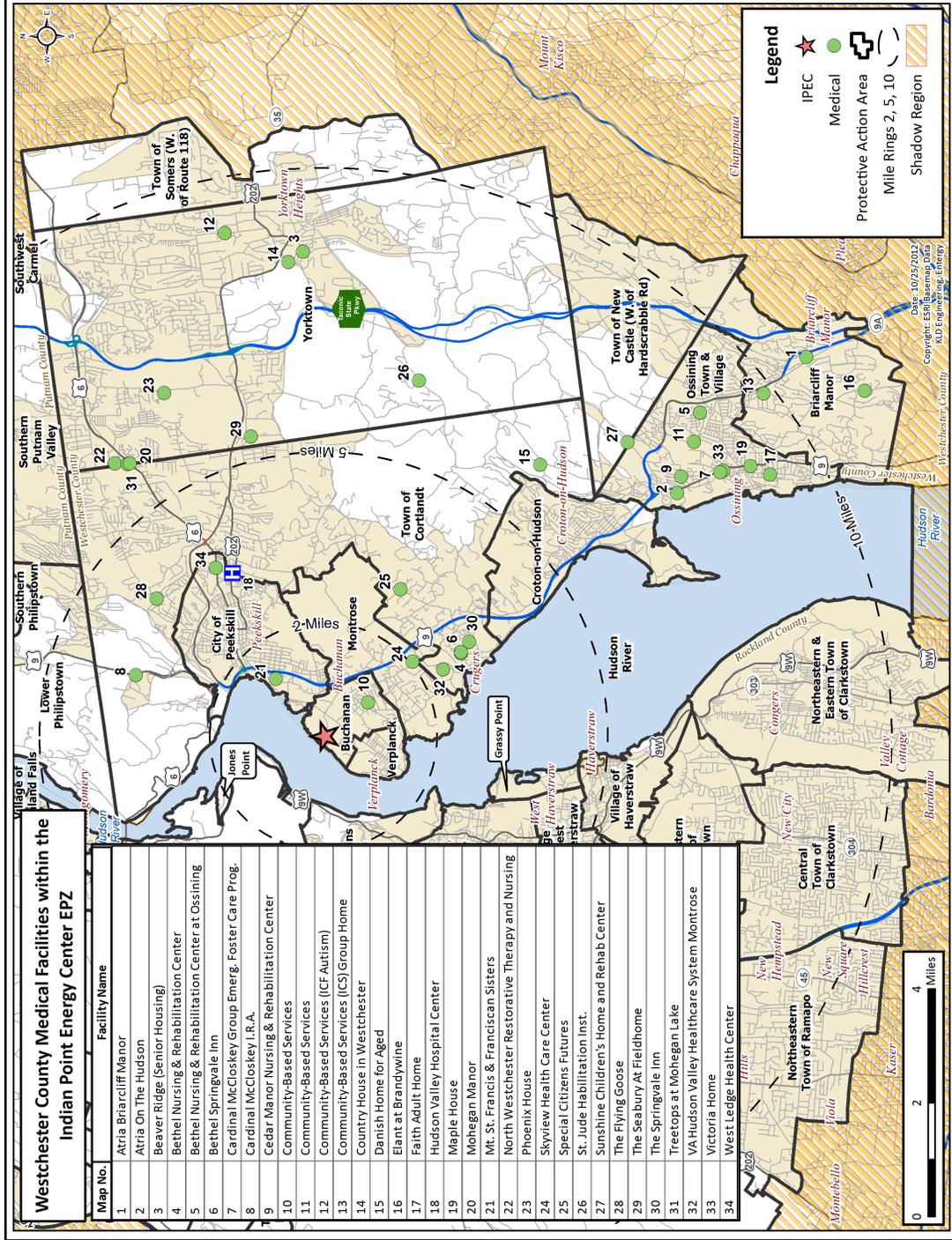


Figure E-14. Westchester County Medical Facilities within the EPZ

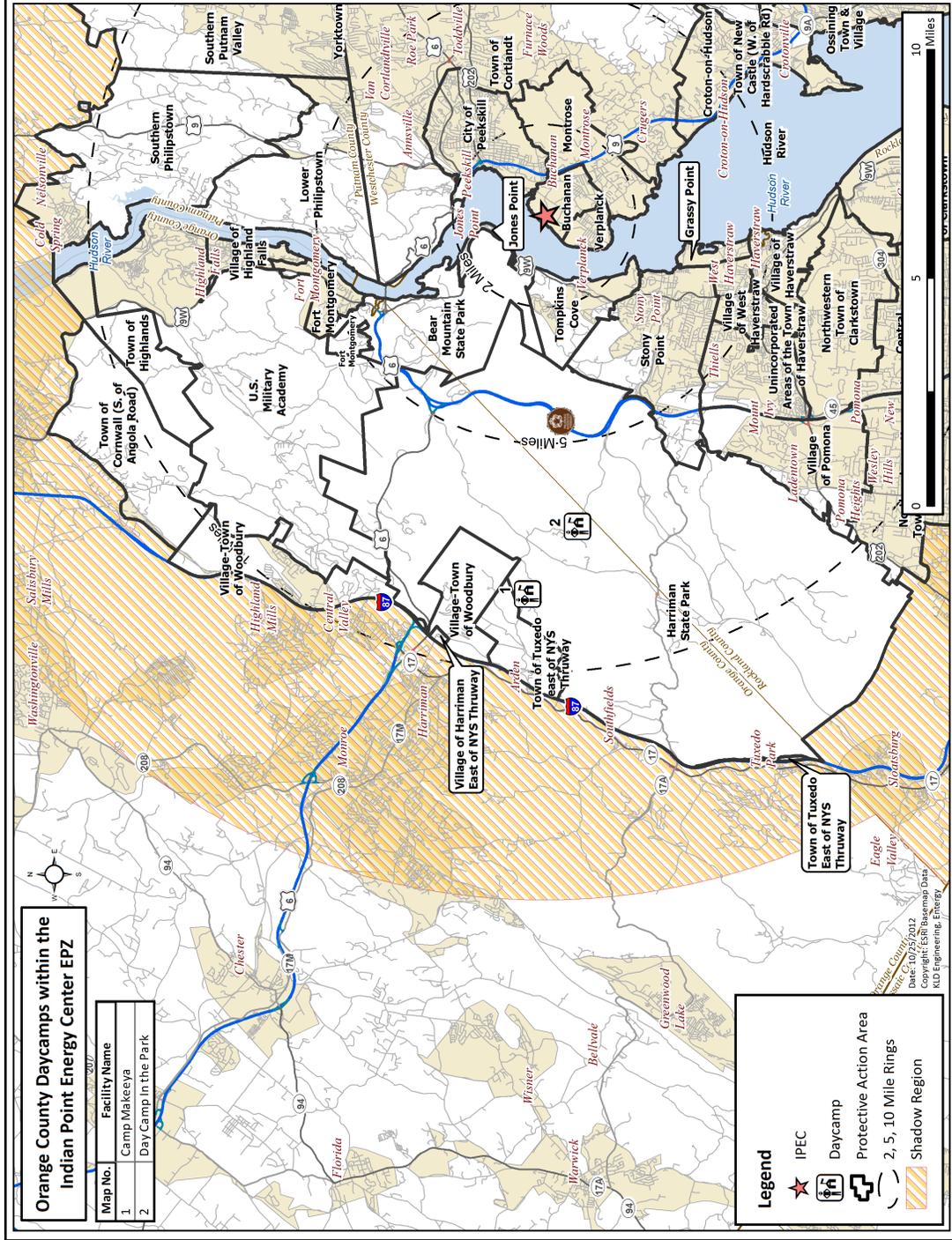


Figure E-15. Orange County Daycamps within the EPZ

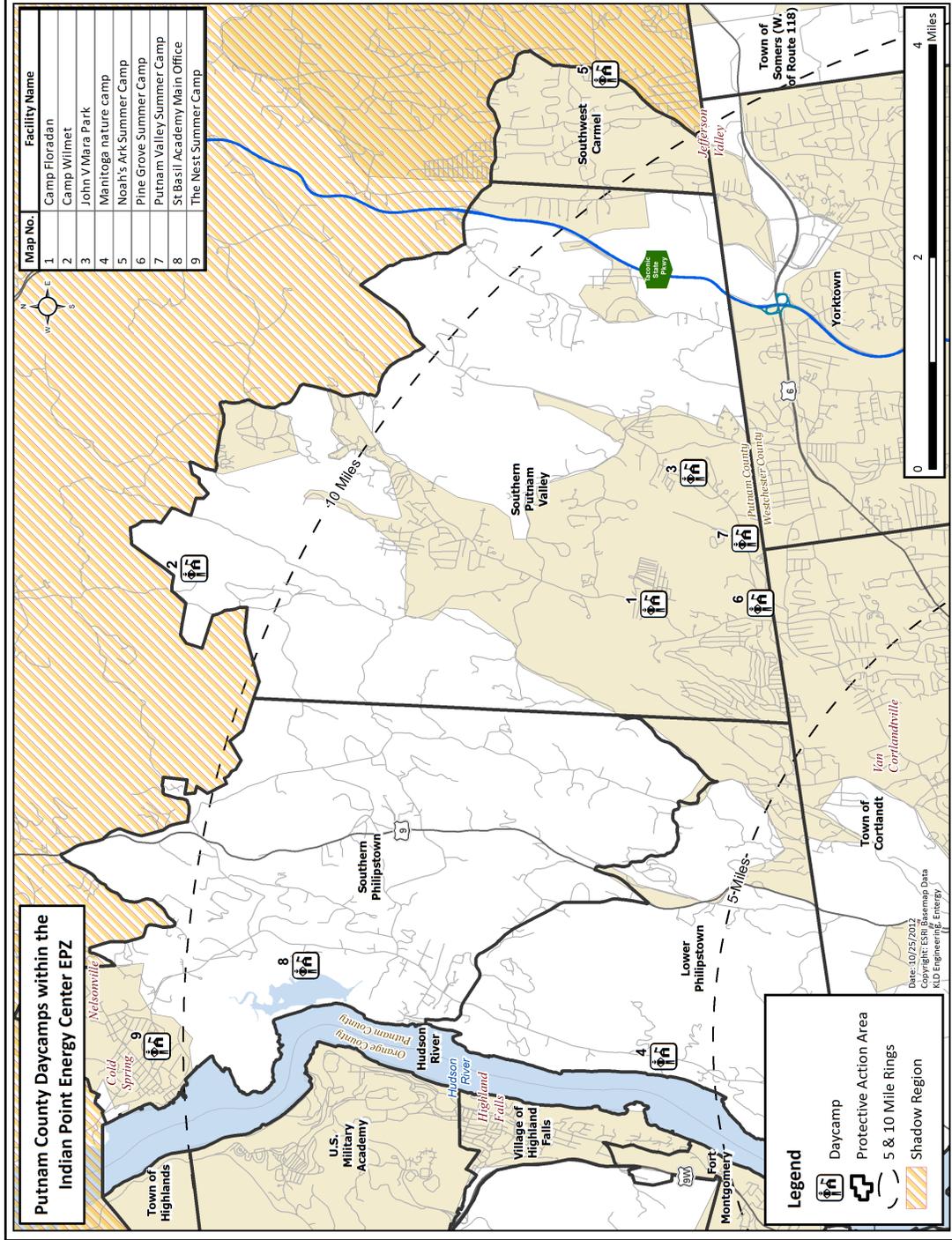


Figure E-16. Putnam County Daycamps within the EPZ

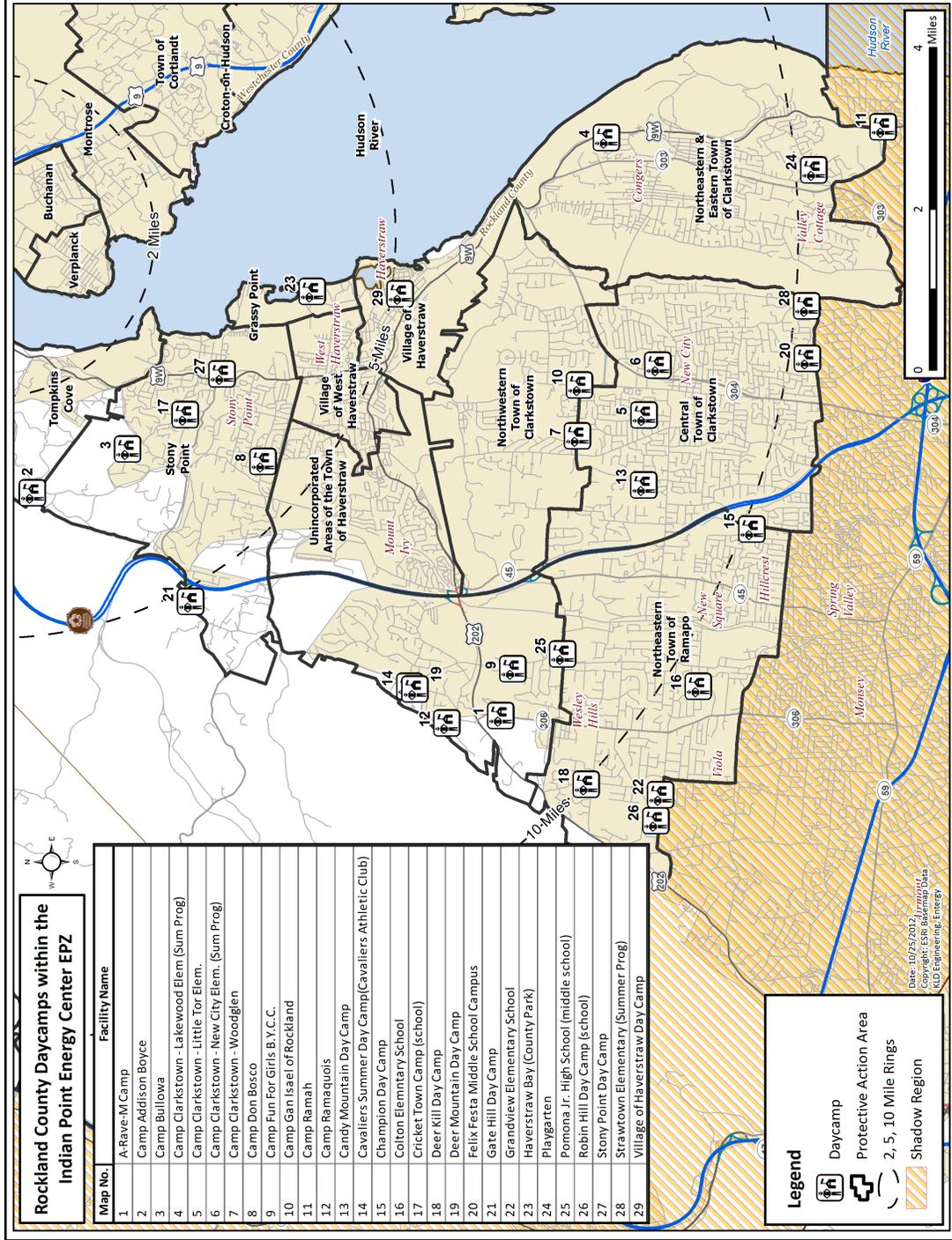


Figure E-17. Rockland County Daycamps within the EPZ

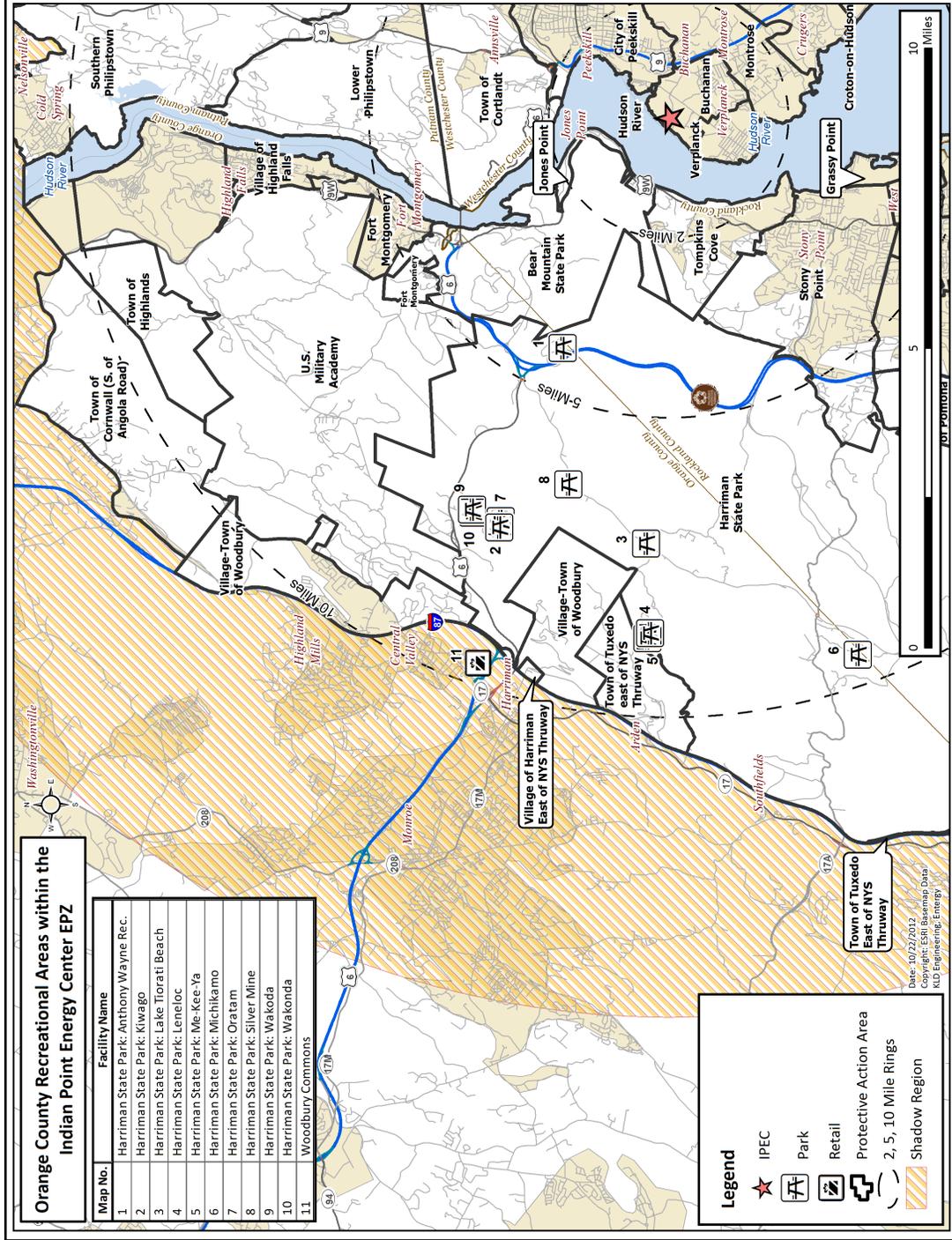


Figure E-18. Orange County Recreational Areas within the EPZ

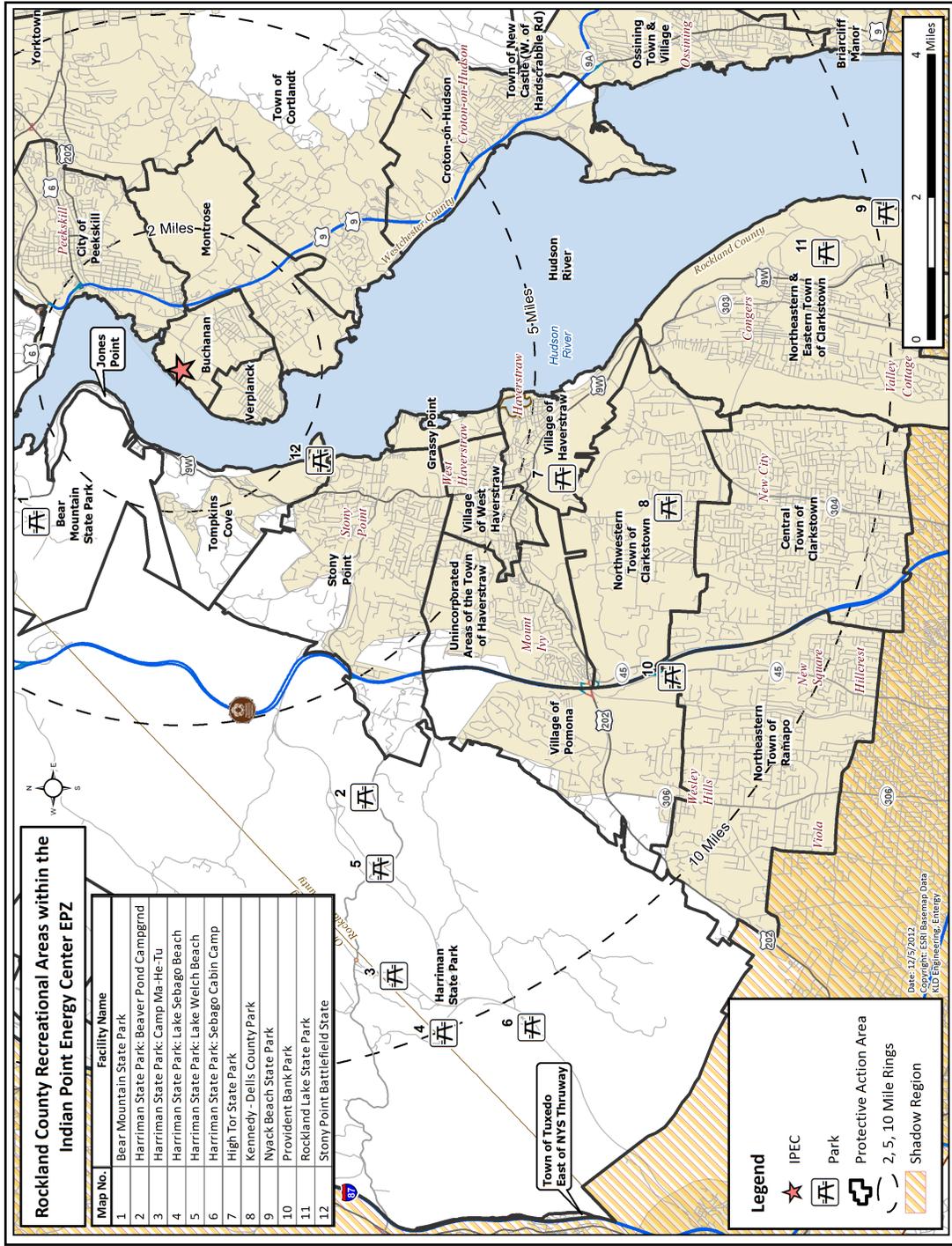


Figure E-19. Rockland County Recreational Areas within the EPZ

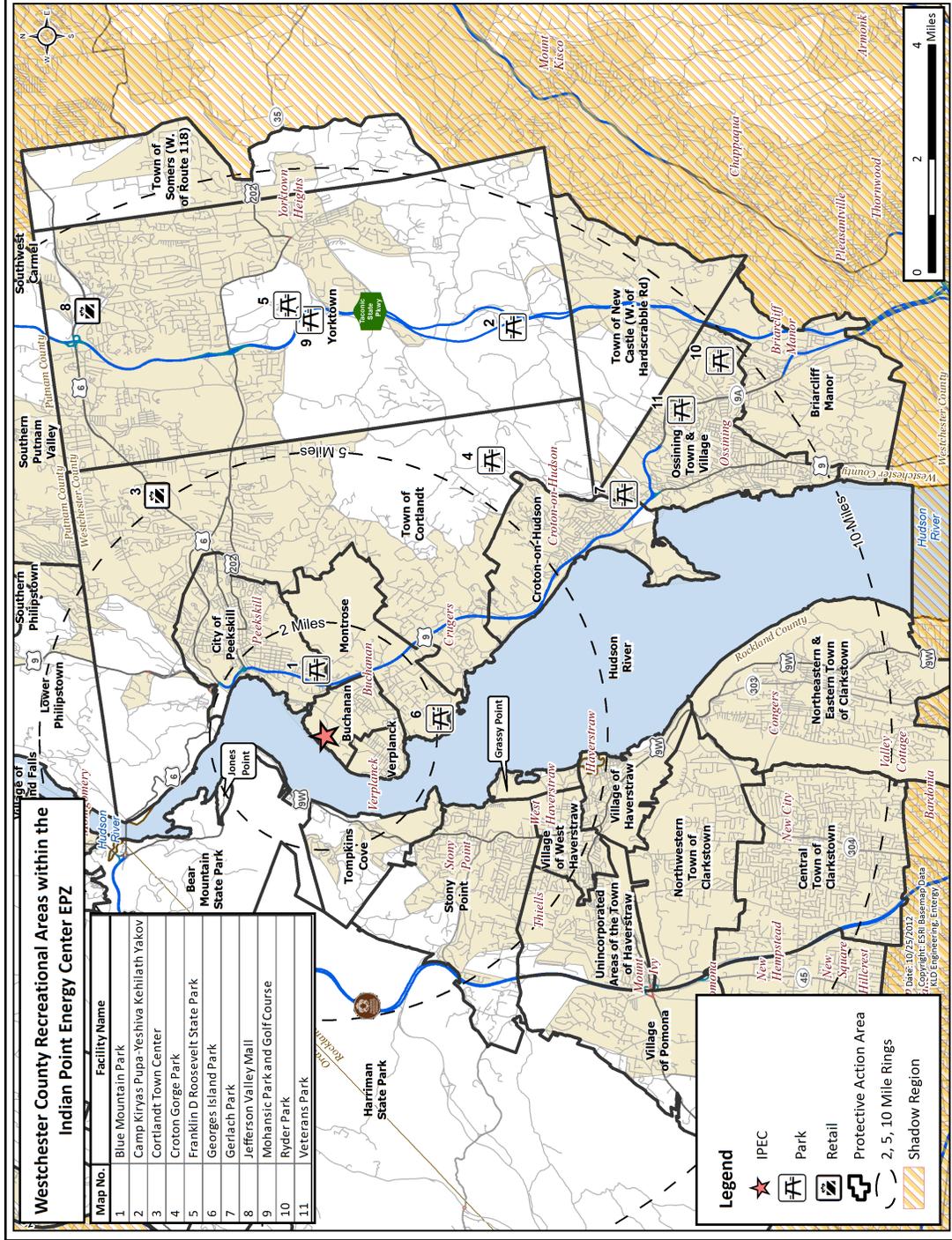


Figure E-20. Westchester County Recreational Areas within the EPZ

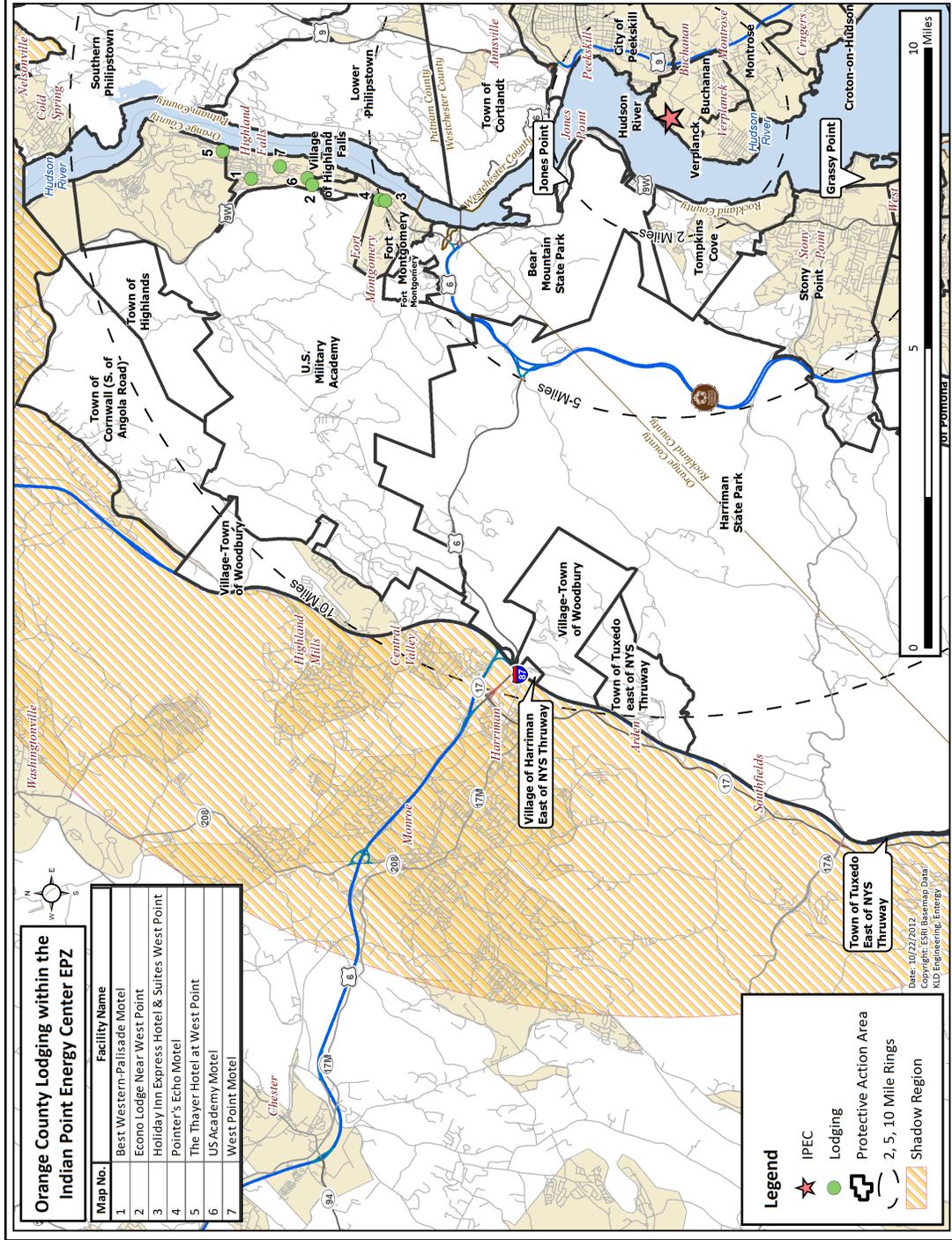


Figure E-21. Orange County Lodging Facilities within the EPZ

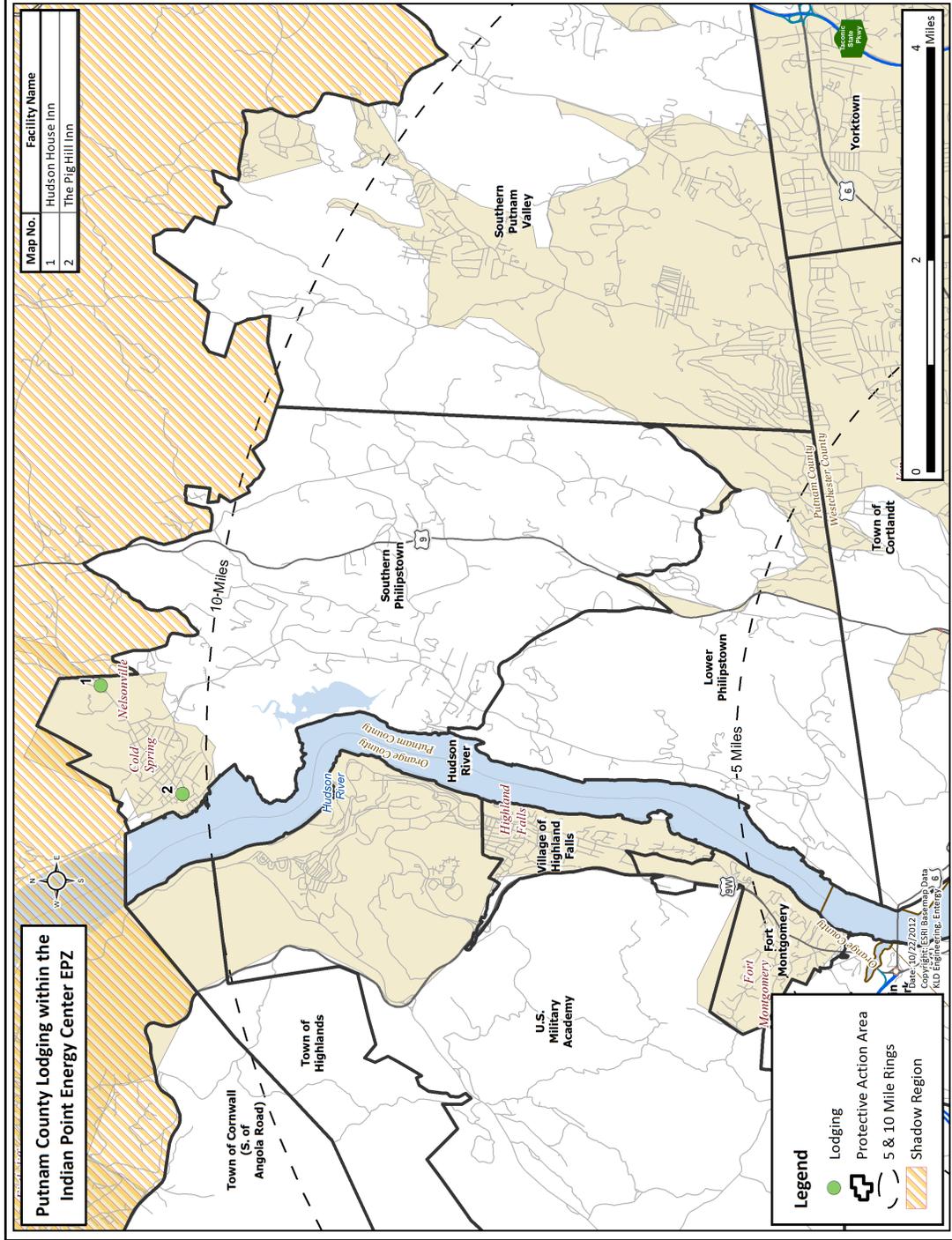


Figure E-22. Putnam County Lodging Facilities within the EPZ

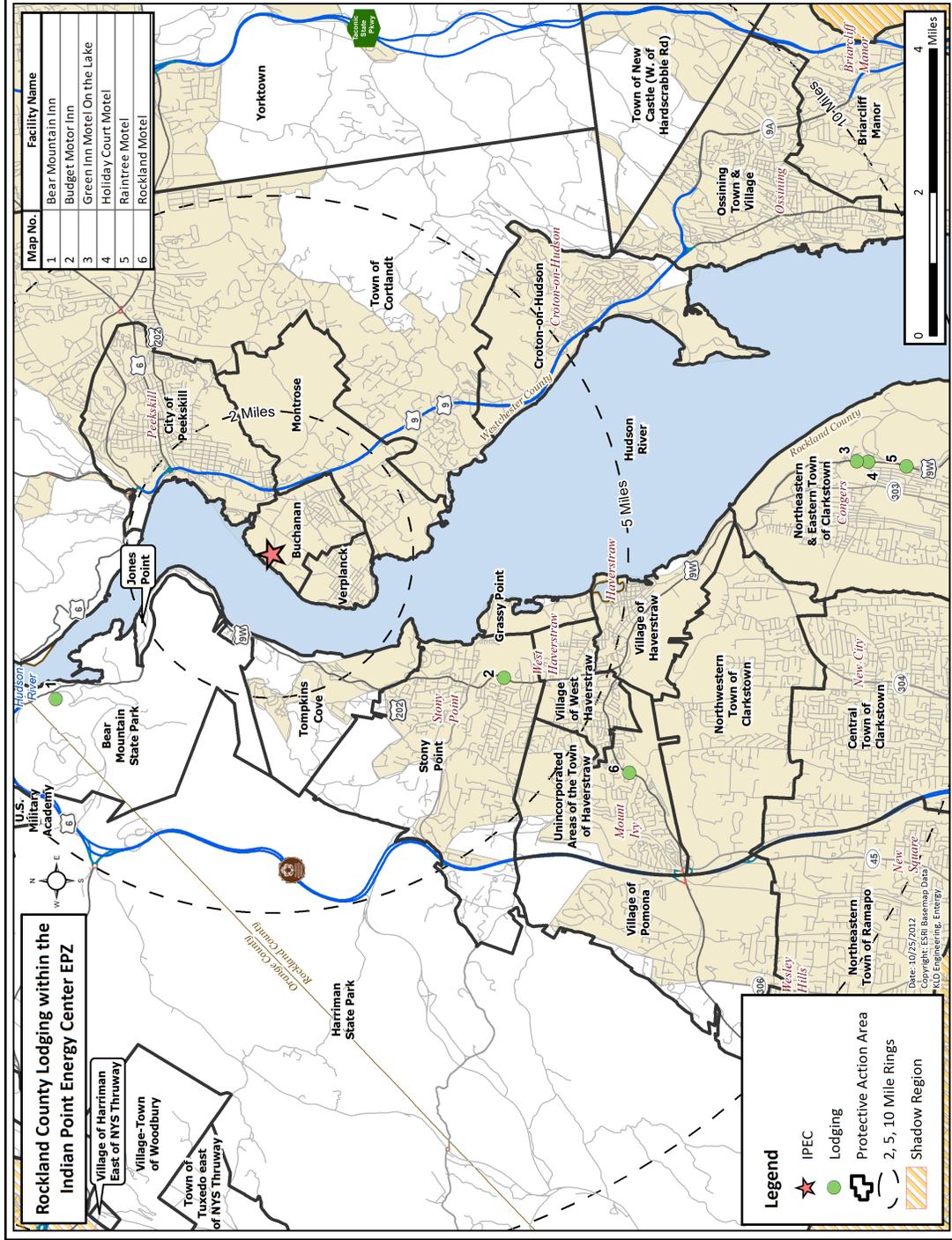


Figure E-23. Rockland County Lodging Facilities within the EPZ

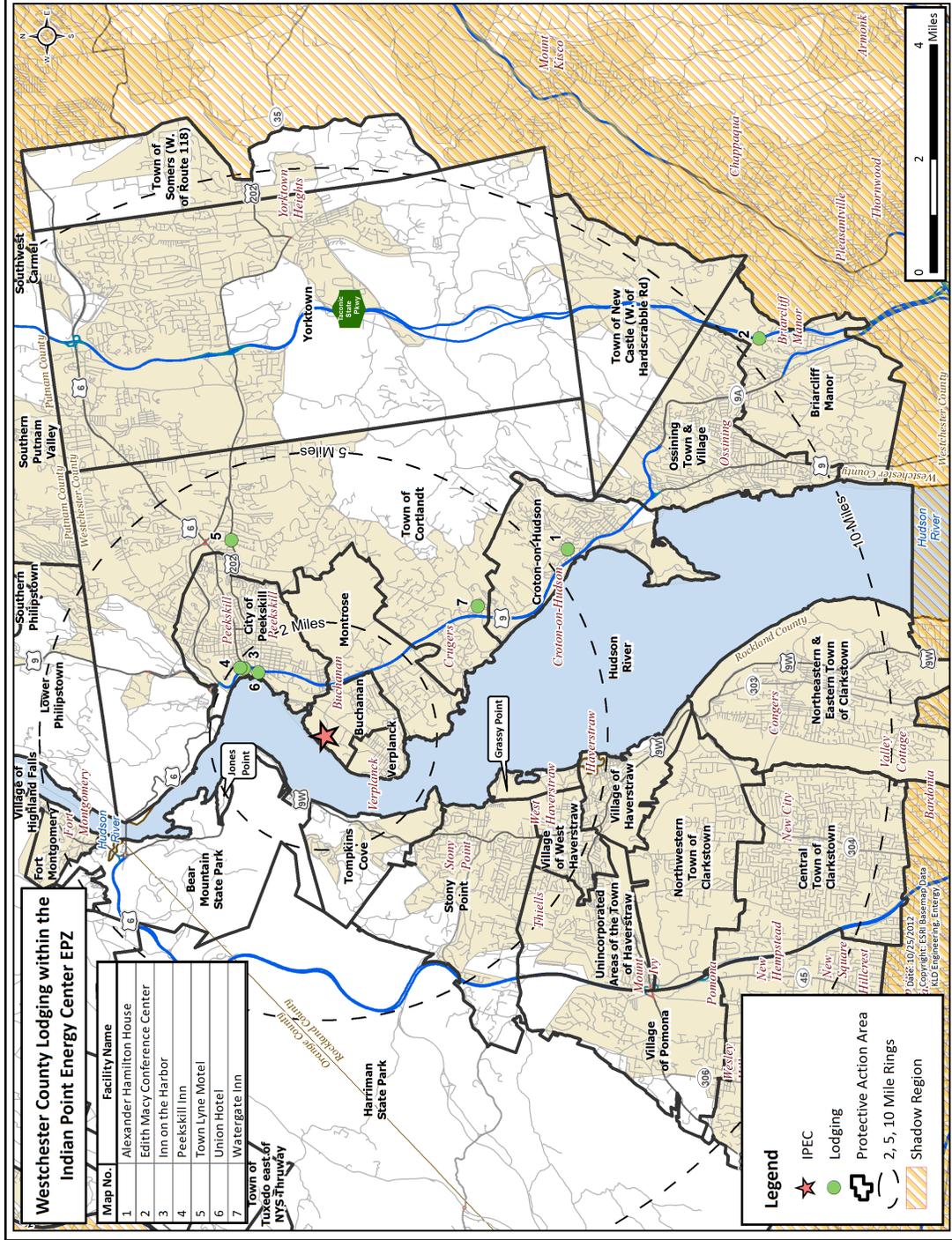


Figure E-24. Westchester County Lodging Facilities within the EPZ

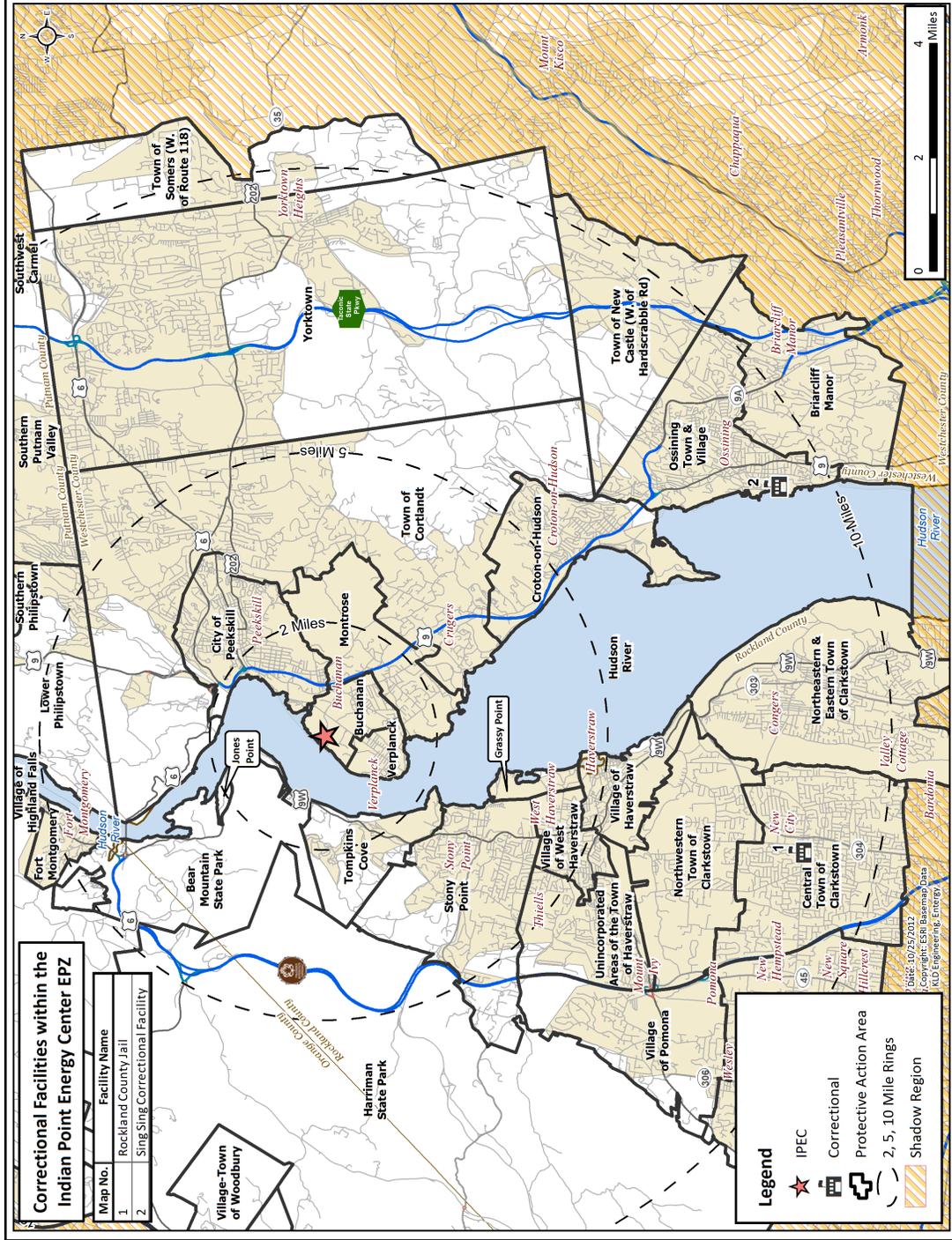


Figure E-25. Correctional Facilities within the EPZ

**APPENDIX F**  
Telephone Survey

## F. TELEPHONE SURVEY

### F.1 Introduction

The development of evacuation time estimates for the Indian Point Energy Center EPZ requires the identification of travel patterns, car ownership and household size of the population within the EPZ. Demographic information can be obtained from Census data. The use of this data has several limitations when applied to emergency planning. First, the Census data do not encompass the range of information needed to identify the time required for preliminary activities (mobilization) that must be undertaken prior to evacuating the area. Secondly, Census data do not contain attitudinal responses needed from the population of the EPZ and consequently may not accurately represent the anticipated behavioral characteristics of the evacuating populace.

These concerns are addressed by conducting a telephone survey of a representative sample of the EPZ population. The survey is designed to elicit information from the public concerning family demographics and estimates of response times to well defined events. The design of the survey includes a limited number of questions of the form “What would you do if ...?” and other questions regarding activities with which the respondent is familiar (“How long does it take you to ...?”)

## F.2 Survey Instrument and Sampling Plan

Attachment A presents the final survey instrument used in this study. A draft of the instrument was submitted to stakeholders for comment. Comments were received and the survey instrument was modified accordingly, prior to conducting the survey.

Following the completion of the instrument, a sampling plan was developed. A sample size of approximately 1000 **completed** survey forms yields results with a sampling error of  $\pm 3\%$  at the 95% confidence level. The sample must be drawn from the EPZ population. Consequently, a list of zip codes in the EPZ was developed using GIS software. This list is shown in Table F-1. Along with each zip code, an estimate of the population and number of households in each area was determined by overlaying Census data and the EPZ boundary, again using GIS software. The proportional number of desired completed survey interviews for each area was identified, as shown in Table F-1.

The completed survey adhered to the sampling plan.

**Table F-1. Indian Point Telephone Survey Sampling Plan**

ZIP	EPZ POP IN ZIP FOR 2010	Households in EPZ	Required Sample
<b>Orange County</b>			
10917	524	141	2
12518	643	247	2
10928	6,037	2,475	19
10930	2,242	715	7
12553	12	6	0
10975	25	10	0
10987	183	70	1
10996	6,457	553	21
<b>Total:</b>	16,123	4,217	52
<b>Putnam County</b>			
10516	2,830	1,224	9
10524	4,500	1,548	15
10537	2,151	820	7
10541	3,217	1,064	10
10579	7,255	2,558	23
<b>Total:</b>	19,953	7,214	64

Table F-1. Indian Point Telephone Survey Sampling Plan (continued)

ZIP	EPZ POP IN ZIP FOR 2010	Households in EPZ	Required Sample
<b>Rockland County</b>			
10911	5	3	0
10920	8,775	2,972	28
10923	8,526	2,829	27
10927	11,912	3,425	38
10952	3,587	842	12
10956	30,771	10,158	99
10960	5	2	0
10970	10,242	3,789	33
10977	18,771	4,199	60
10980	13,445	4,739	43
10901	2,740	824	9
10984	2,668	867	9
10986	1,919	653	6
10989	6,423	2,171	21
10993	4,849	1,642	16
10994	413	138	1
<b>Total:</b>	125,051	39,253	402
<b>Westchester County</b>			
10501	1,449	456	5
10505	18	5	0
10510	9,202	3,175	30
10511	2,758	1,114	9
10514	1,945	595	6
10567	20,322	6,738	66
10520	12,824	5,194	41
10527	1,041	324	3
10535	504	164	2
10536	1,254	387	4
10537	152	56	0
10546	864	287	3
10547	7,934	2,710	26
10548	4,607	1,643	15
10549	332	87	1
10562	32,289	10,882	104
10566	23,663	9,094	76
10588	2,201	847	7
10598	26,067	9,402	84
<b>Total:</b>	149,426	53,160	482
<b>IPEC EPZ Total</b>			
<b>EPZ Total:</b>	310,553	103,844	1000
<b>AVG HH Size</b>	<b>2.99</b>		

Unavoidably, some of the zip code areas in the neighborhood of the EPZ boundary extend outside the EPZ. The inclusion of these zip codes is important to allow the survey to include the demographic characteristics of persons within the EPZ. However, some responses may have been completed by households located outside the EPZ. To assess the implications of this fact, we analyzed the resulting survey data for the Rockland County EPZ with and without the responses obtained from the “border” area with the zip code, 10901 (Suffern; some of the zip-code area lies outside the EPZ). The average household size for the Rockland County EPZ was computed in both cases, as shown below. As indicated, the unavoidable inclusion of a few small areas adjoining the EPZ does not significantly affect the results obtained.

<b>Rockland County EPZ</b>	<b>Average Household Size (Persons)</b>
With Zip Code 10901 Area	3.15
Without Zip Code 10901 Area	3.16

### **F.3 Survey Results**

The results of the survey fall into two categories. First, the household demographics of the area can be identified. Demographic information includes such factors as household size, automobile ownership, and automobile availability. The distributions of the time to perform certain pre-evacuation activities are the second category of survey results. These data are processed to develop the trip generation distributions used in the evacuation modeling effort, as discussed in Section 5.

A review of the survey instrument reveals that several questions have a “don’t know” (DK) or “refused” entry for a response. It is accepted practice in conducting surveys of this type to accept the answers of a respondent who offers a DK response for a few questions or who refuses to answer a few questions. To address the issue of occasional DK/refused responses from a large sample, the practice is to assume that the distribution of these responses is the same as the underlying distribution of the positive responses. In effect, the DK/refused responses are ignored and the distributions are based upon the positive data that is acquired.

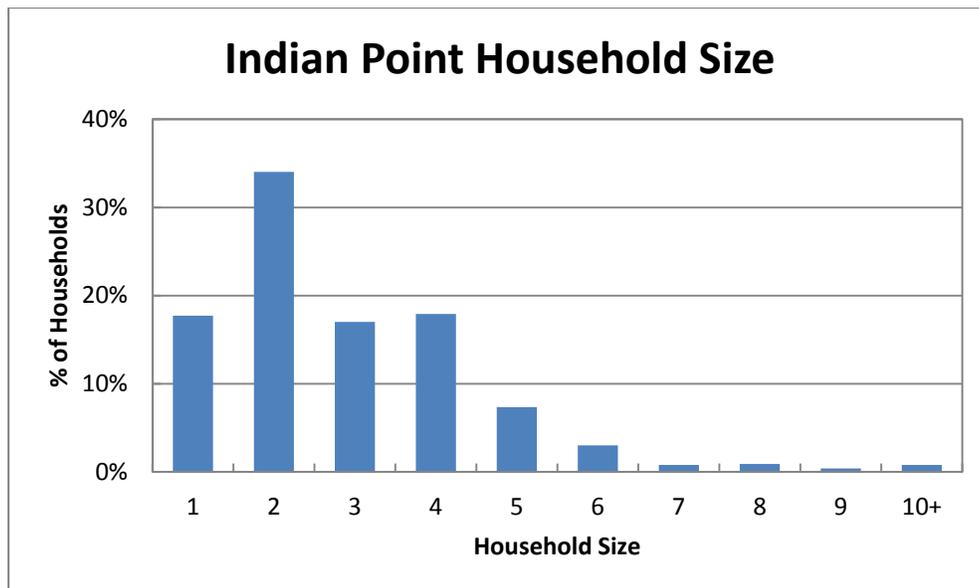
### F.3.1 Household Demographic Results

#### Household Size

Figure F-1 presents the distribution of household size within the EPZ. Table F-2 presents the telephone survey results for the average household size by county within the EPZ. The average household contains 2.88 people. The estimated household size (2.99 persons) used to determine the survey sample (Table F-1) was drawn from Census data. The estimation of 2.99 people per household is an overestimation because the Census includes colleges, medical facilities and jails, which are not homes. When Census blocks with household sizes of over 10 people are ignored (28 blocks total), the adjusted average household size becomes 2.93, which is in closer agreement with the telephone survey results. The good agreement between the survey results and Census data is an indication of the reliability of the telephone survey.

**Table F-2. Average Household Size by County**

<b>County</b>	<b>Household Size</b>
Westchester	2.66
Rockland	3.15
Putnam	2.75
Orange	2.96
<b>EPZ Total</b>	<b>2.88</b>



**Figure F-1. Household Size in the EPZ**

## Automobile Ownership

The average number of automobiles available per household in the EPZ is 1.89. It should be noted that 4.9 percent of households do not have access to an automobile. The distribution of automobile ownership is presented in Figure F-2. Figure F-3 and Figure F-4 present the automobile availability by household size. Note that the majority of households without access to a car are single person households. As expected, nearly all households of 2 or more people have access to at least one vehicle.

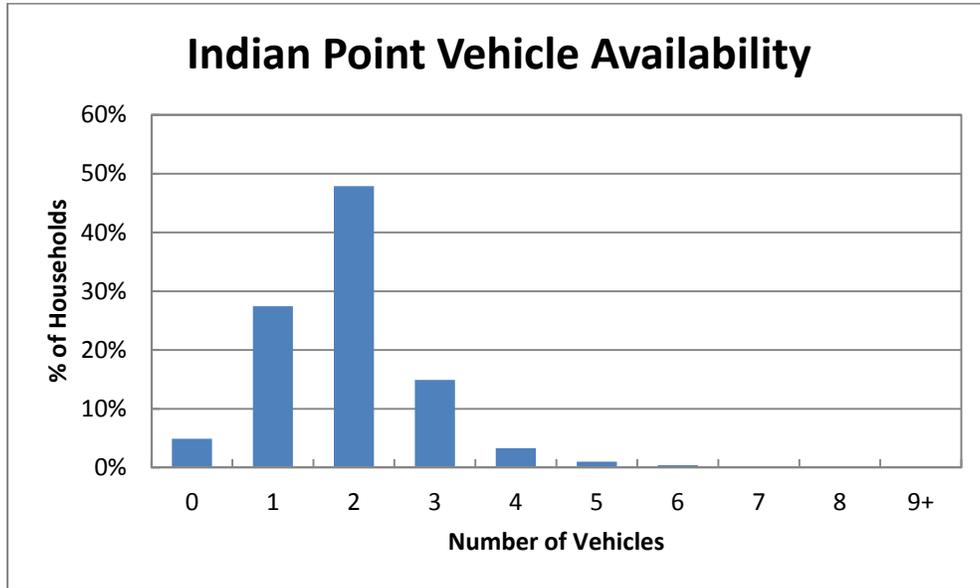


Figure F-2. Household Vehicle Availability

## Distribution of Vehicles by HH Size 1-5 Person Households

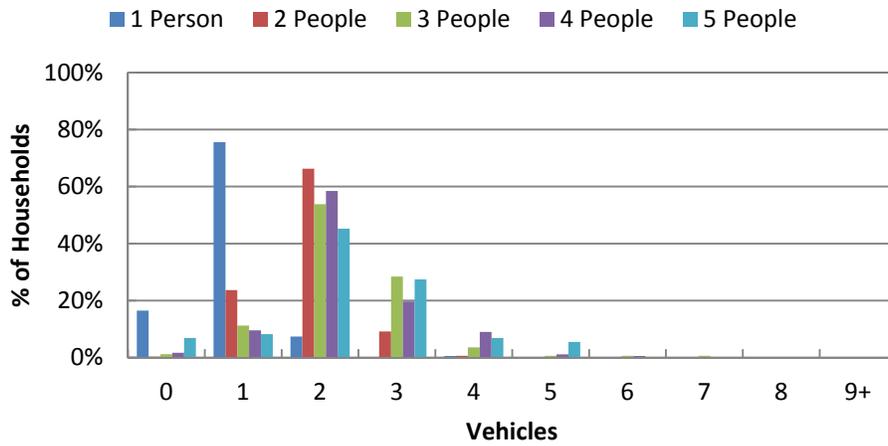


Figure F-3. Vehicle Availability - 1 to 5 Person Households

## Distribution of Vehicles by HH Size 6-9+ Person Households

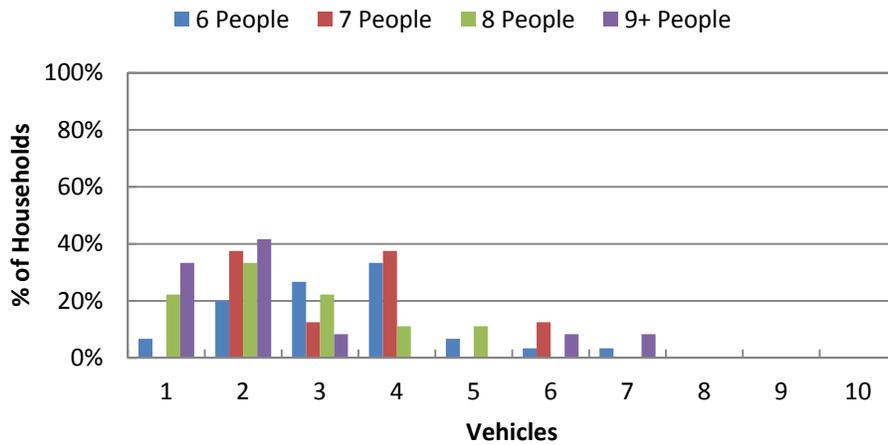


Figure F-4. Vehicle Availability - 6 to 9+ Person Households

## Ridesharing

The overwhelming proportion (87%) of the households surveyed (who do not own a vehicle) responded that they would share a ride with a neighbor, relative, or friend if a car was not available to them when asked to evacuate. Note, however, that only those households with no access to a vehicle – 51 total out of the sample size of 1,000 – answered this question. Thus, the results are not statistically significant. As such, the NRC recommendation of 50% ridesharing is used throughout this study. Figure F-5 presents this response.

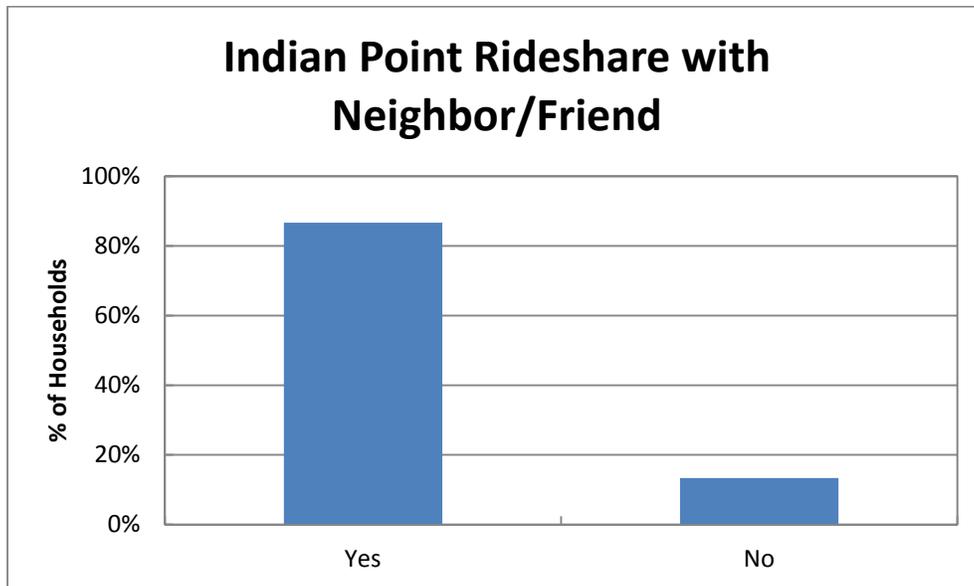


Figure F-5. Household Ridesharing Preference

## Commuters

Figure F-6 presents the distribution of the number of commuters in each household. Commuters are defined as household members who travel to work or college on a daily basis. The data shows an average of 1.17 commuters in each household in the EPZ, and 66% of households have at least one commuter.

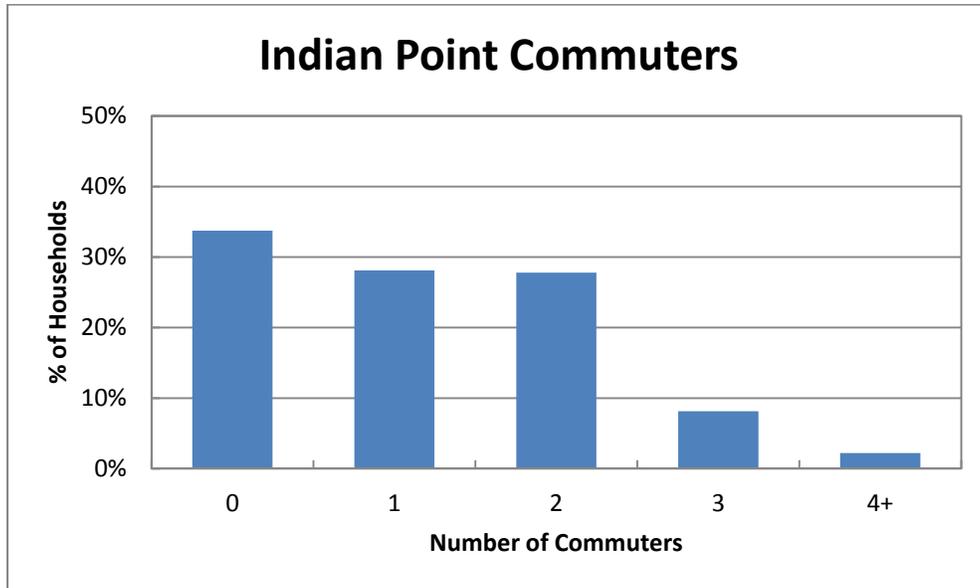


Figure F-6. Commuters in Households in the EPZ

## Commuter Travel Modes

Figure F-7 presents the mode of travel that commuters use on a daily basis. The vast majority of commuters use their private automobiles to travel to work. The data shows an average of 1.07 employees per vehicle, assuming 2 people per vehicle – on average – for carpools.

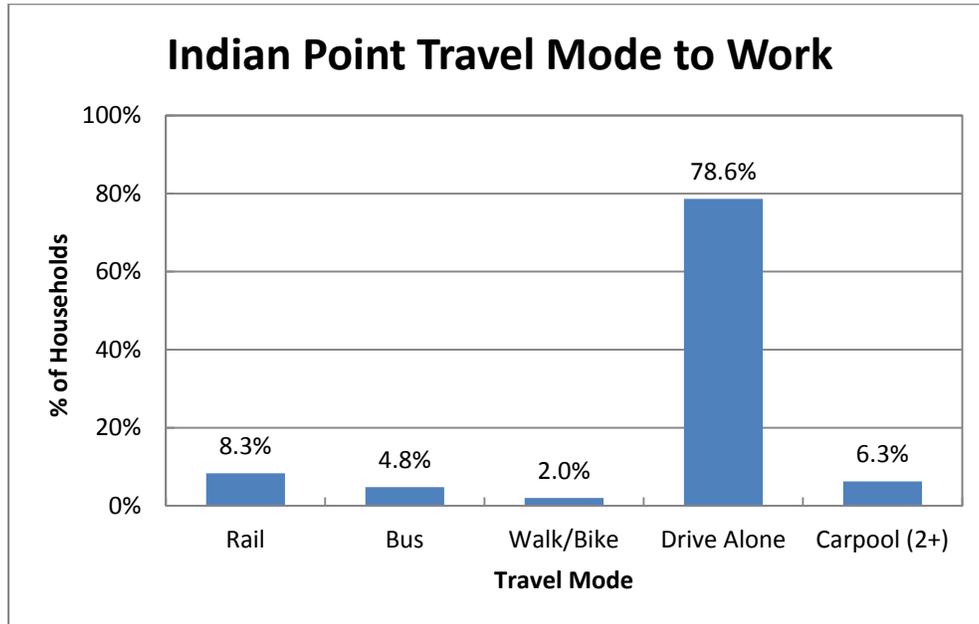


Figure F-7. Modes of Travel in the EPZ

### F.3.2 Evacuation Response

Several questions were asked to gauge the population's response to an emergency. These are now discussed:

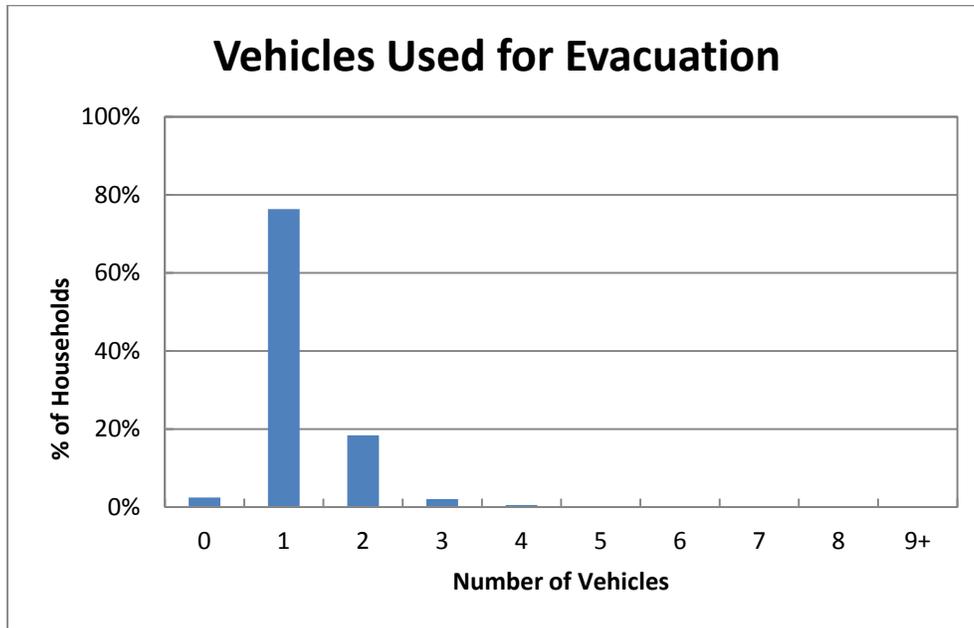
***“How many of the vehicles would your household use during an evacuation?”*** The response is shown in Figure F-8. On average, evacuating households would use 1.23 vehicles. The average number of evacuating vehicles used per household is broken down by county in Table F-3. The sample size for Rockland and Westchester Counties produces statistically significant results; however, the sample size for Orange and Putnam Counties does not. As a result, the EPZ average of 1.23 evacuating vehicles per household was used for all four counties.

***“Would you await the return of family members prior to evacuating the area?”*** Of the survey participants who responded, 47 percent said they would await the return of other family members before evacuating and 53 percent indicated that they would not await the return of other family members.

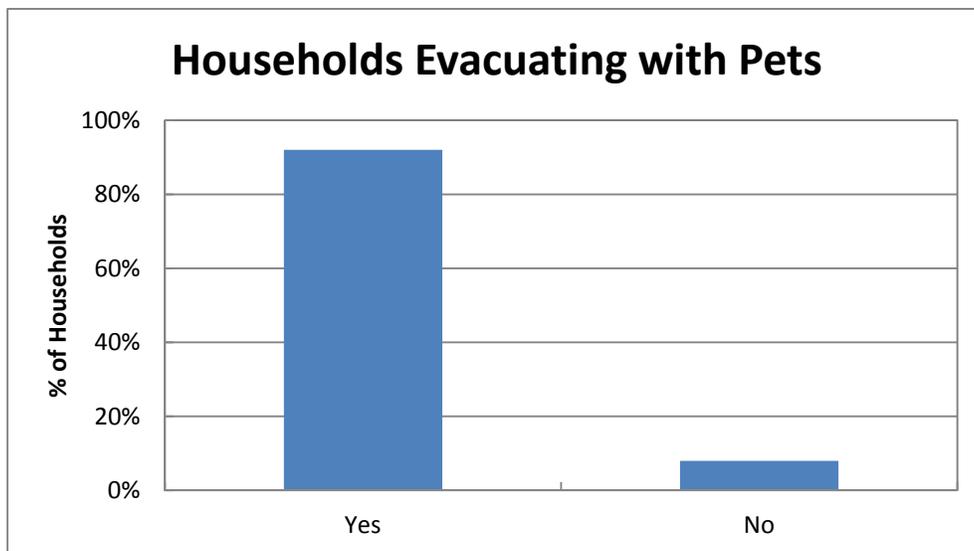
***“If you had a household pet, would you take your pet with you if you were asked to evacuate the area?”*** Based on the responses to the survey, 67% of households in the EPZ have a family pet. Of those households with pets, 92 percent indicated they would take their pets with them when evacuating, as shown in Figure F-9.

**Table F-3. Evacuating Vehicles per Household by County**

County	Vehicles
Westchester	1.22
Rockland	1.21
Putnam	1.38
Orange	1.21
<b>EPZ Total</b>	<b>1.23</b>



**Figure F-8. Number of Vehicles Used for Evacuation**



**Figure F-9. Households Evacuating with Pets**

***“Emergency officials advise you to take shelter at home in an emergency. Would you?”*** This question is designed to elicit information regarding compliance with instructions to shelter in place. The results indicate that 81 percent of households who are advised to shelter in place would do so; the remaining 19 percent would choose to evacuate the area. Note the baseline ETE study assumes 20 percent of households will not comply with the shelter advisory, as per Section 2.5.2 of NUREG/CR-7002. Thus, the data obtained in the survey is in good agreement with the federal guidance.

***“Emergency officials advise you to take shelter at home now in an emergency and possibly evacuate later while people in other areas are advised to evacuate now. Would you?”*** This question is designed to elicit information specifically related to the possibility of a staged evacuation. That is, asking a population to shelter in place now and then to evacuate after a specified period of time. Results indicate that 63 percent of households would follow instructions and delay the start of evacuation until so advised, while the balance of 37 percent would choose to begin evacuating immediately.

### F.3.3 Time Distribution Results

The survey asked several questions about the amount of time it takes to perform certain pre-evacuation activities. These activities involve actions taken by residents during the course of their day-to-day lives. Thus, the answers fall within the realm of the responder’s experience.

The mobilization distributions provided below are the result of having applied the analysis described in Section 5.4.1 on the component activities of the mobilization.

***“How long does it take the commuter to complete preparation for leaving work?”*** Figure F-10 presents the cumulative distribution; in all cases, the activity is completed within 75 minutes. Eighty percent can leave within 20 minutes.

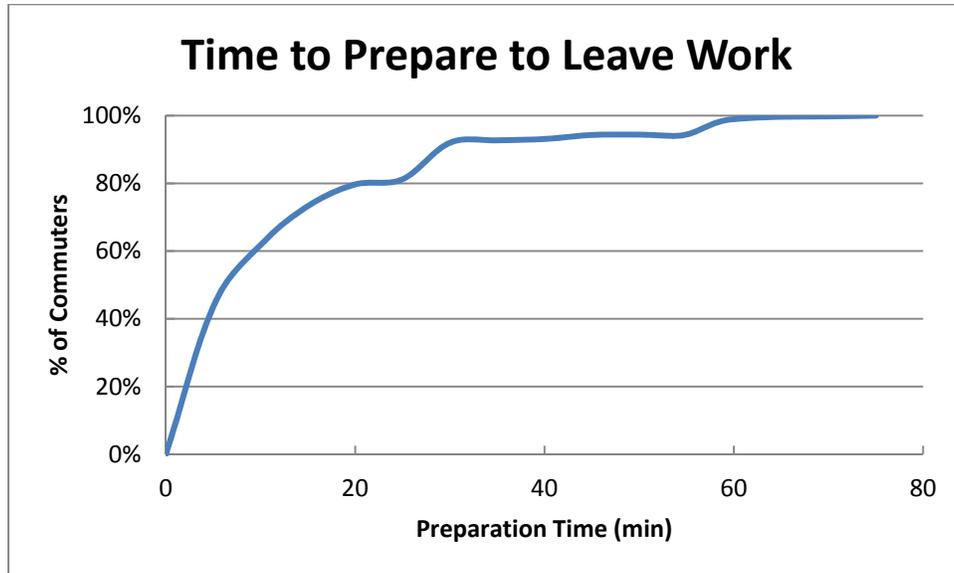


Figure F-10. Time Required to Prepare to Leave Work/School

***“How long would it take the commuter to travel home?”*** Figure F-11 presents the work to home travel time for the EPZ. About 60 percent of commuters can arrive home within 30 minutes of leaving work; all within 120 minutes.

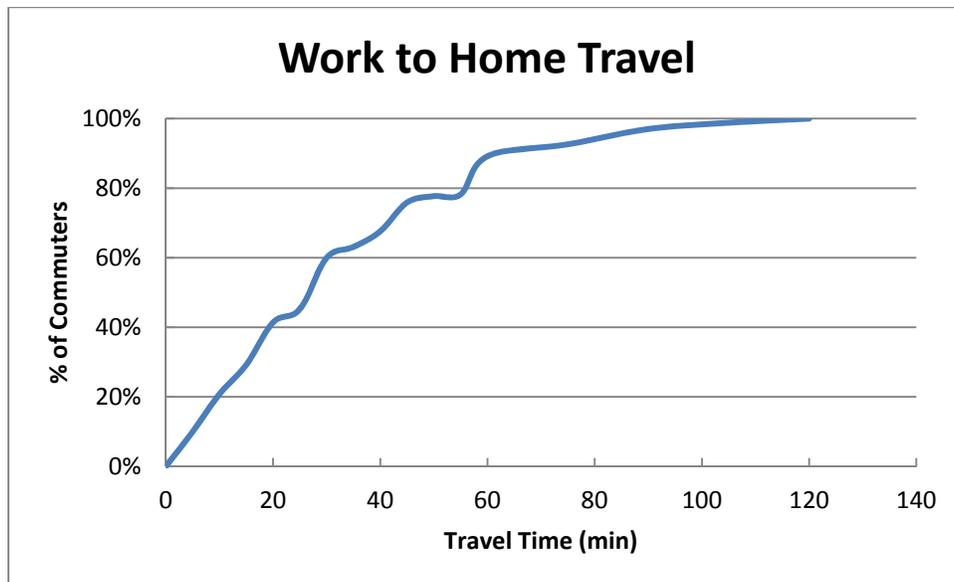
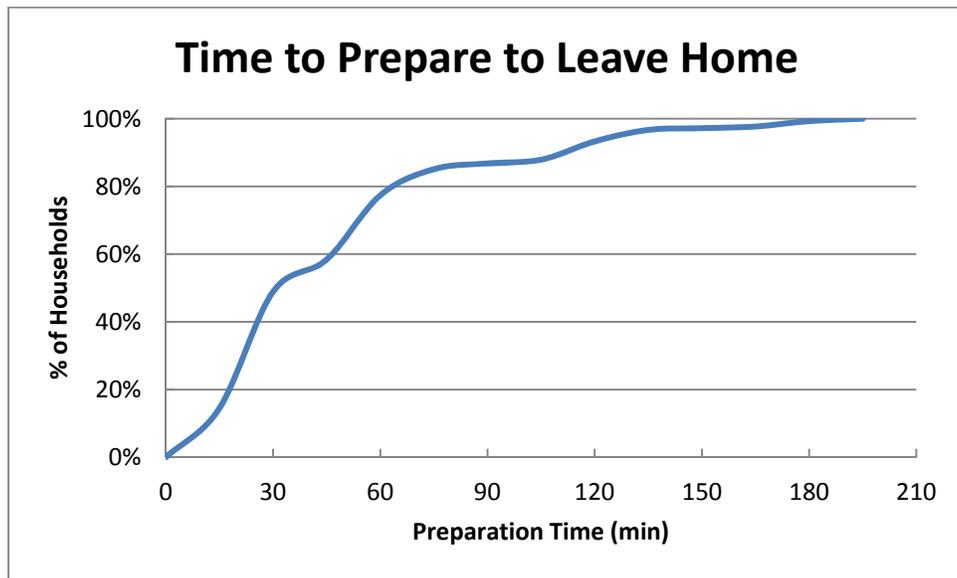


Figure F-11. Work to Home Travel Time

***“How long would it take the family to pack clothing, secure the house, and load the car?”***

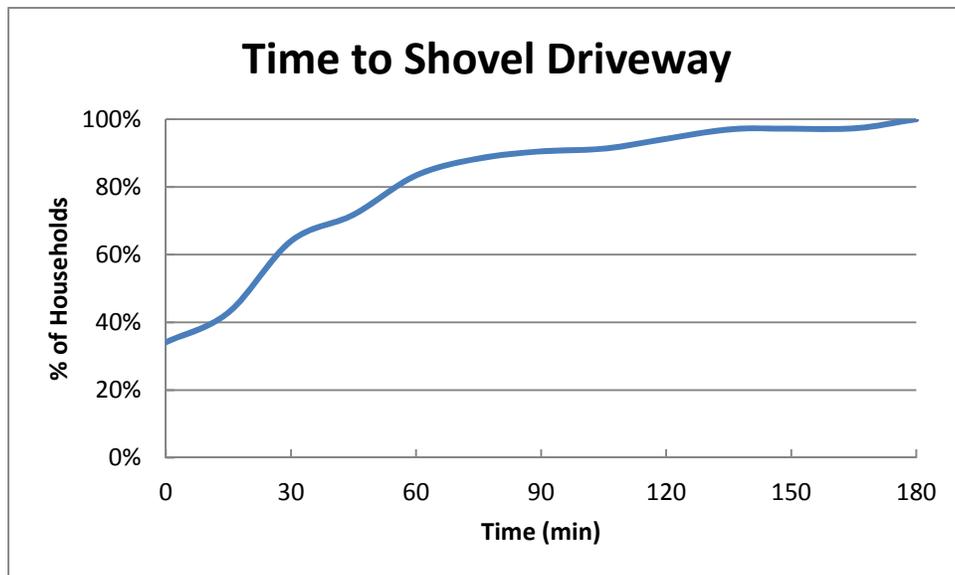
Figure F-12 presents the time required to prepare for leaving on an evacuation trip. In many ways this activity mimics a family’s preparation for a short holiday or weekend away from home. Hence, the responses represent the experience of the responder in performing similar activities.

The distribution shown in Figure F-12 has a long “tail.” About half of the households can be ready to leave home within 30 minutes; the remaining households require up to an additional 2 hours and 45 minutes.



**Figure F-12. Time to Prepare Home for Evacuation**

***"How long would it take you to clear 6 to 8 inches of snow from your driveway?"*** During adverse, snowy weather conditions, an additional activity may need to be performed before residents can depart on the evacuation trip. Although snow scenarios assume that the roads and highways have been plowed and are passable (albeit at lower speeds and capacities), it may be necessary to clear a private driveway prior to leaving the home so that the vehicle can access the street. Figure F-13 presents the time distribution for removing 6 to 8 inches of snow from a driveway. The time distribution for clearing the driveway has a long tail; about 83 percent of driveways are passable within 60 minutes. The last driveway is cleared 3 hours after the start of this activity. Note that those respondents (34%) who answered that they would not take time to clear their driveway were assumed to be ready immediately at the start of this activity. Essentially they would drive through the snow on the driveway to access the roadway and begin their evacuation trip.



**Figure F-13. Time to Clear Driveway of 6"-8" of Snow**

#### **F.4 Conclusions**

The telephone survey provides valuable, relevant data associated with the EPZ population, which have been used to quantify demographics specific to the EPZ, and "mobilization time" which can influence evacuation time estimates.

ATTACHMENT A

Telephone Survey Instrument

## Telephone Survey Instrument

Hello, my name is \_\_\_\_\_ and I'm working on a survey for your county emergency management office to identify local response during emergency situations. This information will be used for emergency planning and will be used by local officials to enhance emergency response plans in your area for all hazards; emergency planning for some hazards may require evacuation. Your responses will greatly contribute to local emergency preparedness. I will not ask for your name or any personal information, and the survey will take less than 10 minutes to complete.

COL. 1 Unused  
COL. 2 Unused  
COL. 3 Unused  
COL. 4 Unused  
COL. 5 Unused  
Sex COL. 8  
 1 Male  
 2 Female

INTERVIEWER: ASK TO SPEAK TO THE HEAD OF HOUSEHOLD OR THE SPOUSE OF THE HEAD OF HOUSEHOLD.  
 (Terminate call if not a residence.)

1A.	Record area code. (To Be Determined; DO NOT ASK)	<u>COL. 9-11</u>	
1B.	Record exchange number. (To Be Determined; DO NOT ASK)	<u>COL. 12-14</u>	
2.	What is your home zip code?	<u>COL. 15-19</u>	
3A.	In total, how many cars, or other vehicles are usually available to your household? (DO NOT READ ANSWERS)	<u>COL. 20</u>	<u>SKIP TO</u>
		1 ONE	Q. 4
		2 TWO	Q. 4
		3 THREE	Q. 4
		4 FOUR	Q. 4
		5 FIVE	Q. 4
		6 SIX	Q. 4
		7 SEVEN	Q. 4
		8 EIGHT	Q. 4
		9 NINE OR MORE	Q. 4
		0 ZERO (NONE)	Q. 3B
		X DON'T KNOW/REFUSED	Q. 3B
3B.	In an emergency, could you get a ride out of the area with a neighbor or friend if no vehicle was available to you?	<u>COL. 21</u>	
		1 YES	
		2 NO	
		X DON'T KNOW/REFUSED	
4.	How many people usually live in your household? (DO NOT READ ANSWERS)	<u>COL. 22</u>	<u>COL. 23</u>
		1 ONE	0 TEN
		2 TWO	1 ELEVEN
		3 THREE	2 TWELVE
		4 FOUR	3 THIRTEEN
		5 FIVE	4 FOURTEEN
		6 SIX	5 FIFTEEN

	7 SEVEN	6 SIXTEEN
	8 EIGHT	7 SEVENTEEN
	9 NINE	8 EIGHTEEN
		9 NINETEEN OR MORE
		X DON'T KNOW/REFUSED
5. How many adults in your household commute to a job, or to college on a daily basis?	<u>COL. 24</u>	<u>SKIP TO</u>
	0 ZERO	Q. 9
	1 ONE	Q. 6
	2 TWO	Q. 6
	3 THREE	Q. 6
	4 FOUR OR MORE	Q. 6
	5 DON'T KNOW/REFUSED	Q. 9

INTERVIEWER: For each person identified in Question 5, ask Questions 6, 7, and 8.

6. Thinking about commuter #1, how does that person usually travel to work or college? (REPEAT QUESTION FOR EACH COMMUTER)

	Commuter #1	Commuter #2	Commuter #3	Commuter #4
	<u>COL. 25</u>	<u>COL. 26</u>	<u>COL. 27</u>	<u>COL. 28</u>
Rail	1	1	1	1
Bus	2	2	2	2
Walk/Bicycle	3	3	3	3
Drive Alone	4	4	4	4
Carpool-2 or more people	5	5	5	5
Don't know/Refused	6	6	6	6

7. How much time on average, would it take Commuter #1 to travel home from work or college? (REPEAT QUESTION FOR EACH COMMUTER) (DO NOT READ ANSWERS)

<u>COMMUTER #1</u>		<u>COMMUTER #2</u>	
<u>COL. 29</u>	<u>COL. 30</u>	<u>COL. 31</u>	<u>COL. 32</u>
1 5 MINUTES OR LESS	1 46-50 MINUTES	1 5 MINUTES OR LESS	1 46-50 MINUTES
2 6-10 MINUTES	2 51-55 MINUTES	2 6-10 MINUTES	2 51-55 MINUTES
3 11-15 MINUTES	3 56 – 1 HOUR	3 11-15 MINUTES	3 56 – 1 HOUR
4 16-20 MINUTES	4 OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES	4 16-20 MINUTES	4 OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5 21-25 MINUTES	5 BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES	5 21-25 MINUTES	5 BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6 26-30 MINUTES	6 BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES	6 26-30 MINUTES	6 BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7 31-35 MINUTES	7 BETWEEN 1 HOUR 46 MINUTES AND 2	7 31-35 MINUTES	7 BETWEEN 1 HOUR 46 MINUTES AND 2

		HOURS		HOURS			
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)	8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9		9	41-45 MINUTES	9	
		0				0	
		X	DON'T KNOW /REFUSED			X	DON'T KNOW /REFUSED

COMMUTER #3

COMMUTER #4

<u>COL. 33</u>		<u>COL. 34</u>		<u>COL. 35</u>		<u>COL. 36</u>	
1	5 MINUTES OR LESS	1	46-50 MINUTES	1	5 MINUTES OR LESS	1	46-50 MINUTES
2	6-10 MINUTES	2	51-55 MINUTES	2	6-10 MINUTES	2	51-55 MINUTES
3	11-15 MINUTES	3	56 – 1 HOUR	3	11-15 MINUTES	3	56 – 1 HOUR
4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES	4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES	5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES	6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS	7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)	8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9		9	41-45 MINUTES	9	
		0				0	
		X	DON'T KNOW /REFUSED			X	DON'T KNOW /REFUSED

8. Approximately how much time does it take Commuter #1 to complete preparation for leaving work or college prior to starting the trip home? (REPEAT QUESTION FOR EACH COMMUTER) (DO NOT READ ANSWERS)

COMMUTER #1

COMMUTER #2

<u>COL. 37</u>		<u>COL. 38</u>		<u>COL. 39</u>		<u>COL. 40</u>	
1	5 MINUTES OR LESS	1	46-50 MINUTES	1	5 MINUTES OR LESS	1	46-50 MINUTES
2	6-10 MINUTES	2	51-55 MINUTES	2	6-10 MINUTES	2	51-55 MINUTES
3	11-15 MINUTES	3	56 – 1 HOUR	3	11-15 MINUTES	3	56 – 1 HOUR
4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES	4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES	5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES	6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES

7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS	7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)	8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9		9	41-45 MINUTES	9	
		0				0	
		X	DON'T KNOW /REFUSED			X	DON'T KNOW /REFUSED

COMMUTER #3

COMMUTER #4

<u>COL. 41</u>	<u>COL. 42</u>	<u>COL. 43</u>	<u>COL. 44</u>
1	5 MINUTES OR LESS	1	46-50 MINUTES
2	6-10 MINUTES	2	51-55 MINUTES
3	11-15 MINUTES	3	56 – 1 HOUR
4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9	
		0	
		X	DON'T KNOW /REFUSED

9. If you were advised by local authorities to evacuate, how much time would it take your household to pack clothing, medications, secure the house, load the car, and complete preparations prior to evacuating the area? (DO NOT READ ANSWERS)

<u>COL. 45</u>	<u>COL. 46</u>
1	LESS THAN 15 MINUTES
2	15-30 MINUTES
3	31-45 MINUTES
4	46 MINUTES – 1 HOUR
5	1 HOUR TO 1 HOUR 15 MINUTES
6	1 HOUR 16 MINUTES TO 1 HOUR 30 MINUTES
7	1 HOUR 31 MINUTES TO 1 HOUR 45 MINUTES
8	1 HOUR 46 MINUTES TO 2 HOURS
9	2 HOURS TO 2 HOURS 15 MINUTES
0	2 HOURS 16 MINUTES TO 2 HOURS 30 MINUTES
X	2 HOURS 31 MINUTES TO 2 HOURS 45 MINUTES

1	3 HOURS TO 3 HOURS 15 MINUTES
2	3 HOURS 16 MINUTES TO 3 HOURS 30 MINUTES
3	3 HOURS 31 MINUTES TO 3 HOURS 45 MINUTES
4	3 HOURS 46 MINUTES TO 4 HOURS
5	4 HOURS TO 4 HOURS 15 MINUTES
6	4 HOURS 16 MINUTES TO 4 HOURS 30 MINUTES
7	4 HOURS 31 MINUTES TO 4 HOURS 45 MINUTES
8	4 HOURS 46 MINUTES TO 5 HOURS
9	5 HOURS TO 5 HOURS 30 MINUTES
0	5 HOURS 31 MINUTES TO 6 HOURS
X	OVER 6 HOURS (SPECIFY _____)

Y 2 HOURS 46 MINUTES TO 3 HOURS

COL. 47

1 DON'T KNOW/REFUSED

---

10. If there is 6-8" of snow on your driveway or curb, would you need to shovel out to evacuate? If yes, how much time, on average, would it take you to clear the 6-8" of snow to move your car from your driveway or curb to begin the evacuation trip? Assume your neighborhood roads are passable. (DO NOT READ RESPONSES)

COL. 48

- 1 LESS THAN 15 MINUTES
- 2 15-30 MINUTES
- 3 31-45 MINUTES
- 4 46 MINUTES – 1 HOUR
- 5 1 HOUR TO 1 HOUR 15 MINUTES
- 6 1 HOUR 16 MINUTES TO 1 HOUR 30 MINUTES
- 7 1 HOUR 31 MINUTES TO 1 HOUR 45 MINUTES
- 8 1 HOUR 46 MINUTES TO 2 HOURS
- 9 2 HOURS TO 2 HOURS 15 MINUTES
- 0 2 HOURS 16 MINUTES TO 2 HOURS 30 MINUTES
- X 2 HOURS 31 MINUTES TO 2 HOURS 45 MINUTES
- Y 2 HOURS 46 MINUTES TO 3 HOURS
- Z NO, WILL NOT SHOVEL OUT

COL. 49

- 1 OVER 3 HOURS (SPECIFY \_\_\_\_\_)
- 2 DON'T KNOW/REFUSED

---

11. Please choose one of the following (READ ANSWERS):

- A. I would await the return of household commuters to evacuate together.
- B. I would evacuate independently and meet other household members later.

COL. 50

- 1 A
- 2 B
- X DON'T KNOW/REFUSED

---

12. How many vehicles would your household use during an evacuation? (DO NOT READ ANSWERS)

COL. 51

- 1 ONE
  - 2 TWO
  - 3 THREE
  - 4 FOUR
  - 5 FIVE
  - 6 SIX
  - 7 SEVEN
  - 8 EIGHT
  - 9 NINE OR MORE
  - 0 ZERO (NONE)
  - X DON'T KNOW/REFUSED
-

---

13A. Emergency officials advise you to take shelter at home in an emergency. Would you: (READ ANSWERS) COL. 52

A. SHELTER; or  
B. EVACUATE

1 A  
2 B  
X DON'T KNOW/REFUSED

---

13B. Emergency officials advise you to take shelter at home in an emergency and possibly evacuate later while people in other areas are advised to evacuate. Would you: (READ ANSWERS) COL. 53

A. SHELTER; or  
B. EVACUATE

1 A  
2 B  
X DON'T KNOW/REFUSED

---

14. If you have a household pet, would you take your pet with you if you were asked to evacuate the area? (READ ANSWERS)

COL. 54

1 DON'T HAVE A PET  
2 YES  
3 NO  
X DON'T KNOW/REFUSED

---

15. How would you prefer to receive information regarding planning for emergencies from your county office of emergency management? (READ ANSWERS) COL. 55

1 DETAILED BOOKLET  
2 ABBREVIATED PAMPHLET  
3 NEWSLETTER  
4 CALENDAR  
5 E-MAIL  
6 COUNTY WEBSITE  
7 SOCIAL MEDIA  
8 DVD  
X DON'T KNOW/REFUSED

---

Thank you very much. \_\_\_\_\_  
(TELEPHONE NUMBER CALLED)

IF REQUESTED:

For additional information, contact your County Emergency Management Agency during normal business hours.

County	EMA Phone
Orange	845-615-0777
Putnam	845-225-4300
Rockland	845-364-8600
Westchester	914-864-5450

**APPENDIX G**

Traffic Management Plan

## G. TRAFFIC MANAGEMENT PLAN

NUREG/CR-7002 indicates that the existing TCPs and ACPs identified by the offsite agencies should be used in the evacuation simulation modeling. The traffic and access control plans for the EPZ were provided by each county. These plans were reviewed and the TCPs and ACPs were modeled accordingly.

### G.1 Traffic Control Points

As discussed in Section 9, traffic control points at intersections (which are controlled) are modeled as actuated signals. If an intersection has a pre-timed signal, stop, or yield control, and the intersection is identified as a traffic control point, the control type was changed to an actuated signal in the DYNEV II system. Table K-2 provides the control type and node number for those nodes which are controlled. If the existing control was changed due to the point being a TCP, the control type is indicated as “TCP” in Table K-2.

As discussed in Section 9, there is significant traffic congestion in competing directions (east-west and north-south) at intersections within the population centers of the EPZ and Shadow Region. Assigning police officers to perform traffic control at these intersections will have no benefit due to the heavy congestion along competing approaches. The main thoroughfare on the Palisades Parkway and the Taconic Parkway is operating at LOS F for most of the evacuation, as shown in Figures 7-3 through 7-8. Positioning police officers at ramps to facilitate access to the interstate would have minimal benefit as the main thoroughfare is already heavily congested. As such, no additional traffic control points are recommended as a result of this study.

A detailed traffic management plan was developed for the IPEC EPZ and Shadow Region in the previous full ETE update done in 2003. In 2008, an addendum to the 2003 study was created based on a change from Emergency Response Planning Areas to Protective Action Areas. During that 2008 study, some traffic control points were modified. Table G-1 through Table G-4 identify the traffic control points from these previous studies within the EPZ and Shadow Region as well as the number of guides, cones, barricades, and/or signs required. These tables are separated by county.

Figure G-1 through Figure G-10 map the TCPs identified in Table G-1 through Table G-4. These TCPs are concentrated along major evacuation routes throughout the EPZ and Shadow Region. These TCPs would be manned during evacuation by traffic guides who would direct evacuees in the proper direction and facilitate the flow of traffic through the intersections.

## G.2 Access Control Points

Based on discussions with the offsite agencies, ACPs will be established within 2 hours of the advisory to evacuate to discourage through travelers from using major through routes which traverse the EPZ. As discussed in Section 3.6, external traffic was considered on several routes which traverse the EPZ – I-84, I-684, I-287, I-87, Taconic State Parkway, Saw Mill River Parkway, Sprain Brook Parkway and Palisades Parkway – in this analysis. The generation of these external trips ceased at 2 hour after the advisory to evacuate in the simulation.

Access control points within the EPZ and Shadow Region are also listed in Table G-1 through Table G-4 and shown in Figure G-1 through Figure G-10. Detailed schematics of each of the TCPs and ACPs identified in the 2003 and 2008 studies were provided to the offsite agencies electronically (documents are several hundred pages) and have not been replicated in this report.

As discussed in Section 9, no additional TCPs or ACPs are deemed necessary as a result of this study.

Table G-1. Orange County Traffic and Access Control Points

TCP ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades	# of Signs or VMS
O-1	Bear Mountain Circle	1	Bear Mountain State Park	3	18	0	0
O-2	Route 9W & Firefighter's Memorial Dr	3	Fort Montgomery	0	0	0	0
O-3	Route 9W & Montgomery Rd	3	Fort Montgomery	0	0	0	0
O-4	S Main St (Rte 218) & Route 9W	2	Fort Montgomery	2	6	0	0
O-5	Route 293/218 & Route 9W	2	U.S. Military Academy	1	6	0	0
O-6	Angola Rd (CR 9) & Route 9W	2	Shadow Region	2	3	0	0
O-7	Route 9W & Forge Hill Rd (CR 74) <b>Revised in 2008</b>	2	Shadow Region	2	6	0	0
O-8	Route 9W & Union Ave (CR 69)	1	Shadow Region	2	6	0	0
O-9	Route 9W & Quassaick Ave (Route 94)	1	Shadow Region	2	9	0	0
O-10	Route 9W & Broadway (Rte 17K)	2	Shadow Region	1	3	0	0
O-11	Route 300, Route 32, & Route 94 -- Five Corners	1	Shadow Region	3	3	0	0
O-12	Temple Hill Rd (Rte 300) & Union Ave (CR 69)	2	Shadow Region	1	3	0	0
O-13	Temple Hill Rd (Rte 300) & Little Britain Rd (Rte 207)	2	Shadow Region	1	3	0	0
O-14	Palisades Pkwy - Exit 19	3	Harriman State Park	1	6	0	0
O-15	Palisades Pkwy - Exit 18	1	Harriman State Park	1	0	8	1
O-16	Silver Mine Circle	1	Harriman State Park	2	12	0	0
O-17	Palisades Pkwy Northbound - Exit 18	1	Harriman State Park	1	0	8	1
O-18	Averill Ave (Rte 32) & Smith Clove Rd (CR 9)	2	Shadow Region	1	3	0	0
O-19	Averill Ave (Rte 32) & Route 6/17	1	Shadow Region	2	12	0	0
O-20	Route 106 & Route 17 Access Rd	2	Shadow Region	1	3	0	0
O-NEW-1	Route 9W & Laurel Ave <b>Added in 2008</b>	2	Shadow Region	2	3	0	0
O-NEW-2	Laurel Ave & Maple St <b>Added in 2008</b>	1	Shadow Region	1	6	0	0

Table G-1. Orange County Traffic and Access Control Points (continued)

ACP ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades	# of Signs or VMS
O-NEW-3	Willow Ave & Maple St <b>Added in 2008</b>	2	Shadow Region	1	6	0	0
O-1	Bear Mountain Circle	1	Bear Mountain State Park	3	-	16	0
O-6	Angola Rd (CR 9) & Route 9W	1	Shadow Region	2	-	10	1
O-11	Route 300, Route 32, & Route 94 -- Five Corners	1	Shadow Region	3	-	2	0
O-18	Averill Ave (Rte 32) & Smith Clove Rd (CR 9)	2	Shadow Region	1	-	2	0
O-19	Averill Ave (Rte 32) & Route 6/17	1	Shadow Region	2	-	8	1
O-20	Route 106 & Route 17 Access Rd	2	Shadow Region	1	-	2	0
O-21	Route 32 & County Route 107	2	Shadow Region	1	-	5	0
O-22	Route 6/17 - Exit 130A	1	Shadow Region	1	-	2	1
O-23	Arden Rd & Route 17	2	Shadow Region	1	-	2	0
O-24	Arden Valley Rd & Route 17	2	Shadow Region	1	-	2	0
<b>TOTAL MANPOWER/EQUIPMENT NEEDED</b>				<b>45</b>	<b>105</b>	<b>67</b>	<b>5</b>

Table G-2. Putnam County Traffic and Access Control Points

TCP/ACP ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades	Restricted Movements
P-TC-1	Peekskill Hollow Rd (CR 21) & Oscawana Lake Rd (CR 20)	2	Southern Putnam Valley	1	6	4	SB on Old Oregon Rd; WB on Hollow Brook Rd
P-TC-2	US 9 & NY 403	1	Lower Philipstown	1	6	4	SB on US 9
P-TC-3	NY 9D & NY 403	1	Lower Philipstown	1	6	4	SB on NY 9D; EB on NY 403
P-TC-4	Peekskill Hollow Rd (CR 21) & Church Rd (CR 22) & Mill St (CR 23)	2	Southern Putnam Valley	2	6	0	SB on Peekskill Hollow Rd; SB on Mill St
P-TC-5	NY 9D & Peekskill Rd	1	Southern Philipstown	1	3	2	SB on NY 9D
P-TC-6	Gallows Hill Rd (CR 13) & Sprout Brook Rd	1	Lower Philipstown	1	6	4	SB on Gallows Hill Rd; NB on Old Albany Post Rd
P-TC-7	Gleneida Ave (NY 52) & RT 301/Fair St	2	Shadow Region	1	3	0	SB on Gleneida Ave (NY 52)
P-TC-8	Lake Secor Rd (CR 30) & NY 6N	2	Southwest Carmel	1	3	2	SB on NY 6N
P-TC-9	US 6 & S Lake Blvd (NY 6N)/Bucks Hollows Rd	1	Shadow Region	1	6	0	SB on Bucks Hollow Rd; WB on US 6
P-TC-10	US 6 & Cooney Rd	2	Shadow Region	1	3	0	WB on US 6
P-TC-11	US 6 & Church St	2	Shadow Region	1	3	0	WB on US 6
P-TC-12	US 6 & NY 52	2	Shadow Region	1	3	2	WB on US 6
P-TC-13	US 9 (Albany Post Rd) & NY 301	1	Shadow Region	1	3	2	SB on US 9
P-AC-14	US 6 & Miller Rd	2	Shadow Region	1	0	2	WB on US 6
P-AC-15	NY 301 & Taconic State Pkwy	1	Shadow Region	2	0	10	SB on Taconic State Pkwy
<b>TOTAL MANPOWER/EQUIPMENT NEEDED</b>				<b>17</b>	<b>57</b>	<b>36</b>	

**Table G-3. Rockland County Traffic and Access Control Points**

TCP/ACP ID	STATE ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades
PK-10	TBD	Germonds Road/Palisades Pkwy Exit 10 & N Little Torr Rd	1	Central Town of Clarkstown	3	0	14
PK-11	TBD	Palisades Parkway Exit 11	1	Northeastern Town of Ramapo	2	0	4
R-101	TBD	Strawtown Road/Sicklestown Road and Route 59	1	Shadow Region	2	3	0
TACP-R-14	TBD	Route 9W and Route 304	1	Northeastern & Eastern Town of Clarkstown	2	3	2
R-57	TBD	New Clarkstown Road and Route 59	1	Shadow Region	2	3	0
R-82	R-164	Route 9W and Route 303	1	Northeastern & Eastern Town of Clarkstown	2	6	0
TWY-11E	TBD	Route 59 & Access Ramps to I-87/287 E	1	Shadow Region	2	3	0
TWY-11W	TBD	Route 9W & Access Ramps to I-87/287 W	1	Shadow Region	2	6	0
TWY-12	TBD	NYS Thruway Exit 12	1	Shadow Region	4	6	0
TWY-13 & PK-9	TBD	NYS Thruway Exit 13 & Palisades Pkwy Exit 9	1	Shadow Region	3	0	20
TWY-14	TBD	Route 59 & Access Ramps to I-87/287	1	Shadow Region	2	3	0
R-100	TBD	Strawtown Road and Route 59A	2	Shadow Region	1	3	0
R-15	TBD	Route 303 and Storms Road/Crusher Road	2	Shadow Region	2	0	4
R-17	TBD	Route 304 and South Main Street	2	Central Town of Clarkstown	2	9	0
TACP-R-18	TBD	Route 304 and Germonds Road	2	Shadow Region	2	6	4
R-21	R-24	Route 303 and Lake Road North	2	Northeastern & Eastern Town of Clarkstown	2	3	0
R-22	R-21	Route 303 and Lake Road South	2	Northeastern & Eastern Town of Clarkstown	2	6	0

Table G-3. Rockland County Traffic and Access Control Points (continued)

TCP/ACP ID	STATE ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades
R-229	TBD	Eckerson Road and W. Clarkstown Road	2	Central Town of Clarkstown	2	6	0
R-264	TBD	Route 9W and Birchwood Avenue	2	Shadow Region	1	3	0
TACP-R-272	TBD	N. Little Tor Road and Phillips Hill Road	2	Central Town of Clarkstown	2	3	2
R-30	TBD	N. Little Tor Road and New Valley/Millich Lane	2	Central Town of Clarkstown	2	3	0
R-31	TBD	N. Little Tor Road and New Hempstead Road	2	Central Town of Clarkstown	2	3	0
R-32	R-115	Route 304 and Cavalry Drive	2	Central Town of Clarkstown	2	3	0
R-34	TBD	Route 304 and Laurel Road	2	Central Town of Clarkstown	2	9	0
R-37	TBD	N. Main Street and Cavalry Drive	2	Central Town of Clarkstown	1	6	0
R-48	TBD	Strawtown Road and Old Mill Road/Germonds Road	2	Shadow Region	2	9	0
TACP-R-51	TBD	Route 9W and Christian Herald Road	2	Shadow Region	2	3	2
R-64	TBD	Strawtown Road/Ridge Road and Congers Road	2	Central Town of Clarkstown	2	3	0
R-67	TBD	New Hempstead Road and North Main Street	2	Central Town of Clarkstown	2	6	0
R-68	TBD	Congers Road and North Main Street	2	Central Town of Clarkstown	2	0	0
R-77	R-5	Route 9W and Lake Road	2	Northeastern & Eastern Town of Clarkstown	2	3	0
R-79	TBD	Route 9W and Rockland Lake Road	2	Northeastern & Eastern Town of Clarkstown	2	3	0
R-85	R-195	Route 303 and Gilchrest Road	2	Northeastern & Eastern Town of Clarkstown	2	9	0
R-86	TBD	Route 303 and Casper Hill Road	2	Shadow Region	1	9	0
R-90	TBD	Route 304 and New City-Congers Road	2	Central Town of Clarkstown	2	9	0

Table G-3. Rockland County Traffic and Access Control Points (continued)

TCP/ACP ID	STATE ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades
R-97	TBD	Strawtown Road and McCarthy Way	2	Shadow Region	1	3	0
R-99	TBD	Strawtown Road and DeMarest Ave	2	Shadow Region	1	3	0
R-25	TBD	Kings Highway and New Lake Road/Karin Court	3	Northeastern & Eastern Town of Clarkstown	2	6	0
R-61	TBD	New Clarkstown Road and Smith Road	3	Shadow Region	1	6	0
R-65	TBD	Congers Rd/Lake Rd and Kings Hwy/Old Haverstraw Rd	3	Northeastern & Eastern Town of Clarkstown	2	3	0
R-104	R-143	Route 202 and Central Highway (South)	1	Unincorporated Areas of the Town of Haverstraw	2	6	0
R-105	R-136	Route 202 and Main Street/Central Highway (North)	1	Village of West Haverstraw	2	9	0
R-12	TBD	Route 45 and Route 202	1	Unincorporated Areas of the Town of Haverstraw	2	6	0
R-16	R-198	Route 202 and Hurd Avenue/Bridge Street	1	Village of West Haverstraw	2	9	0
R-217	R-39	Route 9W and New Main Street	1	Village of Haverstraw	2	6	0
R-218	TBD	Route 9W and Gurnee Avenue	1	Village of Haverstraw	2	6	0
R-7	R-8	Route 9W and Railroad Avenue	1	Unincorporated Areas of the Town of Haverstraw	2	6	0
R-78	R-185	Route 202 and Palisades Parkway Ramp, Exit 13	1	Village of Pomona	1	6	2
R-81	R-6	Route 9W and Route 202/West Side Avenue	1	Village of Haverstraw	2	6	0
R-89	TBD	Route 202 and Thiells-Mt. Ivy Road	1	Unincorporated Areas of the Town of Haverstraw	2	6	0
R-11	TBD	W Railroad Avenue/Suffern Lane and Central Hwy/Main St	2	Village of West Haverstraw	2	6	0
R-13	R-200	Route 202 and Martino Way	2	Unincorporated Areas of the Town of Haverstraw	1	3	0

Table G-3. Rockland County Traffic and Access Control Points (continued)

TCP/ACP ID	STATE ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades
R-212	TBD	Suffern Lane and Hammond Road	2	Unincorporated Areas of the Town of Haverstraw	2	9	0
R-9	TBD	Route 9W and Old Route 304/Haverstraw Road	2	Village of Haverstraw	2	3	0
R-91	R-163	Route 202 and Rosman Road	2	Unincorporated Areas of the Town of Haverstraw	2	3	0
PK-5	TBD	Palisades Parkway Exit 5	1	Shadow Region	5	0	18
PK-6	TBD	Palisades Parkway Exit 6	1	Shadow Region	2	0	4
PK-7	TBD	Palisades Parkway Exit 7	1	Shadow Region	1	0	2
PK-8	TBD	Palisades Parkway Exit 8	1	Shadow Region	2	0	8
PK-12	TBD	Route 45, Palisades Pkwy Exit 12 and Conklin Road	1	Central Town of Clarkstown	3	0	12
PK-13	TBD	Palisades Parkway Exit 13	1	Unincorporated Areas of the Town of Haverstraw	5	18	6
R-207	TBD	Route 17 and Seven Lakes Road	1	Shadow Region	2	0	2
R-209	TBD	N. Airmont Road/Highview Road and Spook Rock Road	1	Shadow Region	2	0	2
R-27	R-73	Route 45 and New Hempstead Road	1	Shadow Region	2	3	2
TACP-R-28	R-29	Route 45 and Eckerson Road	1	Shadow Region	2	3	2
TACP-R-29	R-138	Route 306/Calls Hollow Road and Route 202	1	Village of Pomona	3	9	6
TACP-R-33	R-93	Route 306 and Viola Road	1	Shadow Region	2	6	4
R-45	TBD	W. Eckerson Road and Union Road	1	Shadow Region	2	6	0
R-54	TBD	New County Road/College Road and Route 59	1	Shadow Region	2	3	0
R-55	TBD	Cherry Lane/Spook Rock Road and Route 59	1	Shadow Region	1	3	0
R-56	TBD	Airmont Road and Route 59	1	Shadow Region	2	0	0

**Table G-3. Rockland County Traffic and Access Control Points (continued)**

TCP/ACP ID	STATE ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades
R-92	TBD	Route 45 and Maple Avenue	1	Shadow Region	2	6	0
R-93	TBD	Route 45 and Route 59	1	Shadow Region	2	3	0
R-94	R-89	Route 306 and Grandview Avenue	1	Northeastern Town of Ramapo	2	6	0
R-95	TBD	Route 306 and Maple Avenue	1	Shadow Region	2	6	0
R-96	TBD	Route 306 and Route 59	1	Shadow Region	2	3	0
R-School-1	TBD	Grandview Avenue and Forshay Road	1	Northeastern Town of Ramapo	2	6	0
R-School-2	TBD	Route 202 and Viola Road	1	Shadow Region	2	3	0
R-School-3	TBD	Spook Rock Road and Viola Road	1	Shadow Region	2	3	0
R-School-4	TBD	Viola Road and College Road	1	Village of West Haverstraw	2	3	0
R-School-5	R-93	Route 306 and Viola Road	1	Northeastern Town of Ramapo	2	6	0
R-School-6	TBD	N. Airmont Road/Highview Road and Spook Rock Road	1	Shadow Region	2	0	0
R-School-7	TBD	Highview Road and College Road	1	Shadow Region	2	0	0
TWY-14B	TBD	North Airmont Road and I-87/287 Ramps	1	Shadow Region	2	6	8
TWY-15	TBD	NYS Thruway Exit 15	1	Shadow Region	0	0	0
R-10	TBD	Viola Road and College Road	2	Village of West Haverstraw	1	0	2
R-245	TBD	Eckerson Road and Hempstead Road	2	Northeastern Town of Ramapo	1	3	0
R-251	TBD	New Hempstead Road and Summit Park Road	2	Northeastern Town of Ramapo	1	3	0
R-26	R-126	Route 45 and Pomona Road	2	Northeastern Town of Ramapo	2	3	0
R-47	TBD	Grandview Avenue and Forshay Road	2	Northeastern Town of Ramapo	1	6	0
R-49	R-91	Route 306 and Lime Kiln Road	2	Northeastern Town of Ramapo	1	6	0

Table G-3. Rockland County Traffic and Access Control Points (continued)

TCP/ACP ID	STATE ID	Intersection	Priority	Protective Action Area	# of Guides	# of Cones	# of Barricades
R-58	TBD	Highview Road and College Road	2	Shadow Region	1	3	0
R-60	TBD	Route 202 and Viola Road	2	Shadow Region	2	3	0
R-72	TBD	Route 306 and Willow Tree Road	2	Northeastern Town of Ramapo	2	6	0
R-74	R-162	Route 202 and Camp Hill Road	2	Village of Pomona	2	6	0
R-7B	TBD	Seven Lakes Road and Johnsonstown Road	2	Shadow Region	0	0	4
R-63B	TBD	Spook Rock Road and Carlton Road	3	Shadow Region	1	6	0
PK-14	TBD	Palisades Pkwy Exit 14 and Willow Grove Road	1	Unincorporated Areas of the Town of Haverstraw	2	0	14
PK-15	TBD	Palisades Parkway Exit 15	1	Harriman State Park	1	3	0
PK-16	TBD	Palisades Parkway Exit 16	1	Harriman State Park	1	0	4
R-103	TBD	Route 210/Route 106 and Central Highway	1	Stony Point	2	3	0
TACP-R-83	R-9	Route 9W and Main Street	1	Stony Point	2	6	4
R-84	R-120	Route 9W and Filors Lane	1	Stony Point	2	6	0
R-88	R-116	Route 9W and Route 210/Route 106	1	Stony Point	2	3	0
R-102	TBD	Route 210 and Thiells Road	2	Stony Point	1	9	0
R-2	TBD	Filors Lane and Central Highway	2	Stony Point	1	3	0
PK-17	TBD	Palisades Parkway Exit 17	1	Harriman State Park	3	6	2
PK-18	TBD	Palisades Parkway Exit 18	1	Harriman State Park	4	0	24
<b>TOTAL MANPOWER/EQUIPMENT NEEDED</b>					<b>205</b>	<b>447</b>	<b>184</b>

Table G-4. Westchester County Traffic Control Points

TCP/ACP ID	Intersection	Priority	Protective Action Area	Police Department	Department of Public Works	# of Guides	# of Cones	# of Barricades
W-1	Albany Post Rd (Rte 9A) & Welcher Ave	1	City of Peekskill	Peekskill PD	Peekskill DPW	1	6	0
W-2	Rte 9 Ramps & Welcher Ave	1	City of Peekskill	Peekskill PD	Peekskill DPW	1	6	0
W-3	Albany Post Rd (Rte 9A) & Bleakley Ave	1	Buchanan	Buchanan PD	Buchanan Highway Dept	1	6	0
W-4	Albany Post Rd (Rte 9A) & Tate Ave	3	Buchanan	Buchanan PD	Buchanan Highway Dept	1	3	0
W-5	Albany Post Rd (Rte 9A) & Kings Ferry Rd	3	Montrose	NYSP (Cortlandt)	Cortlandt DPW	1	9	0
W-6	Jans Peek Bridge & Rte 9 & Bear Mtn Pkwy	1	City of Peekskill	Peekskill PD	Peekskill DPW	1	6	0
W-7	Annsville Rd (Rte 9) & Old Roa Hook Rd	3	Town of Cortlandt	NYSP (Cortlandt)	Cortlandt DPW	0	6	0
W-8	Bear Mountain Pkwy & Division St	1	City of Peekskill	Peekskill PD	Peekskill DPW	2	6	0
W-9	Albany Post Rd (Rte 9A) & FDR VA Hospital	3	Montrose	NYSP (Cortlandt)	Cortlandt DPW	1	3	0
W-10	Albany Post Rd (Rte 9A) & Crugers Station Rd	2	Town of Cortlandt	Croton on Hudson PD	Cortlandt DPW	1	3	0
W-11	Albany Post Rd (Rte 9A) & Springvale Rd	2	Town of Cortlandt	NYSP (Cortlandt)	Cortlandt DPW	1	3	0
W-12	Albany Post Rd (Rte 9A) & Access Rd from Highland Ave	2	Town of Cortlandt	NYSP (Cortlandt)	Cortlandt DPW	1	0	0
W-13	Main St (Rte 6) & Dayton Ln/Beecher Ln	2	City of Peekskill	Peekskill PD	Peekskill DPW	1	6	0
W-14	Albany Post Rd (Rte 9A) & Rte 9 Ramps	1	Town of Cortlandt	NYSP (Cortlandt)	Cortlandt DPW	2	6	0
W-15	Crompond Rd (Rte 202/35) & Bear Mtn State Pkwy	1	Town of Cortlandt	NYSP (Cortlandt)	Cortlandt DPW	1	3	0

Table G-4. Westchester County Traffic Control Points (continued)

TCP/ACP ID	Intersection	Priority	Protective Action Area	Police Department	Department of Public Works	# of Guides	# of Cones	# of Barricades
W-16	Crompond Rd (Rte 202/35) & Maple Row/Croton Ave	3	Town of Cortlandt	NYSP (Cortlandt)	Cortlandt DPW	1	3	0
W-17	Rte 6 & Lexington Ave	1	Yorktown	NYSP/Yorktown PD	Yorktown Highway Dept	2	6	0
W-18	Crompond Rd (Rte 202/35) & Lexington Ave	3	Town of Cortlandt	NYSP (Cortlandt)	Yorktown Highway Dept	1	3	0
W-19	S Riverside Ave (Rte 9A) & Municipal Place	1	Croton-on-Hudson	Croton PD	Croton DPW	1	6	2
W-20	Crompond Rd (Rte 202/35) & Stony St	3	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	0
W-21	Rte 9/9A & Croton Point Ave	2	Croton-on-Hudson	Croton on Hudson PD	Croton DPW	2	12	8
W-22	Rte 6 & Mill St	3	Yorktown	Yorktown PD	Yorktown Highway Dept	2	6	0
W-23	Crompond Rd (Rte 202/35) & Taconic Ramps	1	Yorktown	Yorktown PD	Yorktown Highway Dept	2	3	0
W-24	Crompond Rd (Rte 202/35) & Strang Blvd	3	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	0
W-25	Crompond Rd (Rte 202/35) & Springhurst St	1 (School), 3	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	0
W-26	Baldwin Rd & Taconic Pkwy Ramps	3	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	0
W-27	Albany Post Rd (Rte 9) & St. Augustine Church & School	1	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	1	3	0
W-28	Rte 6 & Old Yorktown Rd(Rte 132)/ Barger St	1	Yorktown	Yorktown PD	Yorktown Highway Dept	2	6	0
W-29	Rte 6 & Taconic Pkwy Ramps	1	Yorktown	Yorktown PD	Yorktown Highway Dept	2	6	0

**Table G-4. Westchester County Traffic Control Points (continued)**

TCP/ACP ID	Intersection	Priority	Protective Action Area	Police Department	Department of Public Works	# of Guides	# of Cones	# of Barricades
W-30	Crompond Rd (Rte 202/35) & Granite Springs Rd	1 (School), 3	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	0
W-31	Crompond Rd (Rte 202/35) & Baldwin Rd	1	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	0
W-32	Kitchawan Rd (Rte 134) & Taconic Northbound Ramp	3	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	4
W-33	Kitchawan Rd (Rte 134) & Taconic Southbound Ramp	3	Yorktown	Yorktown PD	Yorktown Highway Dept	0	3	0
W-34	Pines Bridge Rd & Taconic Ramps	1	Town of New Castle (W. of Hardscrabble Rd)	New Castle PD	New Castle DPW	1	3	0
W-35	Rte 9A & Croton Dam Rd	1	Ossining Town & Village	Ossining Town PD	Town of Ossining DPW	3	15	0
W-36	Albany Post Rd (Rte 9) & Cedar Ln/ Snowden Ave	1	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	2	9	0
W-37	Albany Post Rd (Rte 9) & VanCortlandt Ave	2	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	1	6	0
W-38	Albany Post Rd (Rte 9) & Croton Ave (Rte 133)	1	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	3	6	0
W-39	Dale Ave (Rte 134) & Croton Ave (Rte 133)	1	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	1	3	0
W-40	Albany Post Rd (Rte 9) & Church St	1	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	2	6	0
W-41	Albany Post Rd (Rte 9) & Waller Ave/ Ermwilton Pl	1	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	1	6	0
W-42	Rte 6 & Rte 6N/Curry St	2	Yorktown	Yorktown PD	Yorktown Highway Dept	1	3	0

Table G-4. Westchester County Traffic Control Points (continued)

TCP/ACP ID	Intersection	Priority	Protective Action Area	Police Department	Department of Public Works	# of Guides	# of Cones	# of Barricades
W-43	Saw Mill River Rd (Rte 35) & Pines Bridge Rd	3	Town of Somers (W. of Route 118)	NYSP (Somers)	Somers DPW	1	3	0
W-44	Saw Mill River Rd (Rte 35) & Tomahawk St (Rte 118/202)	3	Town of Somers (W. of Route 118)	NYSP (Somers)	Somers DPW	1	3	0
W-45	Somerstown Tpke (Rte 133/100) & Station Rd (Rte 133)	2	Town of New Castle (W. of Hardscrabble Rd)	TBD	TBD	1	3	0
W-46	Somerstown Tpke (Rte 133/100) & Northbound Taconic Pkwy Ramps	1	Town of New Castle (W. of Hardscrabble Rd)	New Castle PD	New Castle DPW	0	0	2
W-47	Rte 133/100 & Taconic Pkwy Ramps	1	Town of New Castle (W. of Hardscrabble Rd)	North Castle PD	TBD	1	9	0
W-48	Rte 9A & Chappaqua Rd	1	Briarcliff Manor	Briarcliff PD	Briarcliff DPW	1	9	0
W-49	Albany Post Rd (Rte 9) & Revolutionary Rd	2	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	1	6	0
W-50	Albany Post Rd (Rte 9) & Rockledge Ave	1	Ossining Town & Village	Ossining Village PD	Ossining Village DPW	2	6	0
W-51	Rte 6 & Rte 118/Baldwin Place Rd	1	Town of Somers (W. of Route 118)	NYSP (Somers)	Somers DPW	2	6	0
W-52	Tomahawk St (Rte 118/202) & Lincolndale Rd (Rte 202)	2	Town of Somers (W. of Route 118)	NYSP (Somers)	Somers DPW	1	3	0
W-53	Rte 9A & N State Rd	1	Briarcliff Manor	TBD	TBD	1	9	0

**Table G-4. Westchester County Traffic Control Points (continued)**

TCP/ACP ID	Intersection	Priority	Protective Action Area	Police Department	Department of Public Works	# of Guides	# of Cones	# of Barricades
W-54	Albany Post Rd (Rte 9) & Scarborough Rd	2	Briarcliff Manor	Briarcliff PD	Briarcliff DPW	2	12	0
W-55	Albany Post Rd (Rte 9) & Tower Hill Rd	2	Briarcliff Manor	Briarcliff PD	Briarcliff DPW	1	6	0
W-56	Sleepy Hollow Rd & Old Sleepy Hollow Rd	3	Briarcliff Manor	Mount Pleasant PD	Town of Mount Pleasant DPW	1	3	0
W-57	Woods Bridge Rd (Rte 35) & Somerstown Rd (Rte 100)	1	Shadow Region	NYSP (Somers)	Somers DPW	2	9	0
W-58	Woods Bridge Rd (Rte 35) & Pepsi-Cola Entrance	3	Shadow Region	NYSP (Somers)	Somers DPW	0	6	0
W-59	Woods Bridge Rd (Rte 35) & Cherry St	3	Shadow Region	NYSP (Somers)	Lewisboro DPW	0	6	0
W-60	Woods Bridge Rd (Rte 35) & Cross River Rd (Rte 35)	3	Shadow Region	Bedford PD	Bedford DPW	2	9	0
W-61	Cross River Rd (Rte 35) & I-684 Ramps	3	Shadow Region	Bedford PD	Bedford DPW	4	6	0
W-62	Bedford Rd (Rte 117) & King St (Rte 120)	2	Shadow Region	New Castle PD	New Castle DPW	2	12	0
W-63	Saw Mill Pkwy & Grant St	1	Shadow Region	Westchester Cty PD on Parkway	NY State DOT	1	3	0
W-64	Bedford Rd & Marble Ave	1	Shadow Region	Pleasantville PD	Pleasantville DPW	1	3	0
W-65	Manville Rd (Rte 117) & Pleasantville Rd	1	Shadow Region	Pleasantville PD	Pleasantville DPW	1	6	0
W-66	Bedford Rd (Rte 117) & Rte 9A/100	1	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	1	0	2
W-67	Bedford Rd (Rte 117) & Bedford Rd (Rte 448)	1	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	1	9	0

**Table G-4. Westchester County Traffic Control Points (continued)**

TCP/ACP ID	Intersection	Priority	Protective Action Area	Police Department	Department of Public Works	# of Guides	# of Cones	# of Barricades
W-68	Rte 9 & Rte 117	1	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	1	0	10
W-69	Mt Kisco Rd/ Bedford Rd (Rte 22) & Main St (Rte 128)	2	Shadow Region	North Castle PD	TBD	1	3	0
W-70	King St (Rte 120) & Rte 22	2	Shadow Region	North Castle PD	TBD	1	0	4
W-71	Rte 9A/100 Exits 26 A,B - County Police Barracks	1	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	2	0	10
W-72	Taconic State Pkwy & Stevens Ave	1	Shadow Region	NYSP (Hawthorne)	Mount Pleasant DPW	1	6	0
W-73	Taconic State Pkwy & Commerce St	1	Shadow Region	NYSP (Hawthorne)	Mount Pleasant DPW	1	6	0
W-74	Taconic State Pkwy & Lakeview Ave	1	Shadow Region	NYSP (Hawthorne)	Mount Pleasant DPW	1	6	0
W-75	Taconic State Pkwy & Cleveland St	1	Shadow Region	NYSP (Hawthorne)	Mount Pleasant DPW	1	6	0
W-76	Saw Mill River Rd (Rte 9A) & Skyline Dr	2	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	1	6	0
W-77	Saw Mill River Rd (Rte 9A) & Saw Mill Pkwy Ramp	2	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	1	9	0
W-78	Saw Mill River Rd (Rte 9A) & Dana Rd	1	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	1	6	0
W-79	Rte 9A & Grasslands Rd (Rte 100C)	3	Shadow Region	Mount Pleasant PD	Mount Pleasant DPW	1	3	0
W-80	Saw Mill River Rd (Rte 9A) & Hunter Ln	2	Shadow Region	Greenburgh PD	Greenburgh DPW	1	6	0
W-81	Saw Mill River Rd (Rte 9A) & Fairview Park Dr	2	Shadow Region	Greenburgh PD	Greenburgh DPW	1	6	0
W-82	Saw Mill River Rd (Rte 9A) & Old Country Rd	2	Shadow Region	Greenburgh PD	Greenburgh DPW	1	6	0

Table G-4. Westchester County Traffic Control Points (continued)

TCP/ACP ID	Intersection	Priority	Protective Action Area	Police Department	Department of Public Works	# of Guides	# of Cones	# of Barricades
W-83	Saw Mill River Rd (Rte 9A) & Beaver Hill Rd	2	Shadow Region	Greenburgh PD	Greenburgh DPW	1	6	0
W-84	Saw Mill River Rd (Rte 9A) & Payne St	1	Shadow Region	Greenburgh PD	Greenburgh DPW	1	6	0
W-85	Saw Mill River Rd (Rte 9A) & I-287 Ramps	1	Shadow Region	Elmsford PD	Elmsford DPW	2	6	0
W-86	Broadway (Rte 9) & Pierson Ave	2	Shadow Region	Sleepy Hollow PD	Sleepy Hollow DPW	1	12	0
W-87	Broadway (Rte 9) & Pocantico St	2	Shadow Region	Sleepy Hollow PD	Sleepy Hollow DPW	1	9	0
W-88	Broadway (Rte 9) & Bedford Rd (Rte 448)	1	Shadow Region	Sleepy Hollow PD	Sleepy Hollow DPW	2	6	0
W-89	Broadway (Rte 9) & Depeyster St	2	Shadow Region	Sleepy Hollow PD	Sleepy Hollow DPW	1	3	0
W-90	Broadway (Rte 9) & Wildey St	2	Shadow Region	Tarrytown PD	Tarrytown DPW	1	3	0
W-91	Broadway (Rte 9) & Neperan Rd	2	Shadow Region	Tarrytown PD	Tarrytown DPW	1	3	0
W-92	Broadway (Rte 9) & Benedict Ave	2	Shadow Region	Tarrytown PD	Tarrytown DPW	1	3	0
W-93	Broadway (Rte 9) & Prospect Ave	2	Shadow Region	Tarrytown PD	Tarrytown DPW	1	3	0
W-94	Broadway (Rte 9) & White Plains Rd (Rte 119)	2	Shadow Region	Tarrytown PD	Tarrytown DPW	1	6	0
W-95	Broadway (Rte 9) & I-287 East/ I-87 South Ramps	1	Shadow Region	Tarrytown PD	Tarrytown DPW	1	6	0
<b>TOTAL MANPOWER/EQUIPMENT NEEDED</b>						<b>116</b>	<b>495</b>	<b>42</b>

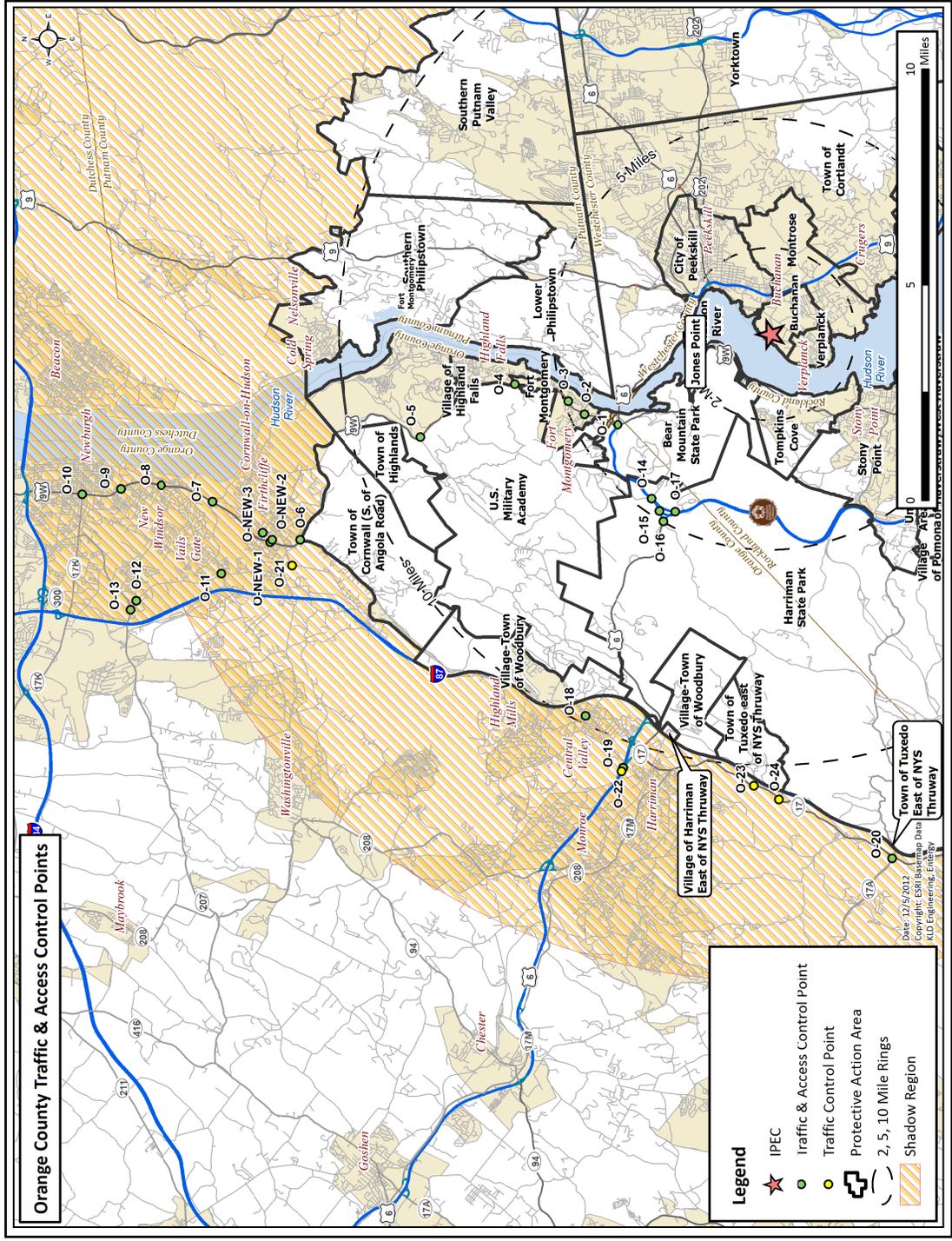


Figure G-1. Traffic and Access Control Points within the Orange County Portion of the EPZ

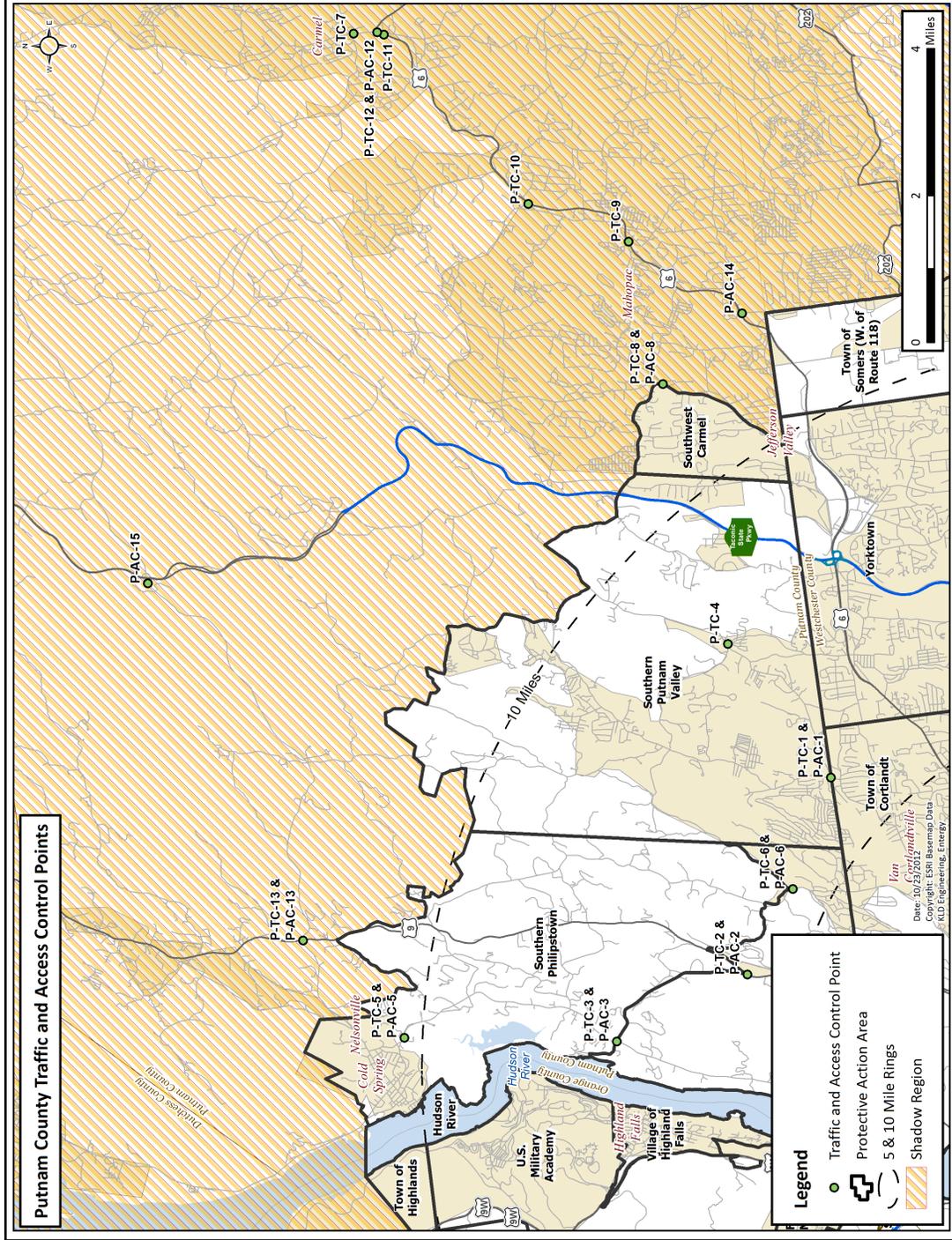


Figure G-2. Traffic and Access Control Points within the Putnam County Portion of the EPZ



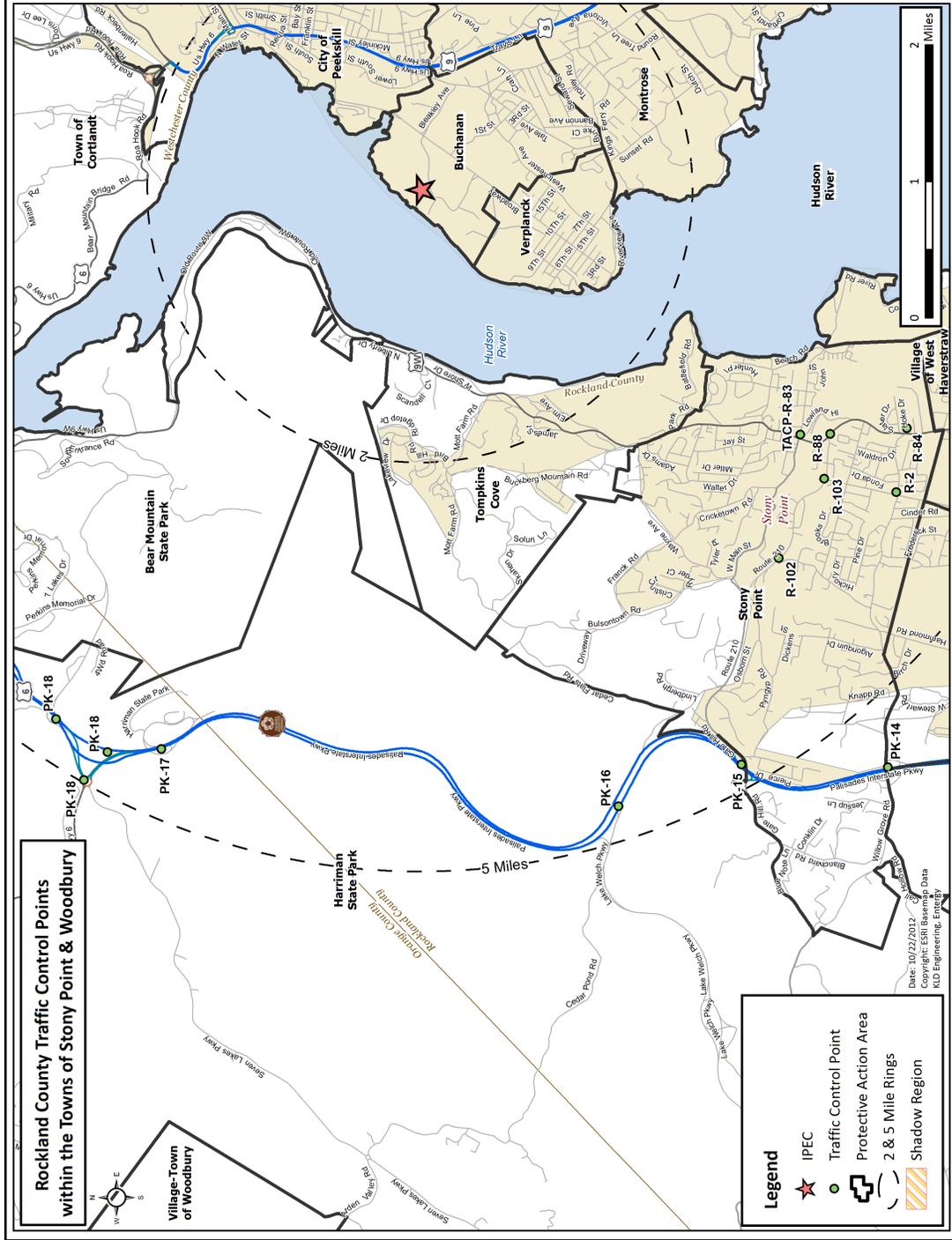


Figure G-4. Traffic and Access Control Points within the Stony Point & Woodbury Protective Action Areas

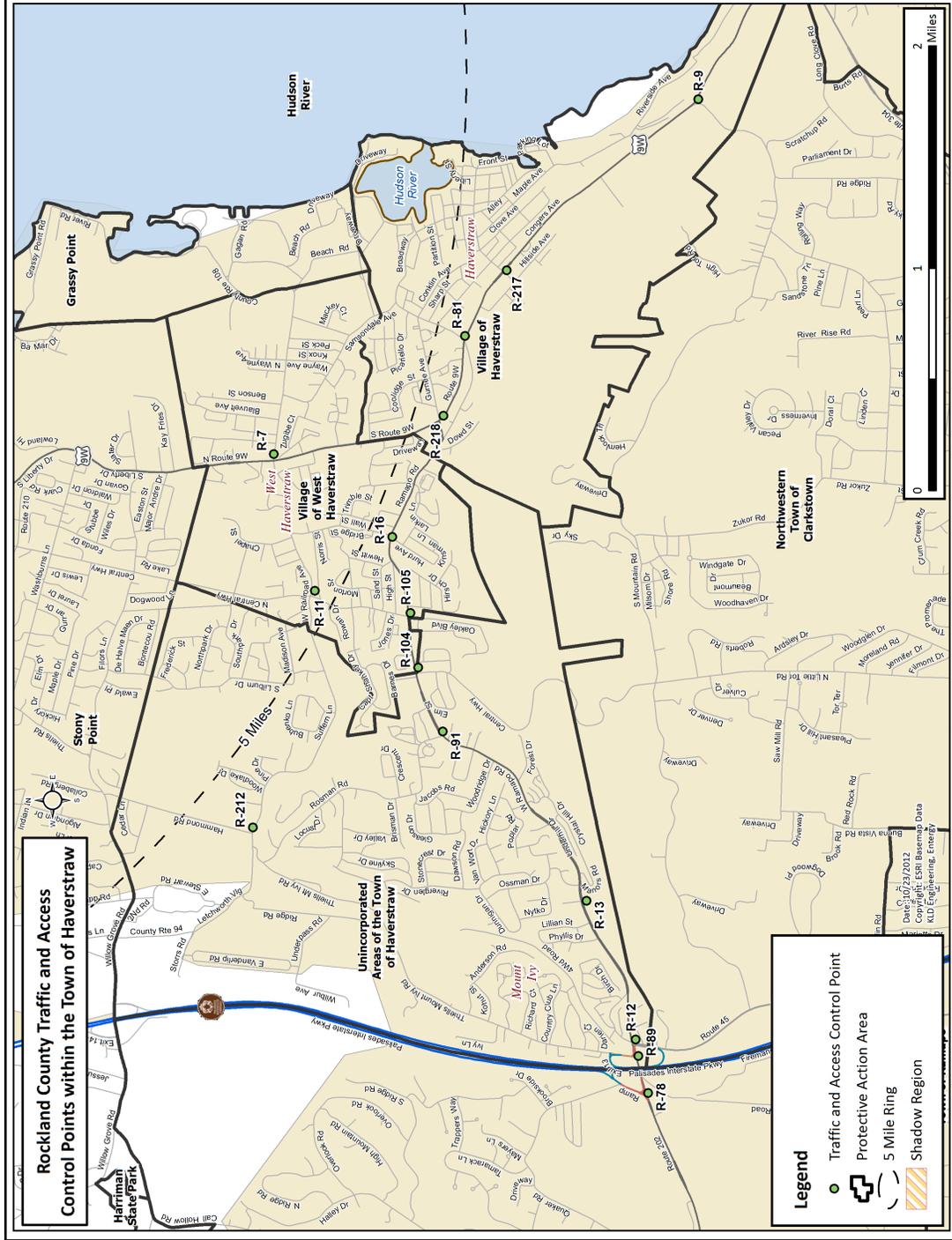


Figure G-5. Traffic and Access Control Points within the Town of Haverstraw

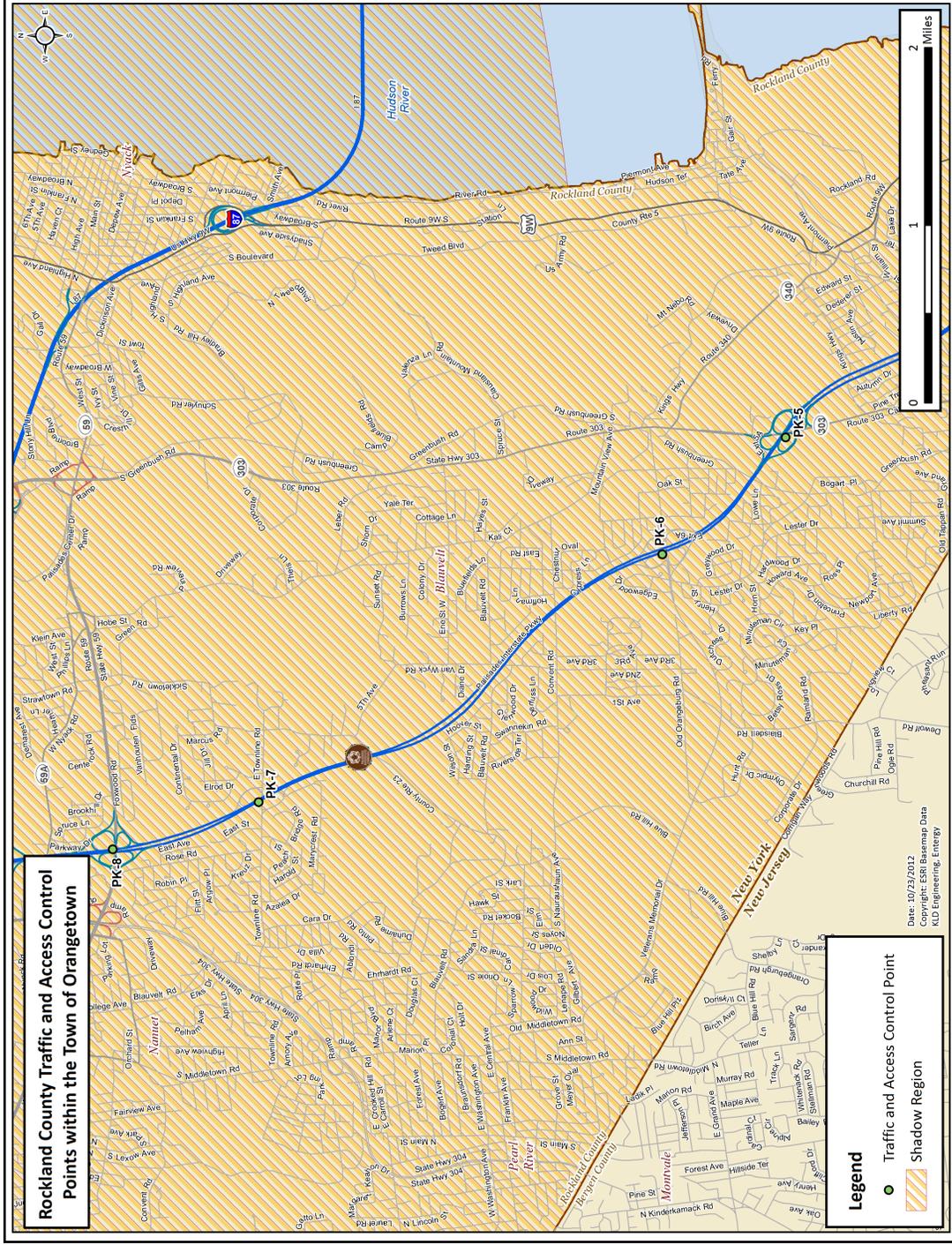


Figure G-6. Traffic Control Points within the Town of Orangetown

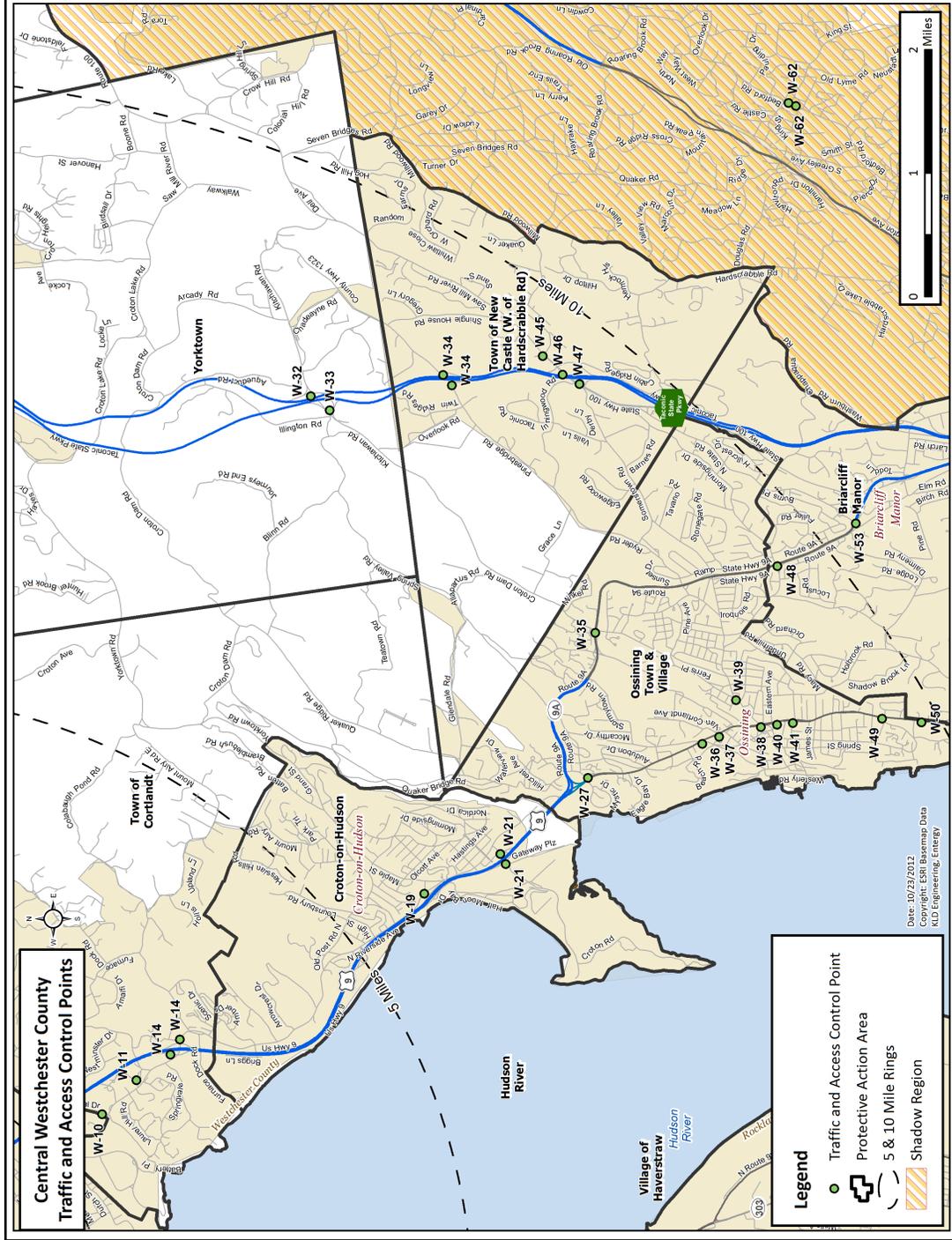


Figure G-7. Traffic and Access Control Points within Central Westchester County

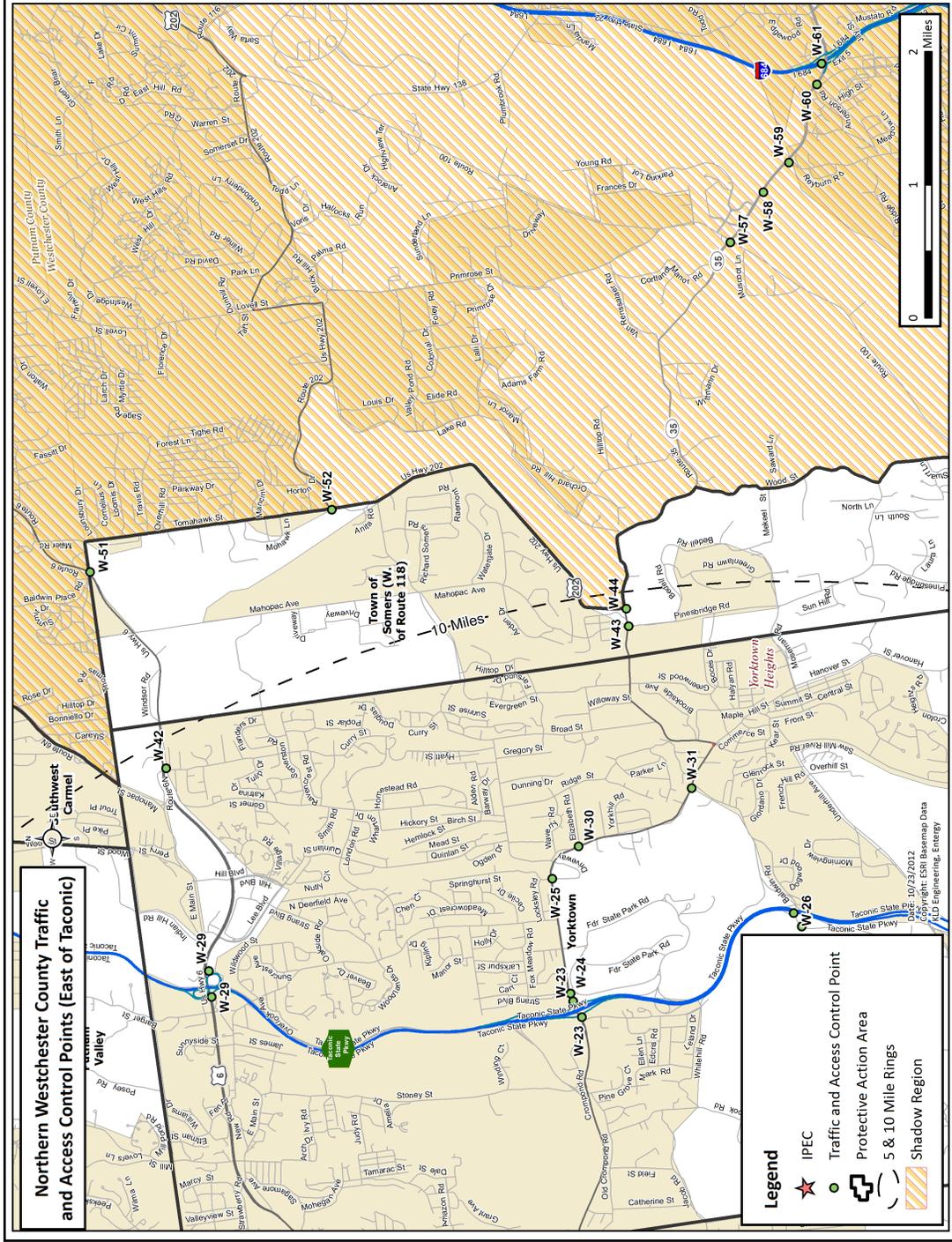


Figure G-8. Traffic and Access Control Points within Northern Westchester County (East of Taconic)

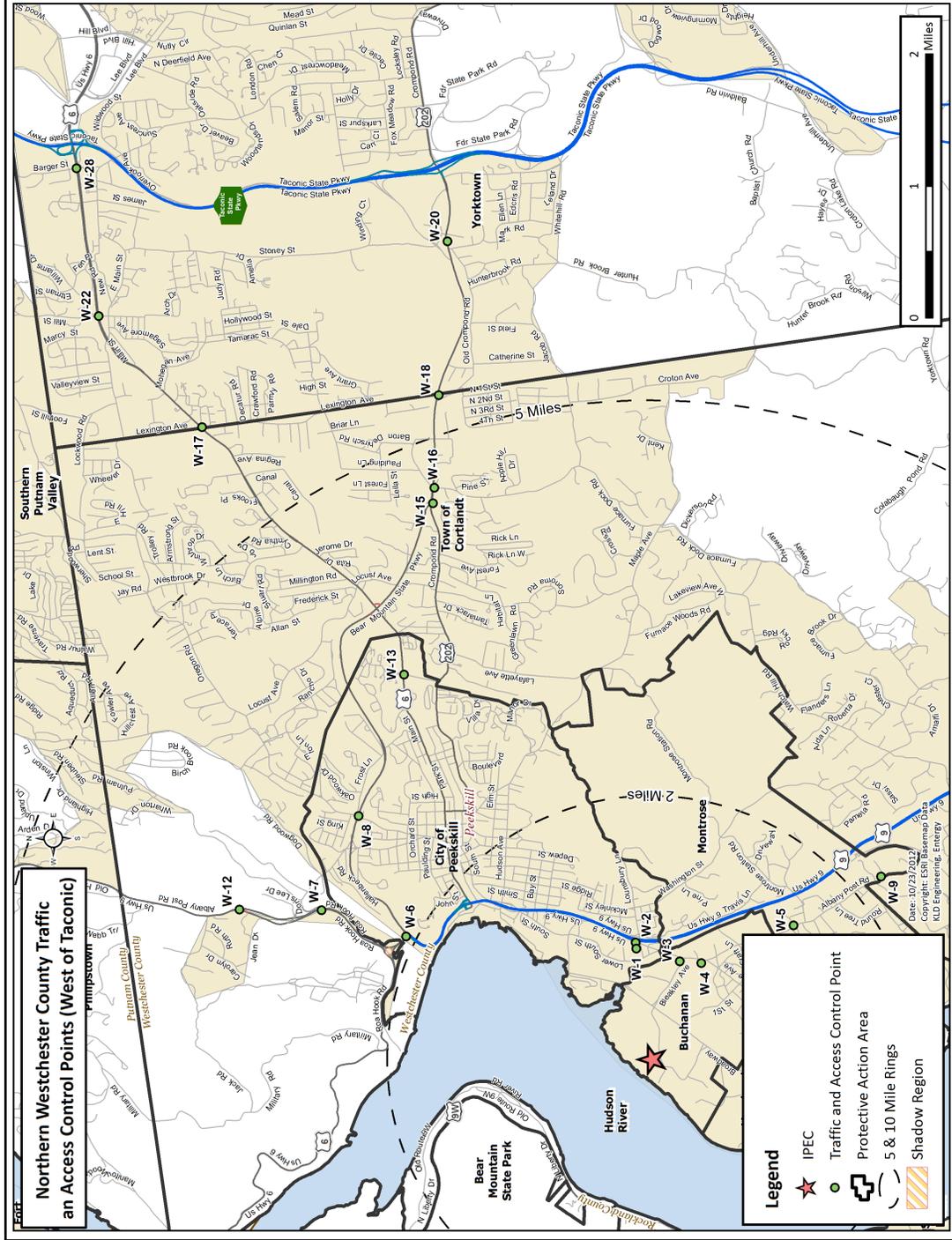
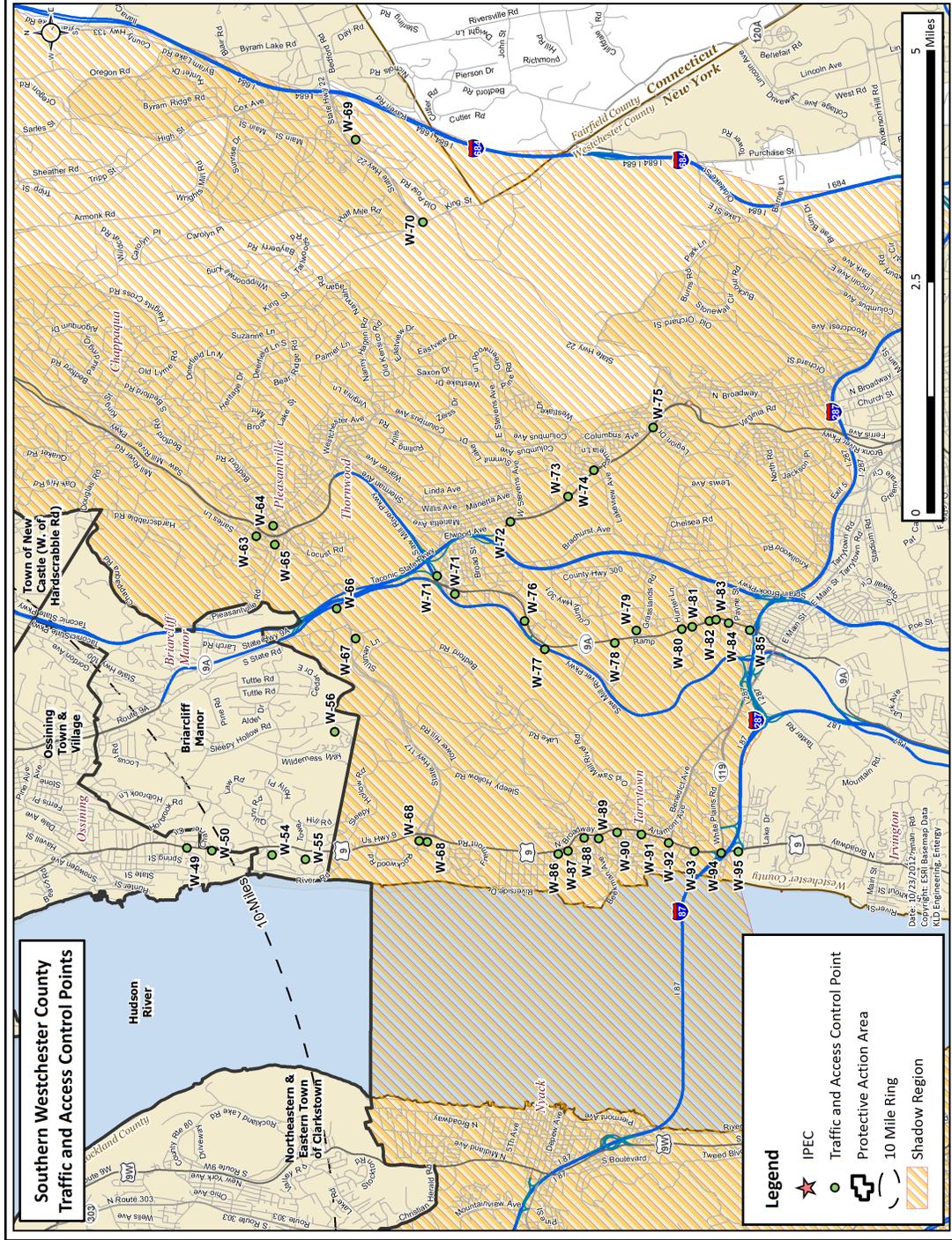


Figure G-9. Traffic and Access Control Points within Northern Westchester County (West of Taconic)



**APPENDIX H**  
Evacuation Regions

## H EVACUATION REGIONS

This appendix presents the evacuation percentages for each Evacuation Region (Table H-1 through Table H-3) and maps of all Evacuation Regions. The percentages presented in the tables are based on the methodology discussed in assumption 5 of Section 2.2 and shown in Figure 2-1.

Note the baseline ETE study assumes 20 percent of households will not comply with the shelter advisory, as per Section 2.5.2 of NUREG/CR-7002.

Table H-1. Percent of Protective Action Area Population Evacuating for Each Region (Regions R1 – R15)

Region Number	Wind Direction From:	2-Mile Ring and Sector to 5 Miles																	
		2-Mile Ring	5-Mile Ring	Full EPZ	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
		N/A	N/A	N/A	S	SSW, SW	WSW, W	WNW, NW	NNW	N	NNE	NE	ENE	E	ESE	SE, SSE			
<b>PROTECTIVE ACTION AREA</b>																			
Briarcliff Manor		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Central Town of Clarkstown		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Northeastern Town of Ramapo		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Northeastern & Eastern Town of Clarkstown		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Northwestern Town of Clarkstown		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Ossining Town & Village		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of Haverstraw		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Town of New Castle (West of Hardscrabble Rd)		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of West Haverstraw		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Unincorporated Areas of the Town of Haverstraw		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Town of Tuxedo East of NYS Thruway		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of Pomona		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Grassy Point		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Croton-on-Hudson		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Stony Point		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Verplanck		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tompkins Cove		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Buchanan		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Montrose		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jones Point		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Village of Harriman East of NYS Thruway		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
City of Peekskill		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Town of Cortlandt		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Bear Mountain State Park		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Harriman State Park		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Yorktown		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Town of Somers (West of Route 118)		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Fort Montgomery		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Southwest Carmel		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of Highland Falls		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Lower Philipstown		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village - Town of Woodbury		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
U.S. Military Academy		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Southern Putnam Valley		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Town of Highlands		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Hudson River																			
Hudson River is cleared/closed and therefore considered 100% evacuated																			
Town of Cornwall (South of Angola Rd)		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Southern Philipstown		20%	20%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
<b>Protective Action Area is within Plume and Evacuates</b>																			

Table H-2. Percent of Protective Action Area Population Evacuating for Each Region (Regions R16 – R31)

Region Description		5-Mile Ring and Sector to EPZ Boundary																
Region Number	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25	R26	R27	R28	R29	R30	R31		
Wind Direction From:	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE		
<b>PROTECTIVE ACTION AREA</b>																		
Briarcliff Manor	20%	20%	20%	20%	20%	100%	100%	100%	100%	20%	20%	20%	20%	20%	20%	20%		
Central Town of Clarkstown	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	100%	20%	20%	20%	20%		
Northeastern Town of Ramapo	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	20%	20%	20%	20%		
Northeastern & Eastern Town of Clarkstown	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	100%	20%	20%	20%	20%	20%		
Northwestern Town of Clarkstown	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	100%	20%	20%	20%	20%		
Ossining Town & Village	20%	20%	20%	20%	20%	100%	100%	100%	100%	100%	100%	20%	20%	20%	20%	20%		
Village of Haverstraw	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Town of New Castle (West of Hardscrabble Rd)	20%	20%	20%	20%	20%	100%	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%		
Village of West Haverstraw	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Unincorporated Areas of the Town of Haverstraw	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Town of Tuxedo East of NYS Thruway	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	20%	20%		
Village of Pomona	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	20%	20%	20%	20%		
Grassy Point	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Croton-on-Hudson	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Stony Point	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Verplanck	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Tompkins Cove	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Buchanan	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Montrose	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Jones Point	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Village of Harriman East of NYS Thruway	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	100%		
City of Peekskill	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Town of Cortlandt	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Bear Mountain State Park	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Harriman State Park	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yorktown	20%	100%	100%	100%	100%	100%	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%		
Town of Somers (West of Route 118)	20%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Fort Montgomery	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Southwest Carmel	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Village of Highland Falls	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%		
Lower Philipstown	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Village - Town of Woodbury	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%	100%		
U.S. Military Academy	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%		
Southern Putnam Valley	100%	100%	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%		
Town of Highlands	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%		
Hudson River	Hudson River is cleared/closed and therefore considered 100% evacuated																	
Town of Cornwall (South of Angola Rd)	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%		
Southern Philipstown	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%		
<b>Protective Action Area is within Plume and Evacuates</b>																		
<b>Protective Action Area not within Plume, but Evacuates because it is surrounded by other Protective Action Areas which are Evacuating</b>																		

**Table H-3. Percent of Protective Action Area Population Evacuating for Each Region (Regions R32 – R42)**

Region Description	Staged Evacuation - 2 Mile Ring Evacuates, then Sector to 5 Miles Evacuates													
	Region Number	R32	R33	R34	R35	R36	R37	R38	R39	R40	R41	R42	R43	R44
Wind Direction From:	S	SSW, SW	WSW, W	WNW, NW	NNW	N	NNE	NE	ENE	E	ESE	SE, SSE	5-Mile	
<b>PROTECTIVE ACTION AREA</b>														
Briarcliff Manor	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Central Town of Clarkstown	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Northeastern Town of Ramapo	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Northeastern & Eastern Town of Clarkstown	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Northwestern Town of Clarkstown	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Ossining Town & Village	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of Haverstraw	20%	20%	20%	20%	100%	100%	100%	100%	20%	20%	20%	20%	20%	100%
Town of New Castle (West of Hardscrabble Rd)	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of West Haverstraw	20%	20%	20%	20%	20%	100%	100%	100%	20%	20%	20%	20%	20%	100%
Unincorporated Areas of the Town of Haverstraw	20%	20%	20%	20%	20%	100%	100%	100%	100%	20%	20%	20%	20%	100%
Town of Tuxedo East of NYS Thruway	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of Pomona	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Grassy Point	20%	20%	20%	20%	20%	100%	100%	100%	20%	20%	20%	20%	20%	100%
Croton-on-Hudson	20%	20%	20%	100%	100%	100%	100%	20%	20%	20%	20%	20%	20%	100%
Stony Point	20%	20%	20%	20%	20%	100%	100%	100%	100%	100%	100%	20%	20%	100%
Verplanck	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tompkins Cove	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Buchanan	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Montrrose	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jones Point	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Village of Harriman East of NYS Thruway	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
City of Peekskill	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Town of Cortlandt	100%	100%	100%	100%	100%	100%	100%	20%	20%	20%	20%	20%	20%	100%
Bear Mountain State Park	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Harriman State Park	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Yorktown	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Town of Somers (West of Route 118)	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Fort Montgomery	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%	100%	100%	100%
Southwest Carmel	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Village of Highland Falls	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Lower Philipstown	100%	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	100%
Village - Town of Woodbury	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
U.S. Military Academy	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Southern Putnam Valley	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Town of Highlands	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Hudson River	Hudson River is cleared/closed and therefore considered 100% evacuated													
Town of Cornwall (South of Angola Rd)	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Southern Philipstown	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
<b>Protective Action Area Evacuates</b>														
<b>Protective Action Area Shelters-in-Place, then Evacuates</b>														



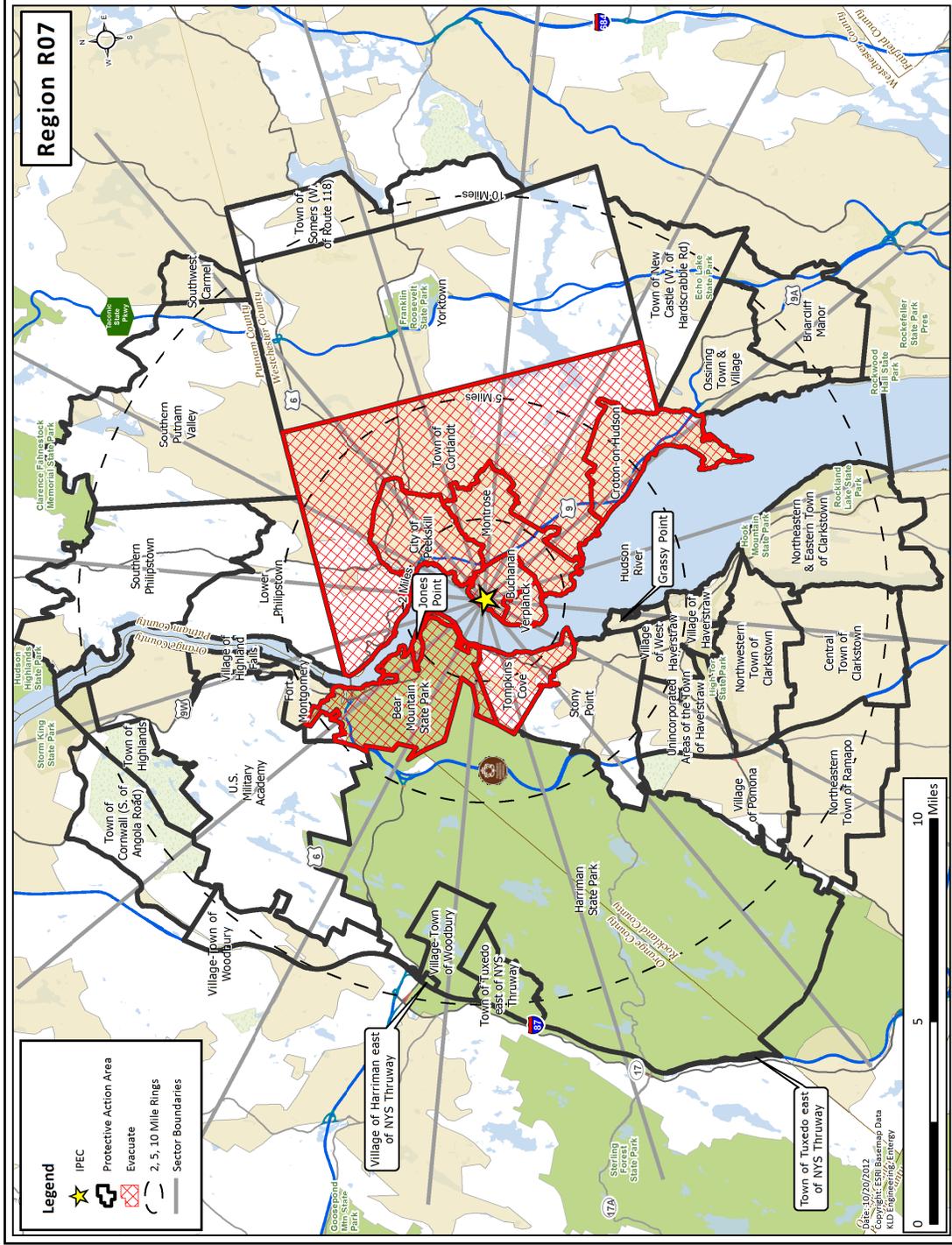


















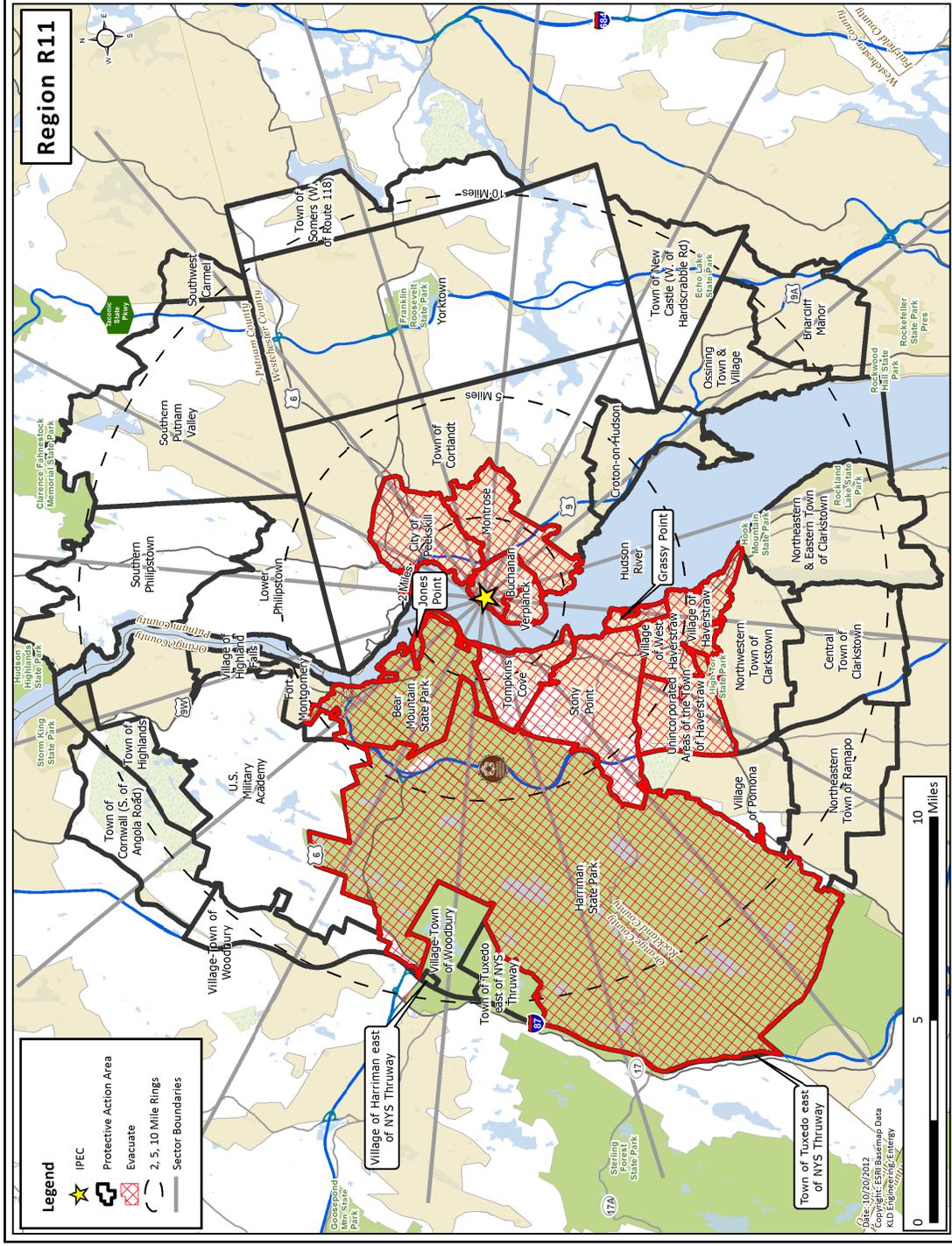


Figure H-11. Region R11

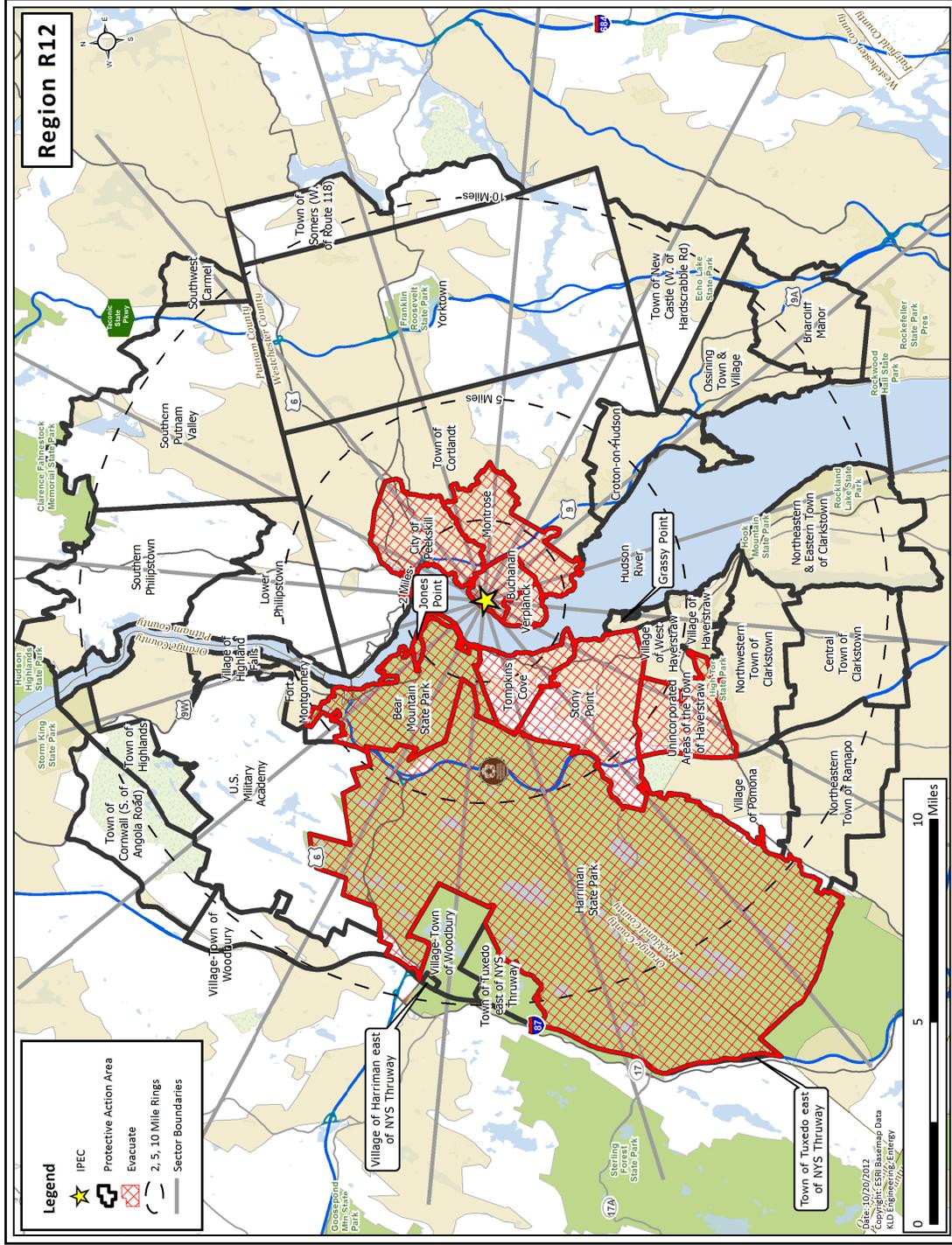


Figure H-12. Region R12





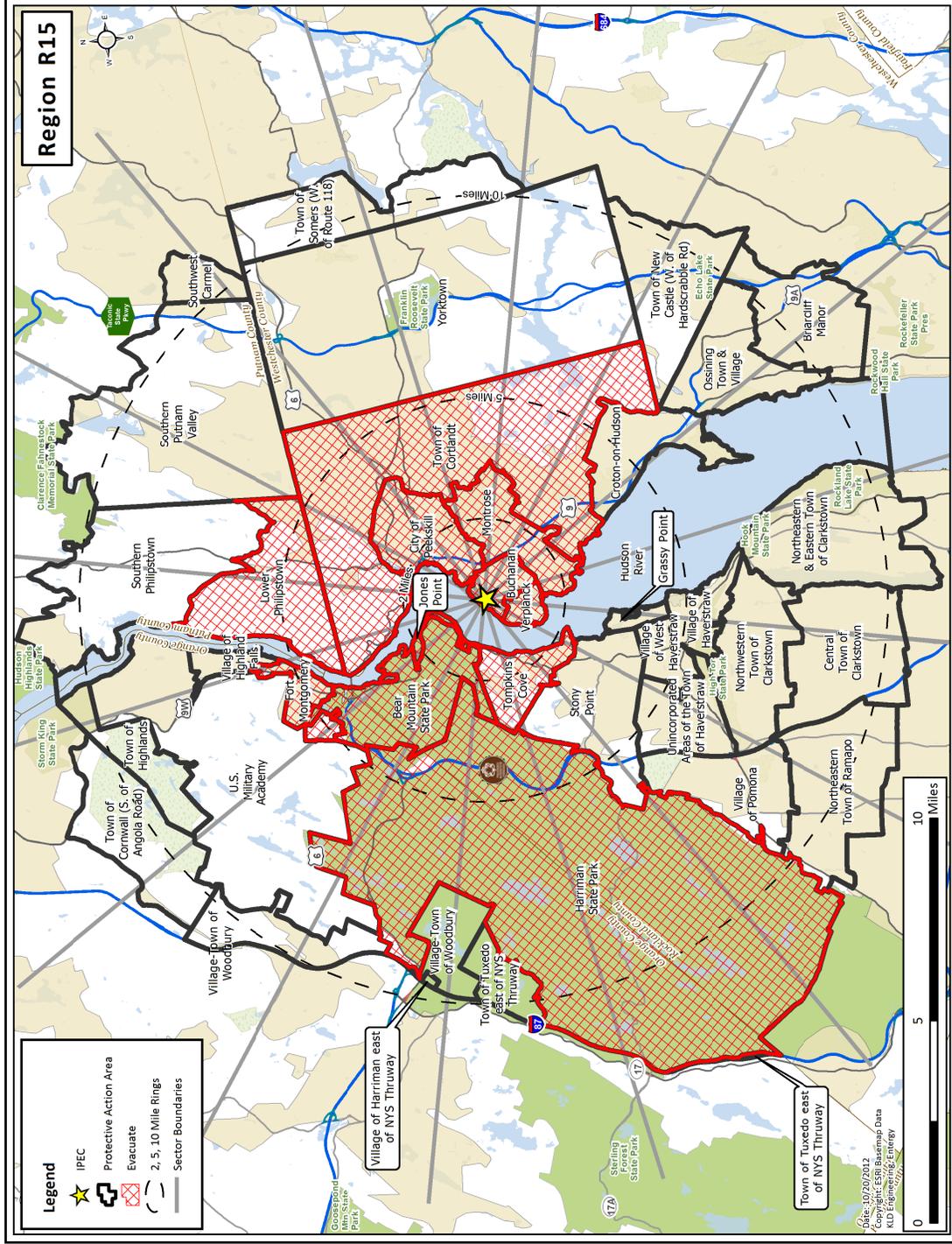


Figure H-15. Region R15



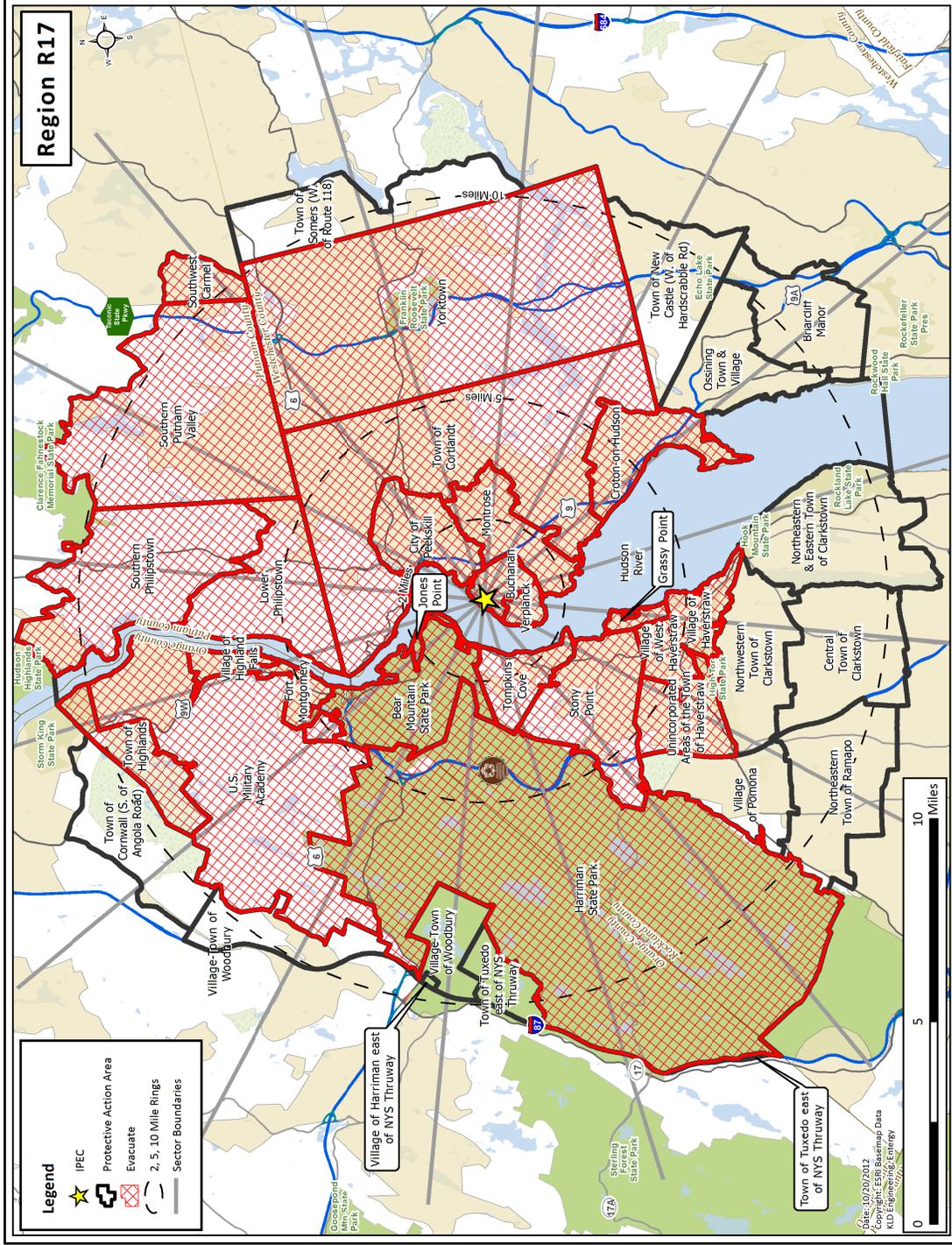
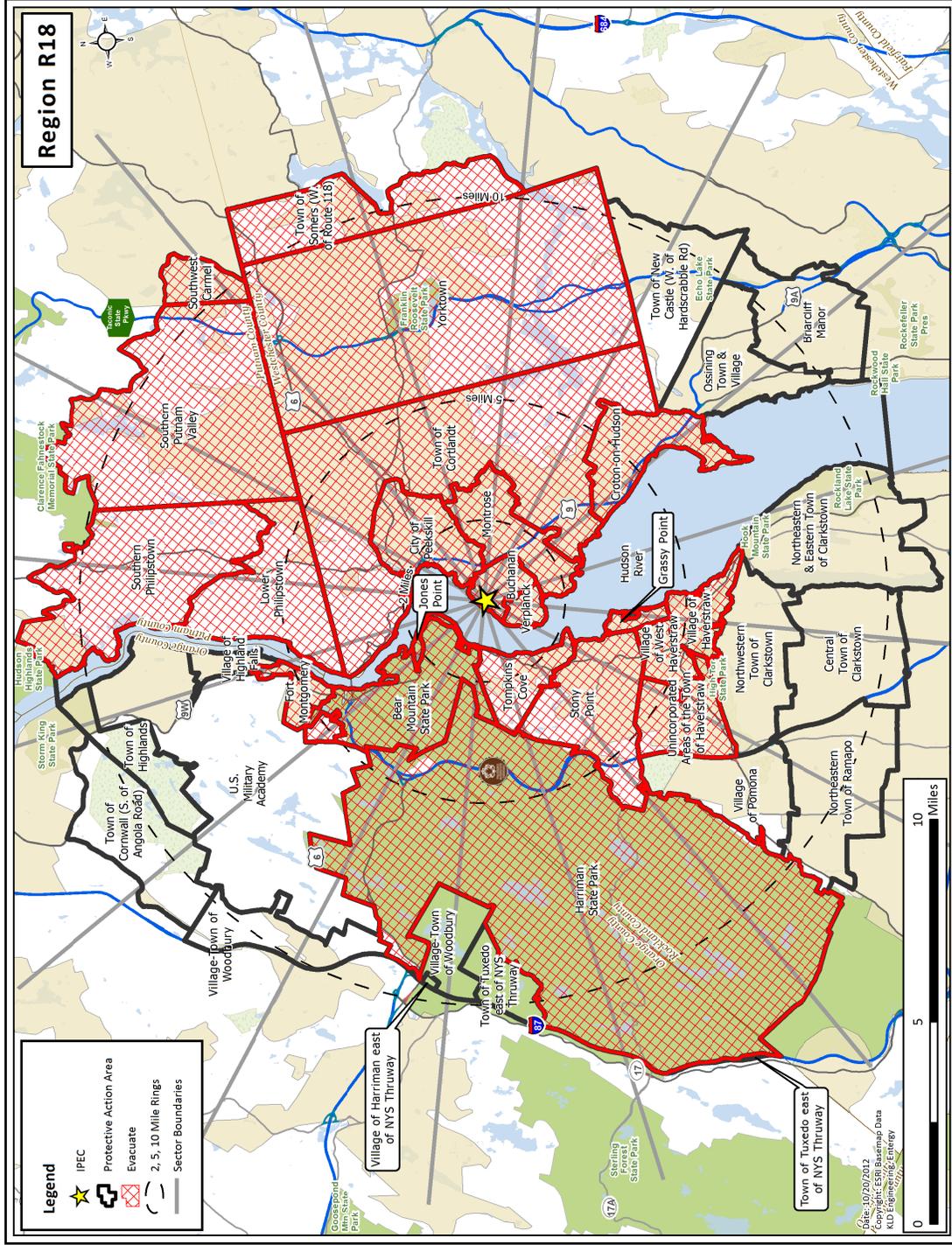
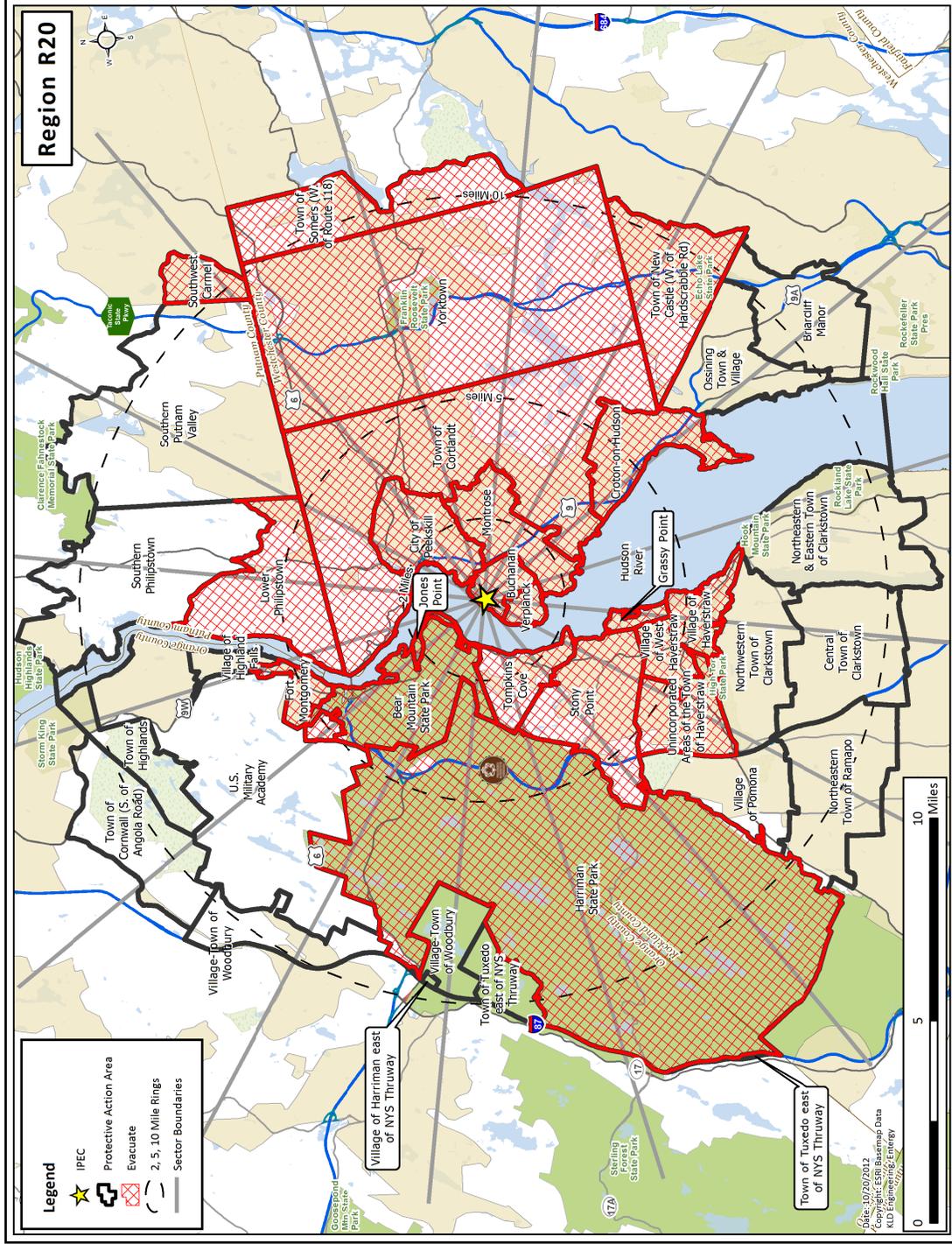


Figure H-17. Region R17







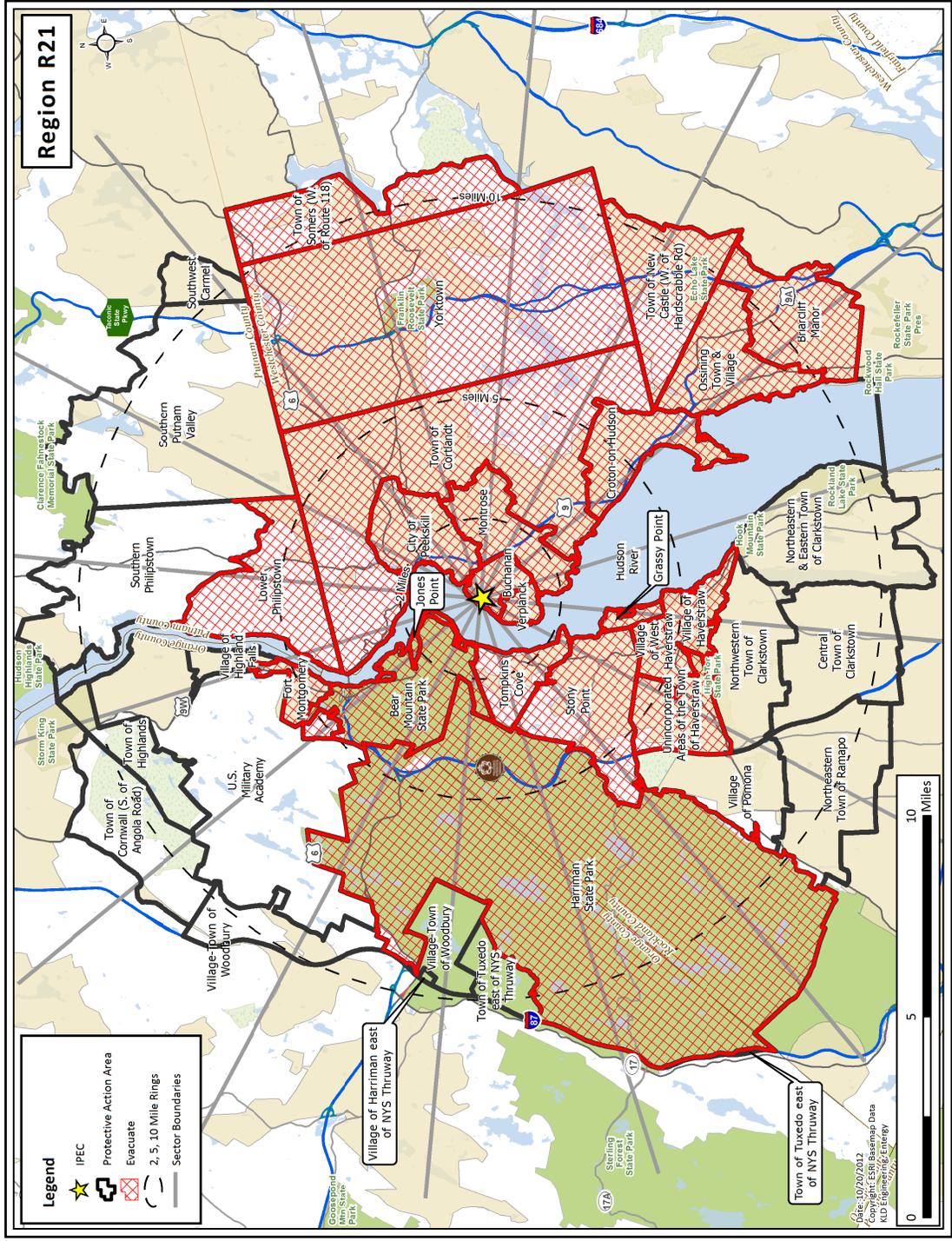


Figure H-21. Region R21



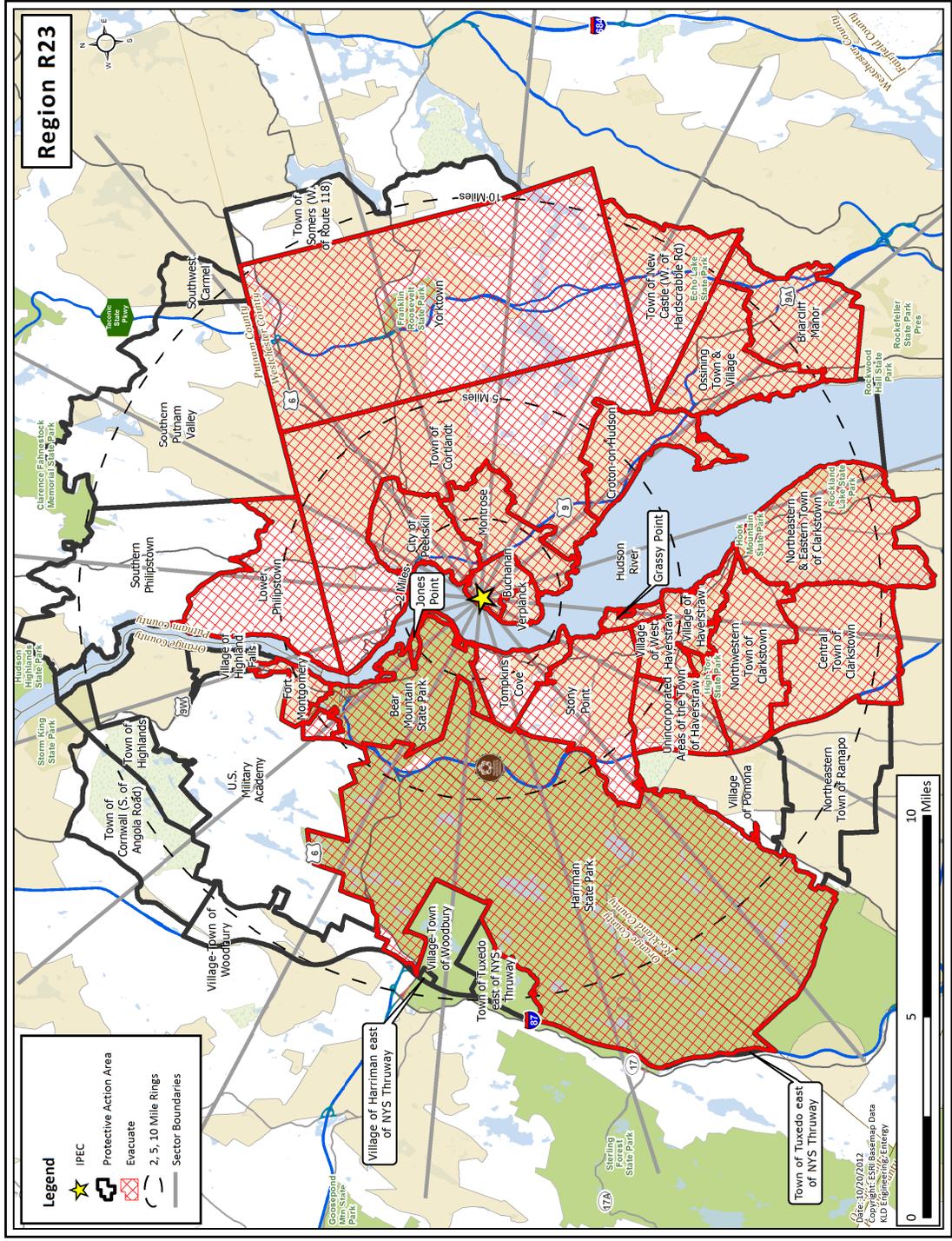


Figure H-23. Region R23











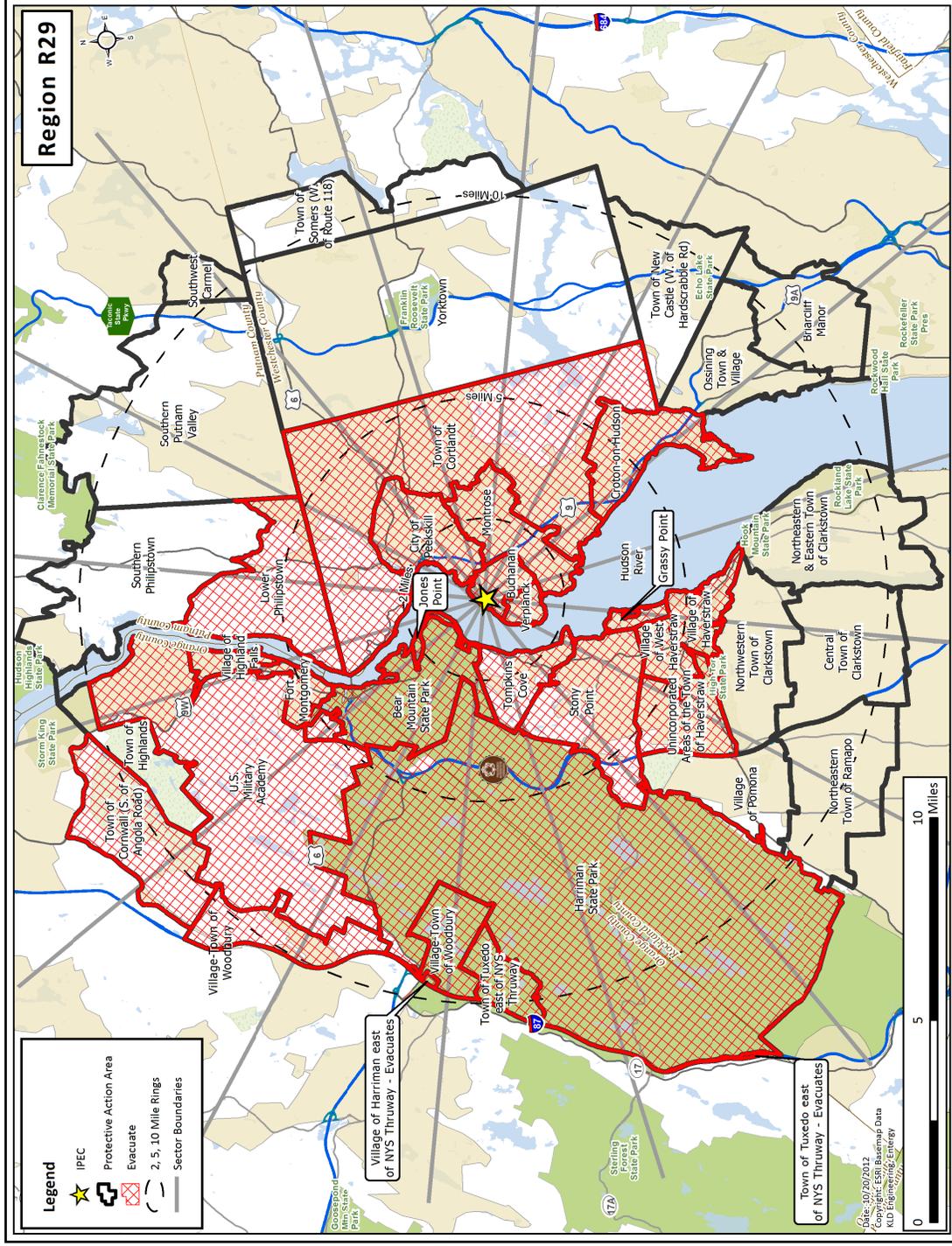


Figure H-29. Region R29

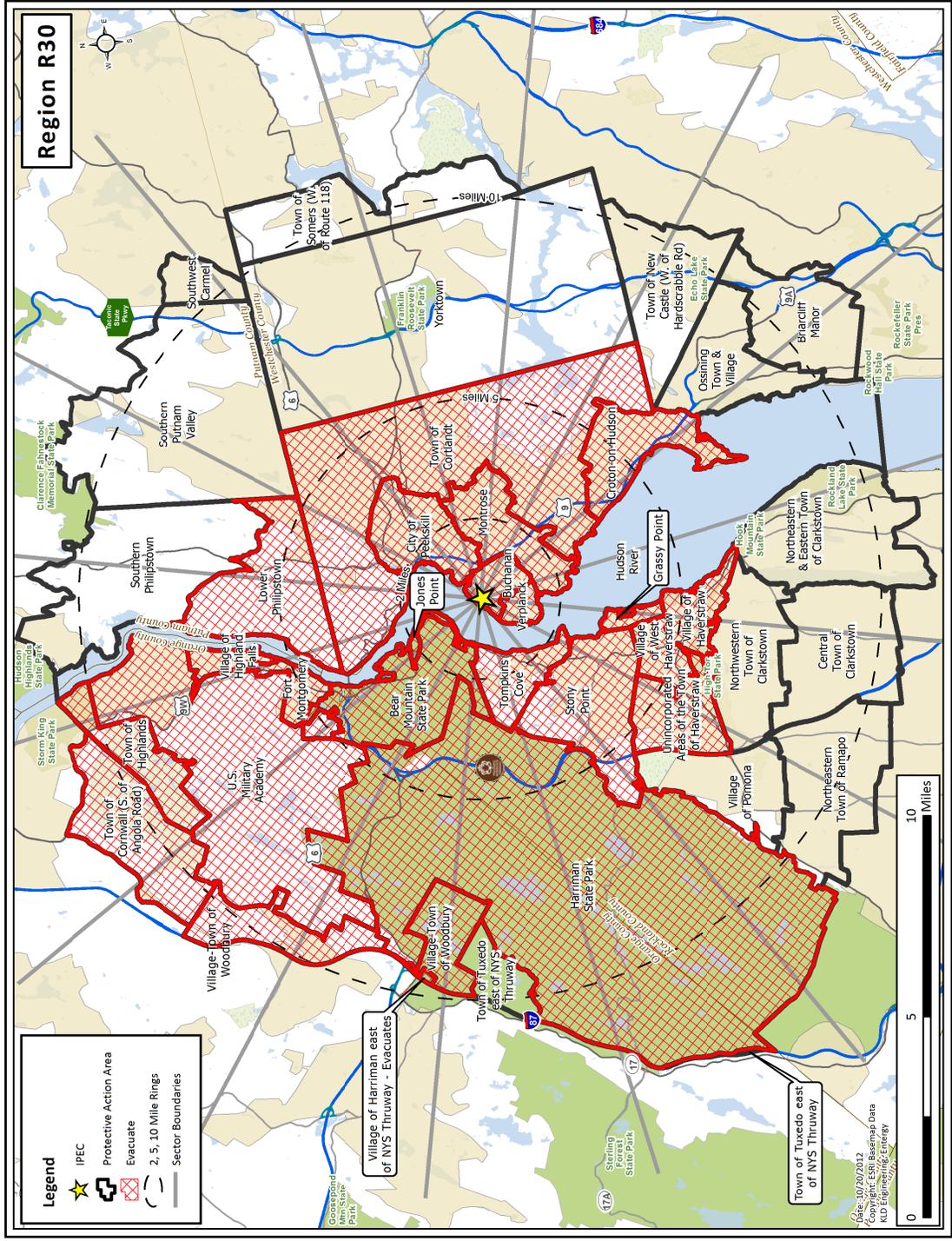


Figure H-30. Region R30

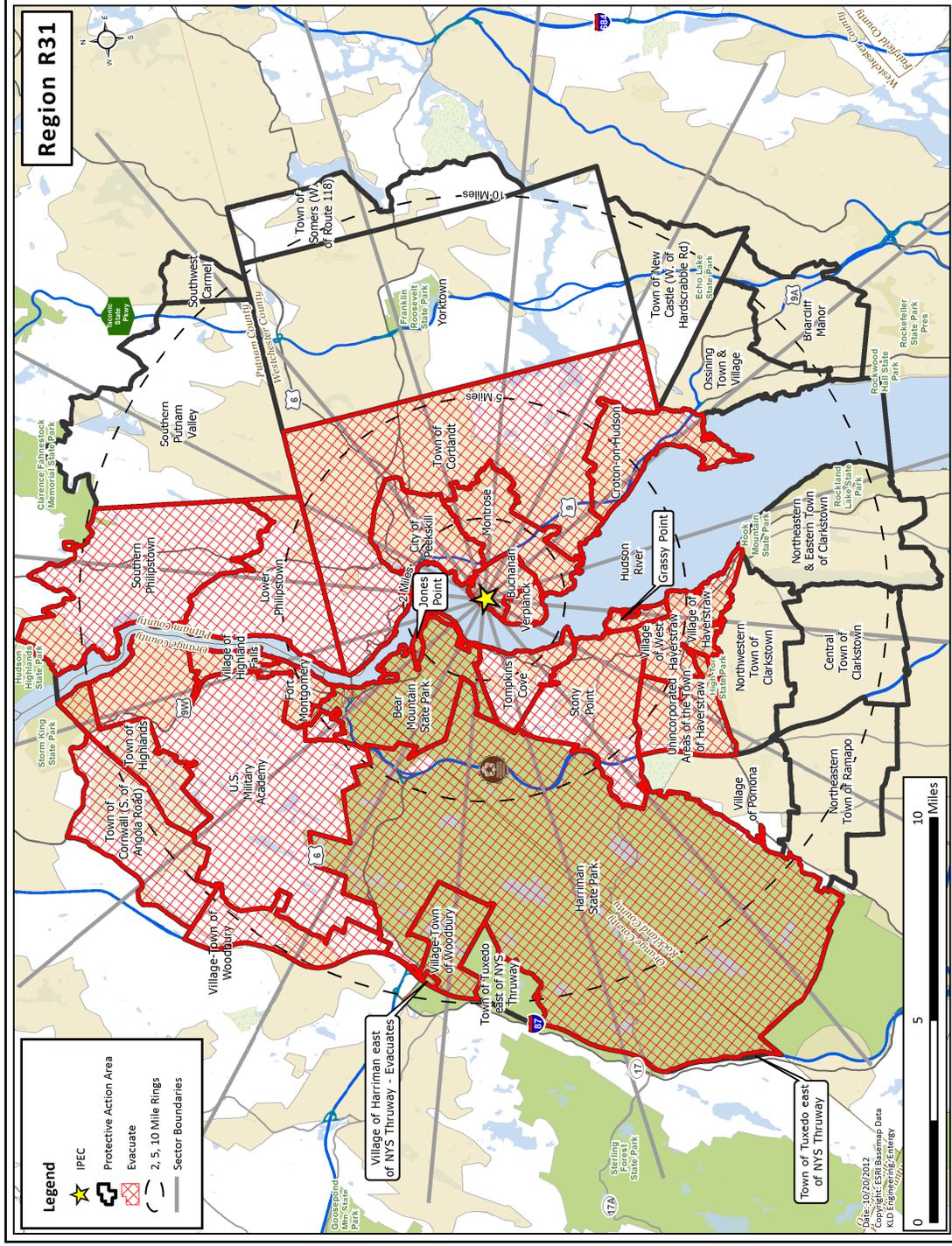


Figure H-31. Region R31



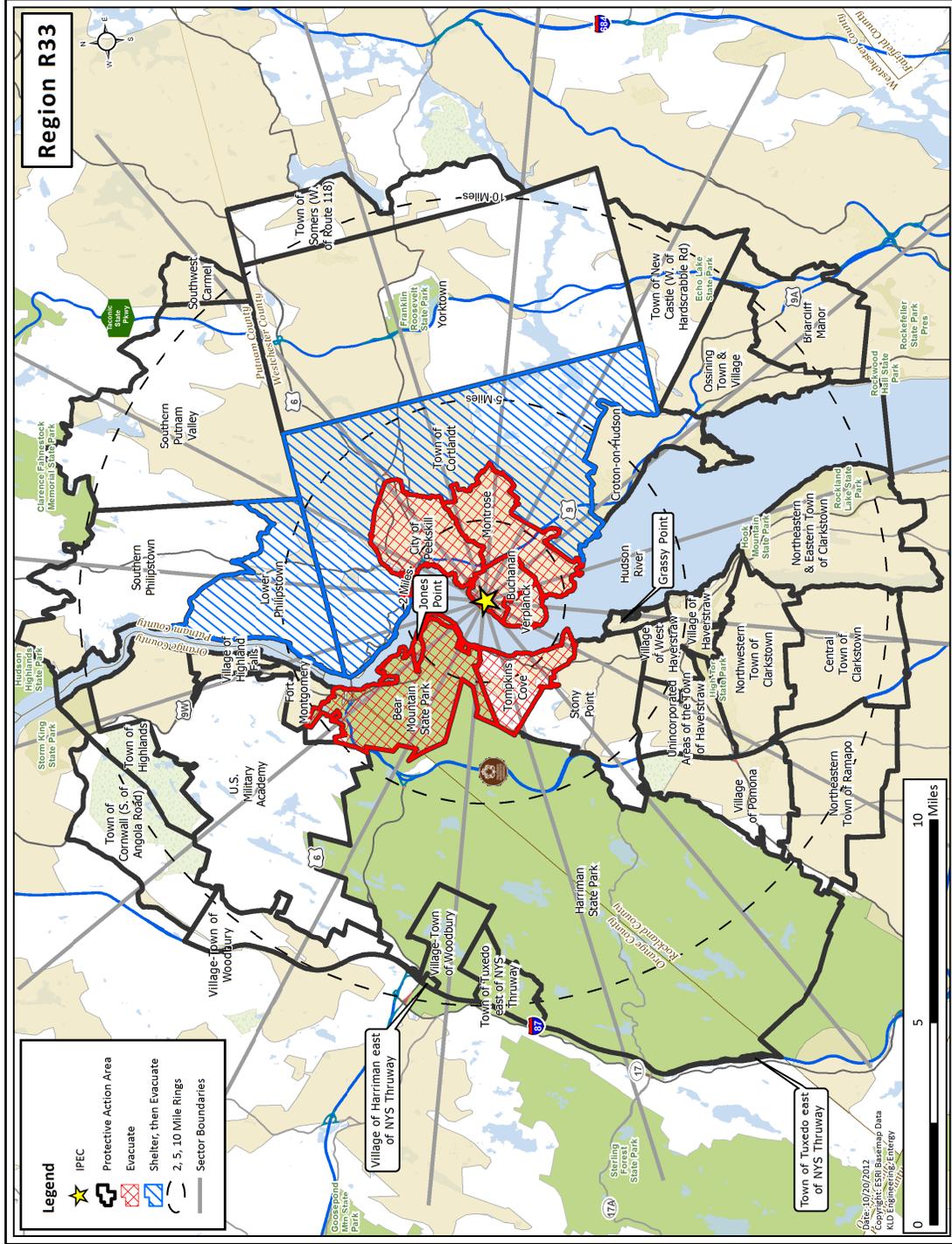


Figure H-33. Region R33

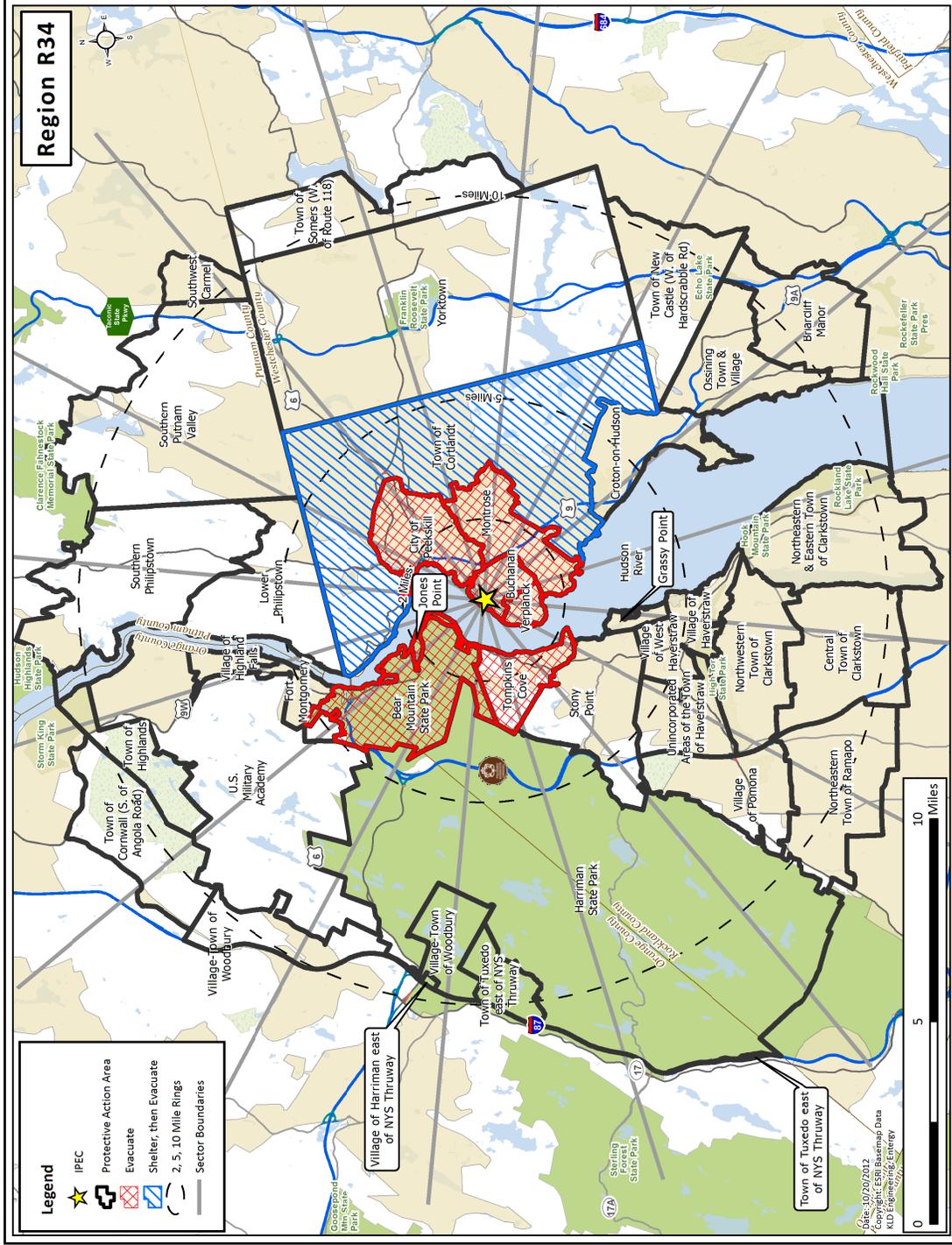


Figure H-34. Region R34

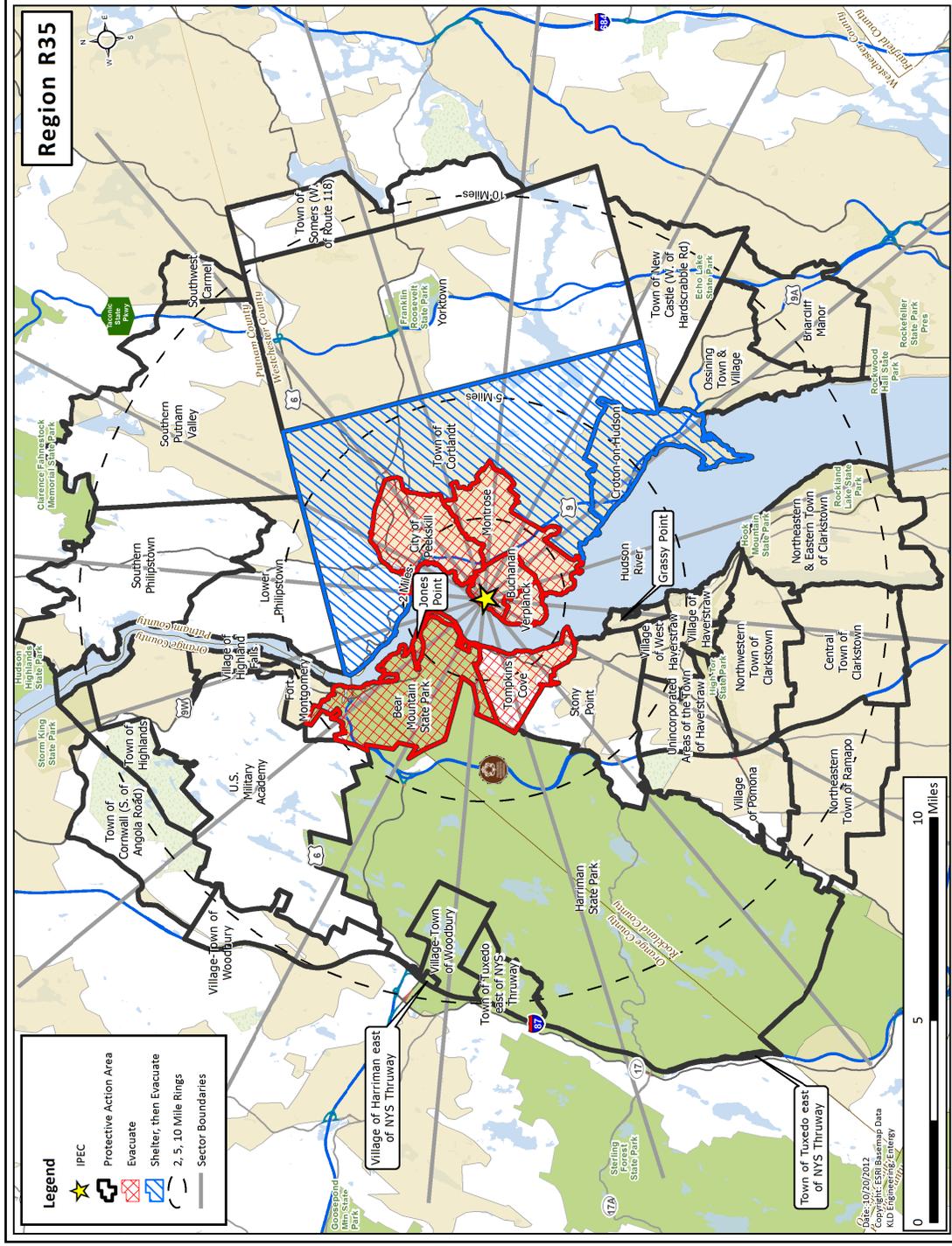


Figure H-35. Region R35







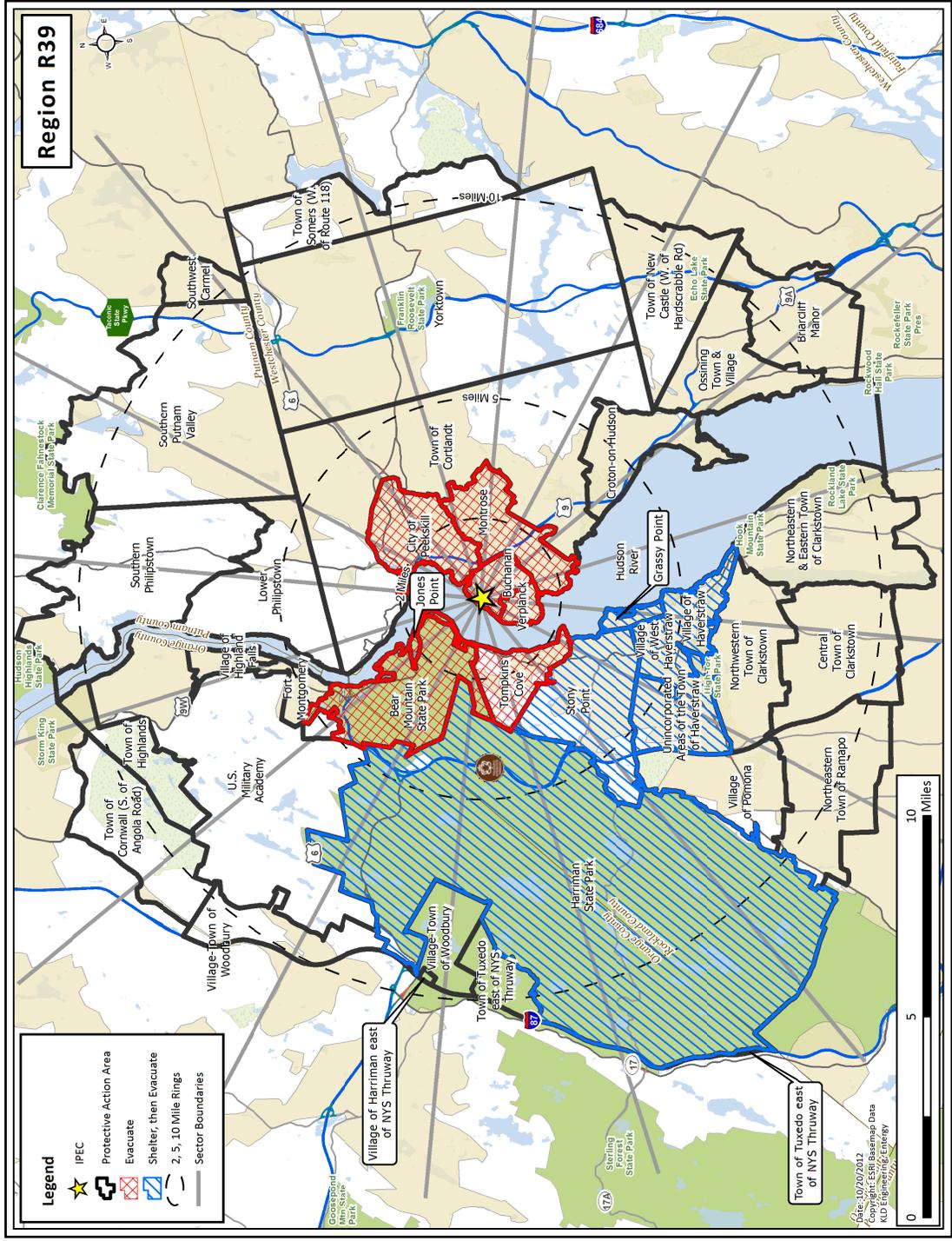


Figure H-39. Region R39





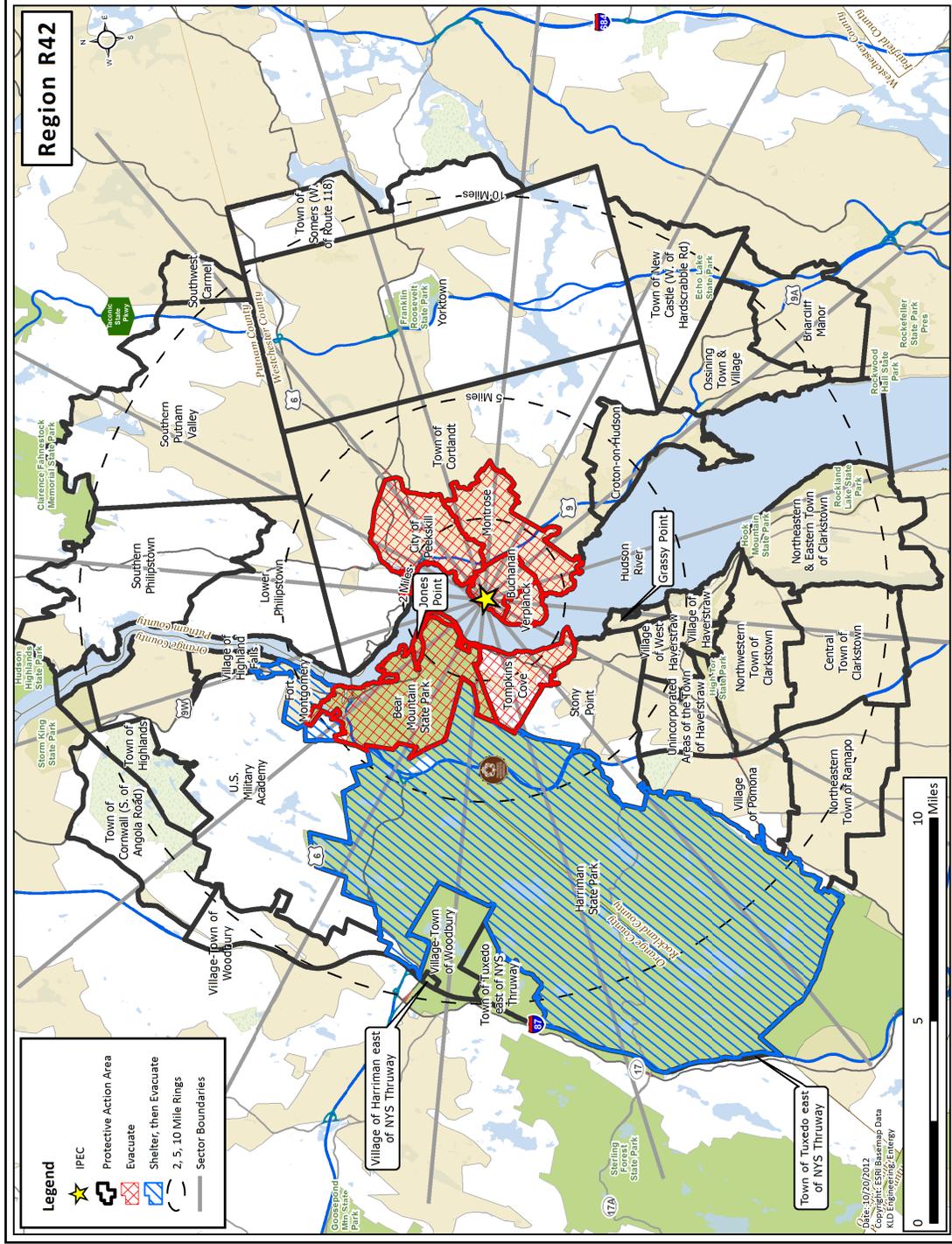


Figure H-42. Region R42

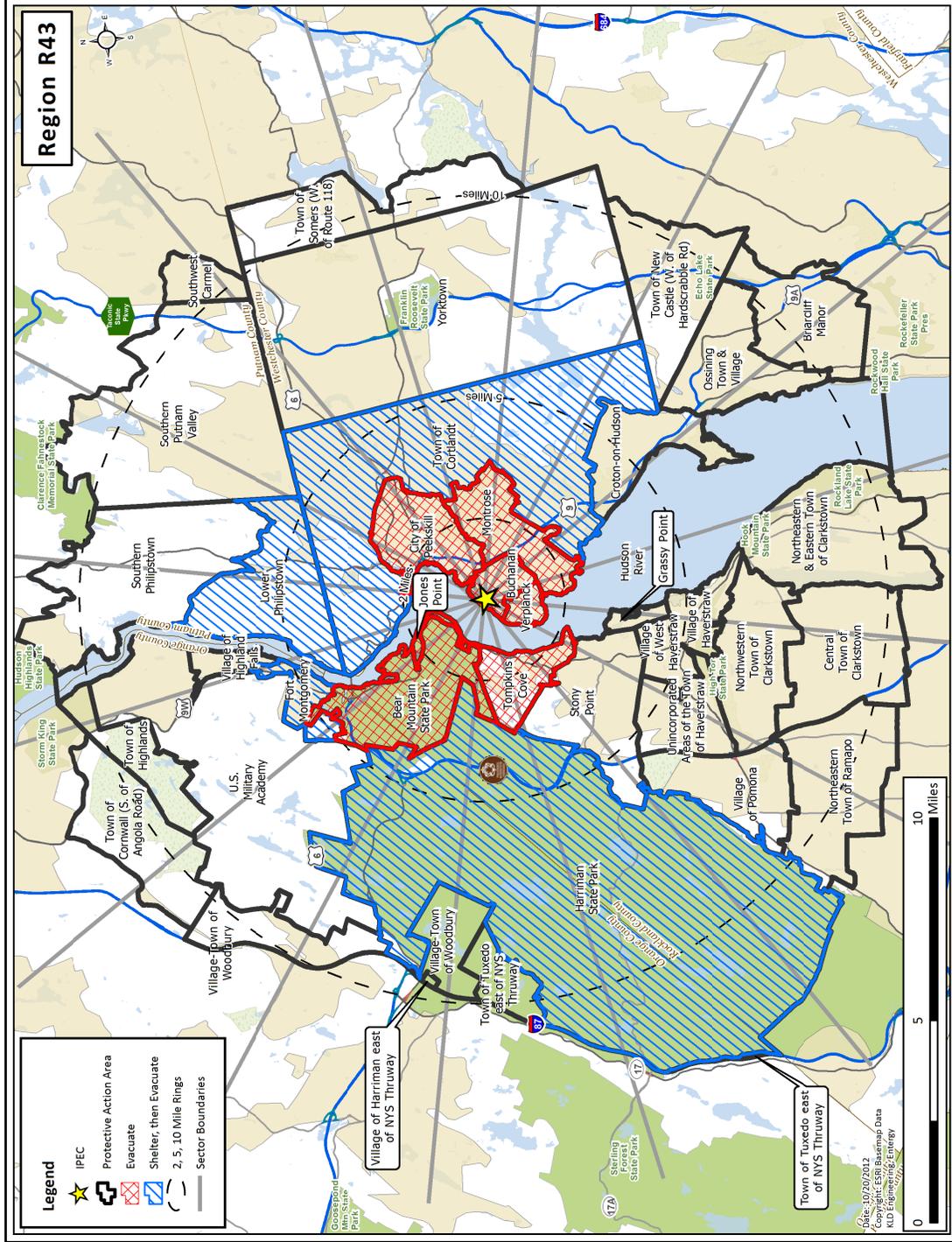


Figure H-43. Region R43

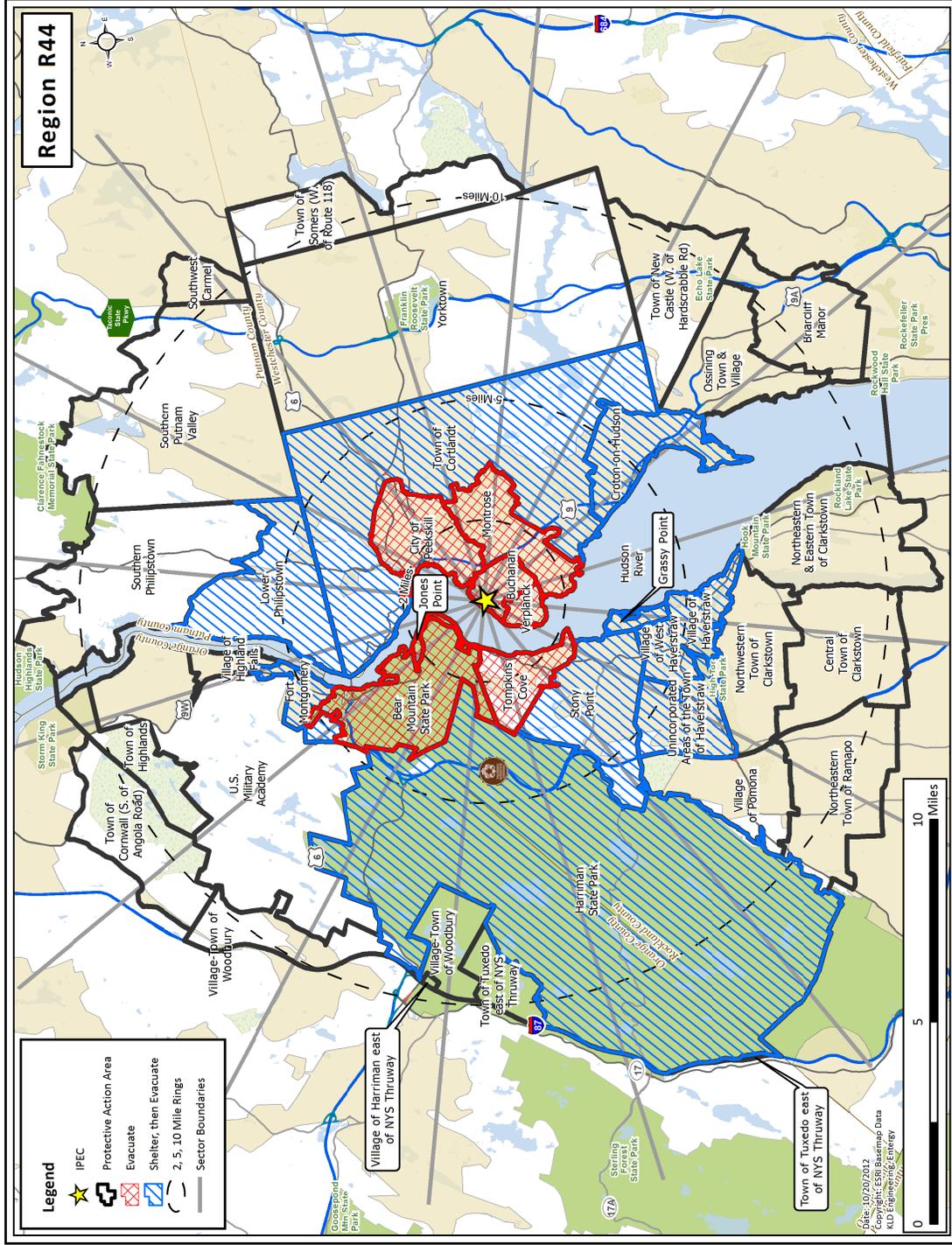


Figure H-44. Region R44

## **APPENDIX J**

Representative Inputs to and Outputs from the DYNEV II System

## J. REPRESENTATIVE INPUTS TO AND OUTPUTS FROM THE DYNEV II SYSTEM

This appendix presents data input to and output from the DYNEV II System. Table J-1 provides the volume and queues for the ten highest volume signalized intersections in the study area. Refer to Table K-2 and the figures in Appendix K for a map showing the geographic location of each intersection.

Table J-2 provides source (vehicle loading) and destination information for several roadway segments (links) in the analysis network. Refer to Table K-1 and the figures in Appendix K for a map showing the geographic location of each link.

Table J-3 provides network-wide statistics (average travel time, average speed and number of vehicles) for an evacuation of the entire EPZ (Region R3) for each scenario. As expected, Scenarios 8 and 15, which are snow and roadway impact scenarios, exhibit the slowest average speed and longest average travel times.

Table J-4 provides statistics (average speed and travel time) for the major evacuation routes – Palisades Parkway, US-6, US-9W and US-9 – for an evacuation of the entire EPZ (Region R3) under Scenario 1 conditions. As discussed in Section 7.3 and shown in Figures 7-3 through 7-8, Taconic State Parkway southbound, Palisades Parkway southbound and US-9 southbound are heavily congested for the first three hours of the evacuation. As such, the average speeds are comparably slower (and travel times longer) than other evacuation routes.

Table J-5 provides the number of vehicles discharged and the cumulative percent of total vehicles discharged for each link exiting the analysis network, for an evacuation of the entire EPZ (Region R3) under Scenario 1 conditions. Refer to Table K-1 and the figures in Appendix K for a map showing the geographic location of each link.

Figure J-1 through Figure J-14 plot the trip generation time versus the ETE for each of the 15 Scenarios considered. The distance between the trip generation and ETE curves is the travel time. Plots of trip generation versus ETE are indicative of the level of traffic congestion during evacuation. For low population density sites, the curves are close together, indicating short travel times and minimal traffic congestion. For higher population density sites, the curves are farther apart indicating longer travel times and the presence of traffic congestion. As seen in Figure J-1 through Figure J-14, the curves are spatially separated as a result of the traffic congestion in the EPZ, which was discussed in detail in Section 7.3. The maximum travel time for Scenario 1 is approximately 1 hour and 40 minutes.

**Table J-1. Characteristics of the Ten Highest Volume Signalized Intersections**

Node	Location	Intersection Control	Approach (Up Node)	Total Volume (Veh)	Max. Turn Queue (Veh)
1293	Saw Mill Parkway and Marble Ave	Actuated	137	8,720	14
			142	5,061	0
			1294	1,095	2
			TOTAL	14,876	-
1128	Saw Mill Parkway and Roaring Brook Road	Actuated	1143	7,344	0
			1127	6,359	476
			1120	111	0
			1283	472	4
			TOTAL	14,286	-
1287	Saw Mill Parkway and Grant Street	Actuated	1291	66	0
			1126	5,472	109
			1980	8,424	29
			3010	40	0
			TOTAL	14,002	-
733	US Highway 6 and State Highway 132	Actuated	1879	8,164	367
			1779	3,549	38
			1246	234	5
			TOTAL	11,947	-
163	State Highway 59 and State Highway 45	Actuated	4094	2,684	76
			3671	7,173	482
			3540	2,034	33
			TOTAL	11,891	-
1084	State Highway 35 and State Highway 100	Actuated	728	3,836	0
			428	2,517	0
			1382	5,378	0
			TOTAL	11,731	-
12	US Highway 202 on ramp to Palisades Interstate Parkway	Actuated	4075	3,755	60
			3574	310	5
			14	7,353	137
			TOTAL	11,418	-

**Table J-1. Characteristics of the Ten Highest Volume Signalized Intersections (continued)**

Node	Location	Intersection Control	Approach (Up Node)	Total Volume (Veh)	Max. Turn Queue (Veh)
874	State Highway 134 and State Highway 9A	Actuated	873	9,713	247
			4145	177	9
			980	1,134	125
			875	51	0
			TOTAL	11,075	-
312	State Highway 301 and US Highway 9	Actuated	316	8,110	109
			1053	0	0
			314	1,900	100
			315	1,040	0
			TOTAL	11,050	-
612	State Highway 59 and Spook Rock Road	Actuated	1005	3,545	89
			591	7,274	298
			TOTAL	10,819	-

**Table J-2. Sample Simulation Model Input**

Link Number	Vehicles Entering Network on this Link	Directional Preference	Destination Nodes	Destination Capacity
4	277	SW	8244	4,500
			8299	6,750
			8035	1,700
386	20	NE	8638	3,800
			8357	1,700
895	1,355	SE	8214	6,750
			8262	4,500
			8216	1,700
1536	170	SE	8283	4,500
			8121	1,700
			8043	1,700
2071	301	SE	8283	4,500
			8114	1,700
			8696	1,700
2794	795	NE	8214	6,750
			8233	4,500
			8676	4,500
3258	325	NE	8676	4,500
			8203	3,800
			8665	1,700
3740	43	E	8214	6,750
			8638	3,800
			8233	4,500
4158	596	S	8448	4,500
			8515	1,700
			8061	1,700
4606	17	W	8532	4,500
			8820	1,700

Table J-3. Selected Model Outputs for the Evacuation of the Entire EPZ (Region R3)

Scenario	1	2	3	4	5	6	7	8
Network-Wide Average Travel Time (Min/Veh-Mi)	3.2	3.6	2.8	3.2	2.9	3.2	3.6	3.8
Network-Wide Average Speed (mph)	19.0	16.6	21.3	18.8	20.7	18.8	16.7	15.9
Total Vehicles Exiting Network	322,382	323,351	286,607	287,602	227,715	323,865	324,791	325,795
Scenario	9	10	11	12	13	14	15	
Network-Wide Average Travel Time (Min/Veh-Mi)	2.7	3.1	3.2	2.9	2.8	2.9	3.9	
Network-Wide Average Speed (mph)	22.0	19.6	18.7	20.9	21.5	21.0	15.4	
Total Vehicles Exiting Network	272,633	273,776	273,288	222,897	278,503	290,786	322,542	

**Table J-4. Average Speed (mph) and Travel Time (min) for Major Evacuation Routes (Region R3, Scenario 1)**

Route#	Length (miles)	Elapsed Time (hours)															
		1		2		3		4		5		6		7			
		Speed (mph)	Travel Time (min)	Speed	Travel Time												
Palisades Parkway SB	16.7	45.7	21.9	26.4	37.9	12.4	81.0	38.6	26.0	61.4	16.3	61.4	16.3	61.4	16.3	61.4	16.3
US-6 WB (West of Hudson)	8.6	48.4	10.7	18.3	28.1	53.0	9.7	56.2	9.2	56.2	9.2	56.2	9.2	56.2	9.2	56.2	9.2
US-9W NB	11.1	38.9	17.1	25.9	25.6	42.5	15.6	55.8	11.9	57.1	11.6	57.6	11.5	57.6	11.5	57.6	11.5
Taconic State Parkway NB	18.2	58.4	18.7	27.2	40.1	43.2	25.3	64.9	16.8	65.0	16.8	65.0	16.8	65.0	16.8	65.0	16.8
Taconic State Parkway SB	18.2	33.8	32.3	13.8	79.4	9.7	112.9	38.7	28.2	65.0	16.8	65.0	16.8	65.0	16.8	65.0	16.8
US-9 SB	13.0	4.0	194.1	4.3	182.0	6.1	127.9	9.0	86.8	56.0	13.9	57.3	13.6	57.3	13.6	57.3	13.6
US-6 EB (East of Hudson)	10.0	3.1	195.1	6.2	96.8	9.3	64.9	24.0	25.0	32.8	18.3	39.5	15.2	39.5	15.2	39.5	15.2

Table J-5. Simulation Model Outputs at Network Exit Links for Region R3, Scenario 1

Network Exit Link	Elapsed Time (hours)						
	1	2	3	4	5	6	7
	Cumulative Vehicles Discharged by the Indicated Time						
	Cumulative Percent of Vehicles Discharged by the Indicated Time						
271	3,502	7,057	11,116	14,619	16,826	17,665	17,898
	5.9%	4.9%	5.1%	5.3%	5.4%	5.5%	5.6%
401	4,843	11,378	17,853	23,810	27,692	28,141	28,141
	8.2%	8.0%	8.1%	8.6%	8.9%	8.8%	8.7%
408	445	761	948	1,050	1,105	1,248	1,248
	0.8%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%
497	44	276	402	462	479	479	479
	0.1%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%
517	2,076	5,158	8,132	11,219	13,982	14,323	14,323
	3.5%	3.6%	3.7%	4.0%	4.5%	4.5%	4.4%
679	1,371	2,900	4,428	5,956	6,701	6,874	6,898
	2.3%	2.0%	2.0%	2.1%	2.2%	2.1%	2.1%
728	17	56	77	87	93	94	94
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
928	76	428	866	1,063	1,141	1,144	1,144
	0.1%	0.3%	0.4%	0.4%	0.4%	0.4%	0.4%
1095	165	665	1,253	1,647	1,794	1,800	1,800
	0.3%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%
1113	2,135	3,735	5,505	6,496	7,045	7,048	7,048
	3.6%	2.6%	2.5%	2.3%	2.3%	2.2%	2.2%
1130	454	1,775	2,828	3,452	3,720	3,834	3,863
	0.8%	1.2%	1.3%	1.2%	1.2%	1.2%	1.2%
1169	104	318	571	822	936	1,027	1,066
	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%
1185	264	1,025	1,759	2,186	2,394	2,664	2,841
	0.4%	0.7%	0.8%	0.8%	0.8%	0.8%	0.9%
1207	3,997	8,461	12,425	15,223	18,491	20,520	21,376
	6.8%	5.9%	5.6%	5.5%	5.9%	6.4%	6.6%
1523	608	1,240	1,761	2,404	2,902	3,005	3,013
	1.0%	0.9%	0.8%	0.9%	0.9%	0.9%	0.9%
2185	420	1,205	2,709	3,629	3,971	4,089	4,093
	0.7%	0.8%	1.2%	1.3%	1.3%	1.3%	1.3%

**Table J-5. Simulation Model Outputs at Network Exit Links for Region R3, Scenario 1 (continued)**

Network Exit Link	Elapsed Time (hours)						
	1	2	3	4	5	6	7
	Cumulative Vehicles Discharged by the Indicated Time						
	Cumulative Percent of Vehicles Discharged by the Indicated Time						
2259	123	404	734	936	1,085	1,246	1,336
	0.2%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%
2285	178	698	1,157	1,454	1,615	1,818	1,965
	0.3%	0.5%	0.5%	0.5%	0.5%	0.6%	0.6%
2298	222	542	736	1,023	1,298	1,429	1,429
	0.4%	0.4%	0.3%	0.4%	0.4%	0.4%	0.4%
2302	359	783	1,445	2,038	2,389	2,399	2,399
	0.6%	0.5%	0.7%	0.7%	0.8%	0.7%	0.7%
2313	4,135	8,977	14,146	19,095	22,300	23,201	23,217
	7.0%	6.3%	6.4%	6.9%	7.2%	7.2%	7.2%
2485	1,961	4,536	7,075	9,141	10,114	10,433	10,433
	3.3%	3.2%	3.2%	3.3%	3.2%	3.3%	3.2%
2516	15	134	317	388	417	430	430
	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
2520	10	59	95	114	121	121	121
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2662	4,173	8,588	12,606	15,952	18,154	18,400	18,400
	7.1%	6.0%	5.7%	5.7%	5.8%	5.7%	5.7%
2666	1,766	3,937	5,097	5,640	5,901	5,935	5,935
	3.0%	2.8%	2.3%	2.0%	1.9%	1.9%	1.8%
2685	651	1,417	2,230	2,872	3,133	3,145	3,145
	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
2705	47	292	455	507	521	522	522
	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
2712	2	15	23	25	26	26	26
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2784	4	4	4	4	4	4	4
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2787	335	1,051	1,553	1,685	1,712	1,714	1,714
	0.6%	0.7%	0.7%	0.6%	0.5%	0.5%	0.5%
2790	284	860	1,146	1,218	1,275	1,342	1,365
	0.5%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%
2841	1,538	3,796	5,781	6,645	7,403	7,769	7,834
	2.6%	2.7%	2.6%	2.4%	2.4%	2.4%	2.4%
2843	787	2,182	3,217	4,617	4,781	4,794	4,794
	1.3%	1.5%	1.5%	1.7%	1.5%	1.5%	1.5%
2857	33	321	625	710	725	726	726

**Table J-5. Simulation Model Outputs at Network Exit Links for Region R3, Scenario 1 (continued)**

Network Exit Link	Elapsed Time (hours)						
	1	2	3	4	5	6	7
	Cumulative Vehicles Discharged by the Indicated Time						
	Cumulative Percent of Vehicles Discharged by the Indicated Time						
	0.1%	0.2%	0.3%	0.3%	0.2%	0.2%	0.2%
2858	29	265	524	595	605	606	606
	0.0%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
2870	1,236	2,805	4,016	4,405	4,524	4,533	4,533
	2.1%	2.0%	1.8%	1.6%	1.5%	1.4%	1.4%
2875	528	1,412	1,983	2,278	2,386	2,388	2,388
	0.9%	1.0%	0.9%	0.8%	0.8%	0.7%	0.7%
3100	33	500	1,154	1,275	1,323	1,325	1,325
	0.1%	0.4%	0.5%	0.5%	0.4%	0.4%	0.4%
3121	89	285	438	825	906	908	908
	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%
3421	33	200	344	471	529	530	530
	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%
3533	14	139	257	331	362	362	362
	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
3534	76	398	685	791	845	846	846
	0.1%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
3603	2	24	54	70	74	74	74
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3787	1,481	3,395	4,310	4,798	5,229	5,495	5,575
	2.5%	2.4%	2.0%	1.7%	1.7%	1.7%	1.7%
3854	6	40	63	71	73	73	73
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3980	2,901	7,004	11,159	15,352	17,612	17,797	17,797
	4.9%	4.9%	5.1%	5.5%	5.7%	5.6%	5.5%
3988	46	332	586	723	739	740	740
	0.1%	0.2%	0.3%	0.3%	0.2%	0.2%	0.2%
3992	261	855	1,296	1,501	1,544	1,549	1,549
	0.4%	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%
3993	840	2,133	3,135	3,715	3,972	4,033	4,033
	1.4%	1.5%	1.4%	1.3%	1.3%	1.3%	1.3%
4007	267	1,218	2,098	2,676	2,851	2,875	2,875
	0.5%	0.9%	1.0%	1.0%	0.9%	0.9%	0.9%
4030	906	2,360	3,646	4,518	4,872	4,895	4,895
	1.5%	1.7%	1.7%	1.6%	1.6%	1.5%	1.5%
4046	198	905	1,416	1,584	1,630	1,638	1,638
	0.3%	0.6%	0.6%	0.6%	0.5%	0.5%	0.5%
4062	178	717	1,142	1,275	1,315	1,321	1,321

**Table J-5. Simulation Model Outputs at Network Exit Links for Region R3, Scenario 1 (continued)**

Network Exit Link	Elapsed Time (hours)						
	1	2	3	4	5	6	7
	Cumulative Vehicles Discharged by the Indicated Time						
	Cumulative Percent of Vehicles Discharged by the Indicated Time						
	0.3%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%
4112	327	1,091	1,731	2,117	2,208	2,213	2,213
	0.6%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%
4182	19	136	223	311	478	505	505
	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%
4183	352	1,421	2,618	3,675	4,501	4,528	4,528
	0.6%	1.0%	1.2%	1.3%	1.4%	1.4%	1.4%
4204	4,097	8,490	12,783	16,271	17,936	18,133	18,133
	7.0%	5.9%	5.8%	5.9%	5.8%	5.7%	5.6%
4235	906	2,419	3,947	5,475	7,004	7,684	7,725
	1.5%	1.7%	1.8%	2.0%	2.2%	2.4%	2.4%
4237	525	1,433	2,366	3,311	4,041	4,053	4,053
	0.9%	1.0%	1.1%	1.2%	1.3%	1.3%	1.3%
4303	673	1,422	1,742	1,785	1,792	1,793	1,793
	1.1%	1.0%	0.8%	0.6%	0.6%	0.6%	0.6%
4334	3,226	6,860	9,505	10,435	10,478	10,481	10,481
	5.5%	4.8%	4.3%	3.8%	3.4%	3.3%	3.3%
4517	14	54	81	92	93	93	93
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4519	160	317	433	472	476	476	476
	0.3%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%
4579	234	745	1,089	1,185	1,217	1,221	1,221
	0.4%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%
4580	49	416	719	806	819	819	819
	0.1%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
4616	65	405	656	754	785	790	790
	0.1%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%
4620	24	187	302	338	350	351	351
	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
4634	477	1,708	2,762	3,101	3,165	3,171	3,171
	0.8%	1.2%	1.3%	1.1%	1.0%	1.0%	1.0%
4754	331	1,876	3,474	4,173	4,224	4,229	4,229
	0.6%	1.3%	1.6%	1.5%	1.4%	1.3%	1.3%
4838	69	547	970	1,172	1,202	1,204	1,204
	0.1%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
4887	871	2,367	3,892	4,606	4,856	4,870	4,870
	1.5%	1.7%	1.8%	1.7%	1.6%	1.5%	1.5%

**Table J-5. Simulation Model Outputs at Network Exit Links for Region R3, Scenario 1 (continued)**

Network Exit Link	Elapsed Time (hours)						
	1	2	3	4	5	6	7
	Cumulative Vehicles Discharged by the Indicated Time						
	Cumulative Percent of Vehicles Discharged by the Indicated Time						
4972	217	713	1,284	1,737	1,906	1,911	1,911
	0.4%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%
4976	40	88	119	182	226	234	234
	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

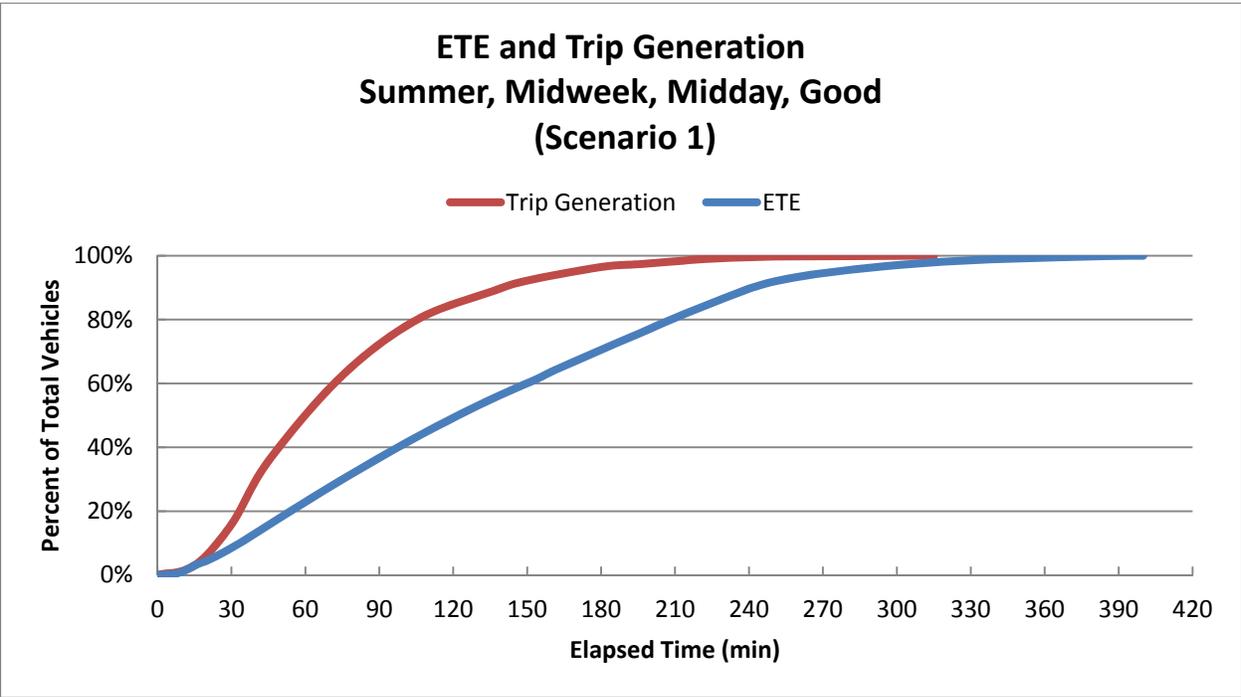


Figure J-1. ETE and Trip Generation: Summer, Midweek, Midday, Good Weather (Scenario 1)

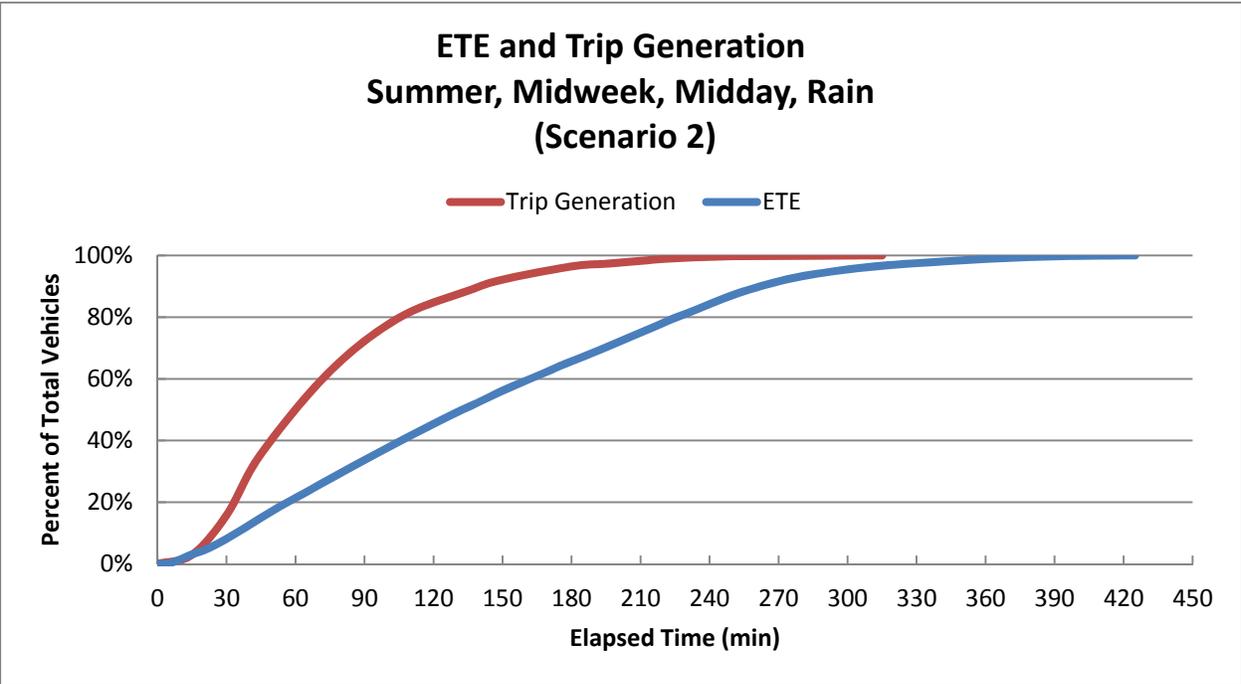


Figure J-2. ETE and Trip Generation: Summer, Midweek, Midday, Rain (Scenario 2)

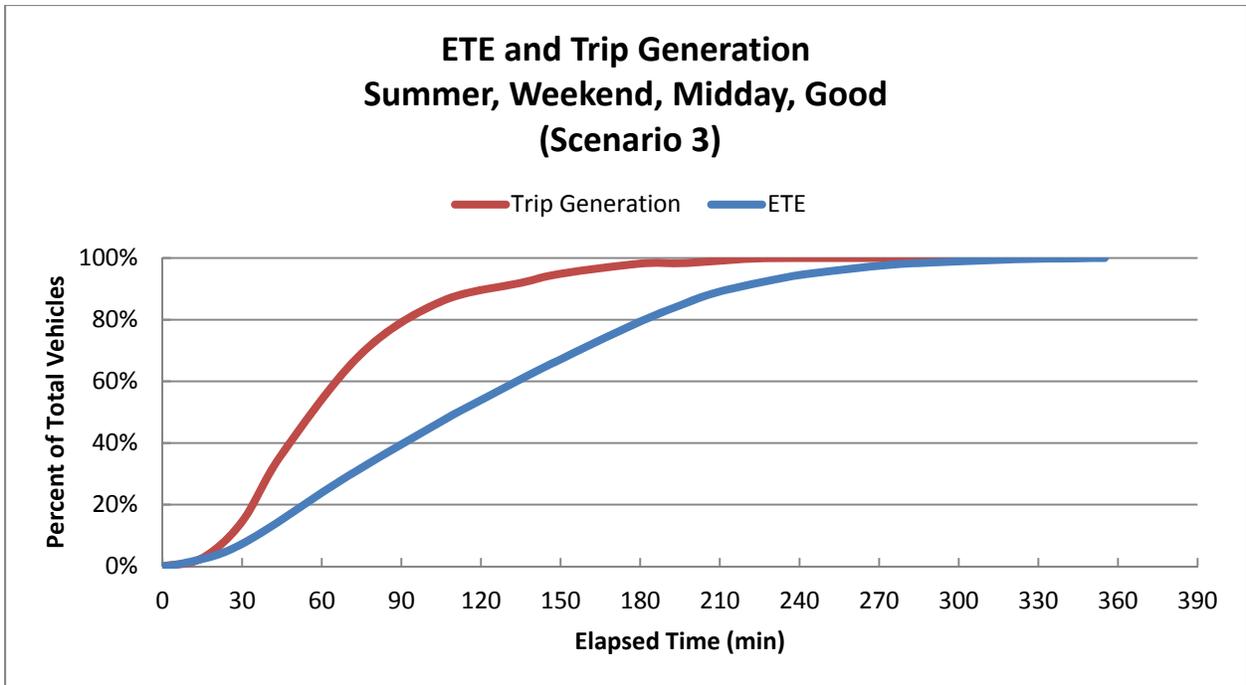


Figure J-3. ETE and Trip Generation: Summer, Weekend, Midday, Good Weather (Scenario 3)

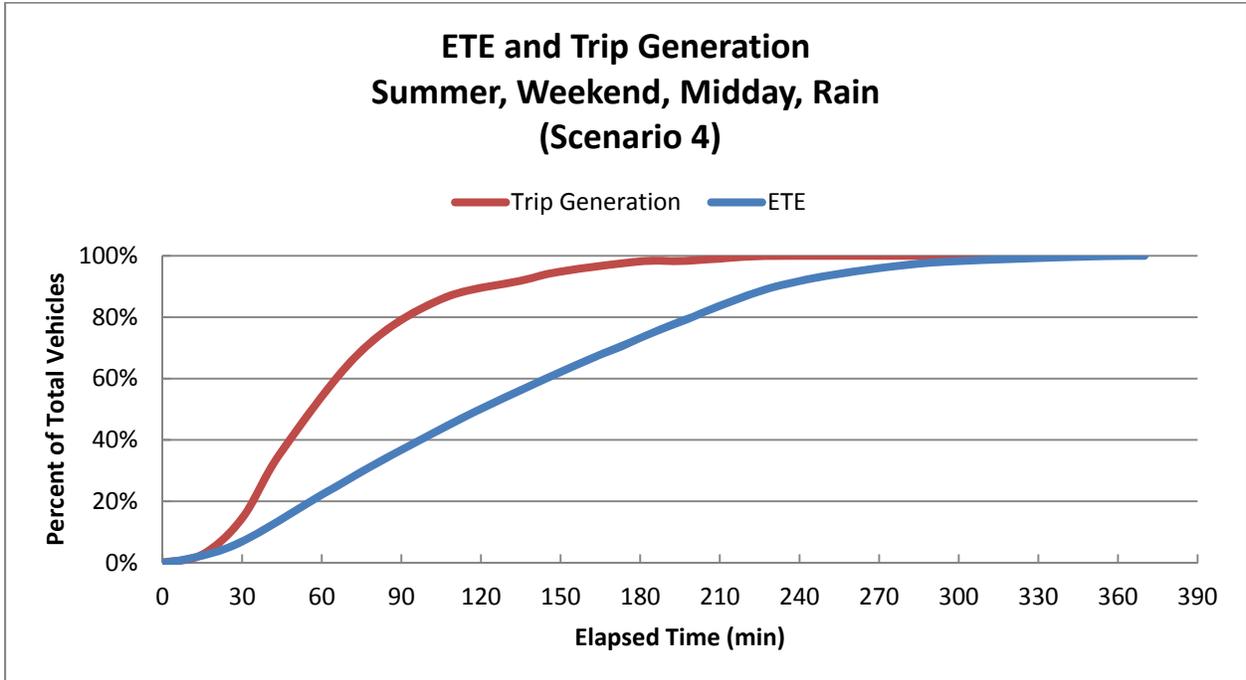


Figure J-4. ETE and Trip Generation: Summer, Weekend, Midday, Rain (Scenario 4)

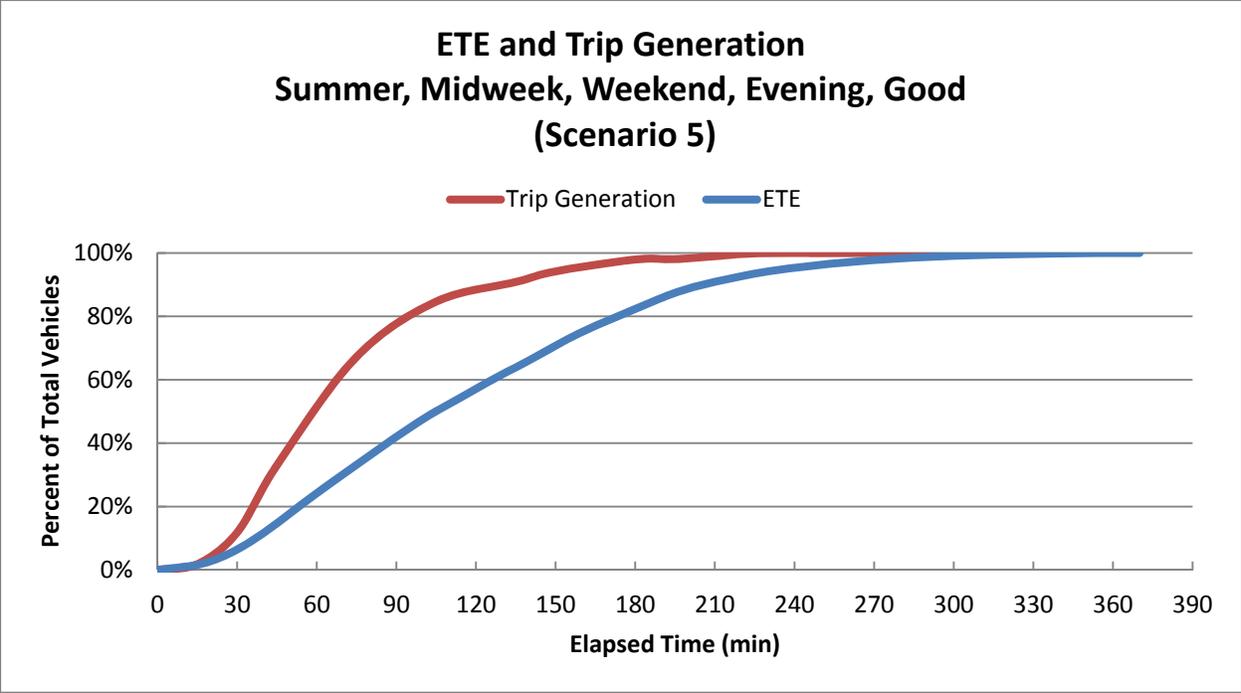


Figure J-5. ETE and Trip Generation: Summer, Midweek, Weekend, Evening, Good Weather (Scenario 5)

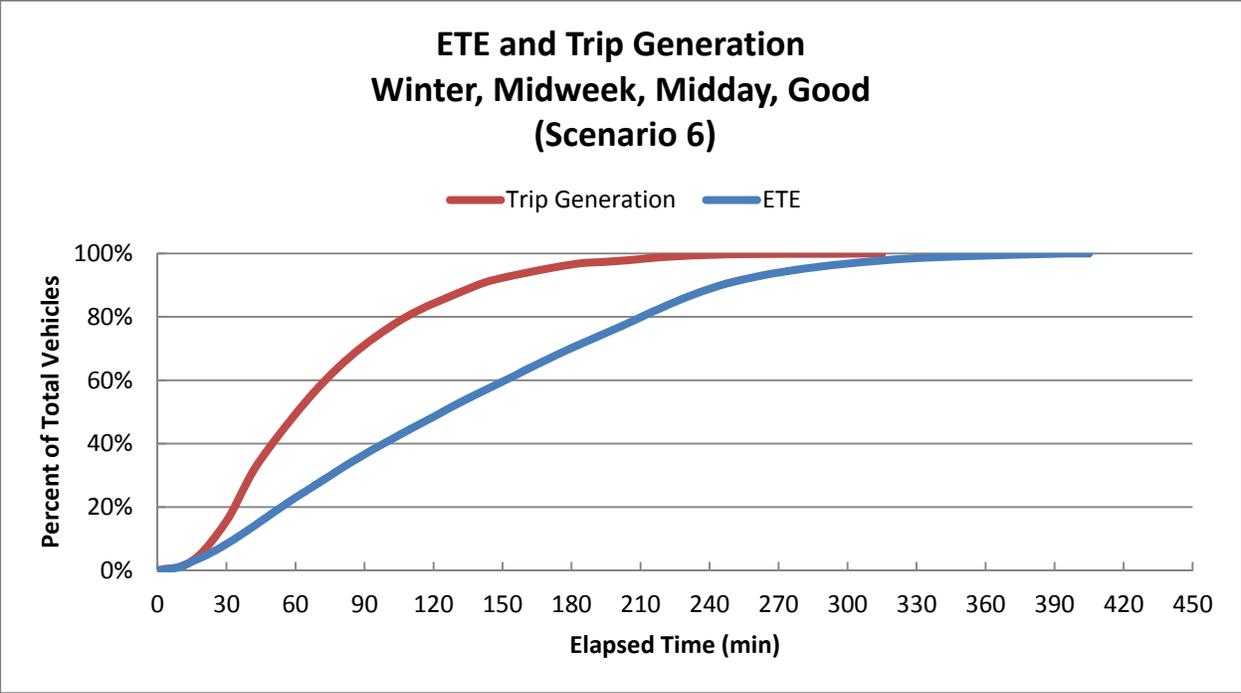


Figure J-6. ETE and Trip Generation: Winter, Midweek, Midday, Good Weather (Scenario 6)

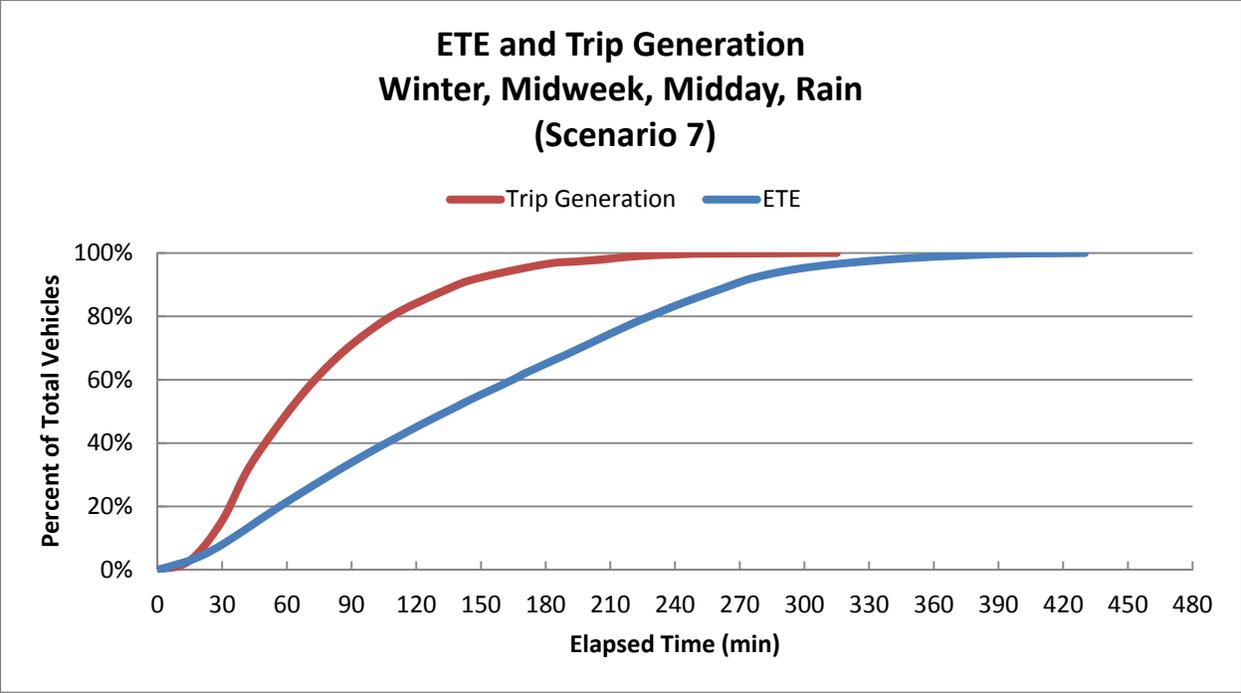


Figure J-7. ETE and Trip Generation: Winter, Midweek, Midday, Rain (Scenario 7)

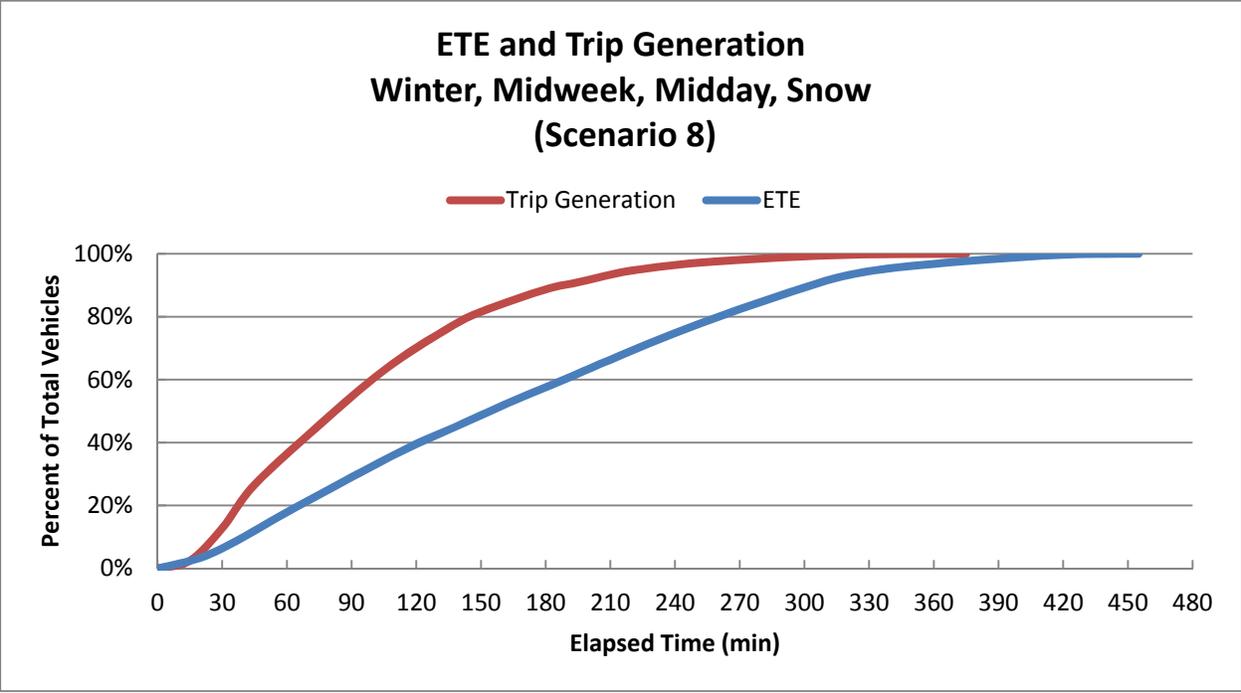


Figure J-8. ETE and Trip Generation: Winter, Midweek, Midday, Snow (Scenario 8)

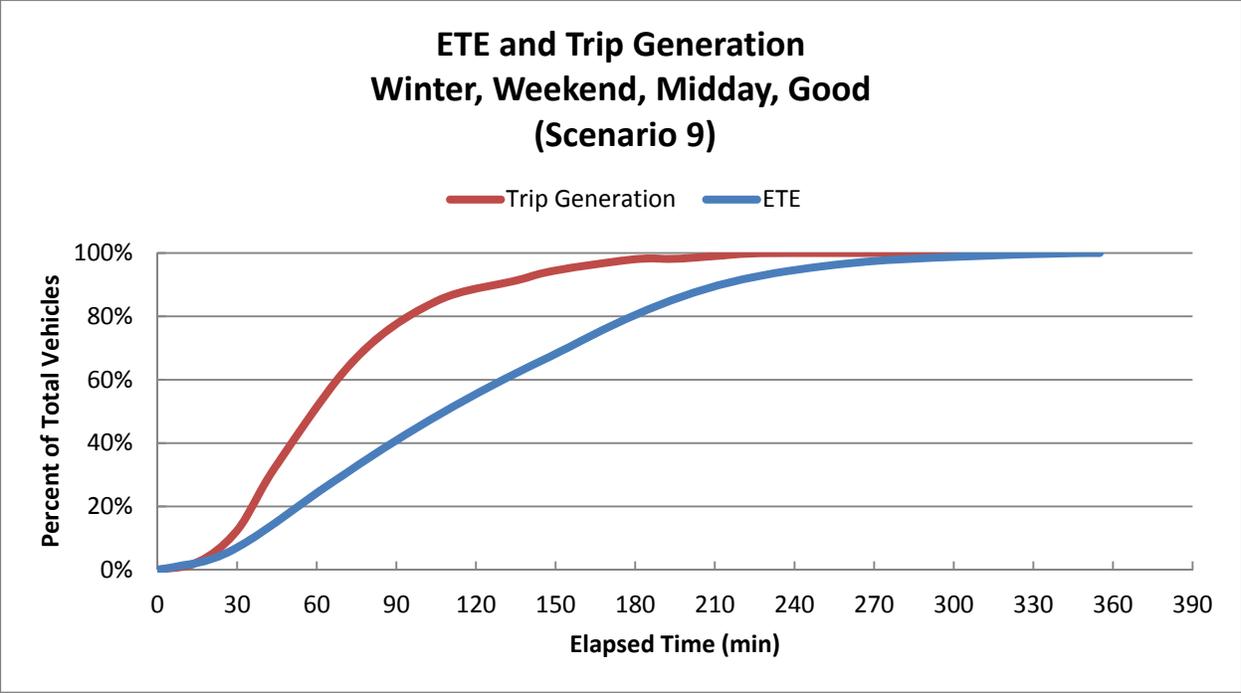


Figure J-9. ETE and Trip Generation: Winter, Weekend, Midday, Good Weather (Scenario 9)

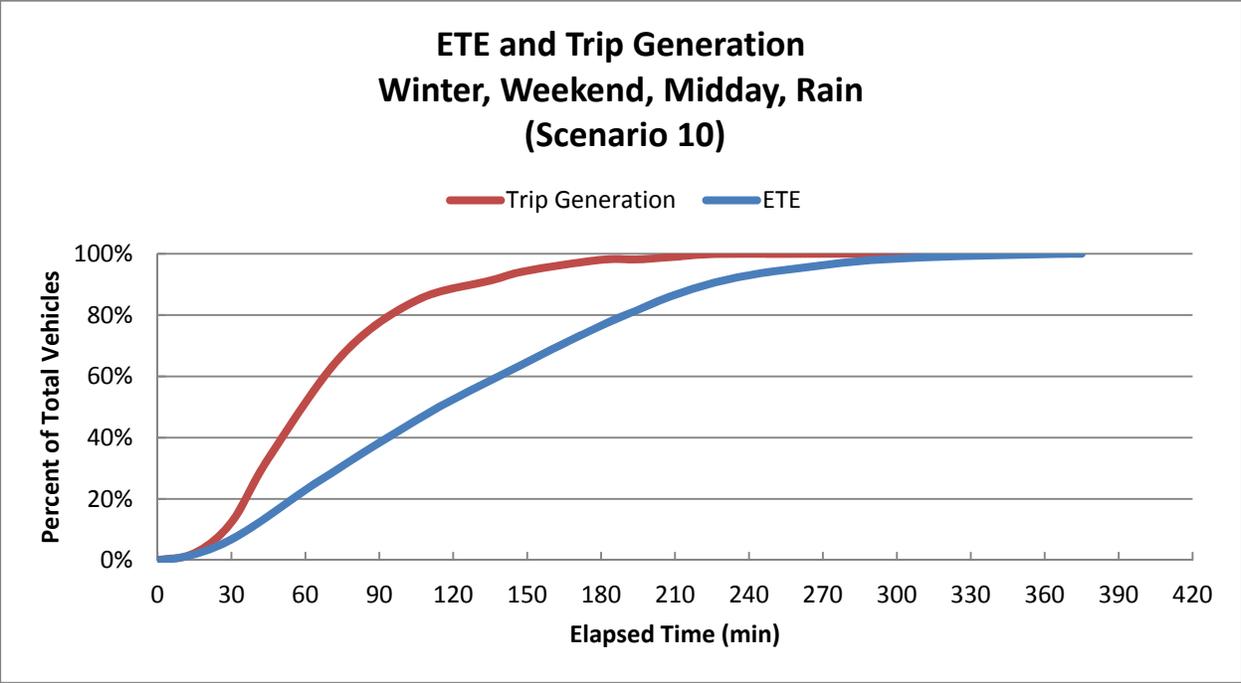


Figure J-10. ETE and Trip Generation: Winter, Weekend, Midday, Rain (Scenario 10)

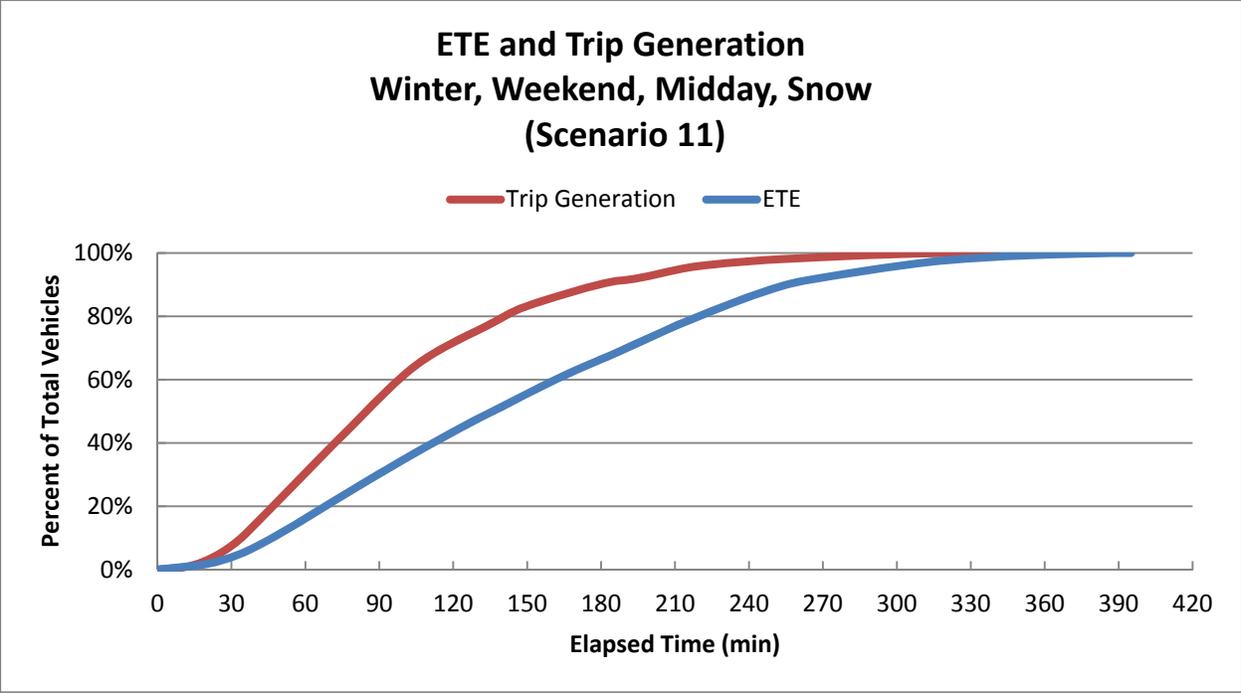


Figure J-11. ETE and Trip Generation: Winter, Weekend, Midday, Snow (Scenario 11)

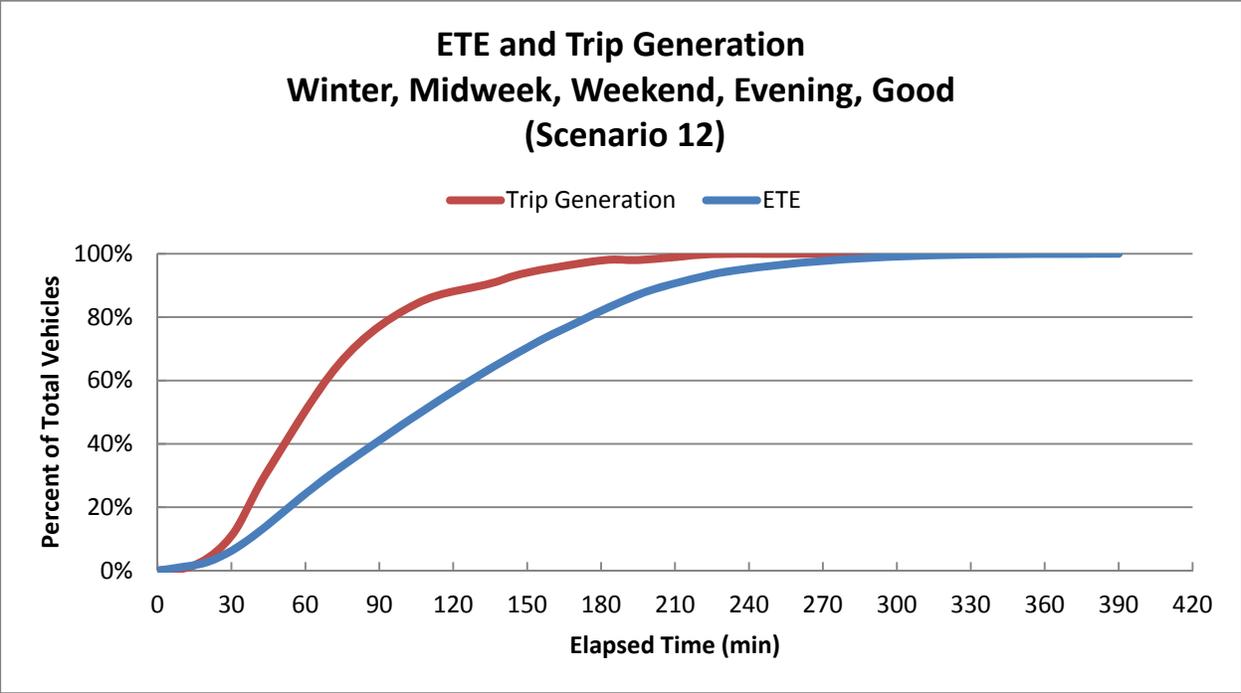


Figure J-12. ETE and Trip Generation: Winter, Midweek, Weekend, Evening, Good Weather (Scenario 12)

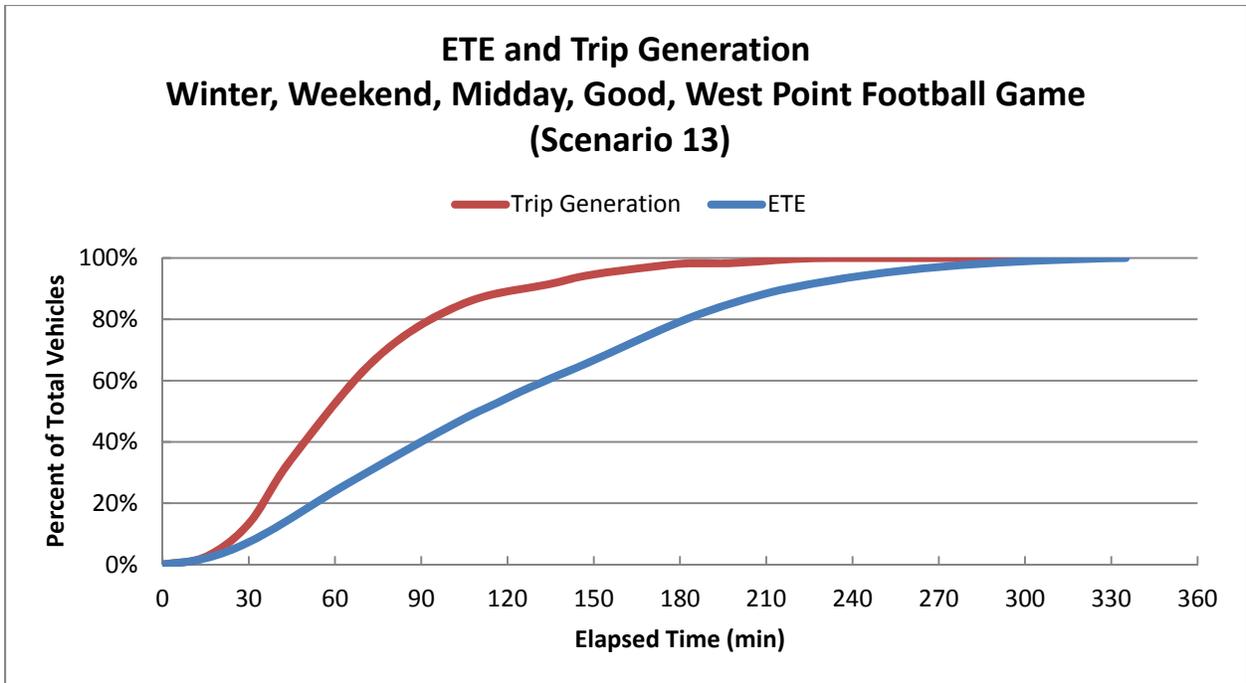


Figure J-13. ETE and Trip Generation: Winter, Weekend, Midday, Good Weather, West Point Football Game (Scenario 13)

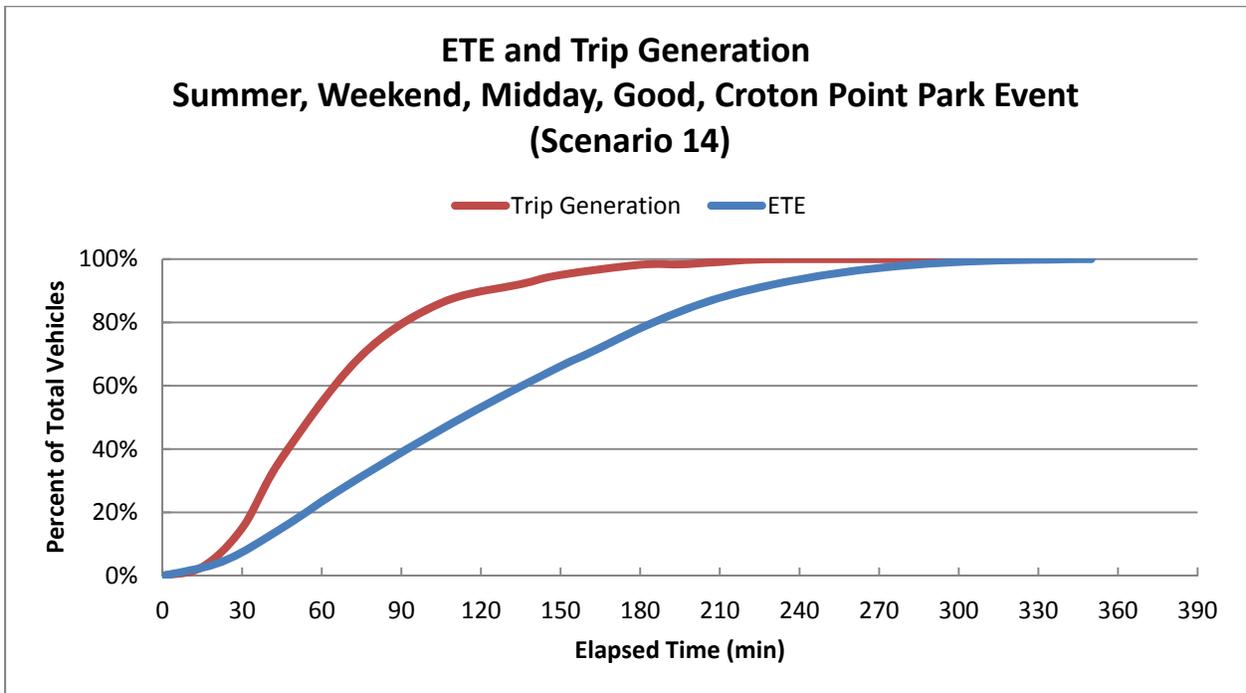


Figure J-14. ETE and Trip Generation: Summer, Weekend, Midday, Good Weather, Croton Point Park Event (Scenario 14)