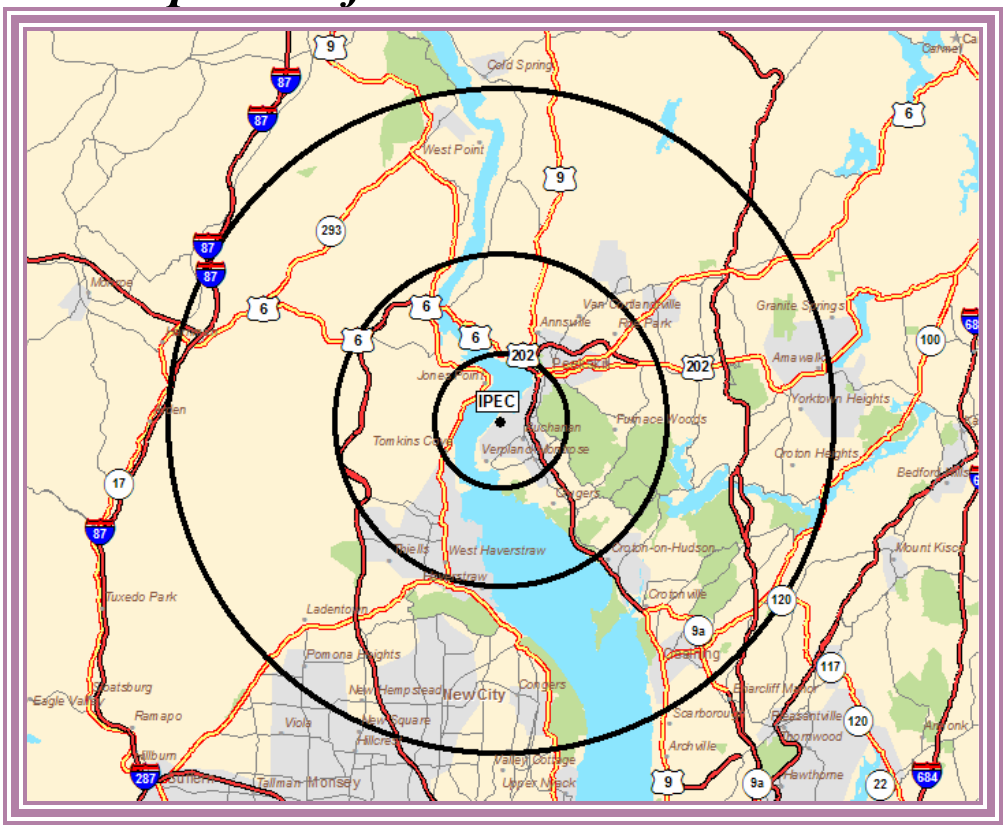
ENT000014
Submitted: March 28, 2012

KLD ASSOCIATES, INC.

Indian Point Energy Center

Development of Evacuation Time Estimates



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EXECUTIVE SUMMARY

This brief summary should be viewed as a preamble of the report. The reader is encouraged to review the entire report.

This report describes the analyses undertaken and the results obtained by a study to update the existing Evacuation Time Estimates (ETE) for the Indian Point Energy Center (IPEC) located in Buchanan, New York. Evacuation time estimates provide State and local governments with site-specific information helpful for Protective Action decision-making.

In the performance of this effort, all available prior documentation relevant to Evacuation Time Estimates was reviewed. Other guidance is provided by documents published by Federal Government agencies. Most important of these are:

- Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plans, NUREG 0654/FEMA-REP-1, Rev. 1, November 1980.
- Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones, NUREG/CR-1745, November 1980.
- State of the Art in Evacuation Time Estimate Studies for Nuclear Power Plants, NUREG/CR-4831, March 1992.

Overview of Project Activities

This project began on May 1, 2002 and extended over a period of one year. The major activities performed are briefly described in chronological sequence:

- Attended "kick-off" meetings with Entergy Nuclear Northeast (ENN) personnel, then with emergency management personnel of the four counties within the Emergency Planning Zone (EPZ) of IPEC.
- Reviewed prior ETE reports prepared for IPEC and accessed U.S. Census Bureau data files for the years 2000 and 1990. Studied large-scale highway maps of the area in the vicinity of IPEC, then conducted a detailed field survey of the highway network.
- Synthesized this information to create an analysis network representing the highway system topology and capacities within the EPZ, extending to the four bounding Interstate Highways: (1) I-87 on the west; (2) I-87/287 on the south; (3) I-684 on the east; and (4) I-84 on the north.
- Designed and sponsored a telephone survey of residents within the EPZ to gather focused data needed for this ETE study that were not contained within the census database. The survey instrument was reviewed and modified by State and county personnel prior to the survey.
- Conducted additional mail and telephone surveys and accessed county and State data files to quantify estimates of employment within the EPZ, identifying that portion who lived outside the EPZ. Other surveys obtained information on transit-dependent and transient

populations, and of available transit resources. In addition, the populations of "special facilities" (i.e., schools, health-related) were ascertained.

- The traffic demand and trip-generation rate of evacuating vehicles were estimated from the gathered data. The trip generation rate reflected the estimated mobilization time (i.e., the time required by evacuees to prepare for the evacuation trip) that was computed using the results of the telephone survey of EPZ residents.
- Following federal guidelines, the EPZ is subdivided into 51 Emergency Response Planning Areas (ERPAs). These are the same ERPAs used in the prior ETE studies. These ERPAs are then grouped to form circular areas or "keyhole" configurations (circles plus radial sectors) that define a total of 35 Evacuation Regions.
- The time-varying circumstances are represented as Evacuation Scenarios, each described in terms of the following factors: (1) Season (Summer, Winter, Autumn, Spring); (2) Day of Week (Midweek, Weekend); (3) Time of Day (Midday, Evening); and (4) Weather (Good, Rain, Snow). Two special scenarios involving activities at West Point were considered: Football Games and Commencement. A total of 14 scenarios are considered.
- The Planning Basis for the calculation of ETE is:
  - A rapidly escalating accident at IPEC that quickly assumes the status of General Emergency such that the Advisory to Evacuate is virtually coincident with the siren alert.
  - While an unlikely accident scenario, this planning basis will yield ETE, measured as the elapsed time from the Advisory to Evacuate until the last vehicle exits the impacted Region, that represent "upper bound" estimates. This conservative Planning Basis is applicable for all initiating events including the prospect of a terrorist attack.
- If the emergency occurs while schools are in session, the ETE study assumes that the children will be evacuated by bus directly to specified school reception centers located outside the EPZ. Parents, relatives, and neighbors may pick up their children at school prior to the arrival of the buses dispatched for that purpose. The ETE for school children are calculated separately.
- Evacuees who do not have access to a private vehicle will either ride-share with relatives, friends or neighbors, or be evacuated by buses provided as specified in the county evacuation plans. Those in special facilities will likewise be evacuated with public transit, as needed: bus, van, or ambulance, as required. Separate ETE are calculated for the transit-dependent evacuees and for those evacuated from special facilities.

Computation of ETE

A total of 490 ETE were computed for the evacuation of the general public. Each ETE quantifies the aggregate evacuation time estimated for the population within one of the 35 Evacuation Regions to completely evacuate from that Region, under the circumstances defined for one of the 14 Evacuation Scenarios (35 x 14 = 490). Separate ETE are calculated for transit-dependent evacuees, including school children for applicable scenarios.

Additionally, individual ERPA times for each region for each scenario were calculated.

Except for Region R3, which is the evacuation of the entire EPZ, only a relatively small portion of the people within the EPZ would be advised to evacuate. That is, the Advisory to Evacuate applies only to those people occupying the specified impacted region. It is assumed that 100 percent of the people within the impacted region will evacuate in response to this Advisory. The people occupying the remainder of the EPZ outside the impacted region may be advised to take shelter.

The computation of ETE assumes that a portion of the population within the EPZ but outside the impacted region, will elect to "voluntarily" evacuate. These voluntary evacuees could impede those others who are evacuating from within the impacted region. The impedance that could be caused by voluntary evacuees is considered in the computation of ETE for the impacted region.

The area outside the EPZ but within the bounding interstate highways identified earlier is identified as the Shadow Region. This study assumes that a portion of the population occupying the shadow region will also elect to travel away from IPEC over the same time frame as those evacuating from within the impacted region. This "shadow evacuation" could also impede the movement of evacuees from within the impacted region. This potential impedance of evacuees is also considered in the computations of ETE.

The computational procedure is outlined as follows:

- A link-node representation of the highway network is coded. Each link represents a unidirectional length of highway; each node usually represents an intersection or merge point. The capacity of each link is estimated based on the field survey observations and on established procedures.
- The evacuation trips are generated at locations called "zonal centroids" located within the EPZ and within the Shadow Region. The trip generation rates vary over time reflecting the mobilization process, and from one location (centroid) to another depending on population density and on whether a centroid is within, or outside, the impacted area.
- The computer models compute the routing patterns for evacuating vehicles that are compliant with federal guidelines (outbound relative to the location of IPEC), then simulate the traffic flow movements over space and time. This simulation process estimates the rate that traffic flow exits the impacted region.
- The ETE statistics provide the elapsed times for 50 percent, 90 percent, 95 percent and 100 percent, respectively, of the population within the impacted region, to evacuate from within the impacted region. These statistics are presented in tabular and graphical formats.

Traffic Management

This study includes the development of a comprehensive traffic management plan designed to expedite the evacuation of people from within an impacted region. This plan is also designed to control access into the EPZ after returning commuters have rejoined their families.

The plan takes the form of detailed schematics specifying: (1) the directions of evacuation travel to be facilitated and other traffic movements to be discouraged; (2) the equipment needed (cones,

barricades) and their deployment; (3) the locations of these "Traffic Control Points" (TCP); (4) the priority assigned to each traffic control point indicating its relative importance and how soon it should be manned relative to others; and (5) the number of traffic control personnel required.

The Traffic Management Plan was reviewed with State and local law enforcement personnel and incorporates revisions made as a result of this review.

Selected Results

A compilation of selected information is presented on the following pages in the form of Figures and Tables extracted from the body of the report; these are described below.

- Figure 3-1 displays a map of the IPEC site showing the layout of the 51 Emergency Response Planning Areas (ERPAs) that comprise, in aggregate, the Emergency Planning Zone (EPZ).
- Table 3-2 presents the estimates of permanent resident population in each ERPA based on the 2000 Census data. Extrapolation to the year 2003 reflects population growth rates in each county derived from census data.
- Table 6-1 defines each of the 35 Evacuation Regions in terms of their respective groups of ERPAs. The tabulation also identifies the azimuths of the underlying sectors associated with the keyhole configurations of Regions R4 through R35.
- Table 6-2 lists the 14 Evacuation Scenarios.
- Table 7-1D is a compilation of Evacuation Time Estimates (ETE). These data are the times needed to *clear the indicated regions* of 100 percent of the population occupying these regions. These computed ETE include consideration of mobilization time, and of estimated voluntary evacuations from other regions within the EPZ and from the shadow region.
- Tables 8-9, 8-10 and 8-11 present ETE for school evacuation, transit-dependent evacuees and evacuees from special facilities, respectively. All these evacuees will be transported by bus, van or ambulance, as appropriate.

We wish to express our appreciation to all the directors and staff members of the Orange, Putnam, Rockland, and Westchester County Emergency Management Offices, the various county planning offices, New York State Emergency Management Office (SEMO), and local and state law enforcement agencies, who provided valued guidance and contributed information contained in this report.

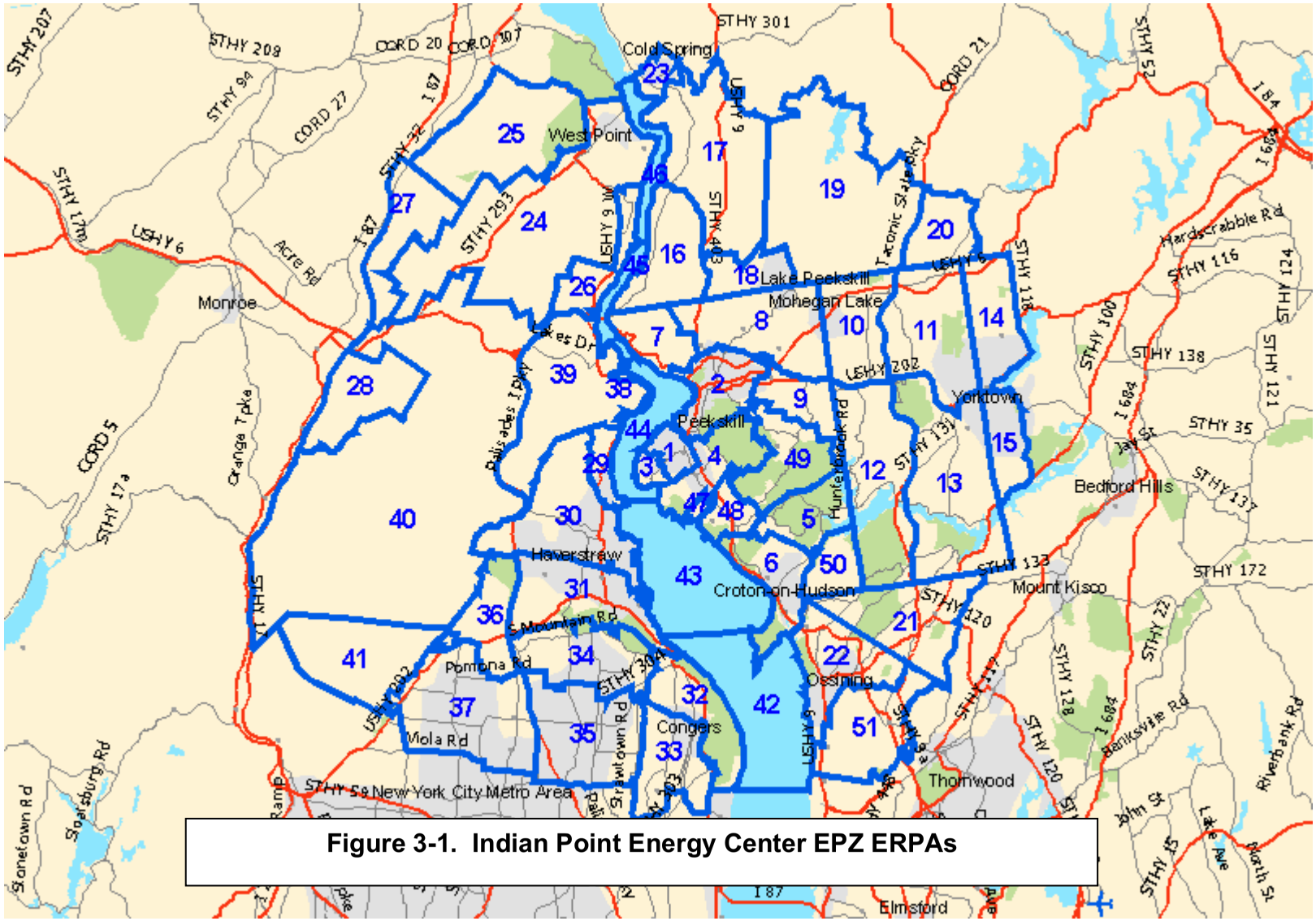

Figure 3-1. Indian Point Energy Center EPZ ERPAs

Table 3-2. EPZ Permanent Resident Population Growth					
	Population			Population	
ERPA	2000	2003	ERPA	2000	2003
1	2,171	2,206	27	2,200	2,270
2	22,459	22,826	28	52	54
3	1,273	1,294	29	1,143	1,170
4	3,534	3,592	30	12,968	13,271
5	957	973	31	31,314	33,267
6	7,589	7,713	32	4,973	5,089
7	185	188	33	10,616	10,864
8	11,156	11,338	34	7,428	7,602
9	4,486	4,559	35	23,681	24,235
10	8,021	8,152	36	2,601	2,662
11	18,086	18,382	37	23,220	23,763
12	3,102	3,153	38	60	61
13	7,124	7,240	39	19	20
14	2,688	2,732	40	561	579
15	1,284	1,305	41	174	178
16	532	553	42	-	-
17	1,927	2,005	43	-	-
18	3,533	3,675	44	-	-
19	6,851	7,127	45	-	-
20	4,110	4,275	46	-	-
21	4,785	4,863	47	332	337
22	29,454	29,936	48	3,483	3,540
23	2,523	2,625	49	2,820	2,866
24	7,134	7,360	50	471	479
25	932	962	51	8,277	8,412
26	5,353	5,523	TOTAL	297,642	305,276

County EPZ Permanent Resident Totals		
	2000	2003
Westchester	143,737	146,106
Rockland	118,197	122,182
Orange	16,232	16,748
Putnam	19,476	20,260

Table 6-1. Definition of Evacuation Regions

REGION	DESCRIPTION OF REGION	ERPAs IN ORANGE COUNTY	ERPAs IN PUTNAM COUNTY	ERPAs IN ROCKLAND COUNTY	ERPAs IN WESTCHESTER COUNTY	ERPAs IN REGION
R1	Entire 2 mile ring	39	NONE	29, 38, 39	1-4, 7, 44	1-4, 7, 29, 38, 39, 44
R2	Entire 5 mile ring	26, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16, 18, 24, 26, 29-31, 38-40, 43-45, 47-49
R3	Full EPZ	24-28, 39, 40	16-20, 23, 45, 46	29-41	1-15, 21, 22, 42-44, 47-51	1-51
2 Mile Ring and Sector to 5 Miles						
R4	N	26, 39, 45	16, 18, 45	29, 38, 39	1-4, 7, 8, 44	1-4, 7, 8, 16, 18, 26, 29, 38, 39, 44, 45
R5	NNE	39, 45	16, 18, 45	29, 38, 39, 44, 45	1-4, 7-9, 44, 45	1-4, 7-9, 16, 18, 29, 38, 39, 44, 45
R6	NE	39	16, 18	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 16, 18, 29, 38, 39, 44, 49
R7	ENE	39	NONE	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 29, 38, 39, 44, 49
R8	E	39	NONE	29, 38, 39, 44	1-5, 7-9, 44, 48, 49	1-5, 7-9, 29, 38, 39, 44, 48, 49
R9	ESE	39	NONE	29, 38, 39, 44	1-7, 9, 44, 47-49	1-7, 9, 29, 38, 39, 44, 47-49
R10	SE	39	NONE	29, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29, 38, 39, 43, 44, 47-49
R11	SSE	39	NONE	29-31, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29-31, 38, 39, 43, 44, 47-49
R12	S	39	NONE	29-31, 38, 39, 43, 44	1-4, 6, 7, 43, 44, 47, 48	1-4, 6, 7, 29-31, 38, 39, 43, 44, 47, 48
R13	SSW	39	NONE	29-31, 38, 39, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38, 39, 43, 44
R14	SW	39, 40	NONE	29-31, 38-40, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38-40, 43, 44
R15	WSW	39, 40	NONE	29-31, 38-40, 44	1-4, 7, 44	1-4, 7, 29-31, 38-40, 44
R16	W	39, 40	NONE	29, 30, 38-40, 44	1-4, 7, 44	1-4, 7, 29, 30, 38-40, 44
R17	WNW	24, 26, 39, 40, 45	45	29, 30, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 24, 26, 29, 30, 38-40, 44, 45
R18	NW	24, 26, 39, 40, 45	16, 45	29, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 16, 24, 26, 29, 38-40, 44, 45
R19	NNW	24, 26, 39, 40, 45	16, 45	29, 38, 39, 40, 44, 45	1-4, 7, 8, 44, 45	1-4, 7, 8, 16, 24, 26, 29, 38, 39, 40, 44, 45
5 Mile Ring and Sector to EPZ Boundary						
R20	N	26, 39, 45	16, 18, 45	29, 38, 39	1-4, 7, 8, 44	1-4, 7, 8, 16, 18, 26, 29, 38, 39, 44, 45
R21	NNE	39, 45	16, 18, 45	29, 38, 39, 44, 45	1-4, 7-9, 44, 45	1-4, 7-9, 16, 18, 29, 38, 39, 44, 45
R22	NE	39	16, 18	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 16, 18, 29, 38, 39, 44, 49
R23	ENE	39	NONE	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 29, 38, 39, 44, 49

Table 6-1. Definition of Evacuation Regions						
REGION	**DESCRIPTION OF REGION**	**ERPAs IN ORANGE COUNTY**	**ERPAs IN PUTNAM COUNTY**	**ERPAs IN ROCKLAND COUNTY**	**ERPAs IN WESTCHESTER COUNTY**	**ERPAs IN REGION**
R24	E	39	NONE	29, 38, 39, 44	1-5, 7-9, 44, 48, 49	1-5, 7-9, 29, 38, 39, 44, 48, 49
R25	ESE	39	NONE	29, 38, 39, 44	1-7, 9, 44, 47-49	1-7, 9, 29, 38, 39, 44, 47-49
R26	SE	39	NONE	29, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29, 38, 39, 43, 44, 47-49
R27	SSE	39	NONE	29-31, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29-31, 38, 39, 43, 44, 47-49
R28	S	39	NONE	29-31, 38, 39, 43, 44	1-4, 6, 7, 43, 44, 47, 48	1-4, 6, 7, 29-31, 38, 39, 43, 44, 47, 48
R29	SSW	39	NONE	29-31, 38, 39, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38, 39, 43, 44
R30	SW	39, 40	NONE	29-31, 38-40, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38-40, 43, 44
R31	WSW	39, 40	NONE	29-31, 38-40, 44	1-4, 7, 44	1-4, 7, 29-31, 38-40, 44
R32	W	39, 40	NONE	29, 30, 38-40, 44	1-4, 7, 44	1-4, 7, 29, 30, 38-40, 44
R33	WNW	24, 26, 39, 40, 45	45	29, 30, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 24, 26, 29, 30, 38-40, 44, 45
R34	NW	24, 26, 39, 40, 45	16, 45	29, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 16, 24, 26, 29, 38-40, 44, 45
R35	NNW	24, 26, 39, 40, 45	16, 45	29, 38, 39, 40, 44, 45	1-4, 7, 8, 44, 45	1-4, 7, 8, 16, 24, 26, 29, 38, 39, 40, 44, 45

Table 6-2. Evacuation Scenario Definitions

Scenario	Season	Day of Week	Time of Day	Weather	Special
1	Summer	Midweek	Midday	Good	None
2	Summer	Midweek	Midday	Rain	None
3	Summer	Weekend	Midday	Good	None
4	Summer	Weekend	Midday	Rain	None
5	Summer	Midweek, Weekend	Evening	Good	None
6	Winter	Midweek	Midday	Good	None
7	Winter	Midweek	Midday	Rain	None
8	Winter	Midweek	Midday	Snow	None
9	Winter	Weekend	Midday	Good	None
10	Winter	Weekend	Midday	Rain	None
11	Winter	Weekend	Midday	Snow	None
12	Winter	Midweek, Weekend	Evening	Good	None
13	Autumn	Weekend	Midday	Good	West Point Football
14	Spring	Midweek	Midday	Good	West Point Graduation

Table 7-1D. Time To Clear The Indicated Area of 100 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	4:55	5:30	4:50	5:25	4:45	R1	5:15	5:15	6:50	4:55	5:30	5:55	4:30	R1	5:30	5:15
R2	6:20	7:10	5:55	6:45	5:25	R2	6:20	7:00	8:00	5:55	6:25	7:20	5:25	R2	6:30	6:20
R3	9:25	10:30	8:50	9:50	7:15	R3	9:30	10:55	12:00	7:55	8:50	10:10	7:10	R3	8:45	9:30
2-Mile Ring and Keyhole to 5 Miles																
R4	5:45	6:20	5:10	5:35	4:50	R4	5:45	6:25	7:30	5:15	5:30	6:35	4:45	R4	5:55	5:45
R5	6:00	6:45	5:25	5:50	5:15	R5	6:10	7:00	8:00	5:25	5:45	7:10	5:15	R5	5:55	6:10
R6	6:00	6:45	5:25	5:50	5:15	R6	6:10	7:00	8:00	5:25	5:45	7:10	5:15	R6	5:55	6:10
R7	6:00	6:40	5:20	5:50	5:10	R7	6:10	6:45	8:00	5:20	5:40	7:05	5:15	R7	5:55	6:10
R8	6:10	6:40	5:20	5:50	5:10	R8	6:10	6:45	8:00	5:20	5:45	7:10	5:15	R8	6:00	6:10
R9	6:10	6:40	5:55	6:40	5:10	R9	6:10	6:45	8:00	5:20	5:45	7:10	5:15	R9	6:00	6:10
R10	5:25	5:45	5:55	6:40	4:25	R10	5:20	5:55	6:45	4:40	5:25	5:55	4:25	R10	5:30	5:20
R11	6:20	6:55	5:55	6:40	5:25	R11	6:20	6:55	7:45	5:55	6:20	7:20	5:25	R11	6:30	6:20
R12	6:20	6:55	5:55	6:40	5:25	R12	6:20	6:55	7:45	5:55	6:20	7:20	5:25	R12	6:30	6:20
R13	6:20	6:55	5:55	6:40	5:25	R13	6:20	6:55	7:40	5:55	6:20	7:15	5:25	R13	6:30	6:20
R14	6:20	7:10	5:55	6:45	5:25	R14	6:20	6:55	7:40	5:55	6:25	7:15	5:25	R14	6:30	6:20
R15	6:20	7:10	5:55	6:45	5:25	R15	6:20	6:55	7:40	5:55	6:25	7:15	5:25	R15	6:30	6:20
R16	5:25	5:40	4:50	5:10	4:25	R16	5:10	5:45	6:45	4:45	5:30	5:55	4:25	R16	5:30	5:10
R17	5:25	5:40	4:50	5:10	4:25	R17	5:10	5:45	6:45	4:45	5:30	5:55	4:25	R17	6:30	5:10
R18	5:20	5:40	4:50	5:10	4:25	R18	5:10	5:45	6:45	4:45	5:30	5:50	4:25	R18	6:30	5:10
R19	5:40	6:20	4:55	5:30	4:45	R19	5:40	6:35	7:30	5:15	5:30	6:35	4:45	R19	6:30	5:40

Table 8-9. School Evacuation Time Estimates						
	ETE to Leave EPZ			ETE to Reception Center		
County	Good Weather	Rain	Snow	Good Weather	Rain	Snow
Orange	2:55	3:05	3:40	3:25	3:35	4:20
Putnam	2.45	2:50	3:25	3:30	3:35	4:25
Rockland	2:55	3:05	3:40	4:25	4:35	5:30
Westchester	3:05	3:30	4:05	4:05	4:30	5:20

Table 8-10. Transit-Dependent Evacuation Time Estimates									
	Region Extends to 5 Miles			Region Extends to EPZ Boundary			Second Wave Completion (if needed)		
County	Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather	Rain	Snow
Orange	4:35	4:50	5:25	5:05	5:20	5:55	7:30	7:55	9:35
Putnam	4:15	4:50	5:00	4:40	4:50	5:25	6:50	7:10	8:05
Rockland	4:35	4:50	5:25	5:05	5:20	5:55	8:00	8:10	9:10
Westchester	4:50	5:30	6:05	5:20	6:15	6:50	8:25	9:40	10:35

Table 8-11. Ambulatory Evacuees from Special Facilities Evacuation Time Estimates			
	ETE to Leave EPZ		
County	Good Weather	Rain	Snow
Orange	3:50	4:00	4:35
Putnam	3:40	3:45	4:20
Rockland	3:50	4:00	4:35
Westchester	4:00	4:25	5:00

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1. INTRODUCTION

This report describes the analyses undertaken and the results obtained by a study to update the existing Evacuation Time Estimates (ETE) for the Indian Point Energy Center (IPEC), located in Buchanan, New York. Evacuation time estimates provide State and local governments with site-specific information helpful for Protective Action decision-making.

In the performance of this effort, all available prior documentation relevant to Evacuation Time Estimates was reviewed.

Other guidance is provided by documents published by Federal Government agencies. Most important of these are:

- Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, NUREG 0654/FEMA-REP-1, Rev. 1, November 1980.
- Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones, NUREG/CR-1745, November 1980.
- State of the Art in Evacuation Time Estimate Studies for Nuclear Power Plants, NUREG/CR-4831, March 1992.

We wish to express our appreciation to all the directors and staff members of the Orange, Putnam, Rockland, and Westchester County Emergency Management Offices, the various county planning offices, New York State Emergency Management Office (SEMO), and local and state law enforcement agencies, who provided valued guidance and contributed information contained in this report.

1.1 Overview of the ETE Update Process

The following outline presents a brief description of the work effort in chronological sequence:

1. Information Gathering:
   - Attended initial meetings with representatives of Entergy Nuclear Northeast (ENN) to define the scope of work.
   - Reviewed existing reports describing past evacuation studies.
   - Attended meetings with each of the 4 counties that comprise the Indian Point Emergency Planning Zone (EPZ) to identify issues to be addressed and resources available.
   - Conducted a field survey of the EPZ highway system and of area traffic conditions.

- Attended meetings and briefings with state and county officials.
- Obtained demographic data from New York State Emergency Management Office.
- Conducted a random sample telephone survey of EPZ residents.
- Conducted a data collection effort by mail and telephone to identify and describe schools, special facilities, major employers, transportation providers, and other important sources of information.

2. Estimate distributions of Trip Generation times representing the time required by various population groups (permanent residents, employees, and transients) to prepare for the evacuation trip. These estimates are primarily based upon the random sample telephone survey performed as part of the data collection effort.
3. Define Evacuation Scenarios. These scenarios reflect the variation in demand, trip generation distribution and in highway capacities, associated with different seasons, day of week, time of day and weather conditions.
4. Define a traffic management strategy. Traffic control is applied at specified Traffic Control Posts (TCP) located within the Emergency Planning Zone (EPZ), and at Access Control Posts (ACP) located outside the EPZ. Local and state police personnel review all traffic control plans.
5. Define Evacuation Areas or Regions. The EPZ is partitioned into Emergency Response Planning Areas (ERPAs). These existing ERPA were accepted as the basis for the ETE analysis presented herein. "Regions" are groups of contiguous ERPAs for which ETE are calculated. The configurations of these Regions depend upon wind direction and the radial extent of the impacted area. Each Region, other than those that approximate circular areas, approximates a "key-hole section" within the EPZ as required by NUREG 0654.
6. Assign Reception Centers to each ERPA within the EPZ.
7. Estimate demand for transit services for persons at "Special Facilities" and for transit-dependent persons at home.
8. Prepare the input streams for the IDYNEV system.
   - Estimated the traffic demand, based on the available information derived from Census data, from prior studies, from data provided by county and state agencies and from the telephone survey.
   - Applied the procedures specified in the 2000 Highway Capacity Manual (HCM) to the data acquired during the field survey, to estimate the capacity of all highway segments comprising the evacuation routes.

- Developed the link-node representation of the evacuation network, which is used as the basis for the computer analysis that calculates the Evacuation Time Estimates (ETE). The IDYNEV System, developed by KLD for FEMA, was used to perform these calculations.
- Calculated the evacuating traffic demands for each Region and for each Evacuation Scenario.
- Represented the traffic management strategy.
- Specified the candidate destinations of evacuation travel consistent with outbound movement relative to the location of IPEC.
- Prepared the input stream for the IDYNEV System.
- Executed the IDYNEV models to provide the initial estimates of evacuation routing and Evacuation Time Estimates (ETE) for a single scenario.

9. Generate a complete set of ETE for all specified Regions and Evacuation Scenarios. In addition, two "special event" ETE were calculated.
10. Document ETE in formats responsive to NUREG 0654.
11. Calculate the ETE for all transit activities including those for special facilities (schools, health-related facilities, etc.) and for the transit-dependent.

Steps 4 through 9 are iterated as described in Appendix D.

1.2 The Indian Point Energy Center Site Location

The Indian Point Energy Center (IPEC) is located on the eastern shore of the Hudson River, in Westchester County, New York. The site is situated approximately 24 miles north of New York City at longitude 73^{o} 57' W and latitude 41^{o} 16'N.

The Emergency Planning Zone contains parts of four New York State counties: Orange, Putnam, Rockland, and Westchester. Figure 1-1 displays the area surrounding the Indian Point Energy Center. This map identifies the communities in the area and the major roads.

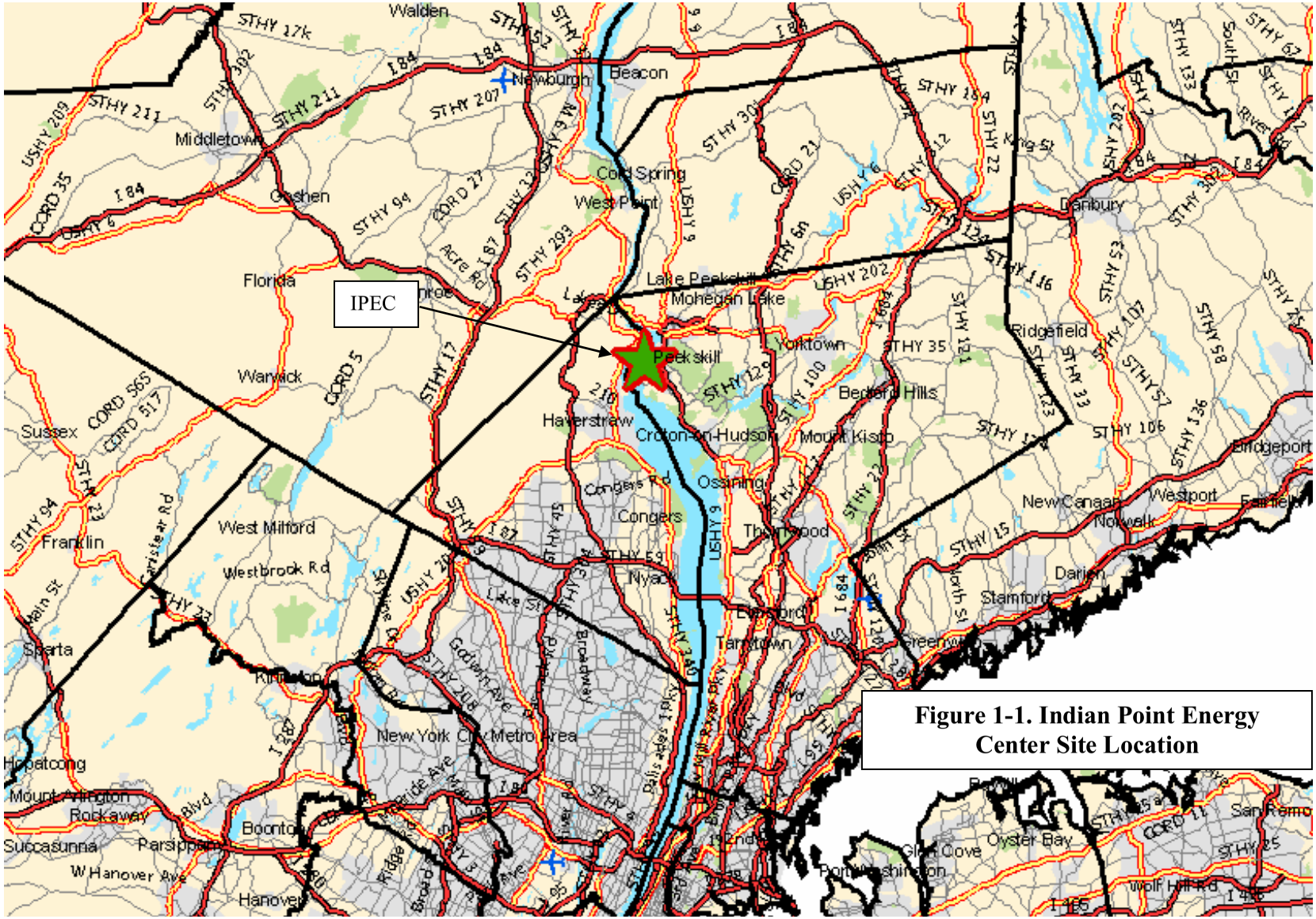


Figure 1-1. Indian Point Energy Center Site Location

1.3 Preliminary Activities

Since this plan constitutes an update of an existing document, it was necessary to review the prior process and findings. These activities are described below.

Literature Review

KLD Associates was provided with copies of documents describing past studies and analyses leading to the development of emergency plans and of the IPEC ETE. We also obtained supporting documents from a variety of sources, which contained information needed to form the database used for conducting evacuation analyses.

Field Surveys of the Highway Network

KLD personnel drove the entire highway system within the EPZ and for some distance outside to the bounding Interstate Highways: I-87 on the west; I-87/287 on the south; I-684 on the east; and I-84 on the north. The characteristics of each section of highway were recorded. These characteristics include:

- Number of lanes
- Pavement Width
- Shoulder type & width
- Intersection configuration
- Lane channelization
- Geometrics: Curves, grades
- Posted speed
- Actual free speed
- Abutting land use
- Control devices
- Interchange geometries
- Unusual characteristics: Narrow bridges, sharp curves, poor pavement, flood warning signs, inadequate delineations, etc.

The data were then transcribed; this information was referenced while preparing the input stream for the IDYNEV System. In addition, sketches were made at key highway locations.

Telephone Survey

A telephone survey was undertaken to gather information needed for the evacuation study. Appendix F presents the survey instrument, the procedures used and tabulations of data compiled from the survey returns.

These data were utilized to develop estimates of vehicle occupancy during an evacuation and to estimate elements of the mobilization process. This database was also referenced to estimate the number of transit-dependent residents.

Developing the Evacuation Time Estimates

The overall study procedure is outlined in Appendix D. Demographic data were obtained from several sources, as detailed later in this report. These data were analyzed and converted into vehicle demand data.

Highway capacity was estimated for each highway segment based on the field surveys and on the principles specified in the 2000 Highway Capacity Manual (HCM[1]). The link-node representation of the physical highway network was developed using Geographic Information System (GIS) mapping software and the observations obtained from the field survey. This network representation of "links" and "nodes" is shown in Figure 1-2.

Analytical Tools

The IDYNEV System that was employed for this study is comprised of several integrated computer models. One of these is the PCDYNEV (DYnamic Network EVacuation) macroscopic simulation model that was developed by KLD under contract with the Federal Emergency Management Agency (FEMA) and subsequently migrated from a VAX mini-computer to the PC world.

PCDYNEV consists of three submodels:

- A macroscopic traffic simulation model (for details, see Appendix C).
- An intersection capacity model (for details, see Highway Research Record No. 772, Transportation Research Board, 1980, papers by Lieberman and McShane & Lieberman).
- A dynamic, node-centric routing model that adjusts the "base" routing in the event of an imbalance in the levels of congestion on the outbound links.

Another model of the IDYNEV System is the TRAD (Traffic Assignment and Distribution) model. This model integrates an equilibrium assignment model with a trip distribution algorithm to compute origin-destination volumes and paths of travel designed to minimize travel time. For details, see Appendix B.

Still another software product developed by KLD, named UNITES (UNIfied Transportation Engineering System) was used to expedite data entry.

The procedure for applying the IDYNEV System within the framework of developing an update to an ETE is outlined in Appendix D. Appendix A is a glossary of terms used in Traffic Engineering.

[1] Highway Capacity Manual (HCM2000), Transportation Research Board, National Research Council, 2000.

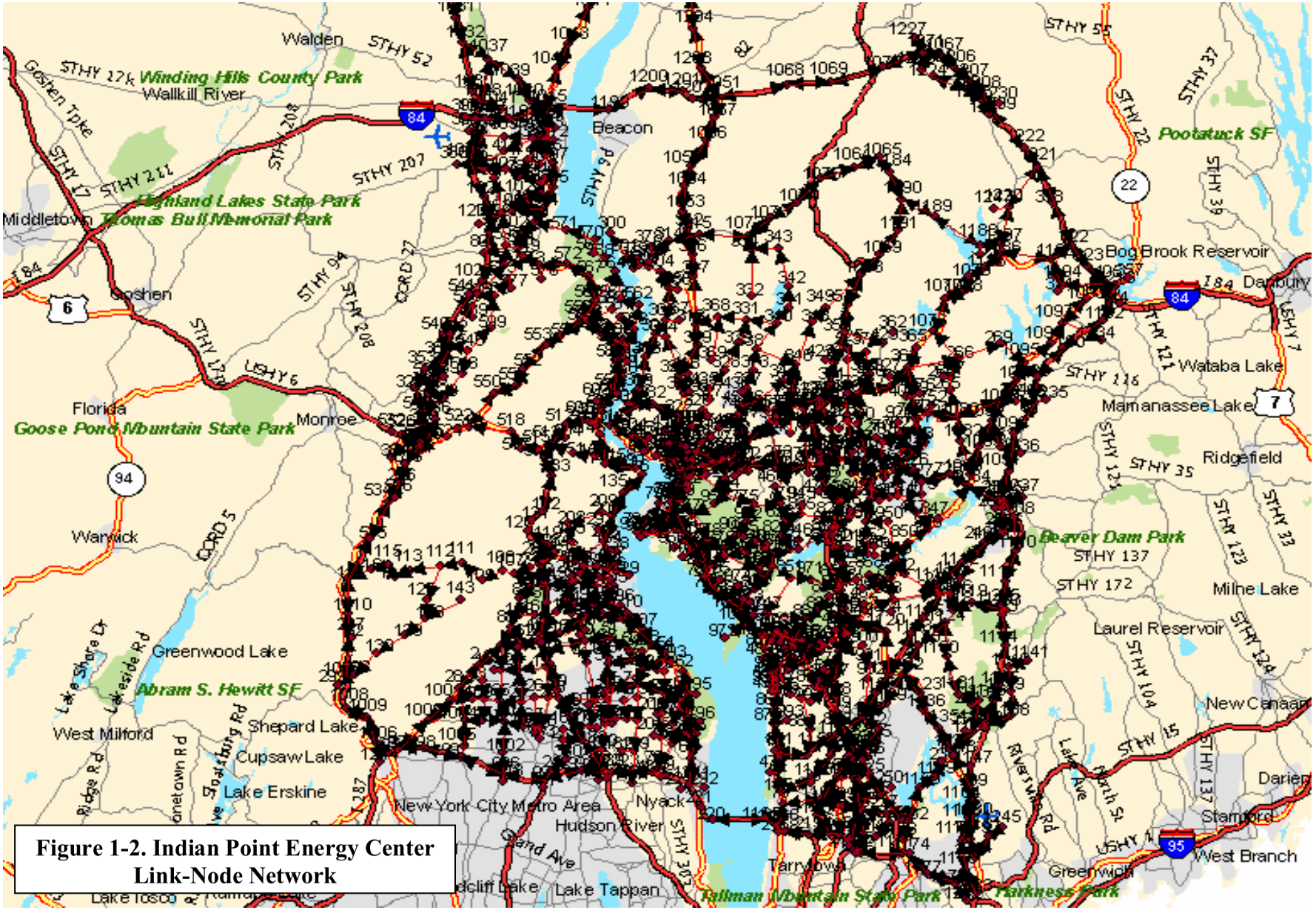


Figure 1-2. Indian Point Energy Center Link-Node Network

The evacuation analysis procedures are based upon the need to:

- Route traffic along paths of travel that will
  - expedite their travel from their respective points of origin to points outside the EPZ
- Restrict movement toward IPEC, to the extent practicable
  - disperse traffic demand so as to avoid focusing demand on a limited number of highways
- Move traffic in directions that are generally outbound, relative to the location of IPEC.

A set of candidate destination nodes on the periphery of the EPZ is specified for each traffic origin (or centroid) within the EPZ. The TRAD model produces output that identifies the "best" traffic routing, subject to the design conditions outlined above. In addition to this information, rough estimates of travel time are provided, together with turn-movement data required by the PCDYNEV simulation model.

The simulation model is then executed to provide a detailed description of traffic operations on the evacuation network. This description enables the analyst to identify bottlenecks and to develop countermeasures that are designed to expedite the movement of vehicles.

As outlined in Appendix D, this procedure consists of an iterative design-analysis-redesign sequence of activities. If properly done, this procedure converges to yield an emergency plan which best services the evacuating public.

1.4 Comparison with Prior ETE Study

Table 1-1 presents a comparison of the present ETE study with the study produced in 1994. The major factors contributing to the differences between the ETE values obtained in this study and those of the previous study can be summarized as follows:

- An increase of approximately 10 percent in resident population, based on Census data.
- An increase in the number of evacuating vehicles per household of approximately 25 percent based on the results of the telephone survey.
- An increase of approximately 300 percent in the estimated number of employees commuting to the EPZ based on NYS trip-to-work data and employment statistics.
- Explicit consideration of the impact of Shadow Region traffic movement on evacuation time.

Table 1-1. ETE Study Comparisons		
Topic	**Treatment**	
	Previous ETE Study	**Current ETE Study**
Resident Population Basis	1990 Census	2000 Census, extrapolated to 2003. Approximately 10 percent higher.
Resident Population Vehicle Occupancy	Assumed 1.0 vehicle per household.	Based on residential telephone survey, County specific range from 1.24 to 1.27 vehicles per household.
Employee Population	Combined with transients. Based on telephone survey of employers with more than 50 employees. No distinction was made between employees who live and work in the EPZ and employees who enter the EPZ to work. Double counting of resident employees.	Treated as a separate population group. Employment journey to work data identified the proportion of employees who commute into the EPZ relative to the total number of employees. These proportions were applied on an ERPA by ERPA basis to total employment information for the year 2000 from NYS Dept. of Labor.
Employee Vehicle Occupancy	Assumed 1.1 vehicles per employee [sic]. Should have read 1.1 employees per vehicle.	County specific values ranging from 1.05 to 1.07 employees per vehicle. Data obtained from 2000 Census.
Transient Population	Based on telephone calls to individual facilities.	Based on telephone calls to individual facilities.
Voluntary evacuation from within EPZ in areas outside region to be evacuated	No treatment identified.	50 percent within circle. 35 percent in annular ring between the circle and EPZ boundary.
Shadow Evacuation	Not considered.	Population in areas between the EPZ boundary and the bounding interstate highways was considered. Nominally, 30 percent of this population will move away from the EPZ.

Table 1-1. ETE Study Comparisons		
Topic	**Treatment**	
	Previous ETE Study	**Current ETE Study**
Roadway Geometric Data	Field surveys conducted in 1993. Road capacities based on 1985 HCM.	Field surveys conducted in 2002. Road capacities based on 2000 HCM.
Network Size	598 Links; 398 Nodes.	2,132 Links; 1031 Nodes.
Transit Dependent Population	Defined as non-auto owning population by ERPA.	Defined as households with 0 vehicles + households with 1 and 2 vehicles with commuters who do not return home. Household size varies by county and number of vehicles in household.
School Evacuation	Either early dismissal or direct evacuation.	Direct evacuation.
Ridesharing	50 percent except in Ossining and Peekskill where 0 percent ridesharing is assumed.	50 percent everywhere. Auto ownership in Ossining and Peekskill is consistent with rest of EPZ based on DMV data.
Special Events	USMA football weekend and graduation.	USMA football weekend. USMA midweek commencement ceremony.
Bus Availability	Based on inventory of resources.	Based on inventory of resources.
Trains	Not considered for ETE purposes.	Not considered for ETE purposes. However, recommendation to continue train service for about 1.5 hours after evacuation begins to help transport commuters.
Boats, Airports	Coast Guard alerts boaters who leave area in boats. Airports not considered for ETE purposes.	Coast Guard alerts boaters who leave area in boats. Airports not considered for ETE purposes.

Table 1-1. ETE Study Comparisons		
Topic	**Treatment**	
	Previous ETE Study	**Current ETE Study**
Trip Generation for Evacuation	Residents assumed to take between 30 and 150 minutes. Transients and employees assumed to take between 30 and 60 minutes.	Based on residential telephone survey of specific pre-trip mobilization activities: Residents with commuters returning leave between 30 and 240 minutes. Residents without commuters returning leave between 15 and 150 minutes. Employees and transients leave between 15 and 90 minutes. All times measured from the Advisory to Evacuate for all above. Additional time to clear snow added to residential evacuation times for snow scenarios.
Traffic and Access Control	29 Traffic control points identified. Traffic management requirement stated. No maps, no intersection schematics, nor manning requirements nor priority assignment are presented.	Explicit treatment of over 150 traffic and access control locations. Each location is identified, mapped, and schematics prepared. Manning, equipment and priority assignments are defined for each location.
Weather	Clear or Adverse.	Clear or Rain or Snow.
Modeling	NETVAC	IDYNEV System: TRAD and PCDYNEV.
Evacuation Time Estimates Reporting	Reported for 90 and 100 percentile population. Results presented by County, Region and ERPA.	Reported for 50, 90, 95, and 100 percentile population. Results presented by Region.

Table 1-1. ETE Study Comparisons		
Topic	**Treatment**	
	Previous ETE Study	**Current ETE Study**
Evacuation Time Estimates for the entire EPZ.	Winter midweek midday good weather = 5:30 Summer weekend midday good weather = 5:40	Winter midweek midday good weather = 9:25 Summer weekend midday good weather = 9:25

2. STUDY ESTIMATES AND ASSUMPTIONS

This section presents an enumeration of the estimates and assumptions utilized in the development of the evacuation time estimates.

2.1 Data Estimates

1. Population estimates are based upon Census 2000 data, projected to year 2003. County-specific projections are based upon growth rates estimated by comparing the 1990 and 2000 census data. Where specific areas within the county experiences growth rates that are different than the county-wide average, these areas are considered separately. Estimates of employees who commute into the EPZ to work are based upon the New York State Journey to Work Database, applied to the Year 2000 employment data stratified on an ERPA basis. Specific major employers were also considered.
2. Population estimates at special facilities are based on available data, telephone contacts and mail surveys.
3. Roadway capacity estimates are based on field surveys and the application of Highway Capacity Manual 2000[1]. Roads, which are seasonally closed, are identified in the county-specific assumptions section.
4. Population mobilization times are based on a statistical analysis of data acquired by a telephone survey. No assumptions are made, all times are supported by local data.
5. The relationship between resident population and evacuating vehicles is developed from the results of the telephone survey detailed in Appendix F. Results are reported on a county by county basis:

Vehicle Occupancy Rates

County	Household Size	Evacuating Vehicles Per Household[2]	Persons per Evacuating Vehicle
Orange	2.84	1.26	2.24
Putnam	3.10	1.27	2.44
Rockland	3.36	1.25	2.68
Westchester	2.84	1.24	2.28

[1] Highway Capacity Manual (HCM2000), Transportation Research Board, National Research Council, 2000.
[2] Compare the telephone survey results with Institute for Environmental Studies, University of Toronto, THE MISSISSAUGA EVACUATION FINAL REPORT, June 1981. The report indicates that 75,500 households evacuated the area using 93,400 vehicles, yielding 1.24 evacuating vehicles per household. (Page 5-10).

6. The relationship between persons and vehicles for special facilities is as follows:

   a. Hotel/motel: one vehicle per room (Source: telephone contacts with individual facilities)

   b. Recreational: 2.3 persons per vehicle excluding buses (Source: empirical observations at Seabrook and Pilgrim EPZ recreation facilities)

   c. Employees: 1.05 – 1.07 employees per vehicle (2000 Census)

7. Evacuation Time Estimates (ETE) will be presented for the 100 percentiles of population for each Region and for each Scenario, and for the 2-mile, 5-mile and 10-mile distances. ETEs will also be presented in tabular format and graphically showing the values of ETE associated with the 50, 90 and 95 percentiles of population. A Region is defined as a group of Emergency Response Planning Areas (ERPAs) that is issued the Advisory to Evacuate.

2.2 Study Methodological Assumptions

1. The Evacuation Time is defined as the period of time between the Advisory to Evacuate issued to a specific Region of the EPZ and the time that Region is clear of people.

2. This evacuation time estimate study is in strict compliance with NUREG 0654 and related guidelines.

3. The ETEs are computed and presented in a format compliant with NUREG 0654, CR-1745 and CR-4831. The ETE for each evacuation area ("Region" comprised of included ERPAs) will be presented in both statistical and graphical formats.

4. Evacuation movements (paths of travel) will be generally outbound relative to the power station to the extent permitted by the highway network, as computed by the computer models. All available evacuation routes will be used in the analysis.

5. Regions are defined by the underlying "keyhole" or circular configurations as specified in NUREG 0654. These Regions, as defined, display irregular boundaries reflecting all the ERPAs included within these underlying configurations.

6. The impact of the "shadow effect" on the ETE for those evacuating the specified Region, will be determined as part of the analysis. Shadow evacuation will be dealt with as indicated in the accompanying Figure 2-1. Within the circle defined by the distance to be evacuated, 50 percent of the people not advised to evacuate are assumed to evacuate within the same time-frame. In the annular area between the circle defined by the extent of the evacuation order and the EPZ boundary, it is assumed that 35 percent of people will voluntarily evacuate.

In the area between the EPZ boundary and the bounding interstate highways, it will be assumed that 30 percent of the people will evacuate voluntarily. Sensitivity studies explored the effect on ETE, of increasing the percentage of voluntary evacuees in this area (Appendix I).

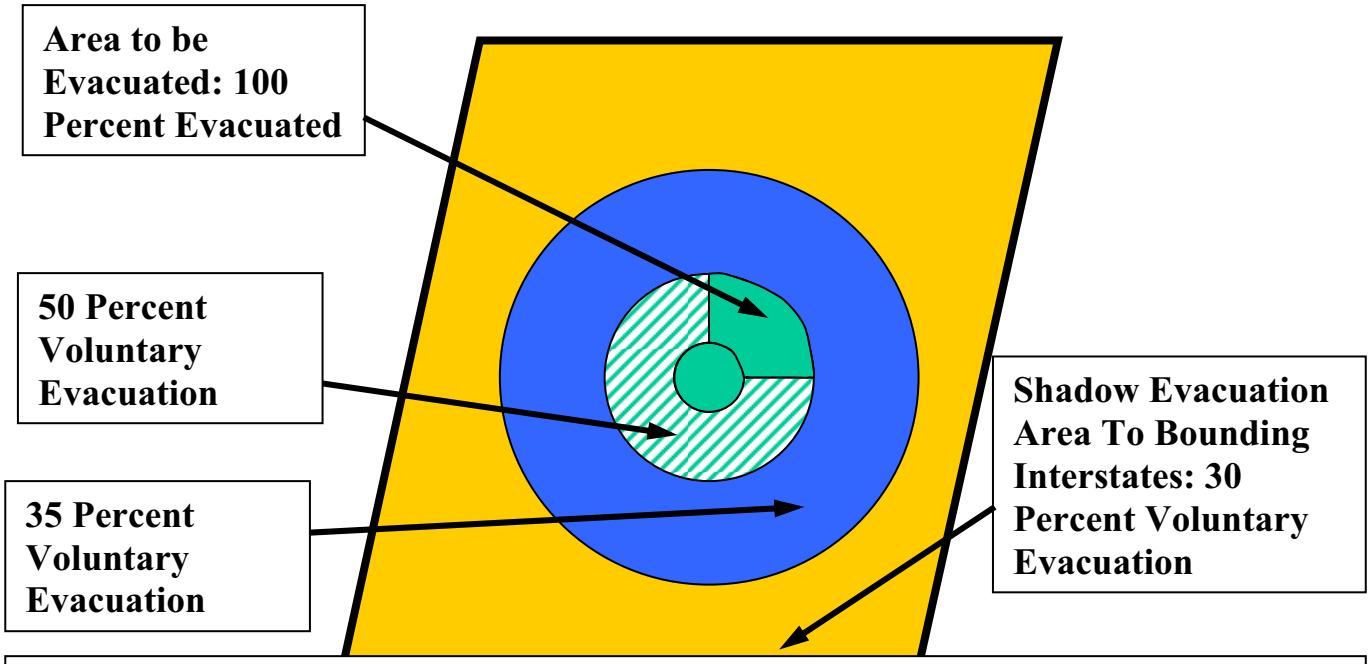


Figure 2-1. Shadow Evacuation Methodology

7. A total of 14 "Scenarios" representing different seasons, time of day, day of week and weather were considered. Two special event scenarios were also included. These Scenarios are tabulated below:

Scenarios	Season	Day of Week	Time of Day	Weather	Special Events
1	Summer	Midweek	Midday	Good	None
2	Summer	Midweek	Midday	Rain	None
3	Summer	Weekend	Midday	Good	None
4	Summer	Weekend	Midday	Rain	None
5	Summer	Midweek, Weekend	Evening	Good	None
6	Winter	Midweek	Midday	Good	None
7	Winter	Midweek	Midday	Rain	None
8	Winter	Midweek	Midday	Snow	None
9	Winter	Weekend	Midday	Good	None
10	Winter	Weekend	Midday	Rain	None
11	Winter	Weekend	Midday	Snow	None
12	Winter	Midweek, Weekend	Evening	Good	None
13	Autumn	Weekend	Midday	Good	West Point Football
14	Spring	Midweek	Midday	Good	West Point Graduation

8. The models of the IDYNEV System represent the state of the art, and have been recognized as such by Atomic Safety Licensing Boards (ASLB) in past hearings. (Sources: Atomic Safety & Licensing Board Hearings on Seabrook and Shoreham; Urbanik[3]).

2.3 Study Assumptions

9. The Planning Basis Assumption for the calculation of ETE is a rapidly escalating accident that requires evacuation, and includes the following:

   a. Advisory to Evacuate will be announced coincident with the siren alert.

   b. Mobilization of the general population will commence within 10 minutes after siren alert.

   c. ETE are measured relative to Advisory to Evacuate.

[3] Urbanik, T., et. al. Benchmark Study of the I-DYNEV Evacuation Time Estimate Computer Code, NUREG/CR-4873, Nuclear Regulatory Commission, June, 1988

A rapidly escalating accident scenario assumes that the general population will evacuate over the same time frame as do the school children, the transit-dependent population, and the special facility population. This assumption generally leads to longer evacuation time estimates than those for accidents that are more slowly escalating.

10. It is assumed that everyone within the group of ERPAs forming a Region that is issued an Advisory to Evacuate will, in fact, respond in general accord with the planned routes.

11. It is further assumed that:

    a. No early dismissal to home of school children is contemplated.

    b. Parents with access to vehicles will pick up their children from school (if in session), as well as those of neighbors and friends who do not have access to vehicles, to the aggregate extent of at least half of all school children.

    c. A portion of those households with access to a vehicle will evacuate without awaiting the arrival home of all commuters. Data from the telephone survey indicate that approximately 40 percent of households with commuters, who have other vehicles available for evacuation, will not wait for the commuter to arrive home before leaving the area.

12. A portion of the population outside the evacuated Region will elect to evacuate even though not advised to do so ("shadow effect"). This portion is assumed to be:

    a. 50 percent of the population residing within the radial distance (5 or 10 miles) of the evacuated Region.

    b. 35 percent of the population residing beyond this radial distance, but within the EPZ.

    c. 30 percent of the population residing outside the EPZ but within the four bounding Interstate Highways.

    Assumptions a. and b. are bounded by the limiting case of an evacuation of the entire EPZ simultaneously. Assumption c. is tested by varying the percentage of voluntary evacuees and determining the associated change in ETE value. See Appendix I.

13. Selected special facilities in Rockland County and Westchester County will shelter rather than evacuate. No such facilities are identified in Orange or Putnam.

14. The ETE will also include consideration of "through" (External-External) trips during the time that such traffic is permitted to enter the evacuated Region. "Normal" traffic flow is assumed to be present within the EPZ at the start of the emergency.

15. Traffic Control Points (TCP) within the EPZ will be staffed over time, beginning at the Advisory to Evacuate. Their number and location will depend on the Region to be evacuated and resources available. It is assumed that drivers will act rationally, travel in the directions identified in the plan, and obey all control devices and traffic guides. Traffic attempting to enter the EPZ should not be diverted for approximately 1-2 hours following the siren notifications. Earlier diversions would delay returning commuters. It is assumed that no vehicles will enter the EPZ after this 1-2 hour time period.

16. Traffic Control Points (TCP) outside the EPZ will be established to facilitate evacuation flow through the "shadow evacuation" area.

17. Buses will be used to transport those without access to private vehicles:

    a. If schools are in session, transport (buses) will evacuate students not previously picked up by their families, directly to the assigned school reception centers. It is assumed that half the children will be picked up by parents, neighbors or friends of the family prior to the arrival of buses. We also identify the number of buses required if all children are evacuated by bus.

    b. Buses needed to evacuate special facilities are estimated based on need and on "in-house" vehicle availability.

    c. School children, if in session, will be given priority.

    d. Bus mobilization time will be considered in ETE calculations.

    e. Analysis of the number of required "waves" of transit-based evacuation, is presented.

18. The transit-dependent portion of the general population will be evacuated to reception centers by bus. It is reasonable to assume that a proportion of this population will ride-share with family, neighbors, and friends, thus reducing the demand for buses. We assume that the percentage of people who rideshare is 50 percent. This assumption is based upon reported experience in other emergency situations,[4] which cites previous evacuation experience.

[4] Institute for Environmental Studies, University of Toronto, THE MISSISSAUGA EVACUATION FINAL REPORT, June 1981. The report indicates that 6,600 people of a transit-dependent population of 8,600 people shared rides with other residents; a ride share rate of 76% (Page 5-10).

19. Current plans indicate that the rail lines through the EPZ make the decision to halt service. The decision is based upon recommendations from the Westchester County Executive in consultation with the other counties and the state. It is reasonable to assume that rail service would continue until about 90 minutes after the order to evacuate is issued. In this way, reverse commuters and residents seeking to return home have an opportunity to complete their trips before service is suspended. Evacuation buses should be routed through the train stations to transport people who have congregated there. The public should be informed that evacuation buses would stop at the train stations as part of the EAS messaging or emergency information bulletins. This strategy may be modified in the event that a radiological release affects the rail lines.

20. Two types of adverse weather scenarios are considered. Rain may occur for either winter or summer scenarios. In the case of rain, it is assumed that the rain begins at about the same time as the evacuation advisory is issued. Thus transient populations are not affected. That is, no weather-related reduction in the number of transients who may be present in the EPZ is assumed.

    Snow may occur in winter scenarios. Transient population reductions are not assumed for snow scenarios. Further, it is assumed that roads are passable and that the appropriate agencies are plowing the roads as they would normally.

    Adverse weather scenarios affect roadway capacity, free flow highway speeds and the time required to mobilize the general population. The factors assumed for the ETE study are:

Scenario	Highway Capacity*	Free Flow Speed*	Mobilization Time
Rain	90%	90%	No Effect
Snow	80%	80%	Clear driveway before leaving home (Source: Telephone survey)

*** Adverse weather capacity and speed values are given as a percentage of good weather conditions**

21. School buses used to transport the transit-dependent general population and students are assumed to load below capacity to reflect some inefficiency in loading. The assumed load factors vary and are detailed in Section 8. Children below the age of Middle School are assumed to occupy 2/3 of an adult seat.

22. County-specific assumptions are listed in Table 2-1.

Table 2-1. County-Specific List of Assumptions

Issue	Orange County	Putnam County	Rockland County	Westchester County
Special Facility Evacuation	• Number of waves dependent on transit resources identified • No shelter-only special facilities	• Number of waves dependent on transit resources identified • No shelter-only special facilities	• Number of waves will be determined based on transit resources identified: • 75 percent of buses are assumed to be available for school evacuations • School buses will seat 3 small children per 2-seats (elementary schools) • School buses will seat 1 person per seat (middle and high schools) • Special Facilities that shelter - Riverside Nursing Home (Haverstraw) Green Hills Nursing Home (Haverstraw) County Correctional Facility (New City) Yeager Health Complex (Pomona) Helen Hays Hospital (Haverstraw)	• Number of waves will be determined based on transit resources identified • Special Facilities that shelter – VA Hospital, Montrose; Sing Sing Prison, Ossining
Telephone Survey Results	• County Data used to estimate vehicle usage • Trip Generation distributions utilize full database	• County Data used to estimate vehicle usage • Trip Generation distributions utilize full database	• County Data used to estimate vehicle usage • Trip Generation distributions utilize full database	• County Data used to estimate vehicle usage • Trip Generation distributions utilize full database
Ride-sharing	• Transit requirements will assume 50 percent ridesharing. • Buses transporting transients to state parks are assumed to stay at the park and transport those people out of the EPZ	• Transit requirements will assume 50 percent ridesharing. • All buses are available	• Transit requirements will assume 50 percent ridesharing. • Buses transporting transients to state parks are assumed to stay at the park and transport those people out of the EPZ.	• Transit requirements will assume 50 percent ridesharing
Seasonal Road	• Arden Valley Road • Tiorati Brook Road	• None	• None	• Route 9A between Route

Issue	Orange County	Putnam County	Rockland County	Westchester County
Closures	• Cedar Pond Road • Seven Lakes Parkway between Route 9W/202 and PIP • Lake Welch Parkway between PIP and Seven Lakes Parkway. • Storm King Road (Rt. 218) (Periodic closures due to snow, flooding, and rock slides)			9 and Hawkes Road will have its capacity reduced by 50 percent under adverse weather conditions
Special Events	• USMA football • USMA graduation	• None	• None	• None
Statistics	Household size = 2.84 Evac. Veh = 1.26 Veh Occup. = 2.24	Household size = 3.10 Evac Vehs = 1.27 Veh Occup = 2.44	Household size = 3.36 Evac Vehs = 1.25 Veh Occup = 2.68	Household size = 2.84 Evac Vehs = 1.24 Veh Occup = 2.28

Household size is the average number of persons in a household.

Evac. Vehs. is the average number of evacuating vehicles per household.

Veh. Occup. Is the average of persons occupying an evacuating vehicle. This is a derived statistic, obtained as Household Size ÷ Evac. Veh.

3. DEMAND ESTIMATION

The estimates of demand, expressed in terms of people and vehicles, constitute a critical element in developing an evacuation plan. This estimate consists of three components:

1. An estimate of population within the Emergency Planning Zone (EPZ), stratified into groups (resident, employee, transient).

2. An estimate, for each population group, of mean occupancy per evacuating vehicle. This estimate is used to determine the number of evacuating vehicles.

3. An estimate of potential double-counting of vehicles.

Appendix E presents much of the source material for the population estimates. A variation of the approach defined above was used to estimate traffic in parks. This change in approach was necessary since the majority of park traffic consists of transients; most enter the EPZ from locations outside. Our primary source of population data, the 2000 Census, is not adequate for estimating some transient groups directly.

As a result, we relied on empirical observation of the number of vehicles that can physically be accommodated within park areas. This technique is valid since discussions with public officials confirmed that, with few exceptions, people at the park have access to either a private vehicle or a bus. Thus, the number of people evacuating from the park area will be primarily reflected in the number of evacuating private vehicles.

Estimates of population in parks can be based on estimates of per-vehicle person occupancy. Thus, for the park area, we estimate the number of evacuating vehicles based on parking capacity, then multiply by the per-vehicle person occupancy.

During the summer season, vacationers and tourists enter the EPZ. These non-residents may dwell within the EPZ for a short period (e.g. one or two weeks), for a weekend, overnight, or may enter and leave within one day. Estimates of the size of these population components must be obtained, so that the associated number of evacuating vehicles can be ascertained.

The potential for double-counting people and vehicles must be addressed. For example:

- A resident who works and shops within the EPZ could be counted as a resident, again as an employee and once again as a shopper.
- A visitor who stays at a hotel and spends time at a park, then goes shopping could be counted three times.

Furthermore, the number of vehicles at a location depends on time of day. For example, motel parking lots may be full at dawn and empty at noon. Similarly, parking lots at area parks, which are full at noon, may be almost empty at dawn. It is clearly wrong to estimate counts of vehicles by simply adding up the capacities of different types of parking facilities, without considering such factors.

Analysis of the population characteristics of the Indian Point Energy Center (IPEC) EPZ indicates the need to identify three distinct groups:

- Permanent residents - people who are year round residents of the EPZ.
- Transients - people who reside outside of the EPZ who enter the area for a specific purpose (shopping, recreation) and then leave the area.
- Employees - people who reside outside of the EPZ and commute to business within the EPZ on a daily basis.

Estimates of the population and number of evacuating vehicles for each of the population groups will be presented for each Emergency Response Planning Area (ERPA) and by polar coordinate representation (population rose). The IPEC EPZ has been subdivided into 51 ERPAs. These areas are shown in Figure 3-1.

Permanent Residents

The primary source for estimating permanent population is the latest U.S. Census data. Comparing census information, it is possible to estimate the rate of population change over time and to project the year 2000 resident population to a 2003 base year. Table 3-2 presents these estimates.

Table 3-2 shows that the EPZ population has increased about 2.5 percent over the last 3 years. The annual growth rate for each county was estimated using the 1990 and 2000 census results. The growth rates were used to project population grown over the most recent 3-year period,

We designed the telephone survey (Appendix F) to estimate the average number of people who may be expected to occupy each evacuating vehicle. The survey revealed the average household size and the expected number of evacuating vehicles per household. The results are shown on Table 3-1.

Table 3-1. Vehicle Occupancy Rates

County	Household Size	Evacuating Vehicles Per Household[1]	Persons per Evacuating Vehicle
Orange	2.84	1.26	2.24
Putnam	3.10	1.27	2.44
Rockland	3.36	1.25	2.68
Westchester	2.84	1.24	2.28

[1] Compare the telephone survey results with Institute for Environmental Studies, University of Toronto, THE MISSISSAUGA EVACUATION FINAL REPORT, June 1981. The report indicates that 75,500 households evacuated the area using 93,400 vehicles, yielding 1.24 evacuating vehicles per household. (Page 5-10).

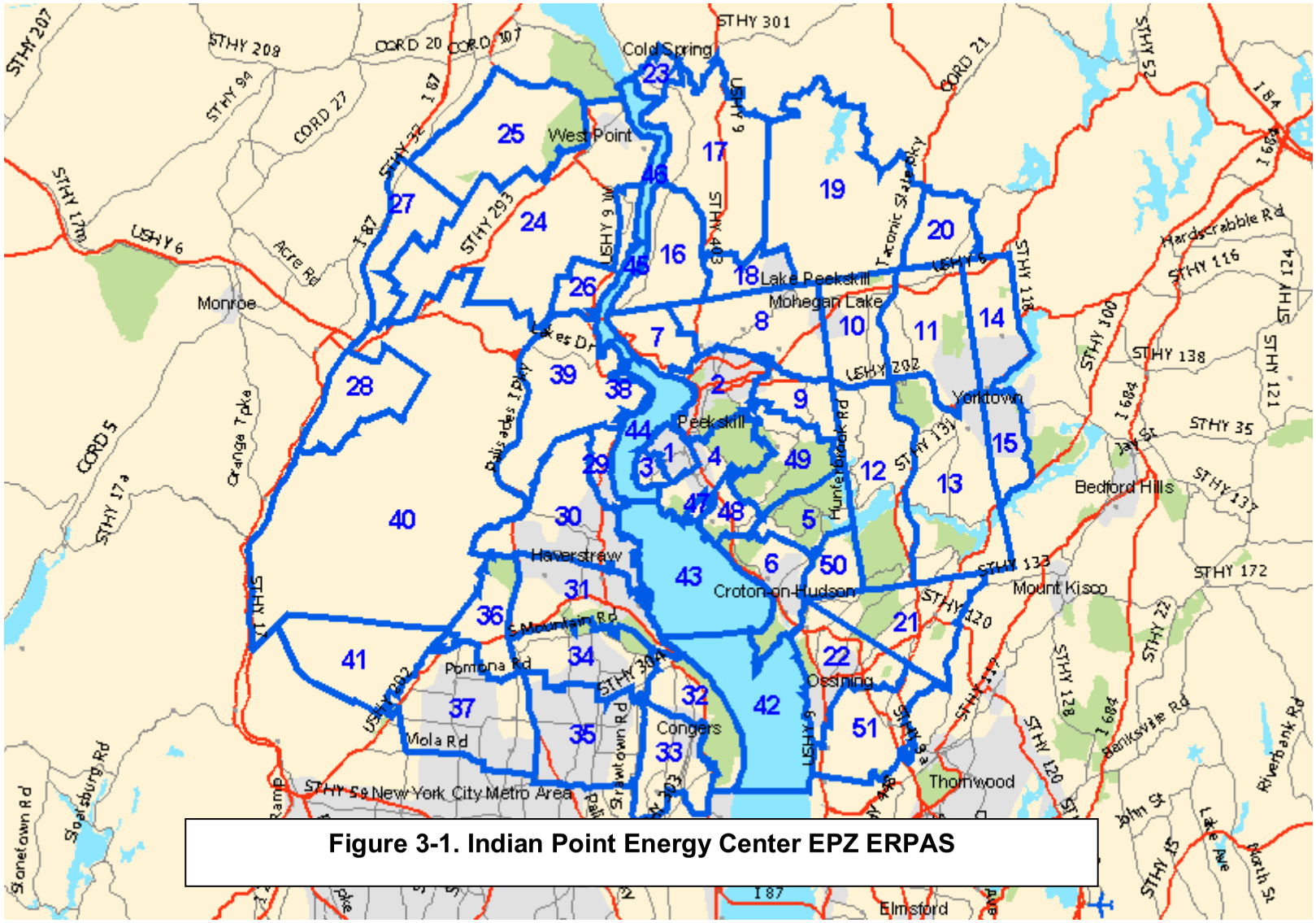


Figure 3-1. Indian Point Energy Center EPZ ERPAS

Table 3-2. EPZ Permanent Resident Population Growth					
ERPA	Population		ERPA	Population	
	2000	2003		2000	2003
1	2,171	2,206	**27**	2,200	2,270
2	22,459	22,826	**28**	52	54
3	1,273	1,294	**29**	1,143	1,170
4	3,534	3,592	**30**	12,968	13,271
5	957	973	**31**	31,314	33,267
6	7,589	7,713	**32**	4,973	5,089
7	185	188	**33**	10,616	10,864
8	11,156	11,338	**34**	7,428	7,602
9	4,486	4,559	**35**	23,681	24,235
10	8,021	8,152	**36**	2,601	2,662
11	18,086	18,382	**37**	23,220	23,763
12	3,102	3,153	**38**	60	61
13	7,124	7,240	**39**	19	20
14	2,688	2,732	**40**	561	579
15	1,284	1,305	**41**	174	178
16	532	553	**42**	-	-
17	1,927	2,005	**43**	-	-
18	3,533	3,675	**44**	-	-
19	6,851	7,127	**45**	-	-
20	4,110	4,275	**46**	-	-
21	4,785	4,863	**47**	332	337
22	29,454	29,936	**48**	3,483	3,540
23	2,523	2,625	**49**	2,820	2,866
24	7,134	7,360	**50**	471	479
25	932	962	**51**	8,277	8,412
26	5,353	5,523	**TOTAL**	**297,642**	**305,276**

County EPZ Permanent Resident Totals		
	2000	2003
Westchester	143,737	146,106
Rockland	118,197	122,182
Orange	16,232	16,748
Putnam	19,476	20,260

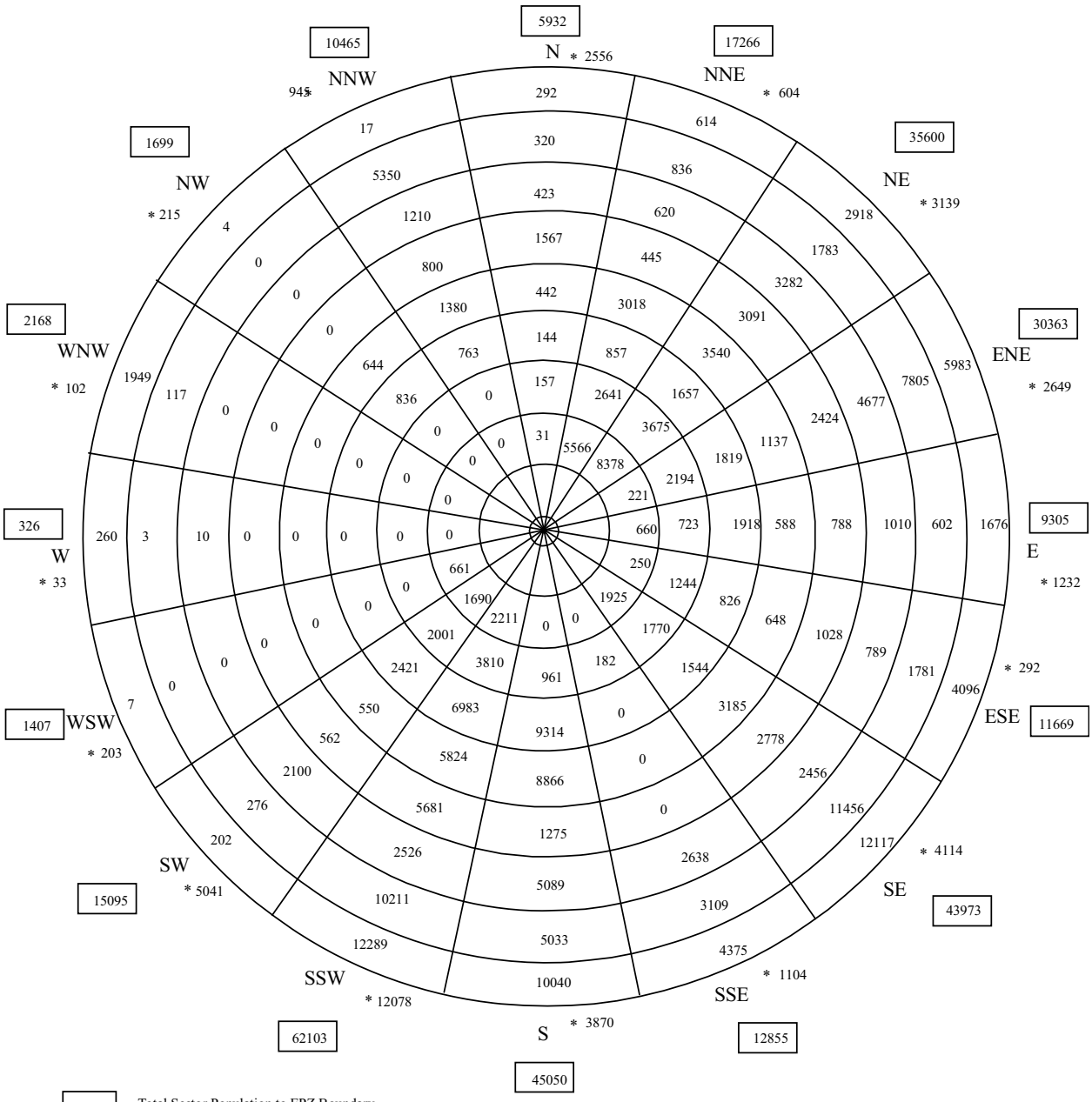
Permanent resident population and vehicle estimates for 2003 are presented in Table 3-3. Figures 3-2 and 3-3 present the permanent resident population and permanent resident vehicle estimates by sector and distance from the Indian Point Energy Center. This "rose" was constructed using GIS software.

It can be argued that this estimate of permanent residents overstates, somewhat, the number of evacuating vehicles, especially during the summer. It is certainly reasonable to assert that some portion of the population would be on vacation during the summer and would travel elsewhere. A rough estimate of this reduction can be obtained as follows:

1. Assume 50 percent of all households vacation for a two-week period over the summer.
2. Assume these vacations, in aggregate, are uniformly dispersed over 10 weeks, i.e. 10 percent of the population is on vacation during each two-week interval.
3. Assume half of these vacationers leave the area.

On this basis, the permanent resident population would be reduced by 5 percent in the summer and by a lesser amount in the off-season. This five percent reduction translates into about 6,200 vehicles. Given the uncertainty in this estimate, we elected to apply no reductions in permanent resident population for the summer scenarios to account for residents who may be out of the area.

Table 3-3. Permanent Resident Population and Vehicles by ERPA					
ERPA	**Persons**	**Vehicles**	**ERPA**	**Persons**	**Vehicles**
1	2,206	968	**27**	2,270	1,013
2	22,826	10,020	**28**	54	24
3	1,294	568	**29**	1,170	437
4	3,592	1,575	**30**	13,271	4,952
5	973	427	**31**	33,267	12,413
6	7,713	3,383	**32**	5,089	1,899
7	188	82	**33**	10,864	4,054
8	11,338	4,973	**34**	7,602	2,837
9	4,559	2,000	**35**	24,235	9,043
10	8,152	3,575	**36**	2,662	993
11	18,382	8,062	**37**	23,763	8,867
12	3,153	1,383	**38**	61	23
13	7,240	3,175	**39**	20	7
14	2,732	1,198	**40**	579	216
15	1,305	572	**41**	178	66
16	553	227	**42**	-	-
17	2,005	822	**43**	-	-
18	3,675	1,506	**44**	-	-
19	7,127	2,921	**45**	-	-
20	4,275	1,752	**46**	-	-
21	4,863	2,133	**47**	337	148
22	29,936	13,130	**48**	3,540	1,553
23	2,625	1,076	**49**	2,866	1,257
24	7,360	1,399	**50**	479	210
25	962	429	**51**	8,412	3,689
26	5,523	2,466	**TOTAL**	**305,276**	**123,523**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ENE
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9305
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* 203
11669
ESE
* 292
15095
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62103
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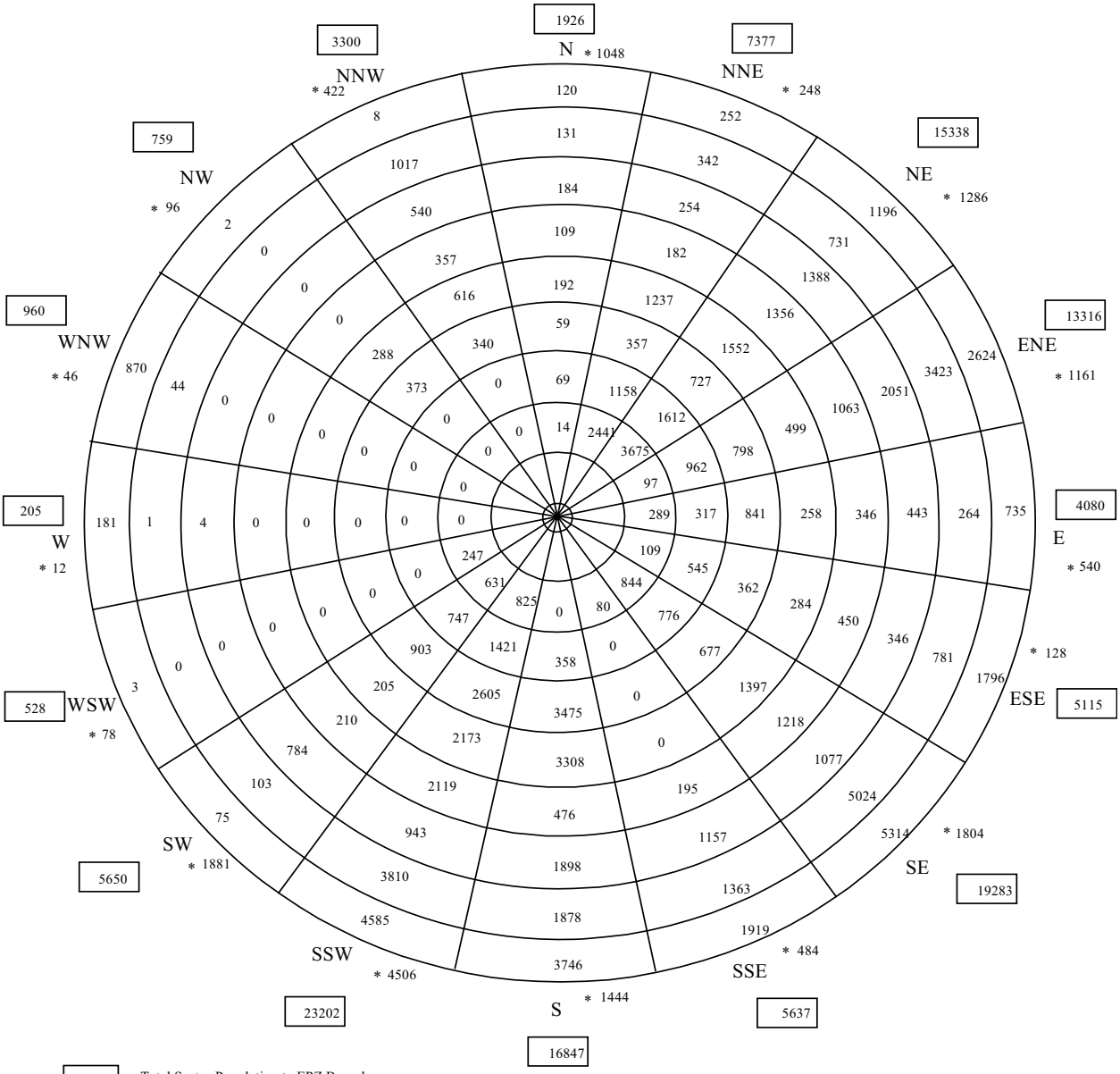
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798
962
97
735
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Transient Population

Transient population groups are defined as those people who enter the EPZ for a specific purpose (shopping, recreation) and who leave on the same day or who stay overnight at camping facilities or hotels and motels. The Indian Point EPZ has a number of areas that attract transients in significant number, including:

- Jefferson Valley Mall, Palisades Center Mall[2], Woodbury Commons – Shopping, recreation
- Cortlandt Town Center - Shopping
- Franklin D. Roosevelt State Park - Recreation for day-trippers
- Harriman State Park and Croton Point Park – Camping, fishing, hiking, etc.

Because the great majority of people utilizing these facilities travel in private vehicles, it is possible to estimate the transient population by first obtaining an estimate of the parking capacity of each facility and then applying a per vehicle occupancy factor to arrive at the population estimate. Care must be taken to avoid double-counting vehicles belonging to permanent residents who use the facilities. The following are estimates of transient population of each of these groups:

Jefferson Valley Mall

The Jefferson Valley Mall, in Yorktown Heights, is a large retail shopping facility, with approximately 554,600 square feet of retail space. Data obtained shows that during its peak season (the Christmas holiday), an average of 10,500 shoppers may shop at the mall on a daily basis. With a daily average of 630 employees, and 2,888 parking spaces available, approximately 2,258 parking spaces would remain available to shoppers. Using a vehicular occupancy for transient vehicles of 2.4 persons/vehicle, the population estimate for this facility is 5,419 with an additional 400 persons that may arrive by bus. A total of 5,819 shoppers could be at the mall at any given time.

Palisades Center Mall

The Palisades Center Mall, in West Nyack, is just south of the EPZ. Since it attracts a large number of transients, evacuees from the mall would be part of the "shadow evacuation". This mall has approximately 1.85 million square feet of retail space and 8,400 parking spaces. With approximately 1,600 employees at the mall at any given time, during midday, this leaves 6,800 parking spaces available for shoppers and entertainment patrons. Approximately 40 percent of the shoppers are from Rockland County, 10 percent from Orange County, 15 percent from New Jersey, and 35 percent from Westchester County. Double-counting EPZ residents must be avoided.

[2] The Palisades Center Mall and Woodbury Commons are outside of the EPZ. However, due to their proximity to the EPZ and their substantial ability to draw transients into the area, we consider them explicitly.

Woodbury Common Premium Outlets

The Woodbury Common Premium Outlets, in Central Valley, is another large shopping facility just to the west of the EPZ. It has more than 220 shops and serves numerous shoppers, many whom arrive by bus from Manhattan. We estimate a total of 5,900 vehicles may be present at any one time.

Cortlandt Town Center

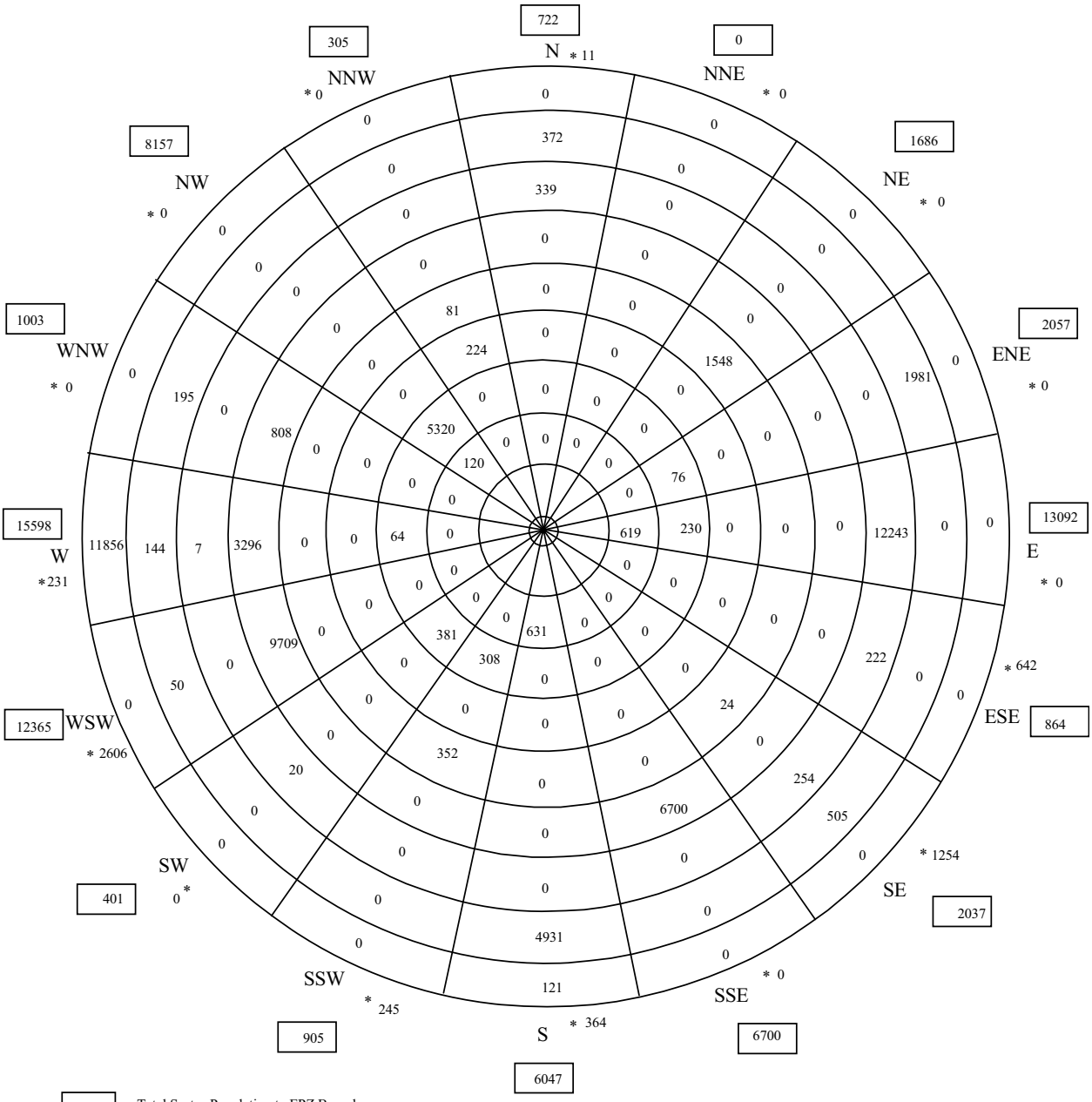
The Cortlandt Town Center is a large strip mall located on Route 6, approximately five minutes west of the Jefferson Valley Mall. The Center features an A & P Supermarket, a Home Depot and a Wal-Mart, each having approximately 300 employees. This mall is approximately 500,000 square feet, which is comparable in size to the Jefferson Valley Mall. We estimate a total of 4,550 shoppers could be at the mall at any given time.

State and County Parks

A number of sources of information regarding population estimates for the parks in the EPZ were utilized. Contacts were made with the Palisades Interstate Park Commission and county park managers. These data yield a peak period attendance of approximately 68,887 people. Tables 3-4 and 3-5 present transient population and vehicle estimates by ERPA, respectively. Figures 3-4 and 3-5 present the transient population and vehicle estimates by sector.

Table 3-4. Transient Population by ERPA							
ERPA	Hotels	Daytime State Parks & Camps: EPZ Residents	Daytime State Parks & Camps: Non-EPZ Residents	Overnight State Parks & Camps	Shoppers EPZ Residents	Shoppers Non-EPZ Residents	Non-EPZ Resident ERPA Totals
1	0	0	0	0	0	0	0
2	138	0	0	0	0	0	138
3	0	0	0	0	0	0	0
4	0	1,250	1,250	0	0	0	1,250
5	0	0	0	0	0	0	
6	24	3,300	6,700	0	0	0	6,724
7	0	0	0	0	0	0	0
8	0	0	0	0	3,003	1,548	0
9	76	0	0	0	0	0	76
10	0	0	0	0	0	0	1,548
11	0	0	0	0	3,845	1,981	1,981
12	0	0	0	222	0	0	222
13	783	3,772	11,318	0	0	0	12,101
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	0	0	0	262	0	0	262
17	0	0	0	80	0	0	80
18	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	639	0	0	120	0	0	759
23	11	0	0	0	0	0	11
24	292	0	0	0	0	0	292
25	0	0	0	0	0	0	0
26	383	0	0	0	0	0	383
27	0	0	0	0	0	0	0
28	0	0	0	0	2,092	11,856	11,856
29	0	0	0	0	0	0	0
30	308	0	0	445	0	0	753
31	20	350	350	0	0	0	370
32	108	2,475	5,025	0	0	0	5,133
33	40	0	0	0	0	0	40
34	0	0	0	0	0	0	0
35	0	0	0	485	0	0	485
36	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0
39	120	2,678	8,037	0	0	0	8,157
40	0	2,482	14,068	2,995	0	0	17,063
41	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0
49	230	0	0	0	0	0	230
50	0	129	771	0	0	0	771
51	1,254	0	0	0	0	0	1,254
Totals	4,426	16,436	47,519	4,609	8,940	15,385	71,939

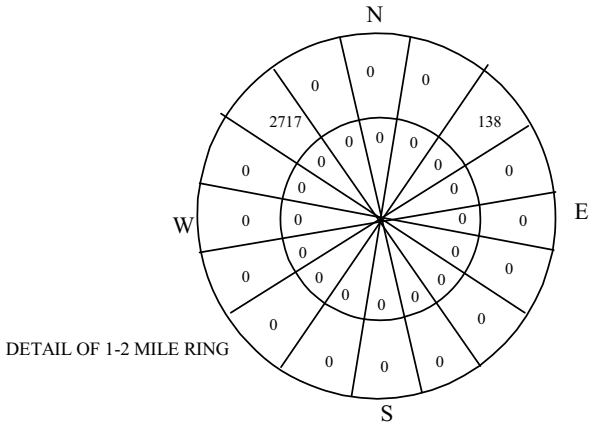
Table 3-5. Transient Vehicles by ERPA							
ERPA	Hotels	Daytime State Parks & Camps: EPZ Residents	Daytime State Parks & Camps: Non-EPZ Residents	Overnight State Parks & Camps	Shoppers EPZ Residents	Shoppers Non-EPZ Residents	Non-EPZ Resident ERPA Total Vehicles
1	0	0	0	0	0	0	0
2	69	0	0	0	0	0	69
3	0	0	0	0	0	0	0
4	0	436	436	0	0	0	436
5	0	0	0	0	0	0	
6	12	1,443	2,931	0	0	0	2,943
7	0	0	0	0	0	0	0
8	0	0	0	0	1,164	600	0
9	38	0	0	0	0	0	38
10	0	0	0	0	0	0	600
11	0	0	0	0	1,489	767	767
12	0	0	0	50	0	0	50
13	111	1,097	3,290	0	0	0	3,401
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	0	0	0	46	0	0	46
17	0	0	0	25	0	0	25
18	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	566	0	0	21	0	0	587
23	5	0	0	0	0	0	5
24	97	0	0	0	0	0	97
25	0	0	0	0	0	0	0
26	188	0	0	0	0	0	188
27	0	0	0	0	0	0	0
28	0	0	0	0	1,040	5,891	5,891
29	0	0	0	0	0	0	0
30	154	0	0	70	0	0	224
31	10	95	95	0	0	0	105
32	54	511	1,039	0	0	0	1,093
33	60	0	0	0	0	0	60
34	0	0	0	0	0	0	0
35	0	0	0	300	0	0	300
36	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0
39	30	1,157	3,472	0	0	0	3,502
40	0	722	4,094	596	0	0	4,690
41	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0
49	12	0	0	0	0	0	12
50	0	129	262	0	0	0	262
51	826	0	0	0	0	0	826
Totals	2,232	5,590	15,619	1,108	3,693	7,258	26,217



Total Sector Population to EPZ Boundary

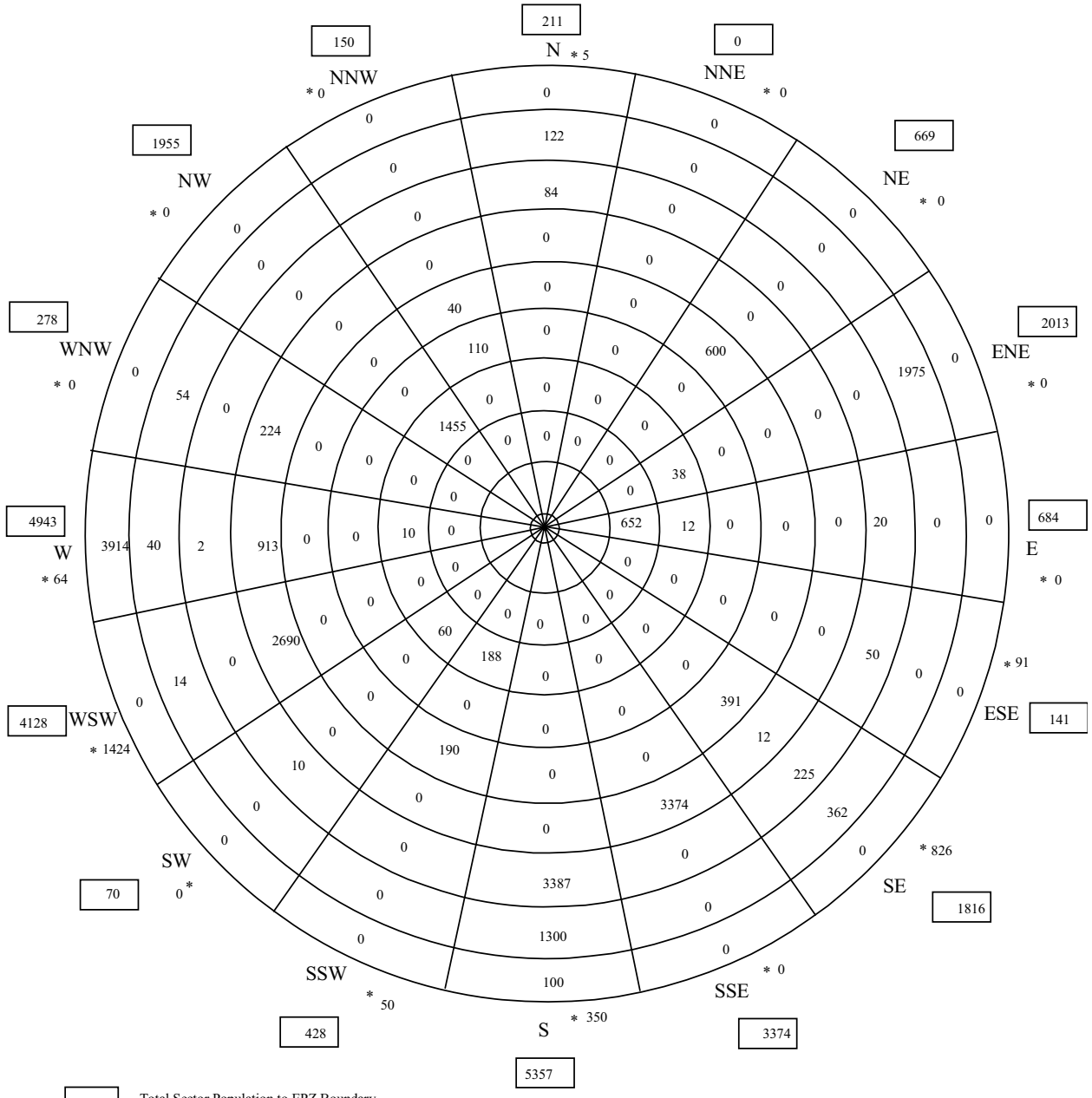
* Population between 10-Mile Ring and EPZ Boundary

Transients			
RING MILES	RING SUBTOTAL	TOTAL MILES	CUMULATIVE TOTAL
0-1	0	0-1	0
1-2	2855	0-2	2855
2-3	1370	0-3	4225
3-4	6379	0-4	10604
4-5	224	0-5	10828
5-6	2005	0-6	11285
6-7	20513	0-7	31798
7-8	13085	0-8	44883
8-9	8178	0-9	53061
9-10	11977	0-10	65038
10-EPZ	5353	0-EPZ	71939



DETAIL OF 1-2 MILE RING

Figure 3-4. Transient Population by Sector


211
N * 5
0
122
84
0
0
40
110
1455
0
0
0

Employees

Employees who work within the EPZ fall into two categories:

- Those who live and work in the EPZ
- Those who live outside of the EPZ and commute to jobs within the EPZ.

Those of the first category have already been counted as part of the permanent resident population. To avoid double counting, we focus on those employees who will evacuate along with the permanent resident population.

The major areas of employment within the Indian Point EPZ are:

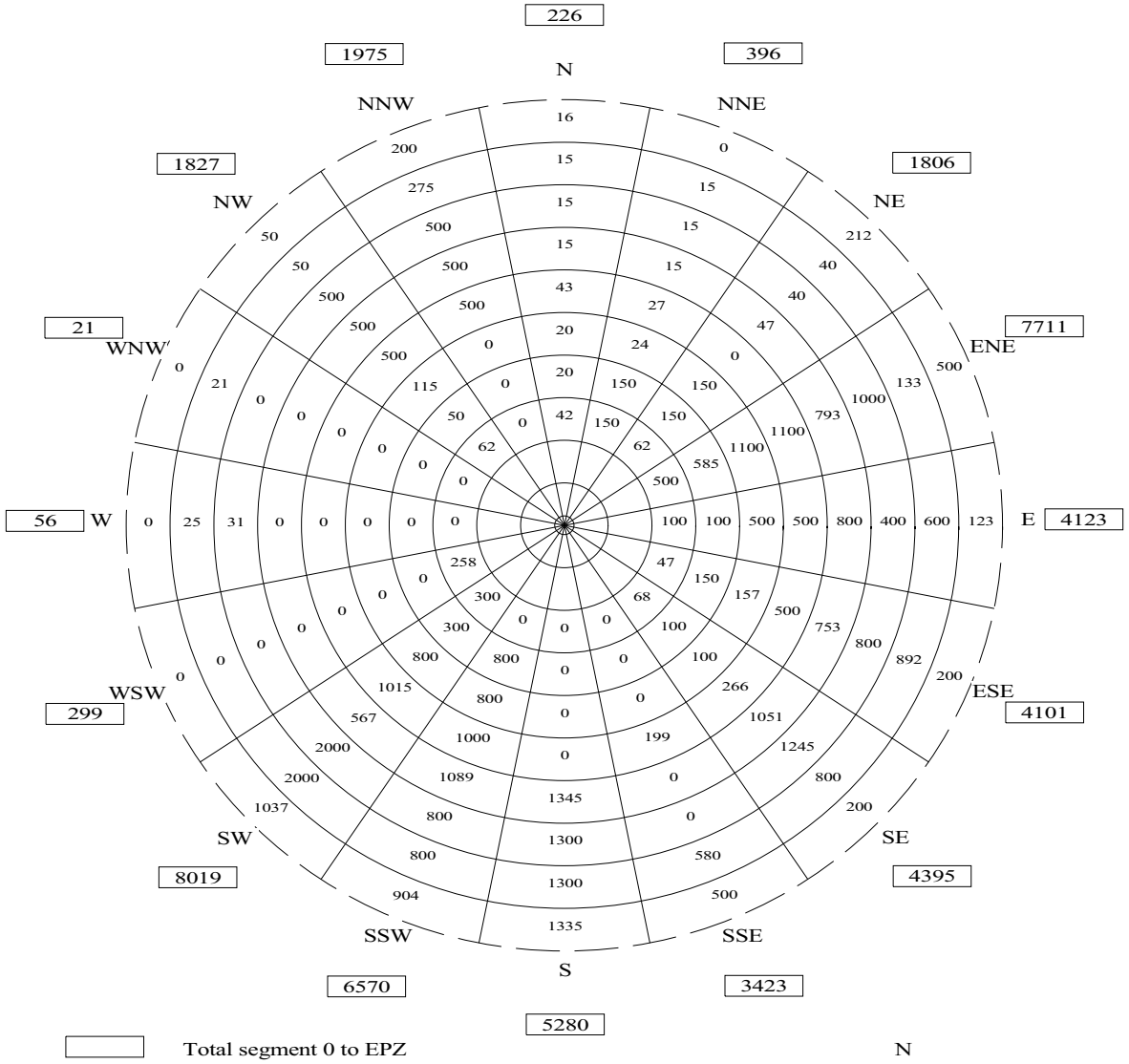
- Indian Point Energy Center – in Buchanan
- VA Hudson Valley Healthcare System – in Montrose
- Jefferson Valley Mall and IBM/Watson Research Center – in Yorktown Heights
- Cortlandt Town Center – in Cortlandt
- Pace University – campuses in Briarcliff Manor and Pleasantville
- United States Military Academy – in West Point

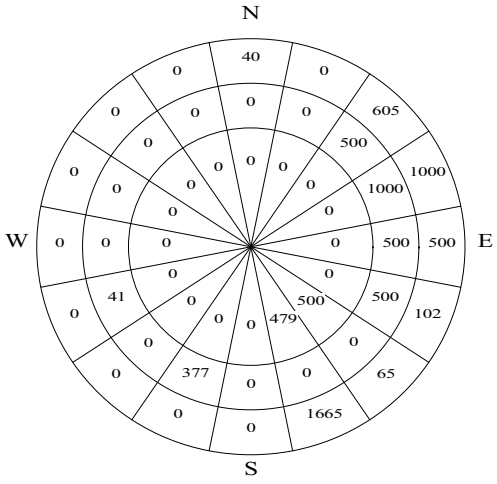
To represent the number of persons that work in the EPZ but live outside the EPZ, 2000 New York State journey-to-work data was used. The data defines the number of persons working in a specified location (municipality) by their place of residence (origin municipality). The data indicates that, on average, 46 percent of workers in any municipality come from outside the EPZ. This figure agrees with data obtained by the KLD survey of employers. The total number of jobs in any municipality was determined from NYS Department of Labor statistics for the year 2000. Thus in each ERPA, the number of jobs held by people who enter the EPZ on a daily basis was obtained by multiplying this percentage by the total number of employees.

A factor of 1.07 persons per employee vehicle obtained from the 2000 Census, was used to determine the number of evacuating employee vehicles for Rockland, Orange and Westchester Counties; a factor of 1.05 persons per employee vehicle obtained from the 2000 Census was used in Putnam County.

Table 3-6 presents non-EPZ Resident employee and vehicle estimates by ERPA. Figures 3-6 and 3-7 present these data by sector.

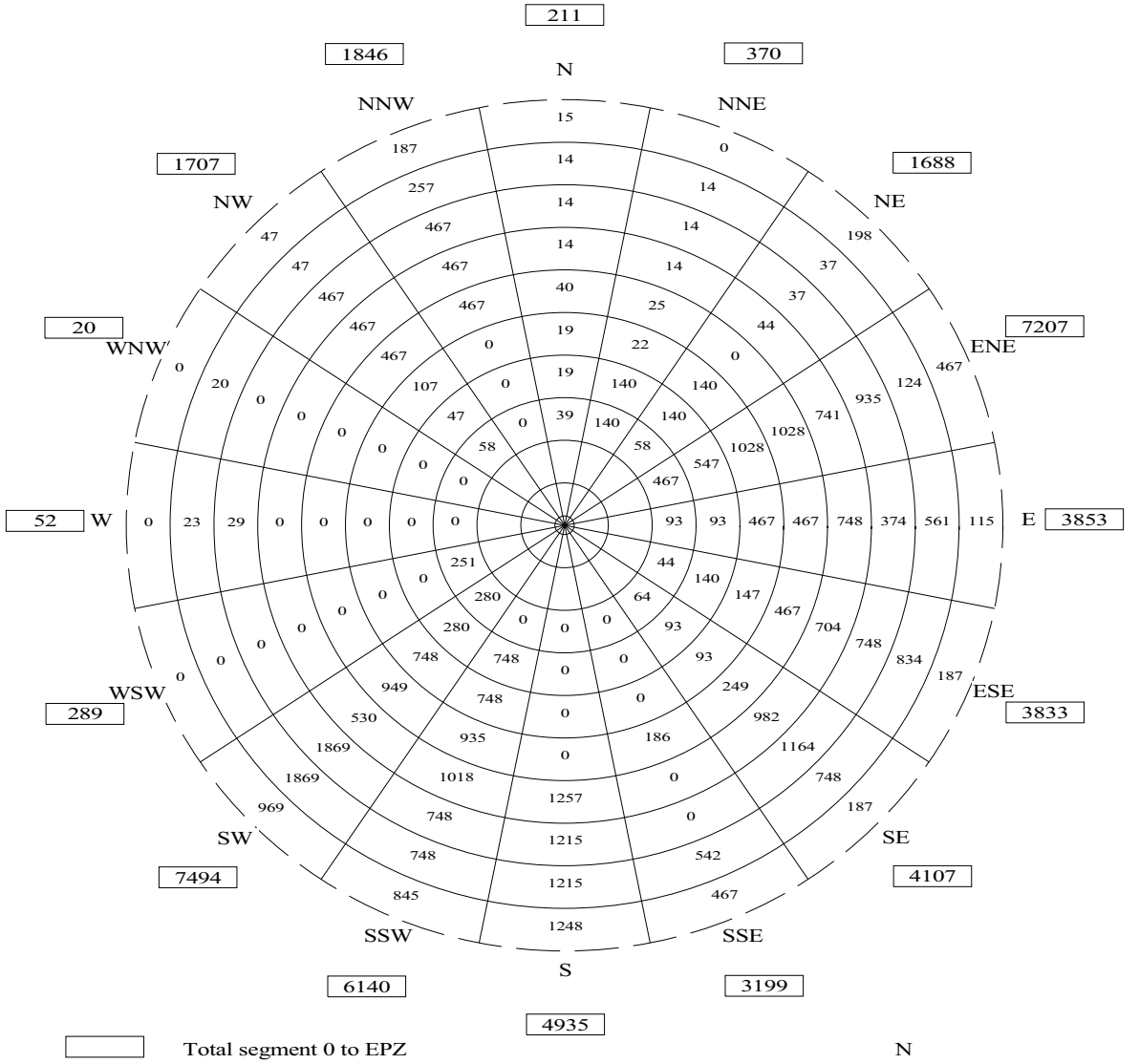
Table 3-6. Non-EPZ Resident Employee Population by ERPA					
ERPA	Persons	Vehicles	ERPA	Persons	Vehicles
1	979	915	27	121	113
2	3,105	2,902	28	56	52
3	377	352	29	41	38
4	1,602	1,497	30	858	802
5	307	287	31	3,416	3,192
6	399	373	32	1,345	1,257
7	82	77	33	3,935	3,677
8	662	619	34	2,089	1,953
9	1,085	1,014	35	2,504	2,340
10	2,200	2,056	36	567	530
11	1,793	1,676	37	5,037	4,709
12	2,253	2,106	38	-	-
13	3,492	3,264	39	-	-
14	633	592	40	-	-
15	123	115	41	-	-
16	83	79	42	-	-
17	117	111	43	-	-
18	24	22	44	-	-
19	127	121	45	-	-
20	212	202	46	-	-
21	2,045	1,911	47	1,665	1,556
22	1,451	1,355	48	133	124
23	16	16	49	247	231
24	3,115	2,911	50	266	249
25	475	444	51	1,080	1,009
26	112	105	Total	50,228	46,952





Employees			
Ring Miles	Ring Subtotal	Total Miles	Cumulative Total
0-1	979	0-1	979
1-2	2918	0-2	3897
2-3	3977	0-3	7874
3-4	1589	0-4	9463
4-5	2405	0-5	11868
5-6	3766	0-6	15634
6-7	5650	0-7	21284
7-8	7475	0-8	28759
8-9	8646	0-9	37405
9-10	7546	0-10	44951
10-EPZ	5277	0-EPZ	50228

Figure 3-6. Employee Population by Sector



Employee_Vehicles			
Ring Miles	Ring Subtotal	Total Miles	Cumulative Total
0-1	915	0-1	915
1-2	2727	0-2	3642
2-3	3717	0-3	7359
3-4	1495	0-4	8854
4-5	2248	0-5	11102
5-6	3520	0-6	14622
6-7	5280	0-7	19902
7-8	6986	0-8	26888
8-9	8080	0-9	34968
9-10	7052	0-10	42020
10-EPZ	4932	0-EPZ	46952

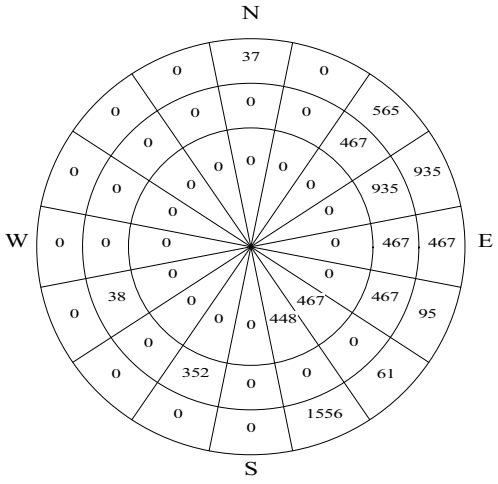


Figure 3-7. Employee Vehicles by Sector

Medical Facilities

The existing plans for Rockland, Orange, Putnam and Westchester Counties present estimates of the populations of medical facilities such as hospitals, nursing and retirement homes and other health-related facilities. The number and type of evacuating vehicles that need to be provided depends on the patients' state of health. Buses can transport up to 40 people; vans, up to 12 people; ambulances, up to 2 people (patients).

Total Demand in Addition to Permanent Population

There will be vehicles traveling through the EPZ (external-external trips) at the time of the accident. After the Advisory to Evacuate is announced, these through travelers will also evacuate. These through vehicles are assumed to travel on interstate routes and on the major north and southbound limited access highways in the area, which are the primary routes through the EPZ. It is assumed that this traffic will continue to enter the EPZ during the first 90 minutes following the Advisory to Evacuate. We estimate approximately 24,000 vehicles enter the EPZ as external-external trips during this period.

4. ESTIMATION OF HIGHWAY CAPACITY

The ability of the road network to service vehicle demand is a major factor in determining how rapidly an evacuation can be completed. The capacity of a road is defined as the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane of roadway during a given time period under prevailing roadway, traffic and control conditions. (From the 2000 Highway Capacity Manual)

In discussing capacity, different operating conditions have been assigned alphabetical designations, A through F, to reflect the range of traffic operational characteristics. These designations have been termed "Levels of Service" (LOS). For example, LOS A connotes free-flow and high-speed operating conditions; LOS F represents a forced flow condition. LOS E describes traffic operating at or near capacity.

Because of the effect of weather on the capacity of a roadway, it is necessary to adjust capacity figures to represent the prevailing conditions during inclement weather. Based on limited empirical data, weather conditions such as heavy rain reduce the values of free speed and of highway capacity by approximately 10 percent. Over the last decade new studies have been made on the effects of rain on traffic capacity. These studies indicate a range of effects between 5 and 20 percent depending on wind speed and precipitation rates. During the winter months, we estimate free speed and capacity reductions of approximately 20 percent under snow conditions, as a reasonable expectation.

Given the suburban character of the EPZ, its high population density, and the availability of well-maintained highways, congestion arising from evacuation is likely to be significant. Therefore, estimates of roadway capacity must be determined with great care. Because of its importance, a brief discussion of the major factors that influence capacity is presented in this section.

Capacity Estimations on Approaches to Intersections

At-grade intersections are apt to become the first bottleneck locations under heavy traffic volume conditions. This characteristic reflects the need to allocate access time to the respective competing traffic streams by exerting some form of control. During evacuation, control at critical intersections will often be provided by traffic control personnel assigned for that purpose, whose directions may supersede traffic control devices. The Traffic Management Plan identifies these locations (called Traffic Control Points, TCP) and the management procedures applied. See Appendix G for details.

The per-lane capacity of an approach to a signalized intersection can be expressed (simplistically) in the following form:

$$Q_{cap,m} = \left(\frac{3600}{h_m}\right) \bullet \left[\frac{G-L}{C}\right]_m = \left(\frac{3600}{h_m}\right) \bullet P_m$$

where:

Qcap,m = Capacity of a single lane of traffic on an approach, which executes

		movement, *m*, upon entering the intersection; vehicles per hour (vph)
h_m	=	Mean queue discharge headway of vehicles on this lane that are executing movement, *m*; seconds per vehicle
G_m	=	The mean duration of GREEN time servicing vehicles that are executing movement, *m*, for each signal cycle; seconds
L	=	The mean "lost time" for each signal phase servicing movement, m; seconds
C	=	The duration of each signal cycle; seconds
P_m	=	The proportion of GREEN time allocated for vehicles executing movement, *m*, from this lane. This value is specified as part of the control treatment.
m	=	The movement executed by vehicles after they enter the intersection: through, left-turn, right-turn, diagonal.

The turn-movement-specific mean discharge headway h_m, depends in a complex way upon many factors: roadway geometrics, turn percentages, the extent of conflicting traffic streams, the control treatment, and others. A primary factor is the value of "saturation queue discharge headway", h_{sat}, which applies to through vehicles that are not impeded by other conflicting traffic streams. This value, itself, depends upon many factors including motorist behavior. Formally, we can write,

$$h_m = f_m (h_{sat}, F_1, F_2, ...)$$

where

h_{sat}	=	Saturation discharge headway for through vehicles; seconds per vehicle
F_1, F_2	=	The various known factors influencing h_m
$f_m (\cdot)$	=	Complex function relating h_m to the known (or estimated) values of $h_{sat}, F_1, F_2, ...$

The estimation of h_m for specified values of $h_{sat}, F_1, F_2, ...$ is undertaken within the PCDYNEV simulation model and within the TRAD model by a mathematical model[1]. The resulting values for h_m always satisfy the condition:

$$h_m \geq h_{sat}$$

That is, the turn-movement-specific discharge headways are always greater than, or equal to the saturation discharge headway for through vehicles. These headways (or its inverse equivalent, "saturation flow rate"), may be determined by observation or using the procedures of the Highway Capacity Manual.

1 Lieberman, E., "Determining Lateral Deployment of Traffic on an Approach to an Intersection", McShane, W. & Lieberman, E., "Service Rates of Mixed Traffic on the far Left Lane of an Approach". Both papers appear in Transportation Research Record 772, 1980.

Capacity Estimation Along Sections of Highway

The capacity of highway sections -- as distinct from approaches to intersections -- is a function of roadway geometrics, traffic composition (e.g. percent heavy trucks and buses in the traffic stream) and, of course, motorist behavior. There is a fundamental relationship which relates service volume (i.e. the number of vehicles serviced within a uniform highway section in a given time period) to traffic density. Figure 4-1 describes this relationship.

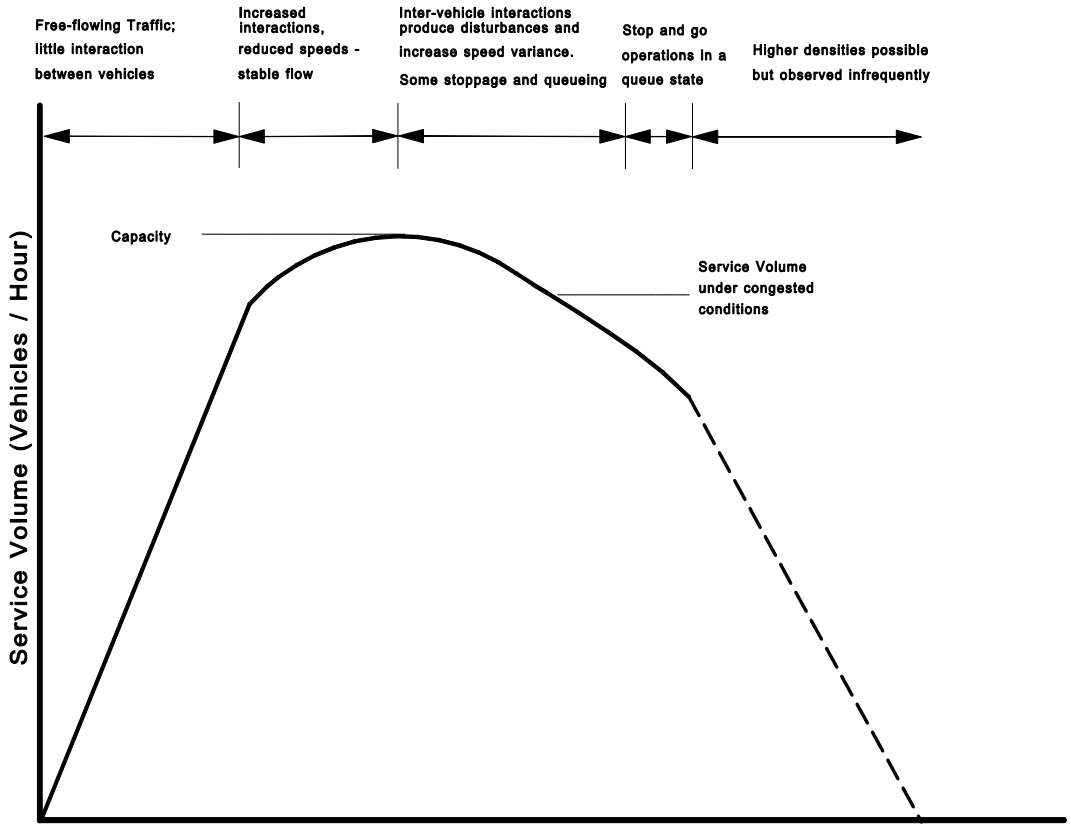


Figure 4-1. Fundamental Relationship Between Volume and Density

As indicated, there are two flow regimes: (1) Free Flow (left side of curve); and (2) Forced Flow (right side). In the Free Flow regime, the traffic demand is fully serviced; this service volume increases as demand volume and density increase, until the service volume attains its maximum value which is the capacity of the highway section. As traffic demand and the resulting highway density increase beyond this "critical" value, the rate at which traffic can be serviced (i.e. the service volume) actually declines below capacity. Therefore, in order to realistically represent traffic performance during congested conditions (i.e. when demand exceeds capacity), it is necessary to estimate the service volume, V_F, under congested conditions.

The value of V_F can be expressed as:

$$V_F = R \times \text{capacity}$$

where R = Reduction factor which is less than unity.

Based on empirical data collected on freeways, we have employed a value of R=0.85. It is important to mention that some investigators, on analyzing data collected on freeways, conclude that little reduction in capacity occurs even when traffic is operating at Level of Service, *F*. While there is conflicting evidence on this subject, we adopt a conservative approach and use a value of capacity that is applied during LOS F condition, V_F, that is lower than the specified capacity.

The estimated value of capacity is based primarily upon the type of facility and on roadway geometrics. Sections of roadway with adverse geometrics are characterized by lower free-flow speeds and lane capacity.

The procedure used here was to estimate "section" capacity, V_E, based on our observations traveling over each section of the evacuation network, by the posted speed limits and travel behavior of other motorists and by reference to the 2000 Highway Capacity Manual. We then determined for each highway section, represented as a network link, whether its capacity would be limited by the "section-specific" service volume, V_E , or by the intersection- specific capacity. For each link, the model selects the lower value of capacity.

Application to the IPEC EPZ

As part of the development of the IPEC EPZ traffic network, an estimate of roadway capacity is required. The source material for the capacity estimates presented herein is contained in:

2000 Highway Capacity Manual (HCM)
Transportation Research Board
National Research Council
Washington, D.C.

The highway system in the IPEC EPZ consists primarily of three categories of roads and, of course, intersections:

- Two-lane roads: Local, State
- Multi-lane Highways (at-grade)
- Freeways (e.g., Taconic State Parkway, Palisades Parkway)

Each of these classifications will be discussed.

Two-Lane Roads

Ref: HCM Chapter 20

Two lane roads comprise the majority of highways within the EPZ. The per-lane capacity of a two-lane highway is estimated at 1700 passenger cars per hour (pc/h). This estimate is essentially independent of the directional distribution of traffic volume except that, for extended distances, the two-way capacity will not exceed 3200 pc/h. The HCM procedures then estimate Level of Service (LOS) and Average Travel Speed. The evacuation simulation model accepts the specified value of capacity as input and computes average speed based on the time-varying demand: capacity relations.

Based on the field survey and on expected traffic operations associated with evacuation scenarios:

- Most sections of two-lane roads within the EPZ are classified as “Class I”, with "level terrain"; some are “rolling terrain”.
- “Class II” highways are mostly those within city limits.

Multi-Lane Highway

Ref: HCM Chapter 21

Exhibit 21-23 (in the HCM) presents a set of curves that indicates a per-lane capacity of approximately 2100 pc/h, for free-speeds of 55-60 mph. Based on observation, the multi-lane highways outside of urban areas within the EPZ service traffic with free-speeds in this range. The actual time-varying speeds computed by the simulation model reflect the demand: capacity relationship and the impact of control at intersections.

Freeways

Ref: HCM Chapters 22-25

Chapter 22 of the HCM describes a procedure for integrating the results obtained in Chapters 23, 24 and 25, which compute capacity and LOS for freeway components. The discussion also references Chapter 31, which presents a discussion on simulation models. The simulation model, PCDYNEV, automatically performs this integration process.

Chapter 23 of the HCM presents procedures for estimating capacity and LOS for "Basic Freeway Segments". Exhibit 23-3 of the HCM2000 presents capacity vs. free speed estimates.

Free Speed:	55	60	65	70+
Per-Lane Capacity (pc/h):	2250	2300	2350	2400

The inputs to the simulation model are highway geometrics, and free-speeds and capacity based on field observations. The simulation logic calculates actual time-varying speeds based on demand: capacity relationships.

Chapter 24 of the HCM presents procedures for estimating capacity, speed, density and LOS. The simulation model contains logic that relates speed to demand volume: capacity ratio. The value of capacity that is obtained from Exhibit 24-8 (of the HCM2000), depends on the "Type" and geometrics of the weaving segment and on the "Volume Ratio" (ratio of weaving volume to total volume).

Chapter 25 of the HCM presents procedures for estimating capacities of ramps and of "merge" areas. The capacity of a merge area "is determined primarily by the capacity of the downstream freeway segment". Values of this merge area capacity are presented in Exhibit 25-7 of the HCM2000, and depend on the number of freeway lanes and on the freeway free speed. The KLD simulation model logic simulates the merging operations of the ramp and freeway traffic. If congestion results from an excess of demand relative to capacity, then the model allocates service appropriately to the two entering traffic streams and produces LOS F conditions. (The HCM does not address LOS F explicitly).

Intersections

Ref: HCM Chapters 16, 17

Procedures for estimating capacity and LOS for approaches to intersections are presented in Chapters 16 (signalized intersections) and 17 (un-signalized intersections). These are the two longest chapters in the HCM 2000, reflecting the complexity of these procedures. The simulation logic is likewise complex, but different; as stated on page 31-21 of the HCM2000:

> *"Assumptions and complex theories are used in the simulation model to represent the real-world dynamic traffic environment. "*

5. ESTIMATION OF TRIP GENERATION TIME

Federal Government guidelines (see NUREG 0654, Appendix 4) specify that the planner estimate the distributions of elapsed times associated with mobilization activities undertaken by the public to prepare for the evacuation trip. The elapsed time associated with each activity is represented as a statistical distribution reflecting differences in activity times among members of the public. The quantification of these activity-based distributions relies largely on the results of the telephone survey (Appendix F). We define the sum of these distributions of elapsed times as the Trip Generation Time Distribution.

Background

In general, an accident at a nuclear power station is characterized by the following Emergency Classification Levels (see Appendix 1 of NUREG 0654 for details):

1. Unusual Event
2. Alert
3. Site Area Emergency
4. General Emergency

At each level, the Federal guidelines specify a set of actions to be undertaken by the Licensee, and by State and Local offsite authorities. As a planning basis, we will adopt a conservative posture, in accord with Federal Regulations, that a rapidly escalating accident will be considered in calculating the Trip Generation Time. We will assume:

a. The Advisory to Evacuate will be announced coincident with the siren alert.

b. Mobilization of the general population will commence up to 10 minutes after the siren alert.

c. Evacuation Time Estimates (ETEs) are measured relative to the Advisory to Evacuate.

A rapidly escalating accident scenario assumes that the general population will evacuate over the same time frame as do the school children, the transit-dependent population, the employees who live outside the EPZ, and the special facility population. This assumption generally leads to longer evacuation time estimates than those for scenarios that escalate more slowly.

We emphasize that the adoption of this planning basis is not a representation that these events will occur at the Indian Point Energy Center (IPEC) within the indicated time frame. Rather, these assumptions are necessary in order to:

- Establish a temporal framework for estimating the Trip Generation distribution in the format recommended in Appendix 4 of NUREG 0654.

- Identify temporal points of reference for the purpose of uniquely defining "Clear Time" and Evacuation Time Estimates (ETE).

It is more likely that a longer time will elapse between the various classes of an emergency at IPEC. For example, suppose two hours elapse from the declaration of a General Emergency to the Advisory to Evacuate. In this case, it is reasonable to expect some degree of spontaneous evacuation by the public during this two-hour period. As a result, the population within the Emergency Planning Zone (EPZ) will be lower when the Advisory to Evacuate is announced, than at the time of the General Emergency. Thus, the time needed to evacuate the EPZ after the Advisory to Evacuate will be less than the estimates presented in this report.

The notification process consists of two events:

- Transmitting information (e.g. using sirens, tone alerts, EAS broadcasts, loud speakers).
- Receiving and correctly interpreting the information that is transmitted.

The peak population within the EPZ exceeds 300,000 persons who are deployed over an area of approximately 370 square miles and engaged in a wide variety of activities. It must be anticipated that some time will elapse between the transmission and receipt of the information advising the public of an accident.

The amount of elapsed time required for each activity will vary from one individual to the next depending where that person is, what that person is doing, and related factors. Furthermore, some persons who will be directly involved with the evacuation process may be outside the EPZ at the time that the emergency is declared. These people may be commuters, shoppers and other travelers who reside within the EPZ and who will return to join the other household members upon receiving notification of an emergency.

As indicated in NUREG 0654, the estimated elapsed times for the receipt of notification can be expressed as a distribution reflecting the different notification times for different people within, and outside, the EPZ. By using time distributions, it is also possible to distinguish between different population groups and different day-of-week and time-of-day scenarios, so that more accurate assessments may be obtained.

For example, people at home or at work within the EPZ will be notified by siren and radio. Those well outside the EPZ will be notified by telephone, radio, TV and word-of-mouth, with potentially longer time lags. Furthermore, the spatial distribution of the EPZ population will differ with time of day -- families will be united in the evenings, but dispersed during the day. In this respect, weekends will differ from weekdays.

Fundamental Considerations

The environment leading up to the time that people begin their evacuation trips consists of a sequence of events and activities. Each event (other than the first) occurs at an instant in time and is the outcome of an activity.

Activities are undertaken over a period of time. Activities may be in "series" (i.e. to undertake an activity implies the completion of all preceding activities) or may be in parallel (two or more activities may take place over the same period of time). Activities conducted in series are functionally dependent on the completion of prior activities; activities conducted in parallel are functionally independent of one another. The relevant events associated with the public's preparation for evacuation are (snow clearance excluded):

Event Number	Event Description
1	No-accident condition
2	Awareness of accident situation
3	Depart place of work to return home
4	Arrive home
5	Leave to evacuate the area

Associated with each sequence of events are one or more activities, as outlined below:

Event Sequence	Activity	Distribution
1 → 2	Public receives notification information	1
2 → 3	Prepare to leave work	2
2,3 → 4	Travel home	3
2,4 → 5	Prepare to leave for evacuation trip	4
	Snow clearance	5

These relationships are shown graphically in Figure 5-1.

An employee who lives outside the EPZ will follow sequence (e) of Figure 5-1; a resident of the EPZ who is at work and will return home before beginning the evacuation trip will follow sequence (c) of Figure 5-1. Note that event 5, "Leave to evacuate the area," is conditional either on event 2 or on event 4. That is, activity 2 --> 5 by a resident at home can be undertaken in parallel with activities 2 --> 3, 3 --> 4 and 4 --> 5 by a commuter returning to that home, as shown in Figure 5-1 (a) and (c). Specifically, one adult member of a household can prepare to leave home (i.e. secure the home, pack clothing, etc.), while others are traveling home from work. In this instance, the household members would be able to evacuate sooner than if such trip preparation were deferred until all household members had returned home. For this study, we adopt the conservative posture that all activities will occur in sequence.

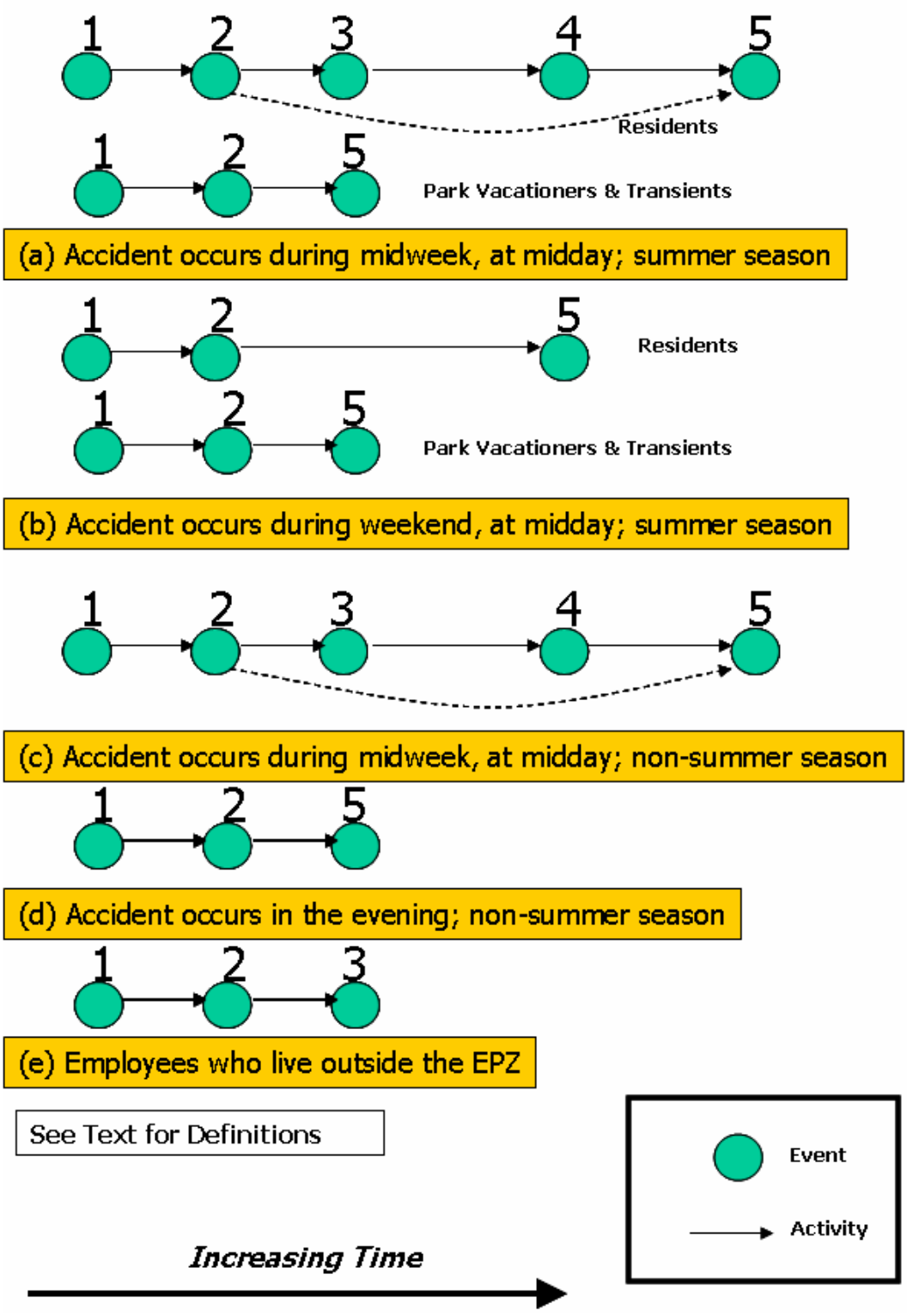


Figure 5-1. Events and Activities Preceding the Evacuation Trip

It is seen from Figure 5-1, that the Trip Generation time (i.e. the total elapsed time from Event 1 to Event 5) depends on the scenario and will vary from one household to the next. Furthermore, Event 5 depends, in a complicated way, on the time distributions of all activities preceding that event. That is, to estimate the time distribution of Event 5, we must obtain estimates of the time distributions of all preceding events.

Estimated Time Distributions of Activities Preceding Event 5

The time distribution of an event is obtained by "summing" the time distributions of all prior contributing activities. (This "summing" process is quite different than an algebraic sum since we are operating on distributions – not scalar numbers).

Time Distribution No. 1, Notification Process: Activity 1 $\rightarrow$ 2

It is reasonable to expect that 85 percent of the people within the EPZ will be aware of the accident within 30 minutes with the remainder notified within the following 20 minutes. The resulting distributions for this notification activity are given below.

Elapsed Time (Min)	Percent of Population Notified	Elapsed Time (Min)	Percent of Population Notified
0	0	30	85
5	7	35	90
10	13	40	95
15	26	45	98
20	46	50	100
25	65		

Distribution No. 2, Prepare to Leave Work: Activity 2 → 3

It is reasonable to expect that the vast majority of business enterprises within the EPZ will elect to shut down following notification and most employees would leave work quickly. Commuters, who work outside the EPZ could, in all probability, also leave quickly since facilities outside the EPZ would remain open and other personnel would remain. Personnel responsible for equipment would require additional time to secure the facility. The distribution of Activity 2 --> 3 reflects data obtained by the telephone survey. This distribution is plotted in Figure 5-2 and listed below.

Elapsed Time(Min)	Cumulative Percent Employees Leaving Work	Elapsed Time (Min)	Cumulative Percent Employees Leaving Work
0	0	40	88
5	13	45	90
10	33	50	91
15	53	55	92
20	73	60	93
25	77	65	97
30	81	70	100
35	85		

NOTE: The survey data was normalized to distribute the "Don't know" response

Distribution No. 3, Travel Home: Activity 3 → 4

These data are provided directly by the telephone survey. This distribution is plotted in Figure 5-2 and listed below.

Elapsed Time (Min)	Cumulative Percent Returning Home	Elapsed Time (Min)	Cumulative Percent Returning Home
0	0	50	80
5	9	55	84
10	20	60	87
15	31	65	90
20	44	70	95
25	50	75	96
30	61	80	97
35	65	85	98
40	70	90	99
45	76	95	100

Distribution No. 4, Prepare to Leave Home: Activity 2,4 $\rightarrow$ 5

These data are provided directly by the telephone survey. This distribution is plotted in Figure 5-2 and listed below.

Elapsed Time (Min)	Cumulative Percent Ready to Evacuate	Elapsed Time (Min)	Cumulative Percent Ready to Evacuate
0	0	65	90
5	8	70	92
10	15	75	94
15	28	80	95
20	40	85	96
25	50	90	96
30	60	95	97
35	67	100	97
40	73	105	98
45	76	110	98
50	78	115	99
55	83	120	100
60	87		

NOTE: The original data were obtained in 15-minute increments. The above figures were interpolated.

Snow Clearance Time Distribution

Inclement weather scenarios involving snowfall must address the time lags associated with snow clearance. Discussions with local officials indicate that snow plow equipment is mobilized and deployed during the snowfall to maintain passable roads. The general consensus is that their efforts are generally successful for all but the most extreme blizzards when the rate of snow accumulation exceeds that of snow clearance over a period of many hours.

Consequently, it is reasonable to assume that the highway system will remain passable -- albeit at a lower capacity -- under the vast majority of snow conditions. Nevertheless, for the vehicles to gain access to the highway system, it may be necessary for driveways and employee parking lots to be cleared to the extent needed to permit vehicles to gain access to the roadways. These clearance activities take time; this time must be incorporated into the trip generation time

distributions. These data are provided directly by the telephone survey. This distribution is plotted in Figure 5-2 and listed below.

Distribution No. 5, Time to Clear Driveway of Snow

Elapsed Time (Min)	Cumulative Percent Driveways Cleared	Elapsed Time (Min)	Cumulative Percent Driveways Cleared
0	0	85	91
5	5	90	92
10	10	95	92
15	23	100	92
20	35	105	92
25	45	110	92
30	55	115	92
35	60	120	93
40	65	125	94
45	69	130	95
50	72	135	96
55	77	140	97
60	82	145	97
65	85	150	98
70	87	155	98
75	89	160	99
80	91	165	100

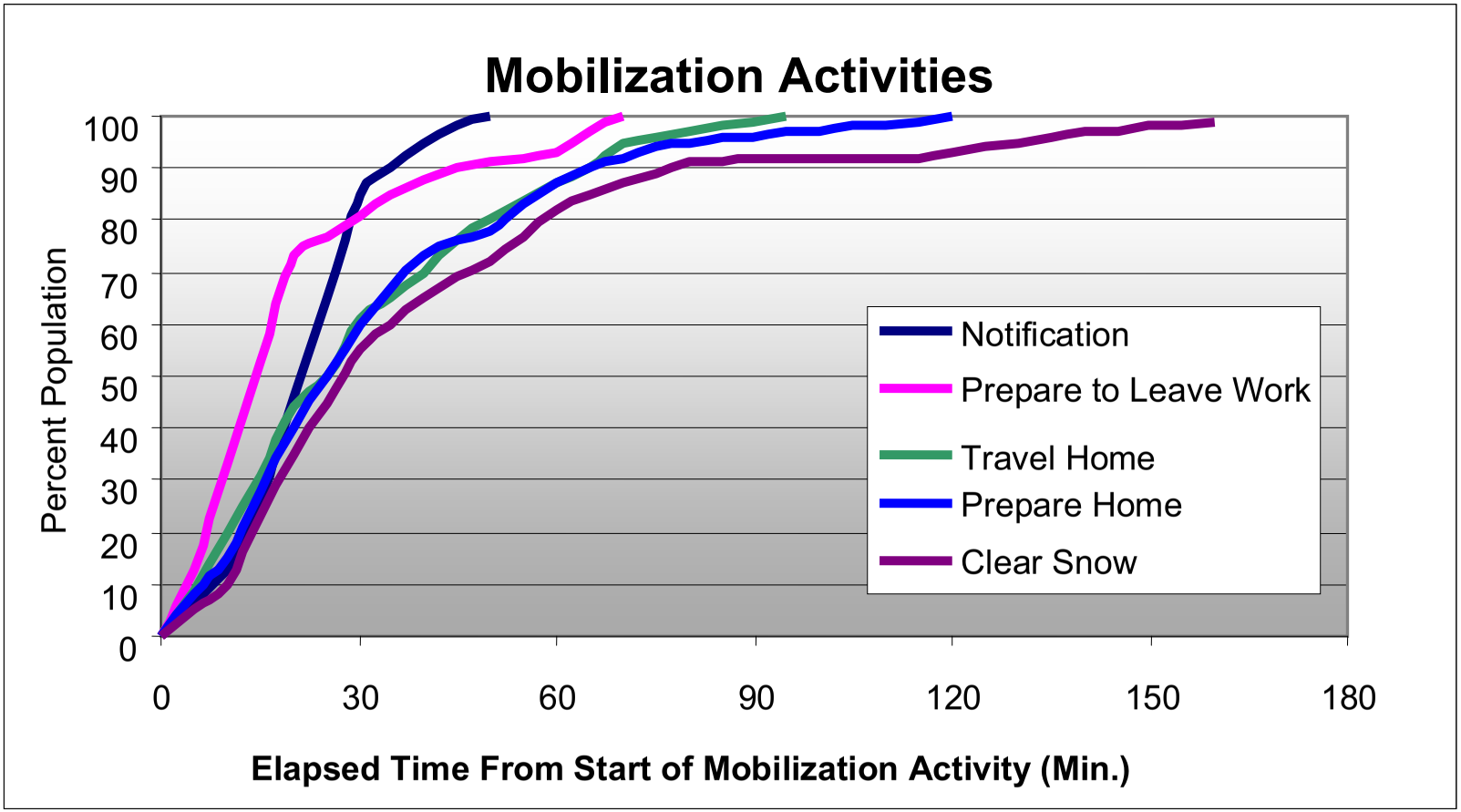


Figure 5-2. Mobilization Activity Time Distributions

Calculation of Trip Generation Time Distribution

The time distributions for each of the mobilization activities presented herein must be combined to form the appropriate Trip Generation Distributions. We assume that the stated events take place in sequence such that all preceding events must be completed before the current event can occur. For example, if a household awaits the return of a commuter, the work-to-home trip (Activity 3 $\rightarrow$ 4) must precede Activity 4 $\rightarrow$ 5.

To calculate the time distribution of an event that is dependent on two sequential activities, it is necessary to "sum" the distributions associated with these prior activities. The distribution "summing" algorithm is applied repeatedly as shown below to form the required distribution. As an outcome of this procedure, new time distributions are formed; we assign "letter" designations to these intermediate distributions to describe the procedure.

Apply "Summing" Algorithm To:			
Distributions 1 and 2	To Obtain Distribution A	That defines	Event No. 3
Distributions A and 3	To Obtain Distribution B	That defines	Event No. 4
Distributions B and 4	To Obtain Distribution C	That defines	Event No. 5
Distributions A and 4	To Obtain Distribution D	That defines	Event No. 5
Distributions C and 5	To Obtain Distribution E	That defines	Event No. 5
Distributions D and 5	To Obtain Distribution F	That defines	Event No. 5

Distributions A through F are described below and shown in Figure 5-3:

Distribution	Description
A	Time distribution of commuters departing place of work (Event 3). Also applies to employees who work within the EPZ and live outside, and to Transients within the EPZ.
B	Time distribution of commuters arriving home.
C	Time distribution of residents with commuters who return home, leaving home to begin the evacuation trip.
D	Time distribution of residents with no commuters returning home, leaving to begin the evacuation trip.
E	Time distribution of residents with commuters who return home, leaving home to begin the evacuation trip, after snow clearance activities.
F	Time distribution of residents with no commuters returning home, leaving to begin the evacuation trip, snow clearance activities.

Figure 5-3 presents the combined trip generation distributions designated A, C, D, E, and F. These distributions are presented on the same time scale.

The PCDYNEV simulation model is designed to accept varying rates of vehicle trip generation for each origin centroid, expressed in the form of histograms. These histograms, which represent Distributions A, C, D, E, and F, properly displaced with respect to one another, are tabulated in Table 5-1. (Distribution B, Arrive Home, omitted for clarity).

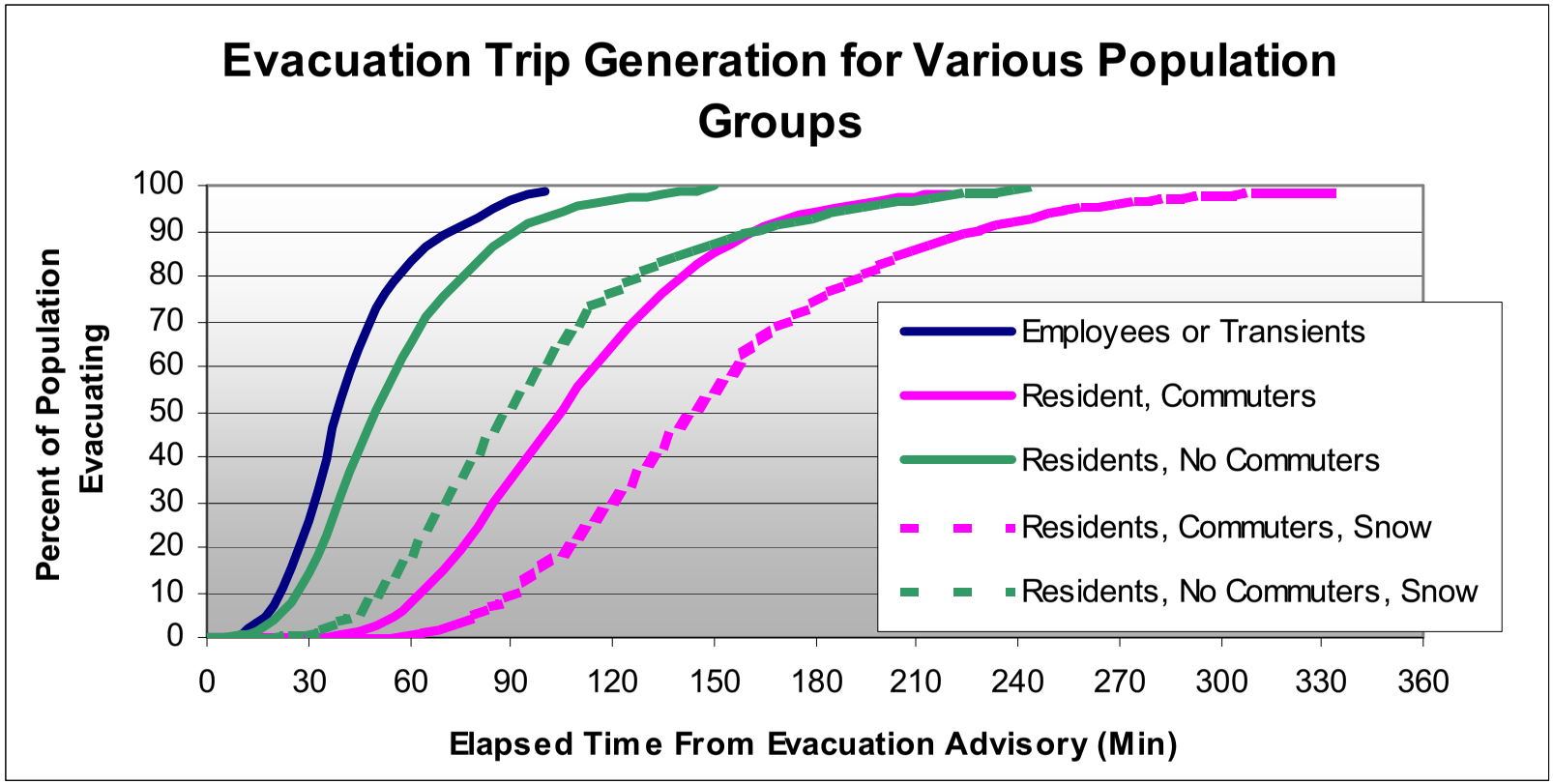

Evacuation Trip Generation for Various Population Groups
Percent of Population Evacuating
100
90
80
70
60
50
40
30
20
10
0
0
30
60
90
120
150
180
210
240
270
300
330
360
Elapsed Time From Evacuation Advisory (Min)
Employees or Transients
Resident, Commuters
Residents, No Commuters
Residents, Commuters, Snow
Residents, No Commuters, Snow

Table 5-1. Trip Generation Time Histograms for Midweek and Weekend Scenarios

Time Period Relative to Time of Order to Evacuate (Hr:Min)	Distribution A Employees		Distribution A Transients		Distribution C Residents, Commuters		Distribution D Residents, No Commuters		Distribution E Residents, Commuters, Snow		Distribution F Residents, No Commuters, Snow	
	Trips	Rate	Trips	Rate	Trips	Rate	Trips	Rate	Trips	Rate	Trips	Rate
0:00 - 0:15	10	40	10	40	0	0	4	16	0	0	0	0
0:15 - 0:30	15	60	15	60	0	0	11	44	0	0	2	8
0:30 - 1:00	59	118	59	118	8	16	50	100	1	2	18	36
1:00 - 1:30	13	26	13	26	27	54	25	50	9	18	32	64
1:30 - 2:00	3	6	3	6	29	58	8	16	20	40	26	52
2:00 - 3:00	0	0	0	0	31	31	2	2	45	45	15	15
3:00 - 4:00	0	0	0	0	5	5	0	0	18	18	7	7
4:00 - 5:00	0	0	0	0	0	0	0	0	7	7	0	0
5:00 - End	0	0	0	0	0	0	0	0	0	0	0	0

Units: Trips, percent of total trips generated at the origin centroids during indicated Time Period
Rate: Percent of total trips per hour during indicated Time Period

These tabulations present the trips generated and the rates of trip-making within each indicated time period, both expressed as a percentage of the total number of trips to be generated at each centroid. The rate of trip making is found by:

$$\text{Rate} = \frac{\text{Trips generated in Time Period (percent)}}{\text{Duration of Time Period (hours)}}$$

6. DEMAND ESTIMATION FOR EVACUATION SCENARIOS

An evacuation "case" defines a combination of Evacuation Region and Evacuation Scenario. The definitions of "Region" and "Scenario" are as follows:

Region — A grouping of contiguous evacuation ERPAs, that forms either a "keyhole" sector-based area, or a circular area within the EPZ, that must be evacuated in response to a radiological emergency.

Scenario — A combination of circumstances, including time of day, day of week, season, and weather conditions. Scenarios define the number of people in each of the affected population groups and their respective mobilization time distributions.

A total of 35 Regions were defined which encompass all the groupings of ERPAs considered. These Regions are defined in Table 6-1. The ERPA configurations are identified in Figure 6-1. Each keyhole sector-based area consists of a central circle centered at the Indian Point Energy Center (IPEC), and three adjoining sectors, each with a central angle of 22.5 degrees. These sectors extend to a distance of 5 miles from IPEC (Regions R4 to R19), or 10 miles (Regions R20 to R35). The azimuth of the center sector defines the orientation of these Regions.

A total of 14 Scenarios were evaluated for all Regions. Thus, there are a total of 14x35=490 evacuation cases. Table 6-2 is a description of all Scenarios.

Each combination of region and scenario implies a specific population to be evacuated. Table 6-3 presents the percentage of each population group assumed to evacuate for each scenario. Table 6-4 presents the population and vehicle counts for each scenario.

Table 6-1. Definition of Evacuation Regions

REGION	DESCRIPTION OF REGION	ERPAs IN ORANGE COUNTY	ERPAs IN PUTNAM COUNTY	ERPAs IN ROCKLAND COUNTY	ERPAs IN WESTCHESTER COUNTY	ERPAs IN REGION
R1	Entire 2 mile ring	39	NONE	29, 38, 39	1-4, 7, 44	1-4, 7, 29, 38, 39, 44
R2	Entire 5 mile ring	26, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16, 18, 24, 26, 29-31, 38-40, 43-45, 47-49
R3	Full EPZ	24-28, 39, 40	16-20, 23, 45, 46	29-41	1-15, 21, 22, 42-44, 47-51	1-51
2 Mile Ring and Sector to 5 Miles						
R4	26, 39, 45	26, 39, 45	16, 18, 45	29, 38, 39	1-4, 7, 8, 44	1-4, 7, 8, 16, 18, 26, 29, 38, 39, 44, 45
R5	39, 45	39, 45	16, 18, 45	29, 38, 39, 44, 45	1-4, 7-9, 44, 45	1-4, 7-9, 16, 18, 29, 38, 39, 44, 45
R6	39	39	16, 18	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 16, 18, 29, 38, 39, 44, 49
R7	39	39	NONE	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 29, 38, 39, 44, 49
R8	39	39	NONE	29, 38, 39, 44	1-5, 7-9, 44, 48, 49	1-5, 7-9, 29, 38, 39, 44, 48, 49
R9	39	39	NONE	29, 38, 39, 44	1-7, 9, 44, 47-49	1-7, 9, 29, 38, 39, 44, 47-49
R10	39	39	NONE	29, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29, 38, 39, 43, 44, 47-49
R11	39	39	NONE	29-31, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29-31, 38, 39, 43, 44, 47-49
R12	39	39	NONE	29-31, 38, 39, 43, 44	1-4, 6, 7, 43, 44, 47, 48	1-4, 6, 7, 29-31, 38, 39, 43, 44, 47, 48
R13	39	39	NONE	29-31, 38, 39, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38, 39, 43, 44
R14	39, 40	39, 40	NONE	29-31, 38-40, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38-40, 43, 44
R15	39, 40	39, 40	NONE	29-31, 38-40, 44	1-4, 7, 44	1-4, 7, 29-31, 38-40, 44
R16	39, 40	39, 40	NONE	29, 30, 38-40, 44	1-4, 7, 44	1-4, 7, 29, 30, 38-40, 44
R17	24, 26, 39, 40, 45	24, 26, 39, 40, 45	45	29, 30, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 24, 26, 29, 30, 38-40, 44, 45
R18	24, 26, 39, 40, 45	24, 26, 39, 40, 45	16, 45	29, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 16, 24, 26, 29, 38-40, 44, 45
R19	24, 26, 39, 40, 45	24, 26, 39, 40, 45	16, 45	29, 38, 39, 40, 44, 45	1-4, 7, 8, 44, 45	1-4, 7, 8, 16, 24, 26, 29, 38, 39, 40, 44, 45

Table 6-1. Definition of Evacuation Regions
(Concluded)

REGION	DESCRIPTION OF REGION	ERPAs IN ORANGE COUNTY	ERPAs IN PUTNAM COUNTY	ERPAs IN ROCKLAND COUNTY	ERPAs IN WESTCHESTER COUNTY	ERPAs IN REGION
5 Mile Ring and Sector to EPZ Boundary						
R20	N	24-26, 39, 40	16-19, 23, 45, 46	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16-19, 23-26, 29-31, 38-40, 43-49
R21	NNE	24, 26, 39, 40	16-20, 23, 45, 46	29-31, 38-40	1-10, 43, 44, 47-49	1-10, 16-20, 23, 24, 26, 29-31, 38-40, 43-49
R22	NE	24,26, 39, 40	16-20, 45	29-31, 38-40	1-14, 43, 44, 47-49	1-14, 16-20, 24,26, 29-31, 38-40, 43-45, 47-49
R23	ENE	24,26, 39, 40	16, 18, 19, 20, 45	29-31, 38-40	1-15, 43, 44, 47-49	1-16, 18-20, 24,26, 29-31, 38-40, 43-45, 47-49
R24	E	24,26, 39, 40	16, 18, 20, 45	29-31, 38-40	1-15, 21, 43, 44, 47-50	1-16, 18, 20, 21, 24,26, 29-31, 38-40, 43-45, 47-50
R25	ESE	24,26, 39, 40	16, 18, 45	29-31, 38-40	1-9, 11-15, 21, 22, 43, 44, 47-51	1-9, 11-16, 18, 21, 22, 24,26, 29-31, 38-40, 43-45, 47-51
R26	SE	24,26, 39, 40	16, 18, 45	29-32, 38-40	1-9, 12, 13, 21, 22, 42-44, 47-51	1-9, 12-13, 16, 18, 21-22, 24,26, 29-32, 38-40, 42-45, 47-51
R27	SSE	24,26, 39, 40	16, 18, 45	29-35, 38-40	1-9, 12, 21, 22, 42-44, 47-51	1-9, 12, 16, 18, 21, 22, 24,26, 29-35, 38-40, 42-45, 47-51
R28	S	24,26, 39, 40	16, 18, 45	29-40	1-9, 22, 42-44, 47-49, 51	1-9, 16, 18, 22, 24,26, 29-40, 42-45, 47-49, 51
R29	SSW	24,26, 39, 40	16, 18, 45	29-41	1-9, 42-44, 47-49	1-9, 16, 18, 24,26, 29-45, 47-49
R30	SW	24,26, 39, 40	16, 18, 45	29-31, 34-41	1-9, 43, 44, 47-49	1-9, 16, 18, 24,26, 29-31, 34-41, 43-45, 47-49
R31	WSW	24,26, 28, 39, 40	16, 18, 45	29-31, 34, 36-41	1-9, 43, 44, 47-49	1-9, 16, 18, 24,26, 28-31, 34, 36-41, 43-45, 47-49
R32	W	24, 26-28, 39, 40	16, 18, 45	29-31, 38-41	1- 9, 43, 44, 47-49	1-9, 16, 18, 24, 26-31, 38-41, 43-45, 47-49
R33	WNW	24-28, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16, 18, 24-31, 38-40, 43-45, 47-49
R34	NW	24-28, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16, 18, 24-31, 38-40, 43-45, 47-49
R35	NNW	24-27, 39, 40	16-18, 23, 45, 46	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16-18, 23-27, 29-31, 38-40, 43-49

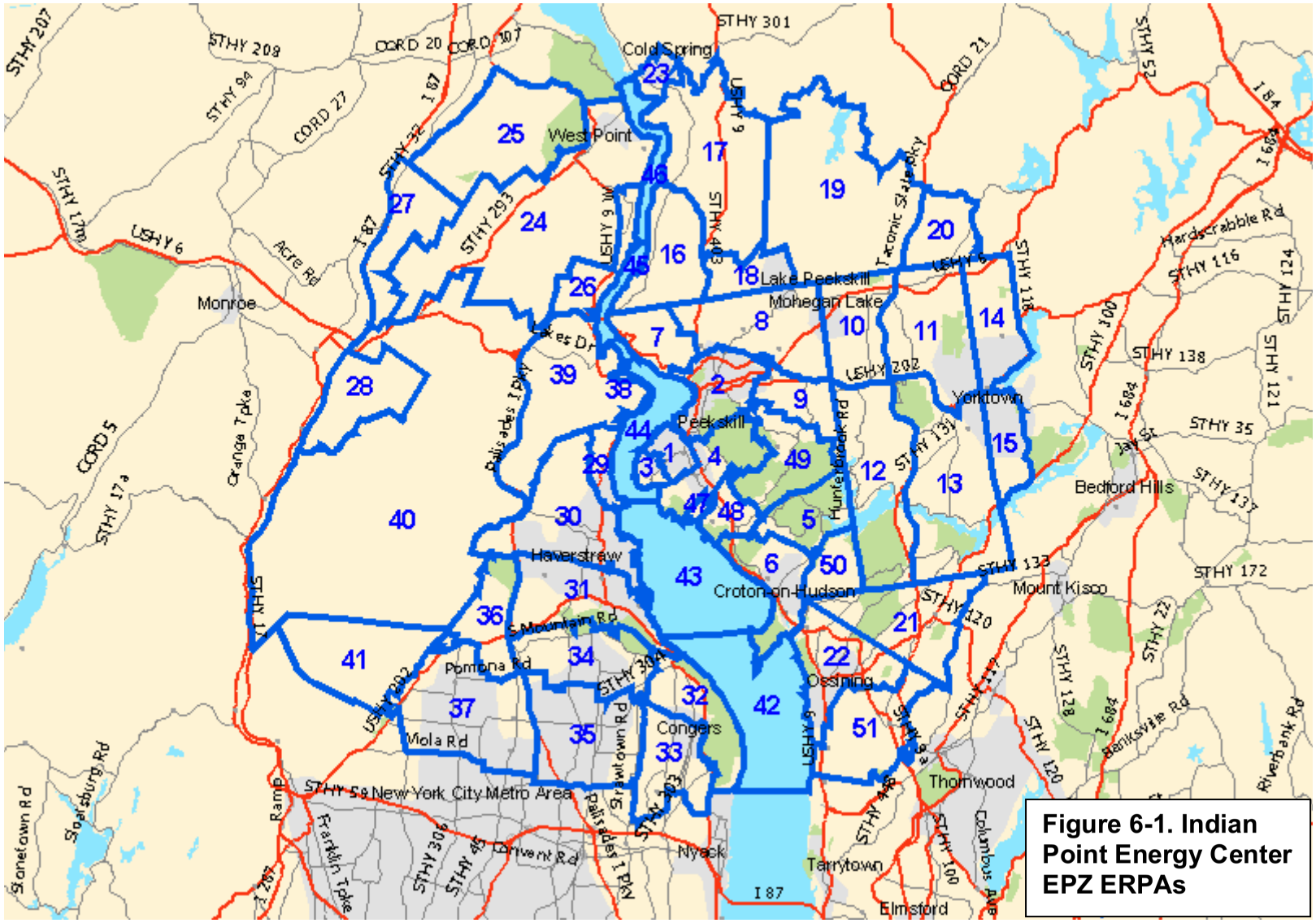


Figure 6-1. Indian Point Energy Center EPZ ERPAs

Table 6-2. Evacuation Scenario Definitions

Scenario	Season	Day of Week	Time of Day	Weather	Special
1	Summer	Midweek	Midday	Good	None
2	Summer	Midweek	Midday	Rain	None
3	Summer	Weekend	Midday	Good	None
4	Summer	Weekend	Midday	Rain	None
5	Summer	Midweek, Weekend	Evening	Good	None
6	Winter	Midweek	Midday	Good	None
7	Winter	Midweek	Midday	Rain	None
8	Winter	Midweek	Midday	Snow	None
9	Winter	Weekend	Midday	Good	None
10	Winter	Weekend	Midday	Rain	None
11	Winter	Weekend	Midday	Snow	None
12	Winter	Midweek, Weekend	Evening	Good	None
13	Autumn	Weekend	Midday	Good	West Point Football
14	Spring	Midweek	Midday	Good	West Point Graduation

Note: Schools are assumed to be in session for the Winter, Autumn and Spring seasons (midweek, midday).

Table 6-3. Percent of Population Groups for Various Scenarios

Scenarios	Residents With Commuters in Household	Residents With No Commuters in Household	Employees	Transients	Shadow	Special Events	School Buses	Transit Buses	External Through Traffic
1	100%	100%	96%	50%	46%	0%	100%	100%	100%
2	100%	100%	96%	50%	46%	0%	100%	100%	100%
3	10%	235%	47%	100%	38%	0%	100%	100%	100%
4	10%	235%	47%	100%	38%	0%	100%	100%	100%
5	10%	235%	10%	40%	32%	0%	100%	100%	60%
6	100%	100%	100%	32%	47%	0%	100%	100%	100%
7	100%	100%	100%	23%	47%	0%	100%	100%	100%
8	100%	100%	100%	12%	47%	0%	100%	100%	100%
9	10%	235%	47%	40%	38%	0%	30%	100%	100%
10	10%	235%	47%	28%	38%	0%	30%	100%	100%
11	10%	235%	47%	14%	38%	0%	30%	100%	100%
12	10%	235%	10%	20%	32%	0%	0%	100%	60%
13	10%	235%	47%	40%	38%	100%	30%	100%	100%
14	10%	235%	47%	40%	38%	25%	30%	100%	100%

Residents With Commuters in Household.....Households of EPZ residents who await the return of commuters prior to beginning the evacuation trip.

Residents With No Commuters in Household....Households of EPZ residents who do not have or will not await the return of commuters prior to beginning the evacuation trip.

Employees.....EPZ employees who live outside of the EPZ.

Transients.....People who are in the EPZ at the time of an accident for recreational or other (non-employment) purposes.

Shadow.....Residents and employees in the shadow region (outside of the EPZ) who will spontaneously decide to relocate during the evacuation. The basis for the values shown is a 30% relocation of shadow residents along with a proportional percentage of shadow employees. The percentage of shadow employees is computed using the scenario-specific ratio of EPZ employees to residents.

Special Events.....Additional vehicles in the West Point area associated with a football weekend or a commencement ceremony.

School and Transit Buses.....Vehicle-equivalents present on the road during evacuation servicing schools and transit-dependent people.

External Through Traffic.....Traffic on local highways and major arterial roads at the start of the evacuation. This traffic is stopped by access control approximately 1-2 hours after the evacuation begins.

Table 6-4. Vehicle Estimates for Various Combinations of Regions and Scenarios

Scenarios	Residents with Commuters	Residents without Commuters	Employees	Transients	Shadow	Special Events	School Buses	Transit Buses	External Traffic	Total Scenario Vehicles
1	74,234	49,529	45,036	19,009	55,499	-	1,912	2,063	24,026	271,308
2	74,234	49,529	45,036	19,009	55,499	-	1,912	2,063	24,026	271,308
3	7,423	116,393	22,049	38,017	47,938	-	1,912	2,063	24,026	259,821
4	7,423	116,393	22,049	38,017	47,938	-	1,912	2,063	24,026	259,821
5	7,423	116,393	4,691	15,207	42,233	-	1,912	2,063	14,415	204,337
6	74,234	49,529	46,952	12,165	56,116	-	1,912	2,063	24,026	266,997
7	74,234	49,529	46,952	8,744	56,116	-	1,912	2,063	24,026	263,576
8	74,234	49,529	46,952	4,562	56,116	-	1,912	2,063	24,026	259,394
9	7,423	116,393	22,049	15,207	47,938	-	574	2,063	24,026	235,673
10	7,423	116,393	22,049	10,645	47,938	-	574	2,063	24,026	231,111
11	7,423	116,393	22,049	5,322	47,938	-	574	2,063	24,026	225,788
12	7,423	116,393	4,691	7,603	42,233	-	-	2,063	14,415	194,821
13	7,423	116,393	22,049	15,207	47,938	12,367	574	2,063	24,026	248,040
14	74,234	49,529	46,952	12,165	56,116	3,092	1,912	2,063	24,026	270,089

7. GENERAL POPULATION EVACUATION TIME ESTIMATES (ETE)

This section presents the current results of the computer analyses using the IDYNEV System described in Appendices B, C and D. These results cover 35 regions within the IPEC EPZ and the 14 Evacuation Scenarios discussed in Section 6.

The ETE for all Evacuation Cases are presented in Tables 7-1A through 7-1D. **These tables present the estimated times to clear the indicated population percentages from the Evacuation Regions for all Evacuation Scenarios.** Table 7-1E presents "EPZ Clearance Times". The tabulated values of ETE are obtained by interpolating the PCDYNEV simulation model outputs which are generated at 30-minute intervals, then rounding these data to the nearest 5 minutes.

Additionally, individual ERPA ETEs for each Region for each scenario were calculated and are listed in Appendix N.

7.1 Voluntary Evacuation and Shadow Evacuation

We define "voluntary evacuees" as people who are within the EPZ in ERPAs for which an Advisory to Evacuate *has not* been issued, yet who nevertheless elect to evacuate. We define "shadow evacuation" as the movement of people from areas *outside* the EPZ for whom no protective action recommendation has been issued. Both voluntary and shadow evacuation are assumed to take place over the same time frame as the evacuation from within the impacted Evacuation Region.

The ETE for IPEC addresses the issue of voluntary evacuees in the manner shown in Figure 7-1. Within the circle defined by the farthest radial distance of the Evacuation Region, 50 percent of those people located in ERPAs not advised to evacuate, are assumed to do so. Within the annular ring extending from the furthest distance of the Evacuation Region (if less than 10 miles), to the EPZ boundary, it is assumed that 35 percent of the people located there will elect to evacuate.

Figure 7-2 presents the area identified as the Shadow Evacuation Region. This region extends from the boundary of the EPZ to the bounding Interstate Highways: I-87 on the west, I-87/287 on the south, I-684 on the east, and I-84 on the north. These interstate highways were selected for this purpose for the following reasons:

- Many evacuees from within the Evacuation Region who elect to travel directly to their respective final destinations (i.e., not travel to reception centers), will likely utilize one or more of these interstate highways.
- It is reasonable to expect that State Police would limit use of these interstate highway sections by external trips to assure access and capacity for evacuees.
- Those people located outside these interstate highways who elect to travel during the evacuation, will undoubtedly move *away* from the IPEC location and thereby largely avoid the interstate highways.

As a result, there is likely to be limited interaction between evacuees traveling from within the Evacuation Region and vehicles originating their trips in areas outside the interstate highways.

Traffic generated within this Shadow Evacuation Region, traveling away from the IPEC location, has a potential for impeding evacuating vehicles from within the Evacuation Region. We assume that the traffic volumes emitted within the Shadow Evacuation Region corresponds to 30 percent of the residents there plus a proportionate number of employees in that region. **All ETE calculations include this shadow traffic movement.**

7.2 Patterns of Traffic Congestion During Evacuation

Figures 7-3 through 7-6 illustrate the patterns of traffic congestion that arise for the case when the entire EPZ (Region R3) is advised to evacuate during the summer, midweek, midday period under good weather conditions (Evacuation Scenario 1).

Traffic congestion, as the term is used here, is defined as Level of Service (LOS) F. LOS F is defined as follows (2000 HCM):

> Level of Service F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount that can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Level of Service F is used to describe the operating conditions within the queue, as well as the point of the breakdown. It should be noted, however, that in many cases operating conditions of vehicles or pedestrians discharged from the queue may be quite good. Nevertheless, it is the point at which arrival flow exceeds discharge flow, which causes the queue to form, and Level of Service F is an appropriate designation for such points.

This definition is general and conceptual in nature, and applies primarily to uninterrupted flow. Levels of Service for interrupted flow facilities vary widely in terms of both the user's perception of service quality and the operational variables used to describe them.

All highway "links" which experience LOS F are delineated in these Figures by a thick red line; all others are lightly indicated. Congestion develops rapidly around concentrations of population and traffic bottlenecks. Several areas in the EPZ are congested by 30 minutes (Figure 7-3) after the evacuation advisory including:

- Approaches to I-287 in Rockland County
- Southbound Route 9 in Westchester County
- Routes 6 and 202 approaching the Taconic Parkway

Figure 7-4 presents the congestion pattern one hour after the Advisory to Evacuate. Major areas of congestion in the EPZ are:

- Virtually all of the southbound routes in Rockland County.

- In Westchester County, the southbound major highways, south of IPEC are all congested. Routes 6 and 202 are congested with vehicles departing the Peekskill area. The Taconic Parkway is congested in the outbound directions, relative to the location of IPEC (i.e., northbound in the section north of IPEC and southbound in the section south of IPEC).
- Congestion in Putnam County extends on northbound selected routes including Route 9.
- Orange County shows congestion along Route 9W northbound from West Point. Congestion is also present along Route 6 approaching the Woodbury Commons area.

Figure 7-5 presents congestion levels at 3 hours after the start of evacuation. This figure shows the peak congestion during the evacuation. However, some areas have begun to clear. For example, the congestion in the Woodbury Commons area has cleared by this time.

Figure 7-6 presents the congestion levels at 7 hours after the start of evacuation. Note that most areas of heavy congestion have cleared by this time. Extensive congestion still exists leaving the Peekskill area, and along southbound Route 9 in the Croton on Hudson area.

The absence of congestion on network links implies that traffic demand there has decreased below the roadway capacity for a period of time sufficient to dissipate any traffic queues. It does not imply that traffic has completely cleared from these roadway sections.

7.3 Evacuation Rates

Evacuation is a continuous process, as implied by Figures 7-3 through 7-6. Another format for displaying the dynamics of evacuation is depicted in Figure 7-7. This plot indicates the rate at which traffic flows out of the indicated areas for the case of an evacuation of the full 10-mile Region R3 (i.e., entire EPZ) under the indicated conditions. Appendix J presents these plots for all Evacuation Scenarios for Region R3.

As indicated in Figure 7-7, there is typically a long "tail" to these distributions. Vehicles evacuate an area slowly at the beginning, as people respond to the Advisory to Evacuate at different rates. Then traffic demand builds rapidly (slopes of curves increase). When the system becomes congested, traffic exits the EPZ at rates somewhat below capacity until some evacuation routes have cleared. As more routes clear, the aggregate rate of egress slows since many vehicles have already left the EPZ. Towards the end of the process, a relatively few evacuation routes service the remaining demand.

This decline in aggregate flow rate, towards the end of the process, is characterized by these curves flattening and gradually becoming horizontal. Ideally, it would be desirable to fully saturate all evacuation routes equally so that all will service traffic near capacity levels and all will clear at the same time. For this ideal situation, all curves would retain the same slope until the end -- thus minimizing evacuation time. In the real world, this ideal is generally unattainable reflecting the variation in population density and in highway capacity over the EPZ.

7.4 EPZ Clearance Times

The estimated EPZ clearance times, presented in Table 7-1E, represent the elapsed times, referenced to the Advisory to Evacuate, that it takes evacuees to clear the EPZ boundary, regardless of the impacted Evacuation Region. (Recall that the ETE are defined as the evacuation times to leave the impacted Evacuation Region – not necessarily the EPZ). For all Regions other than R3 (the entire EPZ), the EPZ clearance times could exceed the Region-specific ETE. This is due to the fact that some of the evacuees may travel within the EPZ *after* they have exited the impacted Evacuation Region.

For example, consider Region R1, representing the circular area of 2-mile radius. After the evacuees depart this Region, they must travel another 8 miles or so to reach the EPZ boundary. During this travel, evacuees' progress may be impeded by other vehicles driven by people who are "voluntary evacuees". Thus, the evacuees from Region R1 will exit the EPZ at some time after they have exited Region R1; the time they exit the EPZ is called the EPZ Clearance Time for Region R1. Referring to Tables 7-1D and 7-1E, it is seen that the ETE (from Region R1) is 4:55 for Scenario 1, while the corresponding EPZ Clearance Time is 6:05.

7.5 Guidance on Using ETE Tables

Tables 7-1A through 7-1D present the ETE values for all 35 Evacuation Regions and all 14 Evacuation Scenarios. They are organized as follows:

Table	Contents
7-1A	ETE represents the elapsed time required for 50 percent of the population within a Region, to evacuate from that Region.
7-1B	ETE represents the elapsed time required for 90 percent of the population within a Region, to evacuate from that Region.
7-1C	ETE represents the elapsed time required for 95 percent of the population within a Region, to evacuate from that Region.
7-1D	ETE represents the elapsed time required for 100 percent of the population within a Region, to evacuate from that Region.

The user first determines the percentile of population for which the ETE is sought. The applicable value of ETE within the chosen Table may then be identified using the following procedure:

1. Identify the applicable **Scenario**:
   - The Season
     - Summer
     - Winter (also Autumn and Spring)
   - The Day of Week
     - Midweek
     - Weekend
   - The Time of Day
     - Midday
     - Evening
   - Weather Condition
     - Good Weather
     - Rain
     - Snow
   - Special Event (if any)
     - Football game at West Point
     - Commencement Exercises at West Point

While these Scenarios are designed, in aggregate, to represent conditions throughout the year, some further clarification is warranted:

- The conditions of a summer evening (either midweek or weekend) and rain are not explicitly identified in Tables 7-1A through 7-1E. For these conditions, Scenario (4) applies.
- The conditions of a winter evening (either midweek or weekend) and rain or snow are not explicitly identified in Tables 7-1A through 7-1E. For these conditions, Scenarios (10) for rain and (11) for snow, apply.
- The seasons are defined as follows:
  - Summer implies that public schools are *not* in session.
  - Winter, Spring and Autumn imply that public schools *are* in session.
- Time of Day: Midday implies the time over which most commuters are at work.

2. With the Scenario identified, now identify the **Evacuation Region**:
   - Determine the projected azimuth direction of the plume (coincident with the wind direction). This direction is expressed in terms of compass orientation: *towards* N, NNE, NE,…
   - Determine the distance that the Evacuation Region will extend from IPEC. The applicable distances and their associated candidate Regions are given below:
     - 2 Miles (Region R1)
     - 5 Miles (Regions R2 and R4-R19)
     - to EPZ Boundary (Regions R3 and R20-R35)
   - Enter Table 7-2 and identify the applicable group of candidate Regions based on the distance that the selected Region extends from IPEC. Within this group, identify the row corresponding to the Azimuth Direction identified in the 2nd bullet above (see column with the heading, DESCRIPTION OF REGION). Select the Evacuation Region identifier in that row from the first column of the Table.

3. Determine the **ETE for the Scenario** identified in Step 1 and the Region identified in Step 2, as follows:
   - The columns of Table 7-1 are labeled with the Scenario numbers. Identify the proper column in the selected Table using the Scenario number determined in Step 1.
   - Identify the row in this table that provides ETE values for the Region identified in Step 2.
   - The unique data cell defined by the column and row so determined contains the desired value of ETE expressed in Hours:Minutes.

Example

It is desired to identify the ETE for the following conditions:

- Sunday, August 10th at 4:00 AM.
- It is raining.
- Wind direction is *to* the northeast.
- Wind speed is such that the distance to be evacuated is judged to be 10 miles (to EPZ boundary).
- The desired ETE is that value needed to evacuate 95 percent of the population from within the impacted Region.

Table 7-1C is applicable because the 95-percentile population is desired. Proceed as follows:

1. Identify the Scenario as summer, weekend, evening and raining. Entering Table 7-1C, it is seen that there is no match for these descriptors. However, the clarification given above assigns this combination of circumstances to Scenario 4.

2. Enter Table 7-2 and locate the group entitled "5 Mile Ring and Sector to EPZ Boundary". Under "DESCRIPTION OF REGION", identify the NE (northeast) azimuth (wind direction) and read REGION R22 in the first column of that row.

3. Enter Table 7-1C to locate the data cell containing the value of ETE for Scenario 4 and Region 22. This data cell is in column (4) and in the row for Region R22; it contains the ETE value of **7:00**.

Table 7-1A. Time To Clear The Indicated Area of 50 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	1:45	1:50	1:35	1:40	1:20	R1	1:45	1:55	2:20	1:30	1:35	2:00	1:25	R1	1:30	1:45
R2	2:10	2:25	2:00	2:15	1:40	R2	2:20	2:30	2:55	1:55	2:05	2:30	1:45	R2	1:55	2:20
R3	3:05	3:25	2:30	2:50	2:10	R3	3:10	3:30	3:55	2:30	2:50	3:15	2:10	R3	2:35	3:10
2-Mile Ring and Keyhole to 5 Miles																
R4	1:55	2:00	1:45	1:50	1:35	R4	1:55	2:05	2:30	1:40	1:45	2:15	1:35	R4	1:50	1:55
R5	2:00	2:10	1:55	2:00	1:40	R5	2:05	2:15	2:45	1:50	2:00	2:30	1:45	R5	1:50	2:05
R6	2:00	2:10	1:50	1:55	1:40	R6	2:05	2:15	2:40	1:45	1:55	2:25	1:40	R6	1:45	2:05
R7	2:00	2:05	1:50	1:55	1:35	R7	2:05	2:15	2:40	1:45	1:50	2:20	1:40	R7	1:45	2:05
R8	2:05	2:10	1:50	2:00	1:35	R8	2:05	2:15	2:45	1:45	1:55	2:20	1:40	R8	1:45	2:05
R9	2:10	2:25	2:00	2:15	1:40	R9	2:20	2:30	2:55	1:55	2:00	2:30	1:40	R9	1:55	2:20
R10	2:05	2:20	2:00	2:10	1:30	R10	2:15	2:25	2:50	1:50	1:55	2:20	1:30	R10	1:50	2:15
R11	2:10	2:25	2:00	2:15	1:40	R11	2:20	2:30	2:50	1:55	2:05	2:30	1:40	R11	1:55	2:20
R12	2:10	2:25	2:00	2:15	1:40	R12	2:20	2:30	2:50	1:55	2:05	2:30	1:40	R12	1:55	2:20
R13	1:55	2:10	1:50	2:00	1:40	R13	2:05	2:15	2:35	1:50	2:00	2:25	1:40	R13	1:50	2:05
R14	1:55	2:10	1:50	2:00	1:40	R14	2:05	2:15	2:35	1:50	2:00	2:25	1:40	R14	1:50	2:05
R15	1:55	2:10	1:50	2:00	1:40	R15	2:05	2:15	2:35	1:50	2:00	2:25	1:40	R15	1:50	2:05
R16	1:45	1:50	1:35	1:35	1:20	R16	1:45	1:55	2:20	1:30	1:35	2:00	1:25	R16	1:30	1:45
R17	1:45	1:50	1:35	1:35	1:20	R17	1:45	1:55	2:20	1:30	1:35	2:00	1:25	R17	1:45	1:45
R18	1:45	1:50	1:35	1:35	1:20	R18	1:45	1:55	2:20	1:30	1:35	2:00	1:15	R18	1:40	1:45
R19	1:50	1:55	1:40	1:50	1:30	R19	1:55	2:00	2:30	1:35	1:45	2:10	1:30	R19	1:45	1:55

Table 7-1A. Time To Clear The Indicated Area of 50 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	2:25	2:40	2:05	2:20	1:50	R20	2:25	2:50	3:10	2:05	2:20	2:50	1:50	R20	2:15	2:25
R21	2:35	2:50	2:10	2:25	1:55	R21	2:40	3:00	3:25	2:10	2:25	2:55	1:55	R21	2:20	2:40
R22	2:45	3:05	2:20	2:40	2:00	R22	2:50	3:10	3:35	2:20	2:35	3:05	2:00	R22	2:20	2:50
R23	2:45	3:05	2:20	2:40	1:55	R23	2:50	3:10	3:35	2:20	2:35	3:00	1:55	R23	2:20	2:50
R24	2:55	3:15	2:25	2:45	2:00	R24	2:55	3:20	3:40	2:20	2:35	3:00	2:00	R24	2:20	2:55
R25	3:00	3:20	2:30	2:50	2:10	R25	3:05	3:30	3:50	2:30	2:50	3:10	2:10	R25	2:30	3:05
R26	2:45	3:05	2:25	2:40	2:00	R26	2:50	3:10	3:35	2:20	2:40	3:00	2:00	R26	2:25	2:50
R27	2:55	3:10	2:25	2:45	2:05	R27	3:00	3:15	3:40	2:25	2:45	3:05	2:05	R27	2:25	3:00
R28	2:40	3:00	2:10	2:25	1:55	R28	2:45	3:00	3:25	2:10	2:25	2:45	1:55	R28	2:15	2:45
R29	2:35	2:50	2:10	2:20	1:55	R29	2:40	3:00	3:20	2:10	2:25	2:50	1:55	R29	2:15	2:40
R30	2:35	2:50	2:10	2:20	1:55	R30	2:40	2:55	3:20	2:10	2:25	2:50	1:55	R30	2:15	2:40
R31	2:15	2:25	2:00	2:15	1:40	R31	2:20	2:35	3:05	1:55	2:00	2:30	1:45	R31	1:55	2:20
R32	2:10	2:25	2:00	2:15	1:40	R32	2:20	2:35	2:55	1:55	2:00	2:30	1:45	R32	1:55	2:20
R33	2:10	2:25	2:00	2:15	1:40	R33	2:20	2:40	3:00	1:55	2:10	2:35	1:45	R33	2:05	2:20
R34	2:10	2:25	2:00	2:15	1:40	R34	2:20	2:40	3:00	1:55	2:10	2:35	1:45	R34	2:05	2:20
R35	2:15	2:30	2:00	2:15	1:45	R35	2:20	2:40	3:05	1:55	2:10	2:40	1:45	R35	2:10	2:20

Table 7-1B. Time To Clear The Indicated Area of 90 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	3:50	4:10	3:15	3:25	2:55	R1	3:55	4:15	4:50	3:15	3:30	4:05	2:55	R1	3:15	3:55
R2	4:50	5:10	4:20	4:45	3:55	R2	4:55	5:20	6:20	4:15	4:40	5:40	3:55	R2	4:15	4:55
R3	6:30	7:20	5:45	6:25	4:55	R3	6:30	7:10	8:05	5:30	6:05	7:00	5:00	R3	5:30	6:30
2-Mile Ring and Keyhole to 5 Miles																
R4	4:30	4:55	3:55	4:20	3:40	R4	4:35	5:05	5:50	4:05	4:30	5:15	3:35	R4	4:05	4:35
R5	4:45	5:10	4:15	4:35	3:55	R5	4:55	5:20	6:20	4:15	4:40	5:40	3:55	R5	4:15	4:55
R6	4:50	5:10	4:15	4:35	3:55	R6	4:50	5:20	6:20	4:15	4:40	5:35	3:55	R6	4:15	4:50
R7	4:50	5:10	4:10	4:35	3:55	R7	4:50	5:20	6:15	4:15	4:40	5:35	3:55	R7	4:15	4:50
R8	4:50	5:10	4:10	4:35	3:55	R8	4:50	5:20	6:15	4:15	4:40	5:35	3:55	R8	4:15	4:50
R9	4:50	5:10	4:15	4:45	3:55	R9	4:50	5:20	6:15	4:15	4:40	5:35	3:55	R9	4:15	4:50
R10	4:30	4:55	4:05	4:35	3:15	R10	4:30	4:55	5:35	3:50	4:05	4:40	3:10	R10	3:50	4:30
R11	4:35	5:00	4:10	4:40	3:35	R11	4:35	5:00	5:35	4:00	4:20	4:55	3:25	R11	4:00	4:35
R12	4:35	5:00	4:10	4:40	3:35	R12	4:35	5:00	5:35	4:00	4:20	4:55	3:25	R12	4:00	4:35
R13	4:20	4:50	3:50	4:15	3:35	R13	4:20	4:45	5:25	3:55	4:15	4:55	3:25	R13	3:55	4:20
R14	4:20	4:50	3:50	4:15	3:35	R14	4:20	4:45	5:25	3:55	4:15	4:55	3:25	R14	3:55	4:20
R15	4:20	4:50	3:50	4:15	3:35	R15	4:20	4:45	5:25	3:55	4:15	4:55	3:25	R15	3:55	4:20
R16	3:50	4:10	3:15	3:25	3:00	R16	3:55	4:15	4:50	3:20	3:30	4:10	3:00	R16	3:20	3:55
R17	3:50	4:10	3:15	3:30	3:00	R17	3:55	4:15	4:50	3:20	3:30	4:10	3:00	R17	4:15	3:55
R18	3:50	4:10	3:15	3:30	2:55	R18	3:55	4:15	4:55	3:15	3:30	4:05	2:55	R18	4:15	3:55
R19	4:30	4:50	3:50	4:15	3:35	R19	4:30	5:00	5:50	3:55	4:25	5:10	3:30	R19	4:15	4:30

Table 7-1B. Time To Clear The Indicated Area of 90 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	5:25	6:05	4:50	5:25	4:20	R20	5:30	6:05	6:55	4:55	5:15	6:10	4:15	R20	4:55	5:30
R21	5:50	6:30	5:15	5:45	4:40	R21	5:55	6:30	7:30	5:10	5:40	6:40	4:40	R21	5:10	5:55
R22	6:15	6:55	5:35	6:10	4:55	R22	6:25	7:05	8:05	5:30	6:05	7:00	5:00	R22	5:30	6:25
R23	6:15	6:55	5:35	6:10	4:55	R23	6:20	7:00	7:55	5:25	6:00	7:00	4:55	R23	5:25	6:20
R24	6:15	7:00	5:35	6:15	4:50	R24	6:20	7:00	7:50	5:20	5:55	6:50	4:50	R24	5:20	6:20
R25	6:30	7:20	5:45	6:25	4:45	R25	6:30	7:10	8:05	5:30	6:05	6:55	4:40	R25	5:30	6:30
R26	6:10	6:45	5:20	6:00	4:20	R26	6:10	6:45	7:30	5:10	5:40	6:25	4:20	R26	5:10	6:10
R27	6:05	6:40	5:25	5:55	4:30	R27	6:10	6:40	7:30	5:10	5:40	6:25	4:20	R27	5:10	6:10
R28	5:50	6:35	5:10	5:40	4:25	R28	5:55	6:30	7:20	5:00	5:25	6:10	4:15	R28	5:00	5:55
R29	5:35	6:10	4:55	5:25	4:15	R29	5:35	6:10	6:55	4:45	5:10	5:55	4:05	R29	4:45	5:35
R30	5:30	6:10	4:50	5:20	4:15	R30	5:30	6:10	6:55	4:40	5:05	5:55	4:05	R30	4:40	5:30
R31	5:10	5:45	4:25	4:55	3:55	R31	5:15	5:45	6:35	4:20	4:45	5:30	3:55	R31	4:20	5:15
R32	5:05	5:45	4:25	4:55	3:55	R32	5:10	5:40	6:25	4:20	4:45	5:30	3:55	R32	4:20	5:10
R33	5:05	5:45	4:30	5:00	4:00	R33	5:10	5:40	6:25	4:25	4:50	5:40	3:55	R33	4:40	5:10
R34	5:05	5:45	4:30	5:00	4:00	R34	5:10	5:40	6:25	4:25	4:50	5:40	3:55	R34	4:40	5:10
R35	5:10	5:45	4:35	5:05	4:05	R35	5:10	5:45	6:25	4:30	4:50	5:40	3:55	R35	4:40	5:10

Table 7-1C. Time To Clear The Indicated Area of 95 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	4:15	4:40	3:35	3:50	3:15	R1	4:20	4:40	5:20	3:40	3:55	4:30	3:15	R1	3:40	4:20
R2	5:20	5:45	4:45	5:15	4:15	R2	5:20	6:00	6:55	4:40	5:05	6:10	4:15	R2	4:40	5:20
R3	7:20	8:10	6:35	7:15	5:35	R3	7:20	8:00	9:10	6:15	7:00	8:10	5:40	R3	6:15	7:20
2-Mile Ring and Keyhole to 5 Miles																
R4	5:00	5:25	4:20	4:45	4:00	R4	5:00	5:30	6:25	4:25	4:50	5:40	3:55	R4	4:25	5:00
R5	5:20	5:45	4:40	5:00	4:15	R5	5:20	6:00	6:55	4:40	5:05	6:10	4:15	R5	4:40	5:20
R6	5:20	5:45	4:40	5:00	4:15	R6	5:20	6:00	6:55	4:40	5:05	6:10	4:15	R6	4:40	5:20
R7	5:20	5:45	4:40	5:00	4:15	R7	5:20	5:50	6:55	4:40	5:05	6:05	4:15	R7	4:40	5:20
R8	5:20	5:45	4:40	5:00	4:15	R8	5:20	5:50	6:55	4:40	5:05	6:05	4:15	R8	4:40	5:20
R9	5:20	5:45	4:40	5:00	4:15	R9	5:20	5:50	6:55	4:20	5:05	6:05	4:15	R9	4:40	5:20
R10	4:50	5:15	4:25	4:55	3:30	R10	4:50	5:15	5:55	4:05	4:25	5:00	3:25	R10	4:10	4:50
R11	4:55	5:25	4:35	5:10	4:00	R11	4:55	5:25	6:00	4:25	4:45	5:20	3:55	R11	4:35	4:55
R12	4:55	5:25	4:35	5:10	4:00	R12	4:55	5:25	6:00	4:25	4:45	5:20	3:55	R12	4:35	4:55
R13	4:50	5:20	4:20	4:50	4:00	R13	4:50	5:20	6:00	4:25	4:45	5:20	3:55	R13	4:35	4:50
R14	4:50	5:20	4:20	4:50	4:00	R14	4:50	5:20	6:00	4:25	4:45	5:25	4:00	R14	4:35	4:50
R15	4:50	5:20	4:20	4:50	4:00	R15	4:50	5:20	6:00	4:25	4:45	5:25	4:00	R15	4:35	4:50
R16	4:15	4:40	3:35	3:50	3:20	R16	4:20	4:40	5:30	3:40	3:55	4:40	3:20	R16	3:40	4:20
R17	4:15	4:40	3:35	3:55	3:20	R17	4:20	4:40	5:30	3:40	3:55	4:40	3:20	R17	4:40	4:40
R18	4:15	4:40	3:35	3:55	3:15	R18	4:20	4:40	5:30	3:40	3:55	4:40	3:15	R18	4:40	4:25
R19	5:00	5:20	4:15	4:45	4:05	R19	5:00	5:30	6:30	4:20	4:50	5:40	4:00	R19	4:40	5:00

Table 7-1C. Time To Clear The Indicated Area of 95 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	5:55	6:40	5:25	6:00	4:55	R20	6:00	6:45	7:35	5:30	5:50	6:55	4:50	R20	5:30	6:00
R21	6:30	7:10	5:55	6:30	5:15	R21	6:35	7:15	8:20	5:45	6:25	7:30	5:15	R21	5:45	6:35
R22	7:10	8:00	6:25	7:00	5:35	R22	7:20	8:00	9:10	6:15	7:00	8:10	5:40	R22	6:15	7:20
R23	7:10	8:00	6:25	7:00	5:35	R23	7:15	8:00	9:10	6:15	6:55	8:10	5:35	R23	6:15	7:15
R24	7:10	8:00	6:25	7:10	5:30	R24	7:15	7:55	9:05	6:10	6:50	8:00	5:30	R24	6:10	7:15
R25	7:10	7:55	6:25	7:05	5:20	R25	7:10	8:00	8:55	6:05	6:45	7:45	5:15	R25	6:05	7:10
R26	6:55	7:35	6:05	6:50	4:55	R26	6:50	7:30	8:25	5:45	6:20	7:10	4:50	R26	5:45	6:50
R27	6:50	7:30	6:05	6:40	5:00	R27	6:50	7:25	8:20	5:45	6:20	7:10	4:50	R27	5:45	6:50
R28	6:30	7:20	5:50	6:25	4:55	R28	6:35	7:15	8:10	5:35	6:00	6:55	4:45	R28	5:35	6:35
R29	6:00	6:45	5:25	5:55	4:40	R29	6:05	6:45	7:30	5:10	5:40	6:25	4:30	R29	5:10	6:05
R30	6:00	6:40	5:20	5:55	4:40	R30	6:00	6:40	7:30	5:05	5:35	6:25	4:30	R30	5:10	6:00
R31	5:40	6:20	4:55	5:25	4:20	R31	5:45	6:20	7:10	4:50	5:15	6:10	4:15	R31	4:50	5:45
R32	5:35	6:20	4:55	5:25	4:20	R32	5:40	6:15	7:00	4:50	5:15	6:10	4:15	R32	4:50	5:40
R33	5:35	6:15	5:00	5:30	4:25	R33	5:35	6:15	7:00	4:55	5:20	6:10	4:20	R33	5:10	5:35
R34	5:35	6:15	5:00	5:30	4:25	R34	5:35	6:15	7:00	4:55	5:20	6:10	4:20	R34	5:10	5:35
R35	5:40	6:20	5:05	5:35	4:30	R35	5:40	6:20	7:05	5:00	5:25	6:15	4:25	R35	5:15	5:40

Table 7-1D. Time To Clear The Indicated Area of 100 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	4:55	5:30	4:50	5:25	4:45	R1	5:15	5:15	6:50	4:55	5:30	5:55	4:30	R1	5:30	5:15
R2	6:20	7:10	5:55	6:45	5:25	R2	6:20	7:00	8:00	5:55	6:25	7:20	5:25	R2	6:30	6:20
R3	9:25	10:30	8:50	9:50	7:15	R3	9:30	10:55	12:00	7:55	8:50	10:10	7:10	R3	8:45	9:30
2-Mile Ring and Keyhole to 5 Miles																
R4	5:45	6:20	5:10	5:35	4:50	R4	5:45	6:25	7:30	5:15	5:30	6:35	4:45	R4	5:55	5:45
R5	6:00	6:45	5:25	5:50	5:15	R5	6:10	7:00	8:00	5:25	5:45	7:10	5:15	R5	5:55	6:10
R6	6:00	6:45	5:25	5:50	5:15	R6	6:10	7:00	8:00	5:25	5:45	7:10	5:15	R6	5:55	6:10
R7	6:00	6:40	5:20	5:50	5:10	R7	6:10	6:45	8:00	5:20	5:40	7:05	5:15	R7	5:55	6:10
R8	6:10	6:40	5:20	5:50	5:10	R8	6:10	6:45	8:00	5:20	5:45	7:10	5:15	R8	6:00	6:10
R9	6:10	6:40	5:55	6:40	5:10	R9	6:10	6:45	8:00	5:20	5:45	7:10	5:15	R9	6:00	6:10
R10	5:25	5:45	5:55	6:40	4:25	R10	5:20	5:55	6:45	4:40	5:25	5:55	4:25	R10	5:30	5:20
R11	6:20	6:55	5:55	6:40	5:25	R11	6:20	6:55	7:45	5:55	6:20	7:20	5:25	R11	6:30	6:20
R12	6:20	6:55	5:55	6:40	5:25	R12	6:20	6:55	7:45	5:55	6:20	7:20	5:25	R12	6:30	6:20
R13	6:20	6:55	5:55	6:40	5:25	R13	6:20	6:55	7:40	5:55	6:20	7:15	5:25	R13	6:30	6:20
R14	6:20	7:10	5:55	6:45	5:25	R14	6:20	6:55	7:40	5:55	6:25	7:15	5:25	R14	6:30	6:20
R15	6:20	7:10	5:55	6:45	5:25	R15	6:20	6:55	7:40	5:55	6:25	7:15	5:25	R15	6:30	6:20
R16	5:25	5:40	4:50	5:10	4:25	R16	5:10	5:45	6:45	4:45	5:30	5:55	4:25	R16	5:30	5:10
R17	5:25	5:40	4:50	5:10	4:25	R17	5:10	5:45	6:45	4:45	5:30	5:55	4:25	R17	6:30	5:10
R18	5:20	5:40	4:50	5:10	4:25	R18	5:10	5:45	6:45	4:45	5:30	5:50	4:25	R18	6:30	5:10
R19	5:40	6:20	4:55	5:30	4:45	R19	5:40	6:35	7:30	5:15	5:30	6:35	4:45	R19	6:30	5:40

Table 7-1D. Time To Clear The Indicated Area of 100 Percent of the Affected Population (Page 2 of 2)																
	Summer		Summer		Summer		Winter				Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek				Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	7:25	8:10	6:45	7:30	6:25	R20	7:30	8:15	9:25	6:55	7:25	8:40	6:25	R20	6:50	7:30
R21	8:00	8:55	7:20	8:15	6:45	R21	8:10	8:55	10:20	7:10	8:05	9:20	6:40	R21	7:00	8:10
R22	8:55	9:55	7:50	8:45	7:15	R22	8:55	9:55	11:15	7:55	8:45	10:05	7:10	R22	8:45	9:15
R23	8:55	9:55	7:50	8:45	7:15	R23	8:55	9:55	11:15	7:50	8:45	10:05	7:05	R23	8:45	9:15
R24	8:45	9:40	7:55	9:00	7:05	R24	8:50	9:40	11:00	7:45	8:20	9:50	7:00	R24	8:45	9:20
R25	9:25	10:30	8:50	9:30	6:55	R25	9:25	10:55	12:00	7:30	8:05	9:30	6:50	R25	8:15	9:25
R26	9:25	10:30	8:50	9:30	6:15	R26	9:25	10:55	12:00	7:20	7:55	8:45	6:00	R26	7:50	9:25
R27	9:20	10:30	8:20	9:25	6:15	R27	9:25	10:55	11:55	7:05	7:55	8:45	6:00	R27	7:50	9:25
R28	9:20	10:25	8:20	9:25	6:15	R28	9:25	10:30	11:55	7:05	7:35	8:45	6:00	R28	7:50	9:25
R29	8:10	8:55	7:20	7:40	6:25	R29	8:10	8:55	9:50	6:50	7:20	8:15	6:15	R29	6:45	8:10
R30	8:00	8:55	7:20	7:40	6:25	R30	8:00	8:45	9:50	6:45	7:20	8:15	6:15	R30	6:45	8:00
R31	7:15	8:25	6:45	7:20	6:20	R31	7:20	7:55	8:50	6:45	7:00	8:25	6:15	R31	7:30	7:20
R32	6:40	7:45	6:40	7:10	5:50	R32	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R32	6:50	6:45
R33	6:40	7:45	6:40	7:10	5:50	R33	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R33	6:50	6:45
R34	6:40	7:45	6:40	7:10	5:50	R34	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R34	6:50	6:45
R35	6:55	7:45	6:40	7:10	5:50	R35	6:55	7:40	8:30	6:20	6:55	7:55	5:50	R35	6:50	6:55

Table 7-1E. Time To Clear The EPZ Boundary of 100 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	5:45	6:20	5:40	6:15	5:35	R1	6:05	6:05	7:40	5:45	6:20	6:45	5:20	R1	6:20	6:05
R2	6:50	7:40	6:25	7:15	5:55	R2	6:50	7:30	8:30	6:25	6:55	7:50	5:55	R2	7:00	6:50
R3	9:25	10:30	8:50	9:50	7:15	R3	9:30	10:55	12:00	7:55	8:50	10:10	7:10	R3	8:45	9:30
2-Mile Ring and Keyhole to 5 Miles																
R4	6:15	6:50	5:40	6:05	5:20	R4	6:15	6:55	8:00	5:45	6:00	7:05	5:15	R4	6:25	6:15
R5	6:30	7:15	5:55	6:20	5:45	R5	6:40	7:30	8:30	5:55	6:15	7:40	5:45	R5	6:25	6:40
R6	6:30	7:15	5:55	6:20	5:45	R6	6:40	7:30	8:30	5:55	6:15	7:40	5:45	R6	6:25	6:40
R7	6:30	7:10	5:50	6:20	5:40	R7	6:40	7:15	8:30	5:50	6:10	7:35	5:45	R7	6:25	6:40
R8	6:40	7:10	5:50	6:20	5:40	R8	6:40	7:15	8:30	5:50	6:15	7:40	5:45	R8	6:30	6:40
R9	6:40	7:10	6:25	7:10	5:40	R9	6:40	7:15	8:30	5:50	6:15	7:40	5:45	R9	6:30	6:40
R10	5:55	6:15	6:25	7:10	4:55	R10	5:50	6:25	7:15	5:10	5:55	6:25	4:55	R10	6:00	5:50
R11	6:50	7:25	6:25	7:10	5:55	R11	6:50	7:25	8:15	6:25	6:50	7:50	5:55	R11	7:00	6:50
R12	6:50	7:25	6:25	7:10	5:55	R12	6:50	7:25	8:15	6:25	6:50	7:50	5:55	R12	7:00	6:50
R13	6:50	7:25	6:25	7:10	5:55	R13	6:50	7:25	8:10	6:25	6:50	7:45	5:55	R13	7:00	6:50
R14	6:50	7:40	6:25	7:15	5:55	R14	6:50	7:25	8:10	6:25	6:55	7:45	5:55	R14	7:00	6:50
R15	6:50	7:40	6:25	7:15	5:55	R15	6:50	7:25	8:10	6:25	6:55	7:45	5:55	R15	7:00	6:50
R16	5:55	6:10	5:20	5:40	4:55	R16	5:40	6:15	7:15	5:15	6:00	6:25	4:55	R16	6:00	5:40
R17	5:55	6:10	5:20	5:40	4:55	R17	5:40	6:15	7:15	5:15	6:00	6:25	4:55	R17	7:00	5:40
R18	5:50	6:10	5:20	5:40	4:55	R18	5:40	6:15	7:15	5:15	6:00	6:20	4:55	R18	7:00	5:40
R19	6:10	6:50	5:25	6:00	5:15	R19	6:10	7:05	8:00	5:45	6:00	7:05	5:15	R19	7:00	6:10

Table 7-1E. Time To Clear The EPZ Boundary of 100 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	7:25	8:10	6:45	7:30	6:25	R20	7:30	8:15	9:25	6:55	7:25	8:40	6:25	R20	6:50	7:30
R21	8:00	8:55	7:20	8:15	6:45	R21	8:10	8:55	10:20	7:10	8:05	9:20	6:40	R21	7:00	8:10
R22	8:55	9:55	7:50	8:45	7:15	R22	8:55	9:55	11:15	7:55	8:45	10:05	7:10	R22	8:45	9:15
R23	8:55	9:55	7:50	8:45	7:15	R23	8:55	9:55	11:15	7:50	8:45	10:05	7:05	R23	8:45	9:15
R24	8:45	9:40	7:55	9:00	7:05	R24	8:50	9:40	11:00	7:45	8:20	9:50	7:00	R24	8:45	9:20
R25	9:25	10:30	8:50	9:30	6:55	R25	9:25	10:55	12:00	7:30	8:05	9:30	6:50	R25	8:15	9:25
R26	9:25	10:30	8:50	9:30	6:15	R26	9:25	10:55	12:00	7:20	7:55	8:45	6:00	R26	7:50	9:25
R27	9:20	10:30	8:20	9:25	6:15	R27	9:25	10:55	11:55	7:05	7:55	8:45	6:00	R27	7:50	9:25
R28	9:20	10:25	8:20	9:25	6:15	R28	9:25	10:30	11:55	7:05	7:35	8:45	6:00	R28	7:50	9:25
R29	8:10	8:55	7:20	7:40	6:25	R29	8:10	8:55	9:50	6:50	7:20	8:15	6:15	R29	6:45	8:10
R30	8:00	8:55	7:20	7:40	6:25	R30	8:00	8:45	9:50	6:45	7:20	8:15	6:15	R30	6:45	8:00
R31	7:15	8:25	6:45	7:20	6:20	R31	7:20	7:55	8:50	6:45	7:00	8:25	6:15	R31	7:30	7:20
R32	6:40	7:45	6:40	7:10	5:50	R32	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R32	6:50	6:45
R33	6:40	7:45	6:40	7:10	5:50	R33	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R33	6:50	6:45
R34	6:40	7:45	6:40	7:10	5:50	R34	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R34	6:50	6:45
R35	6:55	7:45	6:40	7:10	5:50	R35	6:55	7:40	8:30	6:20	6:55	7:55	5:50	R35	6:50	6:55

Notes

1. The distance traveled from the Regional boundary to the boundary of the EPZ is 8 miles for the two-mile region and 5 miles for all of the the five-mile regions.
2. Speeds beetween the regional boundary and the boundary of the EPZ are conservatively assumed to be 10 mph.

Table 7-2. Definition of Evacuation Regions

REGION	DESCRIPTION OF REGION	ERPAs IN ORANGE COUNTY	ERPAs IN PUTNAM COUNTY	ERPAs IN ROCKLAND COUNTY	ERPAs IN WESTCHESTER COUNTY	ERPAs IN REGION
R1	Entire 2 mile ring	39	NONE	29, 38, 39	1-4, 7, 44	1-4, 7, 29, 38, 39, 44
R2	Entire 5 mile ring	26, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16, 18, 24, 26, 29-31, 38-40, 43-45, 47-49
R3	Full EPZ	24-28, 39, 40	16-20, 23, 45, 46	29-41	1-15, 21, 22, 42-44, 47-51	1-51
2 Mile Ring and Sector to 5 Miles						
R4	N	26, 39, 45	16, 18, 45	29, 38, 39	1-4, 7, 8, 44	1-4, 7, 8, 16, 18, 26, 29, 38, 39, 44, 45
R5	NNE	39, 45	16, 18, 45	29, 38, 39, 44, 45	1-4, 7-9, 44, 45	1-4, 7-9, 16, 18, 29, 38, 39, 44, 45
R6	NE	39	16, 18	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 16, 18, 29, 38, 39, 44, 49
R7	ENE	39	NONE	29, 38, 39, 44	1-4, 7-9, 44, 49	1-4, 7-9, 29, 38, 39, 44, 49
R8	E	39	NONE	29, 38, 39, 44	1-5, 7-9, 44, 48, 49	1-5, 7-9, 29, 38, 39, 44, 48, 49
R9	ESE	39	NONE	29, 38, 39, 44	1-7, 9, 44, 47-49	1-7, 9, 29, 38, 39, 44, 47-49
R10	SE	39	NONE	29, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29, 38, 39, 43, 44, 47-49
R11	SSE	39	NONE	29-31, 38, 39, 43, 44	1-7, 43, 44, 47-49	1-7, 29-31, 38, 39, 43, 44, 47-49
R12	S	39	NONE	29-31, 38, 39, 43, 44	1-4, 6, 7, 43, 44, 47, 48	1-4, 6, 7, 29-31, 38, 39, 43, 44, 47, 48
R13	SSW	39	NONE	29-31, 38, 39, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38, 39, 43, 44
R14	SW	39, 40	NONE	29-31, 38-40, 43, 44	1-4, 7, 43, 44	1-4, 7, 29-31, 38-40, 43, 44
R15	WSW	39, 40	NONE	29-31, 38-40, 44	1-4, 7, 44	1-4, 7, 29-31, 38-40, 44
R16	W	39, 40	NONE	29, 30, 38-40, 44	1-4, 7, 44	1-4, 7, 29, 30, 38-40, 44
R17	WNW	24, 26, 39, 40, 45	45	29, 30, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 24, 26, 29, 30, 38-40, 44, 45
R18	NW	24, 26, 39, 40, 45	16, 45	29, 38-40, 44, 45	1-4, 7, 44, 45	1-4, 7, 16, 24, 26, 29, 38-40, 44, 45
R19	NNW	24, 26, 39, 40, 45	16, 45	29, 38, 39, 40, 44, 45	1-4, 7, 8, 44, 45	1-4, 7, 8, 16, 24, 26, 29, 38, 39, 40, 44, 45

Table 7-2. Definition of Evacuation Regions

(Concluded)

REGION	DESCRIPTION OF REGION	ERPAs IN ORANGE COUNTY	ERPAs IN PUTNAM COUNTY	ERPAs IN ROCKLAND COUNTY	ERPAs IN WESTCHESTER COUNTY	ERPAs IN REGION
5 Mile Ring and Sector to EPZ Boundary						
R20	N	24-26, 39, 40	16-19, 23, 45, 46	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16-19, 23-26, 29-31, 38-40, 43-49
R21	NNE	24, 26, 39, 40	16-20, 23, 45, 46	29-31, 38-40	1-10, 43, 44, 47-49	1-10, 16-20, 23, 24, 26, 29-31, 38-40, 43-49
R22	NE	24,26, 39, 40	16-20, 45	29-31, 38-40	1-14, 43, 44, 47-49	1-14, 16-20, 24,26, 29-31, 38-40, 43-45, 47-49
R23	ENE	24,26, 39, 40	16, 18, 19, 20, 45	29-31, 38-40	1-15, 43, 44, 47-49	1-16, 18-20, 24,26, 29-31, 38-40, 43-45, 47-49
R24	E	24,26, 39, 40	16, 18, 20, 45	29-31, 38-40	1-15, 21, 43, 44, 47-50	1-16, 18, 20, 21, 24,26, 29-31, 38-40, 43-45, 47-50
R25	ESE	24,26, 39, 40	16, 18, 45	29-31, 38-40	1-9, 11-15, 21, 22, 43, 44, 47-51	1-9, 11-16, 18, 21, 22, 24,26, 29-31, 38-40, 43-45, 47-51
R26	SE	24,26, 39, 40	16, 18, 45	29-32, 38-40	1-9, 12, 13, 21, 22, 42-44, 47-51	1-9, 12-13, 16, 18, 21-22, 24,26, 29-32, 38-40, 42-45, 47-51
R27	SSE	24,26, 39, 40	16, 18, 45	29-35, 38-40	1-9, 12, 21, 22, 42-44, 47-51	1-9, 12, 16, 18, 21, 22, 24,26, 29-35, 38-40, 42-45, 47-51
R28	S	24,26, 39, 40	16, 18, 45	29-40	1-9, 22, 42-44, 47-49, 51	1-9, 16, 18, 22, 24,26, 29-40, 42-45, 47-49, 51
R29	SSW	24,26, 39, 40	16, 18, 45	29-41	1-9, 42-44, 47-49	1-9, 16, 18, 24,26, 29-45, 47-49
R30	SW	24,26, 39, 40	16, 18, 45	29-31, 34-41	1-9, 43, 44, 47-49	1-9, 16, 18, 24,26, 29-31, 34-41, 43-45, 47-49
R31	WSW	24,26, 28, 39, 40	16, 18, 45	29-31, 34, 36-41	1-9, 43, 44, 47-49	1-9, 16, 18, 24,26, 28-31, 34, 36-41, 43-45, 47-49
R32	W	24, 26-28, 39, 40	16, 18, 45	29-31, 38-41	1- 9, 43, 44, 47-49	1-9, 16, 18, 24, 26-31, 38-41, 43-45, 47-49
R33	WNW	24-28, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16, 18, 24-31, 38-40, 43-45, 47-49
R34	NW	24-28, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16, 18, 24-31, 38-40, 43-45, 47-49
R35	NNW	24-27, 39, 40	16-18, 23, 45, 46	29-31, 38-40	1-9, 43, 44, 47-49	1-9, 16-18, 23-27, 29-31, 38-40, 43-49

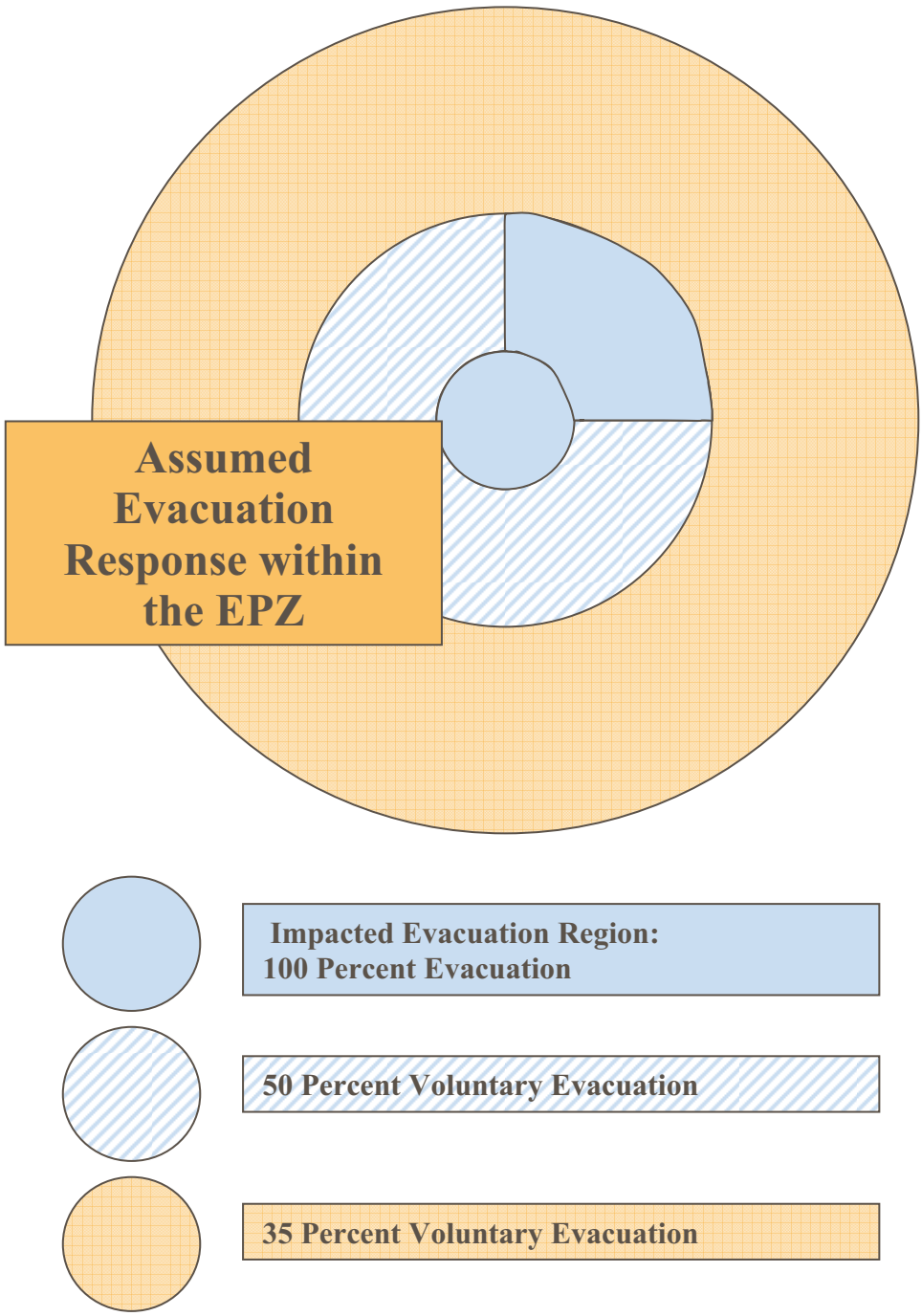


Figure 7-1. Assumed Evacuation Response

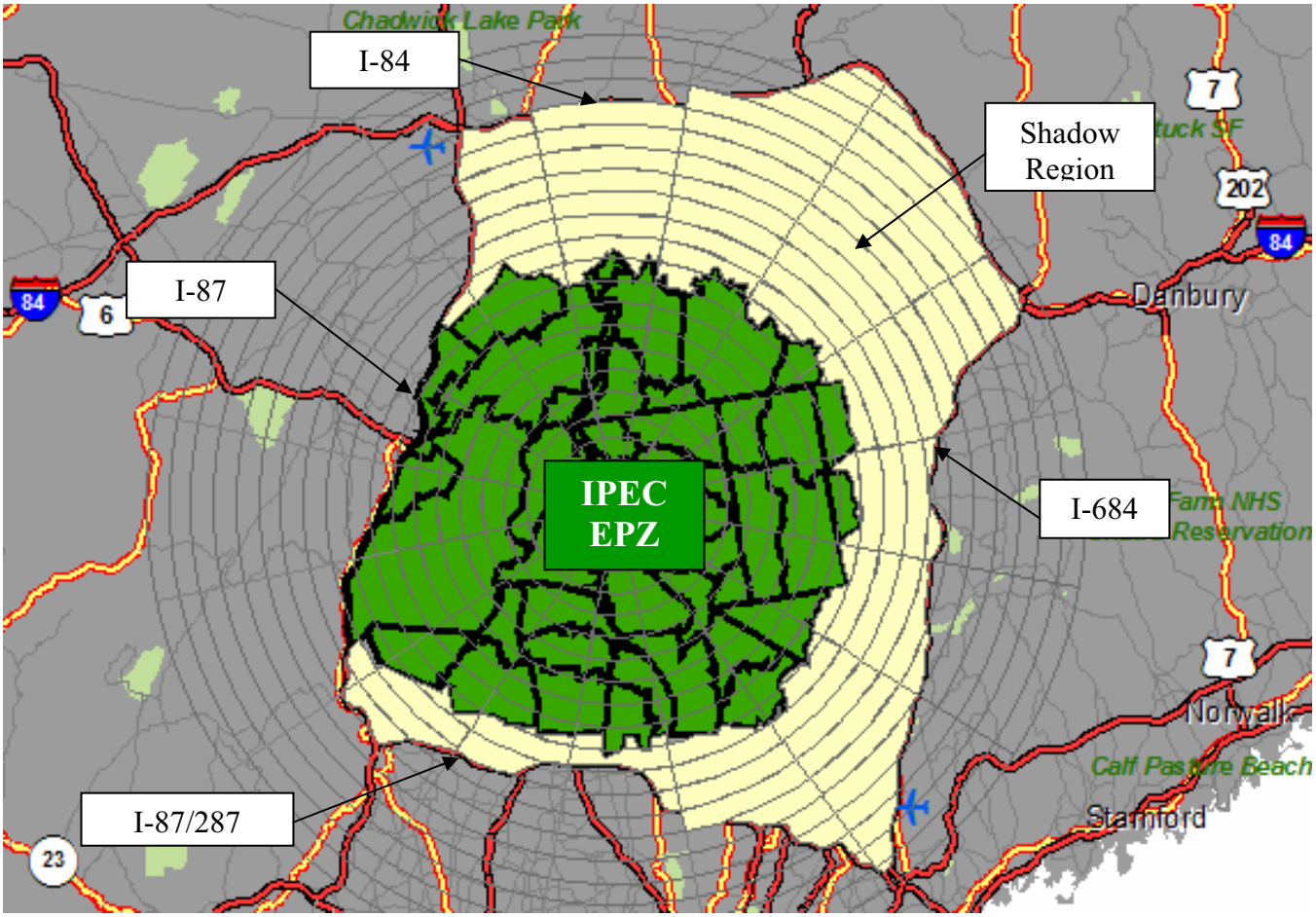


Figure 7-2. Shadow Evacuation Region

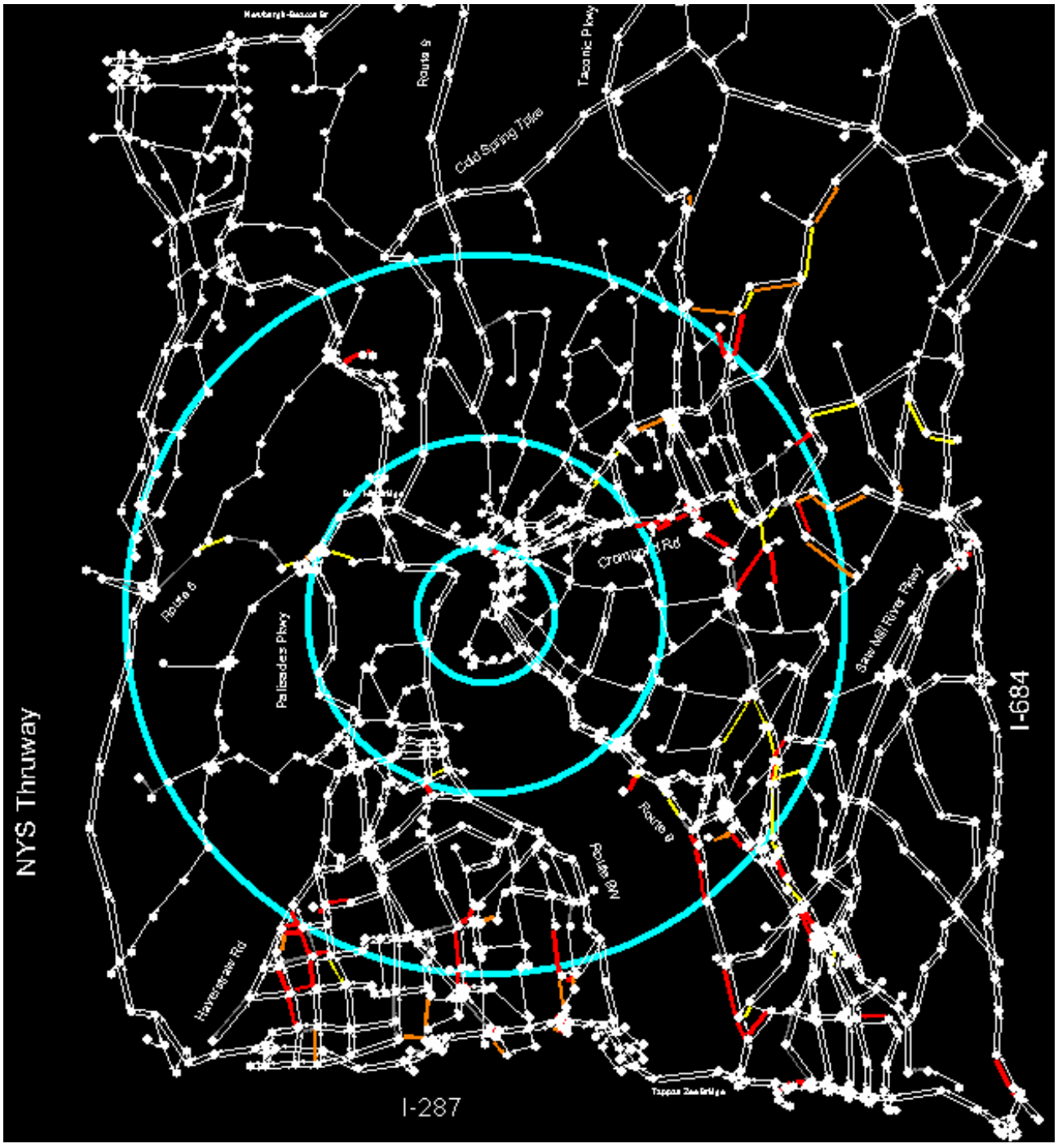


Figure 7-3. Areas of Traffic Congestion

30 Minutes after the Evacuation Recommendation

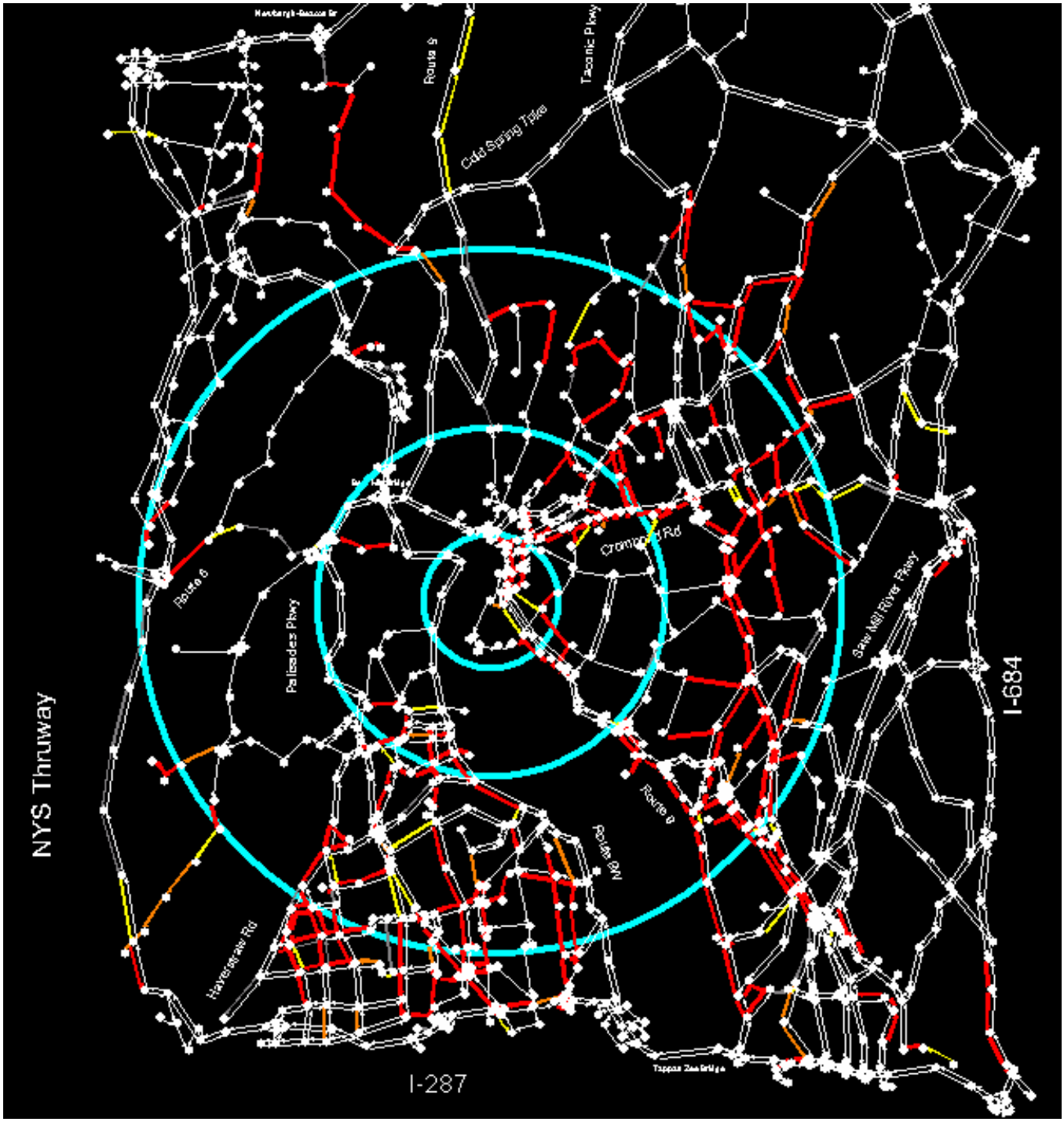


Figure 7-4. Areas of Traffic Congestion

1 Hour after the Evacuation Recommendation

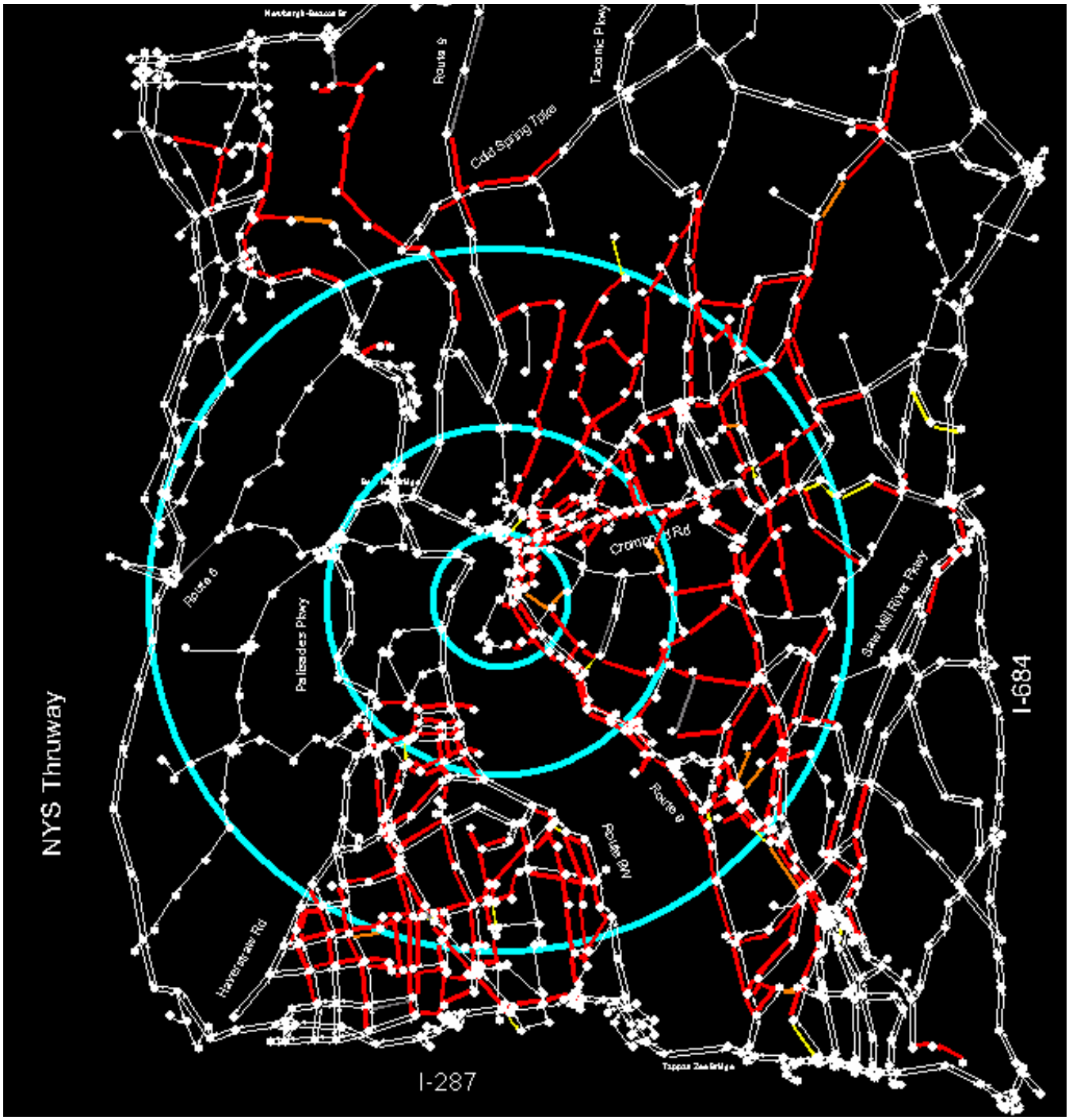


Figure 7-5. Areas of Traffic Congestion

3 Hours after the Evacuation Recommendation

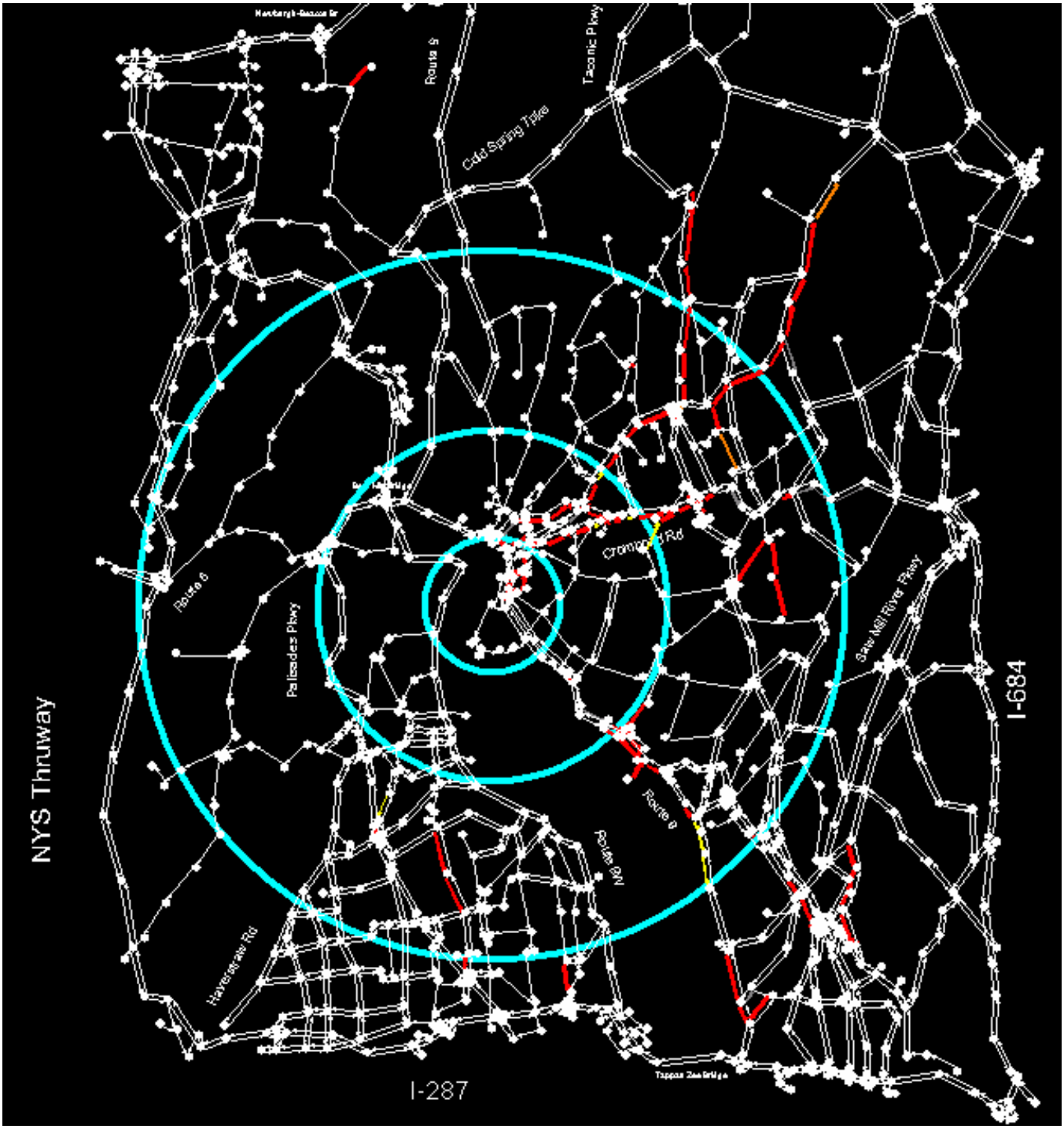


Figure 7-6. Areas of Traffic Congestion

7 Hours after the Evacuation Recommendation

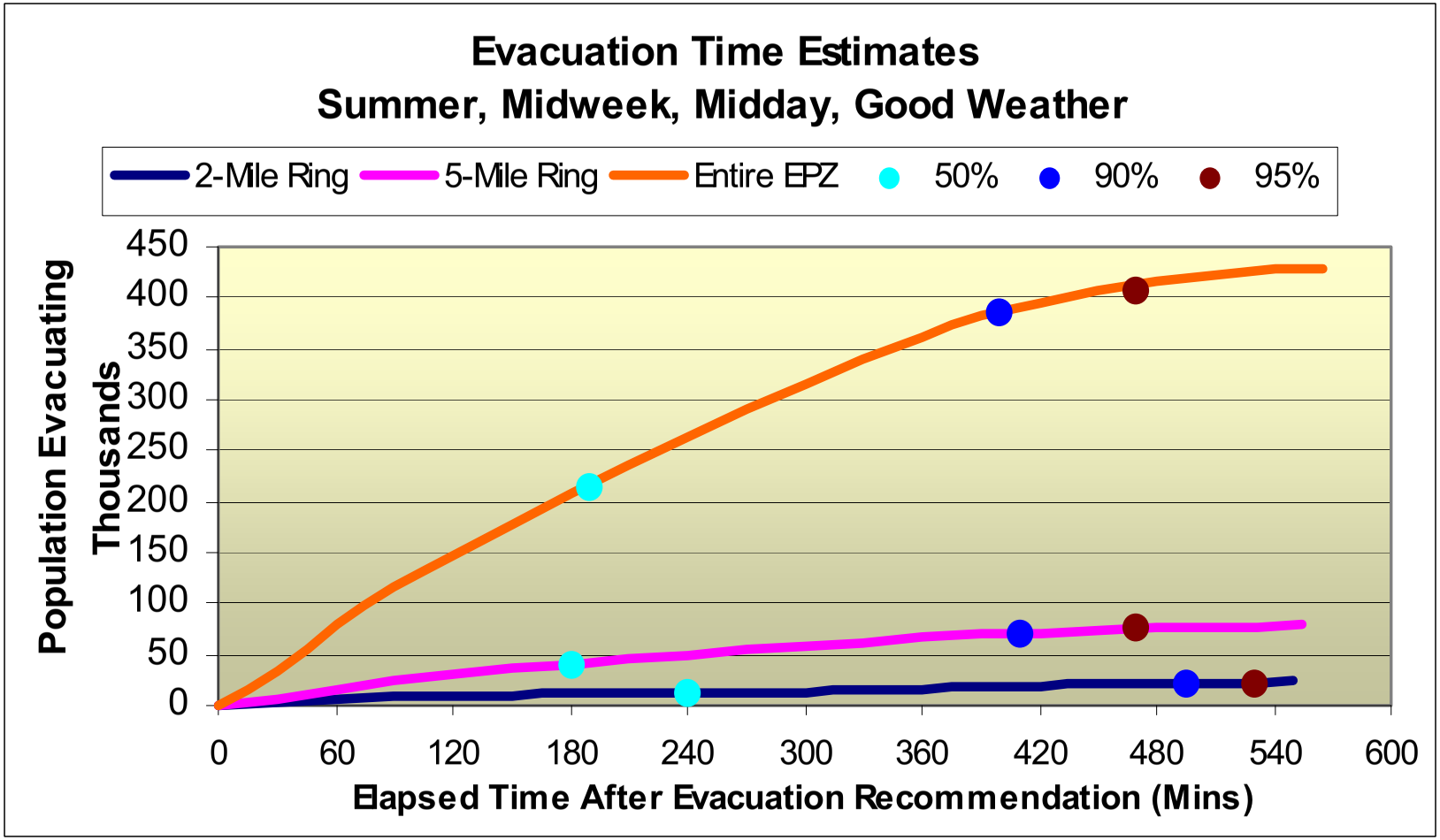


Figure 7-7. Evacuation Time Estimates for IPEC Summer, Midweek, Midday, Good Weather Evacuation of Region R3 (Entire EPZ)

8. TRANSIT-DEPENDENT AND SPECIAL FACILITY EVACUATION TIME ESTIMATES

This section details the analyses applied and the results obtained in the form of evacuation time estimates for transit vehicles (buses). The demand for transit service reflects the needs of two population groups: (1)residents, employees and transients with no vehicles available; and (2) residents of special facilities such as schools, health-support facilities, institutions and child-care facilities.

These transit vehicles merge into and become a part of the general evacuation traffic environment that is comprised mostly of "passenger cars" (pc's). The presence of each transit vehicle in the evacuating traffic stream is represented within the modeling paradigm described in Appendix D as equivalent to two pc's. This equivalence factor represents the longer size and more sluggish operating characteristics of a transit vehicle, relative to those of a pc.

Transit vehicles must be mobilized in preparation for their respective evacuation missions. Specifically:

- Bus drivers must be alerted
- They must travel to the bus depot
- They must be briefed there and assigned to a route or facility

These activities consume time. Based on discussions with local officials and with transport providers, it is estimated that bus mobilization time will average approximately 90 minutes extending from the Advisory to Evacuate to the time when buses are dispatched from their respective depots.

During this mobilization period, other mobilization activities are taking place. One of these is the action taken by parents, neighbors, relatives and friends to pick up children from school prior to the arrival of buses, so that they may join their families. Virtually all studies of evacuations have concluded that this "bonding" process of uniting family units is universally prevalent during emergencies and should be anticipated in the planning process.

For this reason, we provide estimates of required transit resources based on the reasonable expectation that many children will be picked up from school and reunited with their respective families, prior to the arrival of buses at these schools. We also provide estimates of buses under the assumption that no children will be picked up, to present an upper bound estimate.

The procedure is:

- Estimate demand for transit service
- Estimate time to perform all transit functions
- Estimate route travel times to the EPZ boundary and to the school reception centers

8.1 Transit-Dependent People - Demand Estimate

The telephone survey (see Appendix F) results were used to estimate the portion of the population requiring transit service:

- Those persons in households that do not have a vehicle available.
- Those persons in households that do have vehicle(s) that would not be available at the time the evacuation is ordered.

In the latter group, the vehicle(s) may be used by a commuter(s) who does not return (or is not expected to return) home to evacuate the household.

Car ownership statistics for the densely populated areas of Ossining and Peekskill and for other areas in and near the EPZ were obtained from NYS DMV vehicle registration statistics. Table 8-1 presents a comparison of vehicle ownership estimates obtained from the DMV data and from the telephone survey. The ratio of persons per vehicle based on the DMV estimates for Ossining and Peekskill are comparable to those of other communities. Since the availability of private vehicles on a per-capita basis for these two communities is comparable to that for the other EPZ communities, there is no basis for treating them separately in estimating transit needs, as was done in previous ETE studies.

Table 8-2 presents estimates of transit-dependent people. Note:

- Estimates of persons requiring transit vehicles include school children. For those evacuation scenarios where children are at school when evacuation is ordered, separate transportation is provided for the school children. The actual need for transit vehicles by residents is thereby less than the given estimates. However, we will not reduce our estimates of transit vehicles since it would add to the complexity of the implementation procedures.
- It is reasonable and appropriate to consider that many transit-dependent persons will evacuate by ride-sharing with neighbors, friends or family. For example, nearly 80 percent of those who evacuated from Mississauga, Ontario who did not use their own cars, shared a ride with neighbors or friends. Other documents report that approximately 70 percent of transit-dependent persons were evacuated via ride-sharing. **We will adopt a conservative estimate that 50 percent of transit-dependent persons will ride-share.**

The estimated number of bus trips needed to service transit-dependent persons is based on an estimate of average bus occupancy of 30 persons at the conclusion of the bus run. Table 8-6 documents that transit vehicle seating capacities equal or exceed 60 children (equivalent to 40 adults). If transit vehicle evacuees are two-thirds adults and one-third children, then the number of "adult seats" taken by 30 persons is 20 + (2/3 x10) = 27. On this basis, the average load factor anticipated is (27/40) x 100 = 68 percent. Thus, if the actual demand for service exceeds the estimates of Table 8-2 by 50 percent, the demand for service can still be accommodated by the available bus seating capacity.

Table 8-2 indicates that transportation must be provided for almost 15,000 people. Therefore, a total of 490 bus runs are required to transport this population to reception centers.

To illustrate this estimation procedure, we calculate the number of persons, P, requiring public transit or ride-share, and the number of buses, B, required for Orange County:

$$P = 5693 \times (0.04 \times 2.69 + 0.24 \times (2.23 - 1) \times 0.72 \times 0.40 + 0.57 \times (3.24 - 2) \times (0.72 \times 0.40)^2) = 5963 \times 0.251 = 1430$$
$$B = (0.5P) / 30 = 24$$

These calculations are explained as follows:

- All members of households (HH) with no vehicles will evacuate by public transit or ride-share. The term 5693 x 0.04 x 2.69, accounts for these people.
- The members of HH with 1 vehicle away, who are at home, equal (2.23-1). The number of HH where the commuter will not return home is equal to (5693 x 0.24 x 0.72 x 0.40). The number of persons who will evacuate by public transit or ride-share is equal to the product of these two terms.
- The members of HH with 2 vehicles that are away, who are at home, equal (3.42 – 2). The number of HH where neither commuter will return home is equal to 5693 x 0.57 x $(0.72 \times 0.40)^2$. The number of persons who will evacuate by public transit or ride-share is equal to the product of these two terms.
- Households with 3 or more vehicles are assumed to have no need for transit vehicles.
- The total number of persons requiring public transit is the sum of such people in HH with no vehicles, or with 1 or 2 vehicles that are away from home.

8.2 School Population – Transit Demand

Table 8-3 presents the school population and transportation requirements for the direct evacuation of all schools within the EPZ at the end of 2002. The column in Table 8-3 entitled "Bus Runs Required" specifies the number of buses required for each school under the following set of assumptions and estimates:

- Half of all students (other than those at West Point) will be picked up by their parents prior to the arrival of the buses.
- Bus capacity, expressed in students per bus, is set to 50 for primary schools and 33 for middle and high schools. These estimates allow for approximately 20 percent "inefficiency" in loading the buses (since the actual seating capacities are about 60 and 40, respectively) and for seating of at least one adult staff member to accompany the students on each bus.

- With the exception of West Point, those staff members who do not accompany the students will evacuate in their private vehicles.

- For West Point, we assume that one-third of the staff will be evacuated by bus and the bus seating capacity will be 38, given the higher loading efficiency expected.

The County Plans call for assigning buses to evacuate the entire student body at every school. The column in Table 8-3 entitled "Buses Available" specifies the number of buses to be allocated for each school under the County Plans. To obtain these estimates, we assign seating capacities of 56 and 38 students per bus for elementary and higher-level schools, respectively, reflecting the higher loading efficiency associated with evacuating the entire student body. (Earlier, we assumed a lower efficiency resulting in 50 and 33 students per bus, when parents pick up some students). No allowance is made for student absenteeism that is in the neighborhood of 3 percent, daily.

We recommend that the Counties introduce procedures whereby the schools are contacted prior to the dispatch of buses from the depot (approximately 90 minutes after the Advisory to Evacuate), to ascertain the current estimate of students to be evacuated. In this way, the number of buses dispatched to the schools will reflect the actual number needed. Those buses originally allocated to evacuate school children that are not needed due to children being picked up by their parents, can be gainfully assigned to service other facilities or those persons who do not have access to private vehicles or to ride-sharing.

Table 8-4 presents a list of the school reception centers for each school in the EPZ. Those students not picked up by their parents prior to the arrival of the buses, will be transported to these centers where they will be subsequently retrieved by their respective families.

8.3 Special Facility Demand

Table 8-5 presents the census of special facilities in the EPZ as of the end of 2002. Approximately 5,700 people have been identified as living in, or being treated in, these facilities. This census also indicates the number of wheelchair-bound people and the number of bed-ridden people. The transportation requirements for this group are also presented. The number of ambulance runs is determined by assuming that 2 patients can be accommodated per ambulance trip; the number of wheelchair van runs assumes 4 wheelchairs per trip; and the number of bus runs estimated assumes 30 ambulatory patients per trip.

8.4 Evacuation Time Estimates for Transit-Dependent People

Buses assigned to evacuate transit-dependent people from the EPZ are provided by several depots. Table 8-6 presents the transportation resources available to evacuate all the schools, special facilities and transit-dependent persons in the EPZ as of the end of 2002.

Table 8-7 presents a summary of transit resource needs and availability as of the end of 2002. It is seen that the available resources expressed in terms of bus-seats, are sufficient in all counties to service the evacuation demand in a "single-wave", assuming drivers are available for all vehicles. In general, the buses will transport the evacuees to the appropriate reception centers and need not return to the EPZ for a second trip.

Exceptions to this rule may occur to some extent in Orange and/or Rockland Counties where the supply of transit resources is adequate to service the demand but where the margin is lower than for the other counties. In the event that the allocation of buses dispatched from the depots to the various facilities and to the bus routes is somewhat "inefficient", or if there is a shortfall of available drivers, then there may be a need for some buses to return to the EPZ from the reception center after completing its first evacuation trip, to complete a "second wave" of providing transport service to evacuees. For this reason, the ETE will be calculated for both a one wave transit evacuation and for two waves (Table 8-10). Of course, if the impacted Evacuation Region is other than R3 (the entire EPZ), then there will be ample transit resources relative to demand in the impacted Region and this discussion of a second wave would likely not apply.

For all counties, transit resources will be assigned to schools as a first priority. When these needs are satisfied, subsequent assignments of buses to service the transit-dependent should be sensitive to their mobilization time. Clearly, the buses should be dispatched after people have completed their mobilization activities and are in a position to board the buses when they arrive at the pick-up points.

Evacuation Time Estimates for Transit Trips were developed using both good weather and adverse weather conditions. Figure 8-1 presents the chronology of events relevant to transit operations. The elapsed time for each activity will now be discussed with reference to Figure 8-1.

Activity: Mobilize Drivers (A→B)

Mobilization is the elapsed time from the Advisory to Evacuate until the time the buses are dispatched from their respective depots.

Discussions with local personnel indicate that, historically, it takes between 30 and 45 minutes to alert bus drivers to the need for an early dismissal due to inclement weather. During conditions that could lead to early school dismissals (snow, storms), bus drivers are "primed" to respond even before they are notified. For a rapidly escalating radiological emergency, however,with no observable indication before the fact, drivers would likely require a longer period of time to mobilize for an emergency. In response to a telephone survey, providers agreed that a mobilization time of 90 minutes is a reasonable expectation under these circumstances. Allowing 30 minutes for snow clearance of driveways, yields 2 hours mobilization time for the snow scenarios.

Activity: Travel to Facility (B→C)

We will conservatively assert that bus travel speeds are those computed by the PCDYNEV simulation model for all evacuating vehicles traveling outbound. Table 8-8 presents the evacuation travel speeds within each County, as functions of elapsed time from the Advisory to Evacuate and of weather conditions. By interpolating the speeds in Table 8-8, we will assign an average travel speed of 20 mph (15 mph, snow) at a time one hour and 30 minutes (2 hours, snow) after the Advisory to Evacuate, when the buses are dispatched from their respective depots.

The average distance from each depot to each assignment (school, special facility, pick-up route) is estimated as 6 miles, given the dispersion at bus depots in each county. Thus, this travel time is estimated at 20 minutes (25 minutes for snow).

Activity: Board Passengers (C→D)

Studies have shown that passengers can board a bus at headways of 2-4 seconds (Ref. HCM2000 Page 27-27). Therefore, the total dwell time to service passengers boarding a bus to capacity at a single stop (e.g., at a school) is about 5 minutes. For multiple stops along a pick-up route we must allow for the additional delay associated with stopping and starting at each pick-up point. This additional delay to service passengers expands this estimate of boarding time to 15 minutes.

Activity: Travel to EPZ Boundary (D→E)

School Evacuation

The average distance from a school to the EPZ boundary is conservatively estimated at 8 miles. The travel speeds within the EPZ are obtained from Table 8-8, assigning the computed values at 3 hours after the Advisory to Evacuate. The estimated speeds and travel times (nearest 5 minutes) are calculated for as follows:

County	Mean Speed (mph)			Travel Time (min) to EPZ Boundary		
	Good Weather	Rain	Snow	Good Weather	Rain	Snow
Orange	8	7	7	60	70	70
Putnam	10	9	9	50	55	55
Rockland	8	7	7	60	70	70
Westchester	7	5	5	70	95	95

Table 8-9 presents the evacuation time estimates for schools in the EPZ: (1) The elapsed time from the Advisory to Evacuate until the bus exits the EPZ; and (2) The elapsed time until the bus reaches the School Reception Center. Since the school evacuations will be completed in a single wave, then evacuation time out of the EPZ can be computed as the sum of travel times associated with Activities A→B, B→C, C→D, and D→E (For example: 90 min. + 20 + 5 + 60 = 2:55 for Orange County, with good weather. The evacuation time to the School Reception Center is determined by adding the time associated with Activity E→F (discussed below), to this EPZ evacuation time.

Evacuation of Transit-Dependent Population

The time at which buses will be dispatched from the depots to service the transit-dependent evacuees will be later than the time for the buses dispatched to the schools. The buses should be scheduled so that they arrive at their respective routes after their passengers have completed their mobilization. Thus, for these buses, we estimate an average dispatch time of 2 hours and 30 minutes (3 hours for snow).

Those buses servicing the transit-dependent evacuees will first travel along their pick-up routes, then proceed out of the EPZ. The travel distance along the respective pick-up routes within the Region is estimated as 4 miles and 8 miles, respectively, for Regions extending to 5 miles and to the EPZ boundary. The additional travel distance from the end of the route to the EPZ boundary is conservatively estimated at 8 miles. Thus, the total travel distances including route travel plus travel within their Regions to the EPZ boundary are 12 and 16 miles, respectively. The associated travel times are computed using the speeds of Table 8-8.

Table 8-10 presents the transit-dependent population evacuation time estimates obtained using the above procedures. For example, the ETE for a Region in Orange County that extends to 5 miles, is computed as 150 + 20 + 15 + 90 = 4:35 hours for good weather. Here, 90 minutes is the time to travel 12 miles at 8 mph. The ETE for a second wave (discussed below) is presented in the event there is a shortfall of available buses or bus drivers.

Activity: Travel to School Reception Centers (E→F)

The average distances from the EPZ boundary to the school reception centers are about 10 miles for Orange and Westchester Counties, and 15 miles for Putnam and Rockland Counties. For a one-wave evacuation, this travel time outside the EPZ does not contribute to the ETE. For a two-wave evacuation, the ETE for buses must be considered separately, since it could exceed the ETE for the general public.

Since this travel time will be outside the EPZ, where congestion is likely to be somewhat less pronounced, reasonable estimates for speeds are 10 mph for buses originating from Rockland and Westchester Counties and 20 mph for buses from Orange and Putnam Counties (8 and 15 mph for snow). The resulting travel times from the EPZ boundary to the school reception centers (Table 8-4) are:

- 30 minutes (40 for snow) for Orange County
- 45 minutes (60 for snow) for Putnam County
- 90 minutes (110 for snow) for Rockland County
- 60 minutes (75 for snow) for Westchester County

Activity: Passengers Leave Bus (F→G)

A bus can empty within 5 minutes.

Activity: Bus Returns to Route for Second Wave Evacuation (G→C)

The buses assigned to return to the EPZ to perform a "second wave" evacuation of transit-dependent evacuees will be those that evacuated the school children. These buses are assigned since they will be the first buses to complete their evacuation service and are therefore the first to be available for the second wave. The inbound trip to the EPZ from the school reception centers will be at a higher speed than the outbound trip since the direction of travel will be counter-flow relative to evacuating traffic. The travel times to the EPZ boundary at an average speed of 30 mph will be 20 minutes for Orange and Westchester Counties and 30 minutes for Putnam and Rockland Counties. The bus then travels to its route and proceeds to pick up transit-dependent evacuees along the route. Upon the completion of this activity, the bus will travel to the EPZ boundary to exit the EPZ. (Only Regions extending to the EPZ boundary would possibly require a second wave).

It is estimated that each bus servicing a second wave travels inbound from the EPZ boundary, a distance of 8 miles to the start of a pick-up route at 30 mph (15 minutes). The bus then travels along its route and back to the EPZ boundary, covering an estimated total distance of 16 miles at the speeds shown in Table 8-8 at 7 hours after the Advisory to Evacuate. The travel times for Orange County are computed as follows:

- Bus arrives at reception center at 3:25 in good weather (Table 8-9).
- Bus discharges passengers (5 minutes) and driver takes a 15-minute rest: 20 minutes.
- Bus returns to EPZ (20 minutes) then travels to the start of the route (15 minutes).
- Bus completes pick-ups along route: 15 minutes + (8 miles @ 6 mph) = 95 minutes.
- Bus travels to EPZ boundary: 8 miles @ 6 mph = 80 minutes.
- Bus exits EPZ at time 3:25 + 0:20 + 0:35 + 0:15 + 1:35 + 1:20 = 7:30 after the Advisory to Evacuate.

The ETE for the completion of the second wave are given in Table 8-10.

Evacuation of Ambulatory Persons from Special Facilities

The bus operations for this group are similar to those for school evacuation except:

- These buses will leave the depots later, approximately 2 hours after the Advisory to Evacuate.
- The passenger loading time will be longer at approximately 30 minutes to account for the time to move patients from inside the facility to the vehicles.

The time that these buses will leave these special facilities to begin their respective evacuation trips out of the EPZ is calculated as follows:

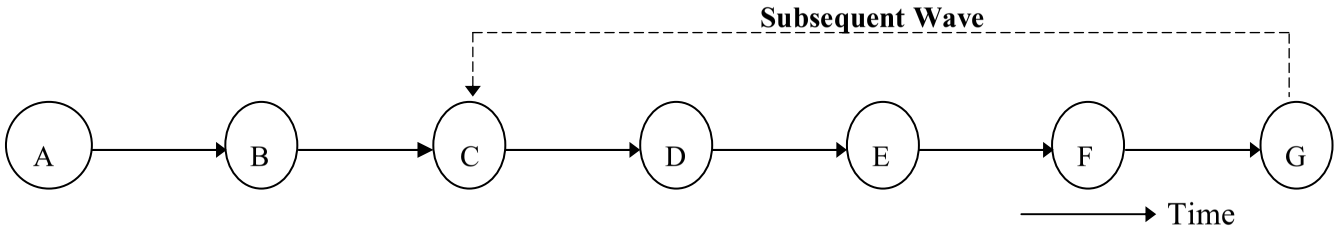
- Bus leaves depot at 2:00 (2:30 for snow).
- Bus travels to facility, 20 minutes (25 for snow).
- Passengers board bus, 30 minutes.

Thus, the bus will leave the facility at 2:50 after the Advisory to Evacuate. These buses will travel out of the EPZ at speeds given in Table 8-8 for 3 hours after the Advisory to Evacuate. As was done for the schools, it is assumed that the distance from the facility to the EPZ boundary averages 8 miles. For example, the travel time for an 8-mile trip to the EPZ boundary within Orange County at 8 mph will be 1 hour and the resulting ETE will be three hours and 50 minutes. The ETE to evacuate ambulatory residents from special facilities are presented in Table 8-11.

Emergency Medical Services (EMS) Vehicles

The previous discussion focused on transit operations for ambulatory and wheelchair-bound persons within the Region. It is also necessary to provide transit services to non-ambulatory persons who do not -- or cannot -- have access to private vehicles. As shown in Table 8-5, a total of 89 ambulance trips is anticipated for an evacuation of the entire EPZ. Table 8-12 is a compilation of available resources that exceed the number of ambulance trips required. Consequently, only a single wave of service is anticipated.

It is reasonable to expect that the response times of EMS vehicles should be less than for the buses dispatched to evacuate special facilities. We will conservatively estimate the same ETE for these EMS vehicles as for the vehicles evacuating ambulatory evacuees from special facilities. This approach takes into account that a somewhat longer vehicle loading time for these passengers, relative to that for the ambulatory evacuees, will balance the earlier arrival times of these vehicles at the facilities. Therefore, the ETE for EMS vehicles to leave the EPZ are the same as for the vehicles evacuating ambulatory evacuees from special facilities; see Table 8-11.



Event

A	Advisory to Evacuate
B	Bus Dispatched from Depot
C	Bus Arrives at Facility/Pick-up Route
D	Bus Departs for Reception Center
E	Bus Exits Region
F	Bus Arrives at School Reception Center
G	Bus Available for "Second Wave" Evacuation Service

Activity

A→B	Driver Mobilization
B→C	Travel to Facility or to Pick-up Route
C→D	Passengers Board the Bus
D→E	Bus Travels Towards Region Boundary
E→F	Bus Travels Towards School Reception Center Outside the EPZ.
F→G	Passengers Leave Bus; Driver Takes a Break

Figure 8-1. Chronology of Transit Evacuation Operations

Table 8-1. Comparison of Vehicle Availability					
Zip Code	**Community**	**DMV Registered[1] Vehicles (2003)**	**Survey Vehicle Estimate**	**2003 Population**	**Persons Per Vehicle**
10501	AMAWALK, NY	1,006	917	1,308	1.30
10510	BRIARCLIFF, NY	6,958	7,139	10,189	1.46
10511	BUCHANAN, NY	1,748	1,601	2,285	1.31
10514	CHAPPAQUA, NY	7,940	9,129	13,028	1.64
10516	COLD SPRING, NY	3,948	3,917	5,570	1.41
10520	CROTON HDSN, NY	8,431	9,032	12,890	1.53
10524	GARRISON, NY	3,440	3,308	4,704	1.37
10527	GRANITE SPGS, NY	742	1,024	1,462	1.97
10537	LK PEEKSKILL, NY	2,102	1,305	1,855	0.88
10546	MILLWOOD, NY	1,181	839	1,197	1.01
10547	MOHEGAN LAKE, NY	5,217	6,083	8,682	1.66
10548	MONTROSE, NY	2,331	3,931	5,609	2.41
10562	OSSINING, NY	19,931	22,724	32,430	1.63
10566	PEEKSKILL, NY	15,734	16,438	23,459	1.49
10567	CORTLANDT MNR, NY	13,280	14,134	20,172	1.52
10579	PUTNAM VALLEY, NY	7,159	6,564	9,334	1.30
10588	SHRUB OAK, NY	2,126	1,600	2,284	1.07
10598	YORKTOWN HTS, NY	21,001	21,720	30,997	1.48
10901	SUFFERN, NY	14,833	13,802	23,783	1.60
10920	CONGERS, NY	6,389	5,522	9,514	1.49
10923	GARNERVILLE, NY	7,184	4,800	8,271	1.15
10927	HAVERSTRAW, NY	5,607	5,927	10,213	1.82
10928	HIGHLAND FLS, NY	2,969	3,953	6,004	2.02
10930	HIGHLAND MLS, NY	5,569	5,325	8,088	1.45
10956	NEW CITY, NY	23,274	19,516	33,627	1.44
10977	SPRING VALLEY, NY	28,334	29,807	51,360	1.81
10980	STONY POINT, NY	9,419	7,738	13,332	1.42
10984	THIELLS, NY	1,959	2,429	4,186	2.14
10986	TOMKINS COVE, NY	1,378	1,069	1,842	1.34
10989	VLY COTTAGE, NY	6,966	6,266	10,797	1.55
10993	W HAVERSTRAW, NY	3,011	3,706	6,386	2.12
12518	CORNWALL, NY	4,152	4,267	6,480	1.56
		245,319	**245,532**		

[1]DMV vehicle totals are reduced by 18.3 percent to account for commercial vehicles (large vans, pickup trucks) registered as private vehicles in suburban areas. Source: 1994 Residential Transportation Energy Consumption Survey, US Department of Energy.

Table 8-2. Transit Population Estimates

Portion of EPZ in County	2003 Population	Survey Average Household Size With Indicated No. of Vehicles			Estimated Number of Households	Survey Percent Households With			Survey Percent Households With Commuters	Survey Percent Households With Non-Returning Commuters	Total People Requiring Transport	Estimated Ridesharing Percentage	People Requiring Public Transit	Percent of Population Requiring Public Transit
		0	1	2		0 Vehicle	1 Vehicle	2 Vehicle						
Orange	16,167	2.69	2.23	3.24	5,693	4%	24%	57%	72%	40%	1,430	50%	715	4.4%
Putnam	20,260	2.69	2.23	3.24	6,535	2%	22%	42%	80%	40%	1,266	50%	633	3.1%
Rockland	122,762	2.69	2.23	3.24	36,536	7%	25%	43%	78%	40%	12,281	50%	6,141	5.0%
Westchester	146,087	2.69	2.23	3.24	51,439	5%	23%	48%	77%	40%	14,305	50%	7,153	4.9%
	305,276										29,282		14,642	4.8%

Table 8-3. School Population Demand Estimates								
ERPA	Distance (Miles)	Direc-tion	School Name	Municipality	Enroll-ment	Staff	Bus Runs Req'd	Buses Avail-able
Orange County Schools								
24	7.5	N	West Point ES	West Point	900	100	9	16
24	7.5	N	United States Military Academy	West Point	4,000	2,200	125	125
26	5	NNW	Fort Montgomery ES	Highland Falls	114	24	2	2
26	7	N	Highland Falls ES	Highland Falls	196	22	2	4
26	7	N	Highland Falls MS	Highland Falls	308	46	5	9
26	5	NNW	James O'Neill HS	Highland Falls	611	48	10	16
26	7	N	Sacred Heart of Jesus ES	Highland Falls	250	35	3	5
				Orange County Totals:	6,379	2,475	156	177
Putnam County Schools								
17	10	N	Garrison ES	Garrison	300	50	3	6
19	7	NE	Putnam Valley ES	Putnam Valley	680	95	7	13
19	7	NE	Putnam Valley H.S.	Putnam Valley	620	84	10	17
19	7	NE	Putnam Valley MS	Putnam Valley	465	80	7	13
23	10.5	N	Haldane Central	Cold Spring	880	165	12	20
				Putnam County Totals:	2,945	474	39	69
Rockland County Schools								
30	4.5	SW	Children of Mary Kindergarten	Stony Point	152	13	2	3
30	3.2	SSW	Immaculate Conception School	Stony Point	220	20	3	4
30	3.8	SW	James A. Farley MS	Stony Point	874	122	14	23
30	2.8	SW	Stony Point ES	Stony Point	733	104	8	13
31	5	SSW	Gerald F. Neary ES	Haverstraw	491	79	5	9
31	5	S	Haverstraw MS	Haverstraw	823	131	13	22
31	4.5	SSW	North Garnerville ES	Garnerville	338	55	4	6
31	4.8	SW	North Rockland HS	Thiells	2,562	343	39	68
31	5.2	S	Rockland Christian School	Haverstraw	22	3	1	1
31	4.5	SSW	St. Gregory Barbarigo School	Garnerville	210	25	3	4

Table 8-3. School Population Demand Estimates								
ERPA	Distance (Miles)	Direc-tion	School Name	Municipality	Enroll-ment	Staff	Bus Runs Req'd	Buses Avail-able
31	5	S	St. Peter's School	Haverstraw	225	25	4	5
31	5.5	SW	Thiells ES	Thiells	764	117	8	14
31	4.2	SSW	West Haverstraw ES	W. Haverstraw	718	135	7	13
31	5.5	SW	Willow Grove School	Thiells	942	150	14	25
32	8.5	S	Congers ES	Congers	346	24	3	7
32	7.8	S	Lakewood ES	Congers	469	29	5	9
33	9.8	S	Liberty ES	Valley Cottage	493	69	5	9
33	8.5	S	Rockland Country Day School	Congers	203	40	3	5
33	9.5	S	St. Paul School	Valley Cottage	450	30	7	10
34	8	SSW	Rockland Learning Center	Pomona	61	8	1	1
34	8.2	SSW	Woodglen ES	New City	538	38	6	10
35	10.2	SSW	Albertus Magnus HS	Bardonia	486	55	8	13
35	8.2	S	Clarkstown Senior HS North	New City	1,654	130	25	44
35	10.2	SSW	Congregation Hor Yitzchok	New City	12	7	1	1
35	9	SSW	Cornerstone Christian School	New City	104	20	1	2
35	11	S	Felix V. Festa Jr. High "A Wing"	W. Nyack	488	61	8	13
35	11	S	Felix V. Festa Jr. High "C Wing"	W. Nyack	389	61	6	11
35	11	S	Felix V. Festa Jr. High "D Wing"	W. Nyack	526	61	8	14
35	8.4	SSW	Hebrew Academy Early Childhd.	New City	31	9	1	1
35	9.8	SSW	Hillcrest School	New City	398	62	4	8
35	10	S	Laurel Plains ES	New City	454	34	5	9
35	9.8	SSW	Link ES	New City	547	32	6	10
35	8.5	SSW	Little Tor ESl	New City	316	20	4	6
35	10.4	SSW	Mesifta Ohr Hatorah	New City	11	4	1	1
35	8.5	S	New City ES	New City	474	24	5	9
35	8.5	S	New City Jewish Center	New City	400	40	5	10
35	9	SSW	Reuben Gittleman Hebrew Day	New City	355	60	4	7
35	9	SSW	St. Augustine's ES	New City	275	25	3	5
35	10	S	Strawtown ES	W. Nyack	425	22	5	8

Table 8-3. School Population Demand Estimates								
ERPA	Distance (Miles)	Direc-tion	School Name	Municipality	Enroll-ment	Staff	Bus Runs Req'd	Buses Avail-able
36	8.5	SW	Bais Yaakov Chofetz Chaim	Pomona	150	28	2	3
37	10.8	SW	Grandview School	Monsey	454	60	5	9
37	10	SSW	Hempstead ES	Spring Valley	500	60	5	9
37	10	SW	Lime Kiln ES	Suffern	332	N/A	4	6
37	10	SSW	Merrill L. Colton School	Spring Valley	466	60	5	9
37	8.8	SW	Pomona Jr. HS	Suffern	976	145	15	26
37	11	SSW	Ramapo Senior HS	Spring Valley	1,850	N/A	28	49
37	8.5	SSW	Summit Park ES	New City	504	72	5	9
37	9	SSW	Yeshiva Avir Yakov Girls	Spring Valley	2,455	N/A	32	55
37	10	SSW	Yeshiva Avir Yakov	Spring Valley	90	N/A	1	2
37	9	SSW	Yeshiva Avir Yakov	Spring Valley	90	N/A	2	3
				Rockland County Totals:	26,846	2,712	359	613
Westchester County Schools								
1	0.75	SSE	Buchanan-Verplank ES	Buchanan	439	75	5	8
2	2.2	NE	Assumption ES	Peekskill	270	20	3	5
2	2.8	NE	Hillcrest ES	Peekskill	470	60	5	9
2	2.2	NE	Oakside ES	Peekskill	487	47	5	9
2	2.5	NE	Park Street School	Peekskill	140	15	3	4
2	2.2	NE	Peekskill HS	Peekskill	715	110	11	19
2	1.8	NE	Peekskill MS	Peekskill	405	61	7	11
2	2.8	NE	Uriah Hill ES	Peekskill	310	30	4	6
2	1.8	ENE	Woodside ES	Peekskill	484	50	5	9
4	1.5	SSE	Frank G. Lindsey ES	Montrose	510	75	6	10
4	1.5	SE	Hendrick Hudson HS	Montrose	810	135	13	22
6	5.5	SE	Carrie E. Thompkins ES	Croton-On-Hudson	744	59	8	14
6	5.8	SE	Pierre Van Cortlandt MS	Croton-On-Hudson	349	50	6	10
8	4.6	ENE	Lincoln-Titus ES	Crompond	466	42	5	9
8	4	NE	St. Columbanus ES	Contlandt Manor	300	20	3	6
9	5	E	Walter Panas HS	Cortlandt Manor	874	85	14	23

Table 8-3. School Population Demand Estimates								
ERPA	Distance (Miles)	Direc-tion	School Name	Municipality	Enroll-ment	Staff	Bus Runs Req'd	Buses Avail-able
10	6	NE	George Washington ES	Mohegan Lake	570	40	6	11
10	8	ENE	Lakeland Alternative HS	Shrub Oak	24	6	1	1
10	7	NE	Lakeland HS	Shrub Oak	1,029	95	16	27
10	7	NE	St. Elizabeth Ann Seton School	Shrub Oak	570	30	6	11
10	6.2	NE	Van Cortlandtville ES	Mohegan Lake	645	65	7	12
11	7.8	ENE	Benjamin Franklin ES	Yorktown Heights	600	50	6	11
11	9	E	Brookside ES	Yorktown Heights	502	60	5	9
11	7.5	ENE	Crompond ES	Yorktown Heights	485	75	5	9
11	7.5	ENE	Fox Meadow Center	Yorktown Heights	80	N/A	2	3
11	8	ENE	Lakeland-Copper Beech MS	Yorktown Heights	1,478	80	23	39
11	7	ENE	Mercy College,Yorktown Center*	Yorktown Heights	800	170		
11	7.8	ENE	Mohansic ES	Yorktown Heights	440	72	5	8
11	7.5	ENE	Regional Alternative HS	Yorktown Heights	78	19	2	2
11	9.5	ENE	Thomas Jefferson ES	Yorktown Heights	519	40	6	10
11	7.5	ENE	Walkabout	Yorktown Heights	53	8	1	2
13	8.4	E	French Hill ES (K-2)	Yorktown Heights	437	60	5	8
13	8.8	E	Huntington Learning Center	Yorktown Heights	50	13	2	2
13	7.8	ENE	Mildred E. Strang MS	Yorktown Heights	1,050	133	16	28
13	8.2	E	Our Montessori School	Yorktown Heights	30	6	1	1
13	9.5	E	Pines Bridge School	Yorktown Heights	96	86	2	3
13	9.4	E	St. Patrick's ES	Yorktown Heights	400	25	4	8
13	9.5	E	Tech Center at Yorktown	Yorktown Heights	996	130	15	27
13	9.5	E	The Learning Center at Walden	Yorktown Heights	97	70	2	3
13	9.5	E	Walden School	Yorktown Heights	130	75	2	4
13	7.8	ENE	Yorktown HS	Yorktown Heights	1,293	190	20	34
14	10.5	ENE	Yorktown Christian Academy	Yorktown Heights	35	N/A	2	2
21	10	ESE	Westorchard ES	Chappaqua	570	N/A	6	11
22	8.2	SE	Anne M. Dorner MS	Ossining	904	128	14	24
22	9	SE	Brookside ES	Ossining	607	74	6	11

Table 8-3. School Population Demand Estimates								
ERPA	Distance (Miles)	Direc-tion	School Name	Municipality	Enroll-ment	Staff	Bus Runs Req'd	Buses Avail-able
22	8.2	SE	Claremont ES	Ossining	686	75	7	13
22	9	SSE	Ossining HS	Ossining	1,176	134	18	31
22	9.2	SSE	Park Early Childhood Center	Ossining	631	133	7	12
22	9	SE	Roosevelt Education Center	Ossining	104	22	1	2
22	9	SE	St. Ann's Parochial School	Ossining	385	38	4	7
22	8.4	SE	St. Augustine's School	Ossining	570	40	8	13
27	10.2	WNW	St Patrick's Pre-K	Highland Mills	25	7	1	1
48	3	SE	Croton-Harmon HS	Croton-On-Hudson	357	49	6	10
49	3.5	E	Blue Mountain MS	Cortlandt Manor	725	120	11	19
49	3.2	E	Furnace Woods ES	Cortlandt Manor	366	66	4	7
49	3.2	E	Ohr Hamier Seminary School	Peekskill	200	30	3	6
51	11.5	SE	Briarcliff HS	Briarcliff Manor	475	80	8	13
51	11.5	SE	Briarcliff MS	Briarcliff Manor	374	68	6	10
51	9.5	SE	Congregation Sons of Israel	Briarcliff Manor	400	18	5	10
51	12	SE	Pace University *	Pleasantville	3,815	662		
51	10.2	SE	St. Theresa's School	Briarcliff Manor	191	15	3	5
51	10.2	SSE	The Clearview School (AMIC)	Briarcliff Manor	119	N/A	2	3
51	11	SE	Todd ES	Briarcliff Manor	780	125	8	14
				Westchester County Totals:	33,720	4,416	393	671
				EPZ Totals:	**69,890**	**10,078**	**960**	**1,426**

* It is assumed that students attending colleges will have their own transportation

N/A = Not Available

Table 8-4. School Reception Centers			
Reception Center Code	**Reception Center**	**Address**	**Municipality**
Orange County Schools			
O1	South Junior High School	32-64 Monument Street	Newburgh
Putnam County Schools			
P1	Kent Elementary	Route 52	Kent
P2	Kent Primary School	Route 52	Kent
Rockland County Schools			
R1	St. Thomas Aquinas College	Route 340	Sparkill
R2	Bergen County Police and Fire Academy	281 Campgaw Rd	Mahway, NJ
R3	Bergen Catholic High School	1040 Oradell Ave	Oradell, NJ
R4	Rockland Community College	145 College Road	Suffern
R5	Don Bosco Prep High School	492 N. Franklin Tpke.	Ramsey, NJ
R6	Paramus Catholic High School	425 Paramus Road	Paramus, NJ
R7	St. Joseph's High School	40 Chestnut Ridge Road	Montvale, NJ
R8	Bergen County Vocational Technical H.S.	200 Hackensack Avenue	Hackensack, NJ
R9	Bergen County Vocational Technical H.S.	East 285 Pascack Road	Paramus, NJ
R10	Bergen County Vocational Technical H.S.	East 275 Pascack Road	Paramus, NJ
Westchester County Schools			
W01	Ardsley High	300 Farm Rd	Ardsley
W02	Blind Brook High	King St	Rye Brook
W03	Dobbs Ferry Middle	Broadway	Dobbs Ferry
W04	John Jay Middle	Route 121-124	Cross River
W05	John Jay Senior High (Westchester Cty)	Route 121-124	Cross River
W06	Juniper Hills Elem	Saratoga Rd	Greenburgh
W07	Mamaroneck Avenue	Nosband Ave	White Plains
W08	Maria Regina High	West Hartsdale Ave	Hartsdale
W09	North Salem High/Middle	Route 124	North Salem
W10	Pequenakonck Elem	Route 124	North Salem
W11	Richard J. Bailey Middle	33 Hillside Ave	Greenburgh

Table 8-4. School Reception Centers			
Reception Center Code	**Reception Center**	**Address**	**Municipality**
W12	Ridge Street	North Ridge St	Rye Brook
W13	S.U.N.Y. Purchase	Anderson Hill Rd	Purchase
W14	South Junior High	32-64 Monument St	Newburgh
W15	St. Patrick's	Rt 22 & Greenwich Rd	Bedford
W16	Valhalla Middle/High	300 Columbus Ave	Valhalla
W17	Westchester Community	75 Grasslands Rd	Valhalla
W18	White Plains Middle	128 Grandview Ave	White Plains
W19	Woodlands High	475 West Hartsdale Ave	Hartsdale
W20	German School of NY, White Plains	50 Partridge Rd	White Plains
W21	Fox Lane High	South Bedford Rd	Bedford
W22	Highview Elem	200 North Central Ave	Hartsdale
W23	Solomon Schecter	30 Dellwood Rd	White Plains
W24	Harrison High	Union Ave	Harrison
W25	Fox Lane Middle	South Bedrord Rd	Bedford
W26	King Street	King Street	Port Chester
W27	Horace Greeley High	70 Roaring Brook Rd	Chappaqua
W28	Park Avenue	Park Avenue	Port Chester
W29	Port Chester Middle	Bowman Ave	Port Chester
W30	Ridgeway	225 Ridgeway	White Plains

Table 8-5. Special Facility Transit Demand

ERPA	Distance (Miles)	Direction	Facility Name	Municipality	Capacity	Current Census	Ambulatory	Wheelchair Bound	Bedridden	Ambulance Runs	Wheelchair Bus Runs	Wheelchair Van Runs	Bus Runs
Putnam County													
17	6	NNE	Franciscan Sisters of Atonement	Garrison	70	70	30	27	13	7	2	0	1
17	6.4	NNE	Mother Lurana Home	Garrison	11	9	11	0	0	0	0	0	1
17	5.5	NNE	St. Christopher's Inn	Garrison	128	94	94	0	0	0	0	0	5
17	5.5	NNE	St. Paul's Friary of the Atonement	Garrison	10	6	4	2	0	0	0	1	1
17	6	NNE	Walter Hoving Home	Garrison	70	60	N/A	N/A	N/A	0	0	0	2
				Putnam County Totals:	289	239	139	29	13	7	2	1	10
Rockland County													
30	3.2	SSW	Sopko Apartments	Stony Point	75	75	N/A	N/A	N/A	0	0	0	3
31	5.2	SSW	Garnerville Home	Garnerville	38	38	38	0	0	0	0	0	2
31	5.4	S	Green Hills Estate Home for Adults	Haverstraw	164	164	164	0	0	0	0	0	6
31	4.5	SSW	Helen Hayes Hospital	West Haverstraw	155	188	0	100	18	12	7	0	2
31	5.2	S	Northern Riverview Healthcare	Haverstraw	182	181	30	121	30	16	9	0	2
31	5.4	SW	Venture North	Thiells	13	12	12	0	0	0	0	0	1
31	4.5	SSW	Walnut Hill Apts.	West Haverstraw	180	180	N/A	N/A	N/A	0	0	0	6

Table 8-5. Special Facility Transit Demand													
ERPA	Dis-tance (Miles)	Dir-ection	Facility Name	Municipality	Capa-city	Current Census	Ambu-latory	Wheel-chair Bound	Bed-ridden	Ambu-lance Runs	Wheel-chair Bus Runs	Wheel-chair Van Runs	Bus Runs
31	5	SSW	Warren Knolls Apartments	Haverstraw	96	96	96	0	0	0	0	0	4
32	7.4	S	Rockland ARC (Day Hab)	Congers	612	610	569	41	0	0	3	0	20
33	10.5	S	Nyack Manor Nursing Home	Valley Cottage	160	146	0	0	0	0	0	0	6
33	10	S	Tolstoy Foundation Center	Valley Cottage	42	10	10	0	0	0	0	0	2
33	10	S	Tolstoy Foundation Nursing Home	Valley Cottage	96	86	7	79	0	0	6	0	1
35	9.8	SSW	L'Dor Adult Home	New City	44	44	44	0	0	0	0	0	2
35	8	SSW	Rockland ARC: Prime Time for Kids	New City	160	130	126	4	0	0	0	1	6
35	8	SSW	Squadron Gardens	New City	100	125	0	3	0	0	0	1	4
37	9.4	SSW	Friedwald Cntr for Rehab. & Nursing	New City	180	170	11	145	14	8	10	0	1
37	10.2	SSW	Hillcrest Nursing Home	Spring Valley	200	193	73	109	11	6	8	0	3
37	9.8	SW	Keahon House / Loeb House Inc.	Wesley Hills	12	12	N/A	N/A	N/A	0	0	0	1
37	8.8	SSW	Rockland County Adult Home	Pomona	38	27	27	0	0	0	0	0	2
37	8.8	SSW	Rockland Cnty Infirmary/Summit Park Hosp.	Pomona	341	335	12	323	12	6	22	0	0
Rockland County Totals					2,888	2,822	1,219	925	85	48	65	2	74

Table 8-5. Special Facility Transit Demand													
ERPA	Distance (Miles)	Direction	Facility Name	Municipality	Capacity	Current Census	Ambulatory	Wheelchair Bound	Bedridden	Ambulance Runs	Wheelchair Bus Runs	Wheelchair Van Runs	Bus Runs
Westchester County													
1	1.0	SE	Community-Based Services	Buchanan	10	10	5	5	0	0	0	1	1
2	1.6	NE	Mt. St. Francis Convent/Franciscan Sisters Inf.	Peekskill	47	41	35	3	3	2	0	1	2
2	3.6	ENE	Society Hill at Westchester	Peekskill	10	10	N/A	N/A	N/A	0	0	0	1
2	2.8	ENE	Westchester ARC-The Villa at the Woods	Peekskill	2	2	2	0	0	0	0	0	1
2	1.2	NE	Westchester-Water View Estates	Peekskill	2	2	2	0	0	0	0	0	1
4	2	SE	Skyview Health Care Center	Croton-On-Hudson	120	120	120	0	0	0	0	0	4
4	1.8	SE	VA Hudson Valley Healthcare System	Montrose	400	138	138	0	0	0	0	0	14
6	5	SE	St. Jude Habilitation Inst.	Croton-On-Hudson	8	8	8	0	0	0	0	0	1
8	5.4	ENE	Camary-Statewide Services	Mohegan Lake	10	10	10	0	0	0	0	0	1
8	3.8	NE	Cardinal McCloskey (GH)	Cortlandt Manor	6	6	6	0	0	0	0	0	1
8	3.5	NNE	Cardinal McCloskey I.R.A.	Cortlandt Manor	5	5	5	0	0	0	0	0	1
8	3.8	NE	Cortlandt Healthcare Center	Cortlandt Manor	120	112	44	62	6	4	5	0	2
9	3.4	ENE	Hudson Valley Hospital Center	Cortlandt Manor	120	87	50	1	36	25	0	1	3

Table 8-5. Special Facility Transit Demand

ERPA	Distance (Miles)	Direction	Facility Name	Municipality	Capacity	Current Census	Ambulatory	Wheelchair Bound	Bedridden	Ambulance Runs	Wheelchair Bus Runs	Wheelchair Van Runs	Bus Runs
9	5	E	Westchester DDSO-(CROTON IRA)	Cortlandt Manor	8	8	8	0	0	0	0	0	1
9	3.8	ENE	Westledge Nursing Home	Peekskill	100	98	3	85	10	6	6	0	1
10	5.8	NE	Mohegan Manor	Mohegan Lake	150	150	150	0	0	0	0	0	5
10	7.4	ENE	Phoenix House	Shrub Oak	300	297	297	0	0	0	0	0	10
10	5.8	NE	Treetops at Mohegan Lake	Mohegan Lake	120	103	25	77	1	1	6	0	1
10	6.5	ENE	Westchester DDSO (ICFMR)	Mohegan Lake	6	6	6	0	0	0	0	0	1
10	6.5	ENE	Westchester DDSO-(STONY IRA)	Mohegan Lake	6	6	6	0	0	0	0	0	1
11	9	ENE	Community-Based Services (ICF Autism)	Yorktown Heights	10	10	10	0	0	0	0	0	1
11	9.2	ENE	Westchester DDSO-(GOMER IRA)	Yorktown Heights	13	13	13	0	0	0	0	0	1
12	5.5	ENE	Field Home-Holy Comforter	Yorktown Heights	200	200	200	0	0	0	0	0	7
12	5.5	ENE	Holy Comforter Nursing Home	Cortlandt Manor	202	185	37	120	28	16	8	0	2
12	6.4	ENE	Westchester ARC	Yorktown Heights	6	6	6	0	0	0	0	0	1
13	8.5	E	Beaver Ridge (Senior Housing)	Yorktown Heights	167	209	197	12	0	0	1	0	6
13	8.4	E	Country House in Westchester	Yorktown Heights	100	N/A	N/A	N/A	N/A	0	0	0	4

Table 8-5. Special Facility Transit Demand													
ERPA	Dis-tance (Miles)	Dir-ection	Facility Name	Municipality	Capa-city	Current Census	Ambu-latory	Wheel-chair Bound	Bed-ridden	Ambu-lance Runs	Wheel-chair Bus Runs	Wheel-chair Van Runs	Bus Runs
13	8.6	E	Opengate-Grasso	Yorktown Heights	8	8	8	0	0	0	0	0	1
13	9.2	E	Westchester DDSO-(MOSEMAN IRA)	Yorktown Heights	8	8	8	0	0	0	0	0	1
21	9.5	ESE	St. Jude Habilitation Inst-Millwood Hse.	Millwood	8	N/A	N/A	N/A	N/A	0	0	0	1
21	7.5	SE	St. Mary's Rehabilitation Center	Ossining	44	44	15	15	14	7	1	0	1
22	8.6	SE	Bethel Adult Day Services	Ossining	65	25	22	3	0	0	0	1	2
22	8.6	SE	Bethel Nursing/Rehab. Center at Ossining	Ossining	79	74	30	44	0	0	3	0	2
22	8.5	SE	Cardinal McCloskey Group Foster Care	Ossining	20	13	13	0	0	0	0	0	1
22	7.8	SE	Cedar Manor Nursing & Rehabilition Ctr.	Ossining	153	138	44	64	2	2	5	0	3
22	8.4	SE	Community-Based Services	Ossining	7	7	7	0	0	0	0	0	1
22	9.2	SSE	Faith Adult Home	Ossining	14	12	12	0	0	0	0	0	1
22	8.8	SSE	Family Serv. of Westchester-Maple Hse	Ossining	106	106	98	8	0	0	1	0	4
22	7.5	SE	Green Chimineys Childrens Serv. Ossining Group	Ossining	8	8	8	0	0	0	0	0	1
22	9.2	SE	Ossining House	Ossining	6	N/A	N/A	N/A	N/A	0	0	0	1
22	9	SE	St. Theresa's Residence (Maryknoll)	Maryknoll	70	67	38	29	0	0	2	0	2

Table 8-5. Special Facility Transit Demand													
ERPA	Dis-tance (Miles)	Dir-ection	Facility Name	Municipality	Capa-city	Current Census	Ambu-latory	Wheel-chair Bound	Bed-ridden	Ambu-lance Runs	Wheel-chair Bus Runs	Wheel-chair Van Runs	Bus Runs
22	8.4	SE	Stony Lodge Hospital, Inc.	Ossining	61	61	61	0	0	0	0	0	3
22	8.5	SE	Victoria Home	Ossining	49	47	10	37	0	0	3	0	1
22	6.5	SE	Westchester ARC	Ossining	7	7	7	0	0	0	0	0	1
22	9	SSE	Westchester ARC-Hunter House	Ossining	3	3	3	0	0	0	0	0	1
22	8.5	SE	Westchester DDSO-(HUDSON IRA)	Ossining	12	12	12	0	0	0	0	0	1
48	2.8	SSE	Bethel Nursing Rehabilitation Center	Croton-On-Hudson	200	200	0	0	0	0	0	0	7
48	2.8	SSE	Bethel Springvale Inn	Crugers	125	107	100	7	0	0	1	0	4
48	2.8	SE	Westchester ARC	Croton-On-Hudson	9	9	9	0	0	0	0	0	1
49	3	ENE	Lafayette House	Cortlandt Manor	6	6	6	0	0	0	0	0	1
49	2.8	ESE	Special Citizens Futures	Cortlandt Manor	8	8	8	0	0	0	0	0	1
49	3.8	E	Westchester ARC-Cortlandt House	Cortlandt Manor	10	10	10	0	0	0	0	0	1
50	6.2	SE	Danish Home for Aged	Croton-On-Hudson	24	15	15	0	0	0	0	0	1
51	11	SSE	Brandywine Adult Home	Briarcliff Manor	31	28	27	1	0	0	0	1	1
51	11	SSE	Brandywine Nursing Home Inc.	Briarcliff Manor	131	125	5	115	0	0	8	0	1

Table 8-5. Special Facility Transit Demand													
ERPA	Distance (Miles)	Direction	Facility Name	Municipality	Capacity	Current Census	Ambulatory	Wheelchair Bound	Bedridden	Ambulance Runs	Wheelchair Bus Runs	Wheelchair Van Runs	Bus Runs
51	9.8	SE	Community-Based Services (ICS) Group Home	Briarcliff Manor	10	10	8	2	0	0	0	1	1
51	10.2	SE	North Hill Senior Housing	Briarcliff Manor	96	96	96	0	0	0	0	0	4
51	9.5	SE	Westchester ARC (ICFMR)	Briarcliff Manor	7	7	7	0	0	0	0	0	1
51	10.2	SE	Westchester DDSO-(BRIARCLIFF IRA)	Briarcliff Manor	10	10	10	0	0	0	0	0	1
51	10.2	SE	Westchester DDSO-(ECHO LAKE IRA)	Briarcliff Manor	12	11	11	0	0	0	0	0	1
				Westchester County Totals:	3,655	3,124	2,091	690	100	63	50	6	130
				EPZ Totals:	**6,832**	**6,185**	**3,449**	**1,644**	**198**	**118**	**117**	**9**	**214**

N/A = Not Available

Table 8-6. Indian Point EPZ Transportation Resources												
Westchester County Bus Companies	Fleet Available for Evacuation											Total Number of Drivers
	Bus				Van				Other Vehicles			
	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Total Seats	
Chappaqua Transportation	45	66		2,970	65	20		1,300				110
County Coach Corporation	24	66		1,584	20	10		200				30
	6	47		282								
Hendrick Hudson Central School D	25	66		1,650	20	16		320				50
Lakeland Central School District	3	30		90	4	18		72	3	7	21	125
	13	60		780	6	19		114				
	30	69		2,070	16	20		320				
	33	75		2,475	5	28		140				
Royal Coach (Yonkers)	65	66		4,290	40	12		480				90
Royal Coach (Thornwood)	40	66		2,640	17	12		204				37
Liberty Lines Transit	68	72		4,896	36	18		648				400
	36	49		1,764								
	36	53		1,908								
	80	18		1,440								
	120	47		5,640								
Croton-Harmon School District	15	60		900	10	20		200	1	5	5	37
					8	16		128	2	6	12	
					1	11		11				
					1	10		10				
					1	18		18				
White Plains Bus Co. (Fisher La.)	60	52		3,120	70	10		700				122
	4	55		220	10	8	8	80				
	15	48	48	720	60	6	6	360				
White Plains Bus Co. (Fulton)	20	52		1,040								
	10	48	48	480								
White Plains Bus Co. (Hartsdale)	40	52		2,080	30	10		300				
					10	8	8	80				
Bauman & Sons	39	66		2,574	56	16		896				60
Westchester County Totals:	827			45,613	486			6,581	6		38	1,061

Table 8-6. Indian Point EPZ Transportation Resources												
Orange County Bus Companies	Fleet Available for Evacuation											Total Number of Drivers
	Bus				Van				Other Vehicles			
	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Total Seats	
Bosch and Sons Inc.	15	66	2	1,020	4	15		60				14
Monroe Woodbury Cent School District	73	64		4,672	31	20		620	4			140
West Point Tours	*Fleet has capacity of 6,600 people. Availability depends on season and day*											
George M. Carol Inc	35	66		2,310	15	30		450				91
					16	24		384				
					3	27		81				
Orange County Totals:	123			8,002	69			1,595	4			245

Table 8-6. Indian Point EPZ Transportation Resources												
Rockland County Bus Companies	Fleet Available for Evacuation											Total Number of Drivers
	Bus				Van				Other Vehicles			
	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Total Seats	
Clarkstown Central School Dist.	29	66		1,914	25	16		400	2	5	10	100
East Ramapo Central School Dist.	10	78		780	3	28		84	2	6	12	65
	34	66		2,244	32	20		640				
Haverstraw Transit Inc	89	66		5,874	103	20		2,060	2	5	10	181
Rockland Coaches Inc.	162	66		10,692								200
Student Bus Company	6	60		360	14	20		280				30
Chestnut Ridge Transit (Spr V)	45	60		2,700	38	20		760	7	5	35	200
Peter Brega Inc	40	60		2,400	14	20		280				54
Chestnut Ridge Transit (Hillburn)	22	60		1,320	45	20		900	3	5	15	72
Monsey New Square Trails	18	49		882								18
R C Dept of S.S./ Med Trans.									8	6	48	6
R C Dept of Mental Health					18	15		270	1	7	7	
									15	5	75	
R C Dept of Public Transport:												
Transport of Rockland	15	58		870								36
	7	70		490								
	4	73		292								
Rockland County	13	51		663	8	16		128				21
	2	39		78								
T.R.I.P.S. O.P.T.	2	18	3	42	2				3	6	18	14
	7	11	2	91	7				1	5	5	
	5	17	3	100	5							
	4	11	2	52	4							
Rockland County Totals:	514			31,844	318			5,802	44		235	997

Table 8-6. Indian Point EPZ Transportation Resources												
Putnam County Bus Companies	Fleet Available for Evacuation											Total Number of Drivers
	Bus				Van				Other Vehicles			
	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Handi-capped Capacity	Total Seats	Number of Vehicles	Vehicle Capacity	Total Seats	
Garrison Union Free School	1	66		66								
Hudson Valley Bus (Garrison S.D.)	5	66		330								
Hudson Valley Bus (Put. V. C.S.D.)	15	66		990	2	20		40				
Mahopac Central School District	5	60		300	26	10		260				75
	45	74		3,330	11	5		55				
	18	60		1,080								
Putnam Valley Central School Dist.	3	66		198	16	20		320	2	7	14	41
	1	57		57								
Haldane Central School District	1	60		60	3	20		60				13
	1	48		48	1	24	3	27				
	1	72		72	2	16		32				
	2	71		142								
	5	66		330								
	1	47		47								
Putnam County Totals:	104			7,050	61			794	2		14	129

Table 8-7. Demand and Supply of Bus Resources					
County	Number of Students	Transit Dependents	Ambulatory and Wheelchair Medical Demand	Weighted Total Number of Seats Required	Number of Available Bus Seats
Orange	6,379	715	None	7,196	8,002
Putnam	2,945	633	235	2,443	7,050
Rockland	26,846	6,141	2,496	22,755	31,844
Westchester	33,720	7,153	2,822	25,396	45,613

Table 8-8. Mean Evacuation Speeds, Region R3												
Elapsed Time from Advisory to Evacuate (Hours)	Orange County Outbound Speed (MPH)			Putnam County Outbound Speed (MPH)			Rockland County Outbound Speed (MPH)			Westchester County Outbound Speed (MPH)		
	Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather	Rain	Snow
1	45	41	37	38	34	34	25	23	23	18	16	16
3	8	7	7	10	9	9	8	7	7	7	5	5
5	6	5	4	8	7	7	7	6	6	5	4	4
7	6	5	4	7	7	6	7	6	6	5	4	4
9	6	5	4	7	7	6	7	6	6	5	4	4

Table 8-9. School Evacuation Time Estimates						
	ETE to Leave EPZ			ETE to Reception Center		
County	Good Weather	Rain	Snow	Good Weather	Rain	Snow
Orange	2:55	3:05	3:40	3:25	3:35	4:20
Putnam	2.45	2:50	3:25	3:30	3:35	4:25
Rockland	2:55	3:05	3:40	4:25	4:35	5:30
Westchester	3:05	3:30	4:05	4:05	4:30	5:20

Table 8-10. Transit-Dependent Evacuation Time Estimates									
	Region Extends to 5 Miles			Region Extends to EPZ Boundary			Second Wave Completion (if needed)		
County	Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather	Rain	Snow
Orange	4:35	4:50	5:25	5:05	5:20	5:55	7:30	7:55	9:35
Putnam	4:15	4:50	5:00	4:40	4:50	5:25	6:50	7:10	8:05
Rockland	4:35	4:50	5:25	5:05	5:20	5:55	8:00	8:10	9:10
Westchester	4:50	5:30	6:05	5:20	6:15	6:50	8:25	9:40	10:35

Table 8-11. Ambulatory Evacuees from Special Facilities Evacuation Time Estimates			
	ETE to Leave EPZ		
County	Good Weather	Rain	Snow
Orange	3:50	4:00	4:35
Putnam	3:40	3:45	4:20
Rockland	3:50	4:00	4:35
Westchester	4:00	4:25	5:00

Table 8-12. Ambulance and Ambulette Resources	
Ambulance Companies	**Number of Ambulances**
Orange County Ambulance Companies	
Mobile Life Support	26
Cornwall Volunteer Ambulance Corp	2
Orange County Ambulance Total:	28
Putnam County Ambulance Companies	
Brewster Fire Department	2
Carmel Ambulance Corps	2
Garrison Ambulance Corps	2
Kent Fire Department	1
Lake Carmel Fire Department	1
Mahopac Fire Department	2
Mahopac Falls Fire Department	2
Patterson Fire Department	1
Phillipstown Ambulance Corps	2
Putnam Lake Fire Department	1
Putnam Valley Ambulance Corps	2
Putnam County Ambulance Total:	18
Rockland County Ambulance Companies	
Congers/Valley Cottage Ambulance Corps	2
Hatzolah Ambulance Corps	5
Haverstraw Ambulance Corps	3
Nanuet Community Ambulance Corps	3
New City Volunteer Ambulance Corps	4
Nyack Ambulance Corps	3
Pearl River Alumni Ambulance Corps	2
Piermont Ambulance Corps	1
Ramapo Valley Ambulance Corps	3
Rockland Mobile Care/Rockland Paramedics Services Inc.	26
Sloatsburg Community Ambulance Corps	2
South Orangetown Ambulance Corps	2
Spring Hill Community Ambulance Corps	5
Stony Point Ambulance Corps	3
W. P. Faist Ambulance Corps	2
Rockland County Ambulance Total:	66

Table 8-12. Ambulance and Ambulette Resources	
Ambulance Companies	**Number of Ambulances**
Westchester County Ambulette Companies	
American Ambulette Corporation	15
Avet Ambulette	70
MetroCare	80
Westchester County Ambulette Total:	165
Westchester County Ambulance Companies	
Ardsley-Secor VAC	1
Armonk Independent VFDAC	1
Bedford VFDAC	1
Briarcliff Manor VFDAC	1
Chappaqua VAC	1
Cortlandt VAC	1
Croton-on-Hudson VFDAC	1
Dobbs Ferry VAC	1
Eastchester VAC	1
Elmsford VFD Rescue	1
Harrison VAC	1
Hastings-on-Hudson VFDAC	1
Hawthorne VAC	1
Irvington VAC	1
Katonah-Bedford Hills VAC	1
Larchmont/Mamaroneck VAC	1
Lewisboro VAC	1
Mamaroneck Village VFD Rescue Squad	1
Mohegan VF Ass'n Emergency Rescue Squad	1
Mount Kisco Lions VAC	1
North Salem VAC	1
Sleepy Holow VFDAC	1
Ossining VAC	1
Peekskill Community VAC	1
Pleasantville VAC	1
Port Chester/Rye VAC	1
Pound Ridge Lions VAC	1
Scarsdale VAC	1
Somers VFDAC	1
Tarrytown VAC	1
Valhalla VAC	1
Verplanck Fire Protective Ass'n VAC	1
Vista VFDAC	1
Yorktown VAC	1
Westchester County Ambulance Total:	34

9. TRAFFIC MANAGEMENT STRATEGY

The implementation of traffic control is vital to the safe and timely evacuation of the public from the impacted area within the Emergency Planning Zone (EPZ) of the Indian Point Energy Center (IPEC). Traffic volumes and patterns resulting from an emergency evacuation would in general, differ from those characteristic of normal peak period conditions. Traffic signal control is designed to service normal peak hour traffic. Consequently, it is advisable to assign traffic guides at (usually, signalized) intersections to effectively service evacuation traffic conditions.

In addition, traffic control personnel are needed to provide positive guidance to direct evacuees away from IPEC and out of the EPZ. Traffic guides also divert traffic wishing to enter the EPZ from outside during and following the emergency. As stated in Section 2, traffic attempting to enter the EPZ should not be diverted for approximately one to two hours following the siren notification. Earlier diversion would delay returning commuters. It is assumed that no vehicles will enter the EPZ after this one to two hour period. Finally, traffic guides can expedite the movements of buses and emergency vehicles and can communicate the "state" of the traffic environment (e.g. disabled car, congestion, any other incident) to the Emergency Operation Center (EOC).

Selection of Traffic Control Point Locations

A Traffic Control Point (TCP) is generally an intersection identified in the evacuation plan where special traffic control treatment by traffic guides is needed. The initial selection of TCPs for the IPEC EPZ was made by KLD using their expertise in traffic engineering, based on repeated surveys of the highway system within the EPZ and within the surrounding shadow region. This selection of TCPs was also based on the results of the simulation analysis of evacuation traffic flow. The simulation model created an animation display which shows the changing Levels of Service (LOS) on all links in the evacuation network in five-minute increments covering the entire evacuation period. LOS is a metric used by traffic engineers to describe the level of congestion on a roadway; LOS A represents free-flow traffic movement while LOS F represents congested flow characterized by queuing and stop-and-go movements. In the animation, white links (sections of highway) have no congestion (are free-flowing or empty = LOS A), while red links indicate heavy congestion (LOS F). Other colors identify links operating at intermediate LOS. Figure 9-1 shows a frame of this animation.

This animation display assisted KLD to identify intersections that were acting as bottlenecks in the evacuation. As can be seen in Figure 9-1, most of the links in Rockland County and Westchester County are red at that point in time (1:35 (hr:min) after the start of evacuation) if the entire EPZ were evacuated. Many intersections along these paths were identified as traffic control points. The bottlenecks in Orange County and Putnam County were identified by intersections where approach links with an LOS E or F, were discharging traffic onto links that were LOS A,B,C or D.

Traffic Control Point Schematics

After identifying the locations where the need for TCPs was indicated, KLD prepared detailed schematics of all intersections defining the traffic control that should be implemented to facilitate and safely control the flow of evacuating traffic. These schematics were sent to each county's police departments for review. Police personnel revised some of these TCP, eliminated some and added others.

The police officers have an intimate knowledge of these intersections and how they operate. Thus, they offer added insight and experience into traffic control at these intersections. After several iterations, meetings were held with each county's law enforcement representatives to discuss the schematics and any further revisions. KLD and law enforcement personnel worked together to develop the final traffic management plans. The resulting TCP schematics were enhanced by adding overhead photos of the TCP locations. These photos serve to provide landmarks to ensure that the traffic guide will travel to the correct location. Finally, booklets containing the final TCP schematics and overhead photos were delivered to each county. Figures 9-2 and 9-3 are examples of a schematic and an overhead photo of a TCP in Rockland County.

Reading the schematics is relatively straightforward. The town, location, and ERPA are all listed to help identify each point. In addition, an identification number has been developed for each schematic in conjunction with each county's Plan. The documents delivered to each County contain maps of all traffic control points with their identification numbers. The detailed schematic of the intersection depicts the roadways and any traffic control (signal, stop sign, etc.) that may be in place on a normal basis. All symbols used in the schematic are identified in the key.

One topic that was discussed during the county meetings was the positioning of the traffic guide. The symbol for the traffic guide in each drawing is not meant to identify a fixed position for the guide. Instead, the schematic merely shows how many guides are needed and their general position(s). Several schematics indicate U-turning traffic to address a situation where approaching vehicles have no safe direction to travel other than the direction it came from. Traffic obliged to U-Turn is typically a light flow and the TCP schematic indicates this.

The "Description" section of the TCP schematic details what traffic diversion is needed. This is crucial information for the traffic guide as it defines which traffic movements to "facilitate" and which to "discourage". The description, along with the schematic, also detail where to position cones or barricades needed to identify traffic movements that are discouraged. As the key indicates, two black circles is a symbol representing three cones positioned per lane of traffic in the discouraged direction. The cones are typically spaced 8 feet apart to allow vehicular access if they must return home to pick up their family and to allow emergency vehicles to pass. If a roadway is two-lanes outbound, the two black circles indicate six cones spaced accordingly. Traffic barricades are used in some TCPs in place of cones to indicate a stronger need to

discourage traffic. Local roads and ramps require 2 barricades per lane to discourage traffic, whereas freeway and freeway ramps will require up to 4 barricades per lane.

The "Manpower/Equipment" section is important from a planning perspective. This section lists how many traffic guides, traffic cones, traffic barricades, and in some cases, special signage that may be needed. It should be noted that the term "Traffic Guide" is used to describe anyone who can facilitate or discourage traffic flow, not strictly or only police officers. This information is also presented in a spreadsheet in the document delivered to each county. At the bottom of each spreadsheet is the total number of guides and equipment needed for each county. It is important that each county be aware of their respective needs. The need to address the potential limitation on available manpower has been addressed by assigning a priority to each TCP, and by implementing Intelligent Transportation Systems (ITS) technologies as they become available. ITS is discussed later in this section.

The "Location Priority" was developed to help counties decide where, and in what sequence, resources will be allocated in the event of an emergency at IPEC. Priorities originally established by KLD were adjusted with county and law enforcement input. The priorities range from 1 through 3, with 1 being the most important and 3 the least important. Those intersections with priority 1 will be manned first in the event of an emergency. If additional manpower is available, then priority 2 TCPs will be manned and so forth. Clearly, if resources permit, all TCPs will be manned.

Enhancements to Traffic Management

The advent of Intelligent Transportation Systems (ITS) technologies will be beneficial to the Traffic Management Plan for IPEC. A new, state-of-the-art Traffic Management Center (TMC) is currently being built in Hawthorne, NY. This NYSDOT facility will be shared with the NYS Police, NYS Emergency Management Office and Westchester County Emergency Services and will serve as a Regional Coordination Center to monitor and manage traffic in real-time. In the future, signals may be controlled from the TMC to favor traffic flowing away from the plant. A topic that arose frequently at county meetings concerned police who did not have access to the traffic signal control boxes. This access is needed to set a signal at a TCP to flashing as is indicated on some of the TCP sketches. If all traffic signals in the four counties are eventually controlled by the TMC, police officers will no longer need to access control boxes to set the signal to flashing. While having control of the signals from the TMC does not perform all of the tasks that a traffic guide will perform at a TCP, it would be a valuable resource.

The use of variable message signs (VMS) is also a valuable ITS technology that will benefit the evacuation process. Orange County noted the use of VMS on several of its traffic control points. VMS signs can also be controlled from the TMC; once installed, they can provide information to evacuating persons to reinforce the directions provided by a traffic guide. Highway Advisory Radio (HAR) can also be a valuable ITS technology in the evacuation process. The TMC can provide information to an information service provider or to media who can then broadcast it to evacuees.

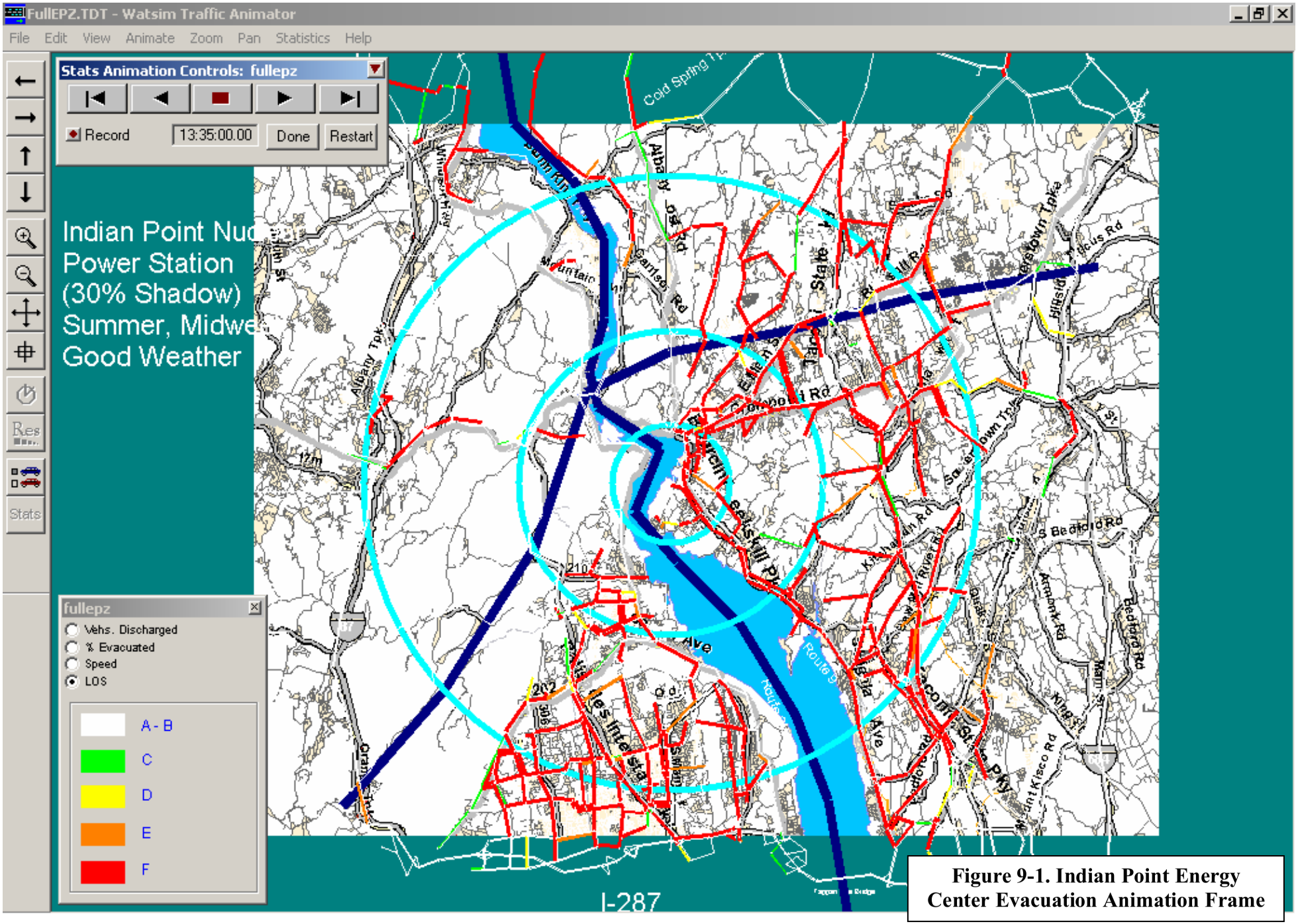


Figure 9-1. Indian Point Energy Center Evacuation Animation Frame

DIAGRAM C – 14

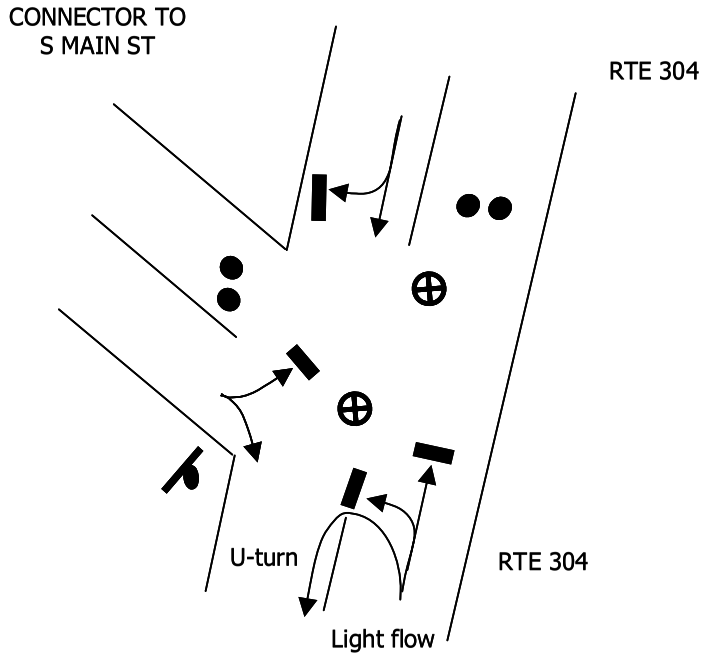
TOWN: CLARKSTOWN

LOCATION: S MAIN ST & ROUTE 304

TCP/ACP ID: R – 17

STATE ID: TBD

ERPA: 35



Key

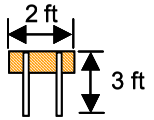
MOVEMENT FACILITATED

MOVEMENT DISCOURAGED/DIVERTED

TRAFFIC GUIDE

STOP SIGN

TRAFFIC BARRICADE

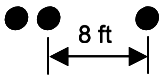


2 PER LANE (LOCAL ROADS AND RAMPS)

4 PER LANE (FREEWAY)

TRAFFIC SIGNAL

TRAFFIC CONES SPACED TO DISCOURAGE TRAFFIC BUT ALLOW PASSAGE (3 PER LANE):



CONES FOR TRAFFIC CONTROL; BARRICADES FOR ACCESS CONTROL

DESCRIPTION

1. Facilitate southbound movement on Rte 304
2. Discourage northbound movement on Rte 304
3. Discourage northbound movement on S Main St
4. Allow northbound traffic on Rte 304 to U-turn and head south

MANPOWER/EQUIPMENT

2 Traffic Guides
9 Traffic Cones

LOCATION PRIORITY

2

Figure 9-2. Indian Point Energy Center TCP Schematics Example

Figure 9-3. Indian Point Energy Center Overhead Photo Example

10. EVACUATION ROUTES

Evacuation routes are composed of two distinct components:

- Routing from an ERPA being evacuated to the boundary of the Evacuation Region and thence out of the Emergency Planning Zone (EPZ).

- Routing of evacuees from the EPZ boundary to reception centers.

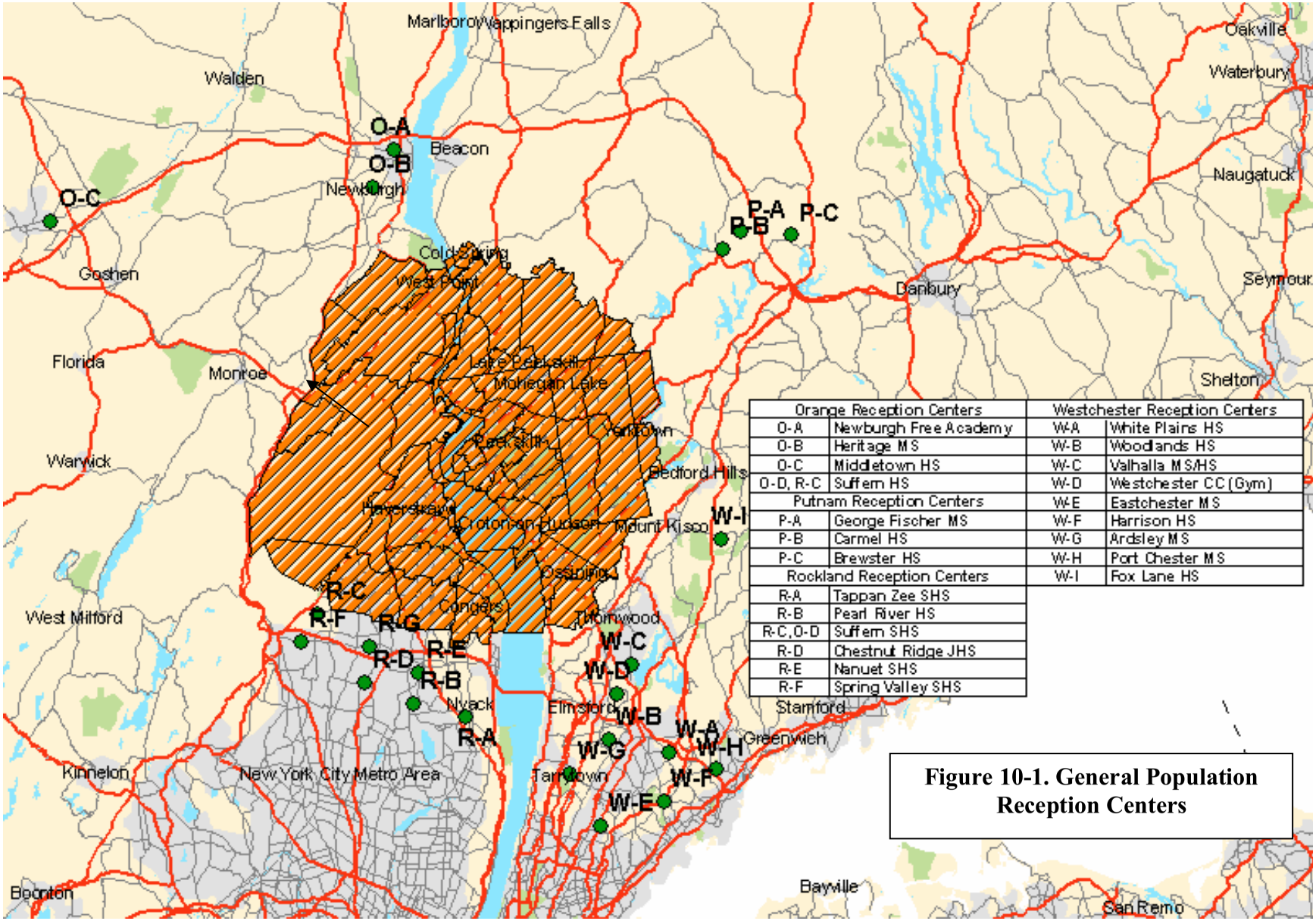
Evacuees should be routed within the EPZ in such a way as to *minimize their exposure to risk*. This primary requirement is met by routing traffic so as to move away from the location of IPEC, to the extent practicable, and by delineating evacuation routes that expedite the movement of evacuating vehicles. This latter objective is addressed by developing evacuation routes to achieve a "balancing of traffic demand relative to the available highway capacity" to the extent possible, subject to satisfying the primary requirement noted above. This is achieved by carefully specifying candidate destinations for all origin centroids where evacuation trips are generated, and applying the TRAD model effectively. See Appendices A-D for further discussion.

The routing of evacuees from the EPZ boundary to the reception centers should be responsive to several considerations:

- Minimize the amount of travel outside the EPZ from the points where these routes cross the EPZ boundary to the reception centers.

- Relate the anticipated volume of traffic destined to each reception center to the capacity of the reception center facilities.

Figure 10-1 presents a map showing the general population reception centers in each county. The major evacuation routes for each county are presented in Figures 10-2 through 10-5.



Orange Reception Centers	
O-A	Newburgh Free Academy
O-B	Heritage MS
O-C	Middletown HS
O-D, R-C	Suffern HS

Putnam Reception Centers	
P-A	George Fischer MS
P-B	Carmel HS
P-C	Brewster HS

Rockland Reception Centers	
R-A	Tappan Zee SHS
R-B	Pearl River HS
R-C, O-D	Suffern SHS
R-D	Chestnut Ridge JHS
R-E	Nanuet SHS
R-F	Spring Valley SHS

Westchester Reception Centers	
W-A	White Plains HS
W-B	Woodlands HS
W-C	Valhalla MS/HS
W-D	Westchester CC (Gym)
W-E	Eastchester MS
W-F	Harrison HS
W-G	Ardsley MS
W-H	Port Chester MS
W-I	Fox Lane HS

Figure 10-1. General Population Reception Centers

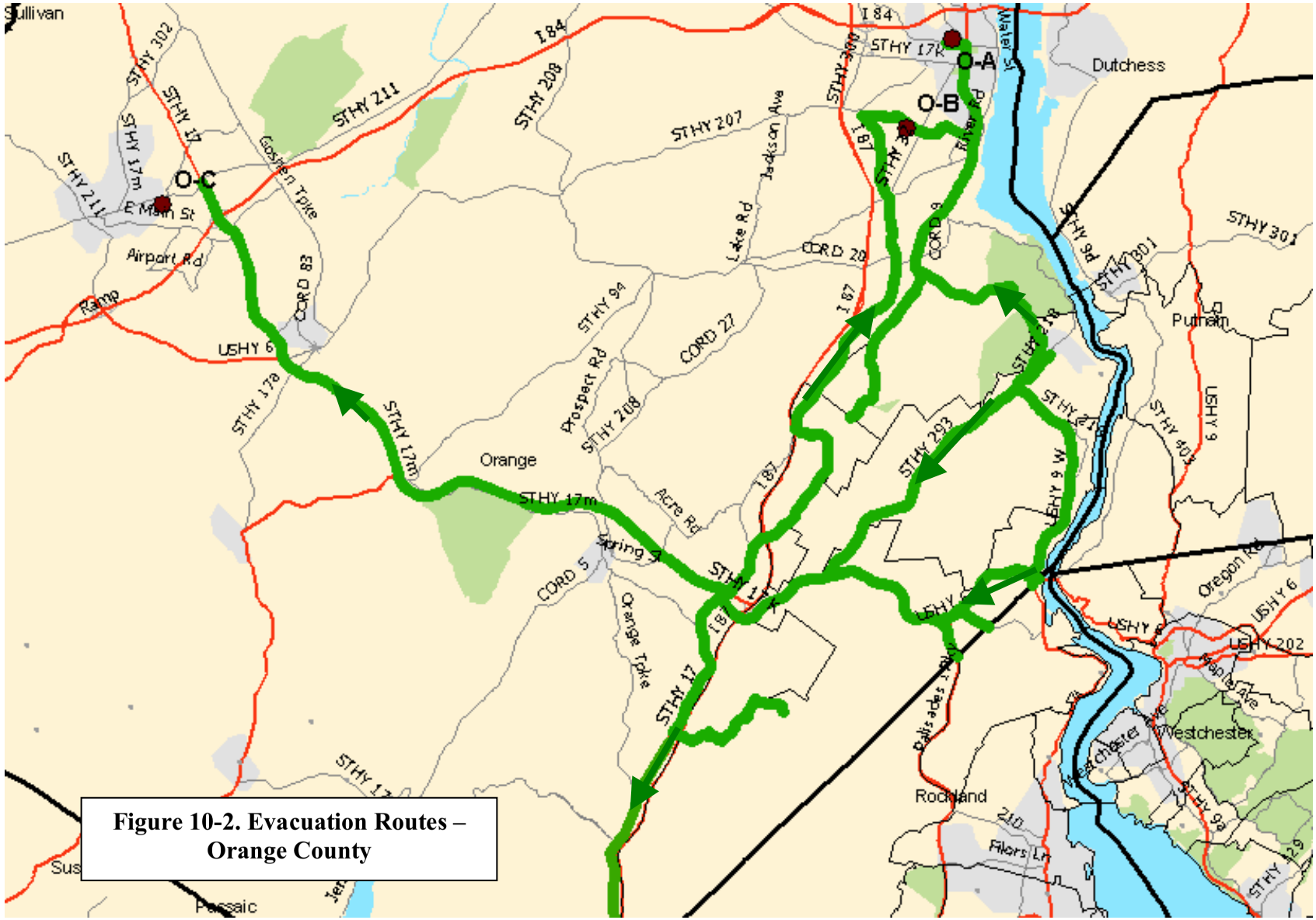


Figure 10-2. Evacuation Routes – Orange County

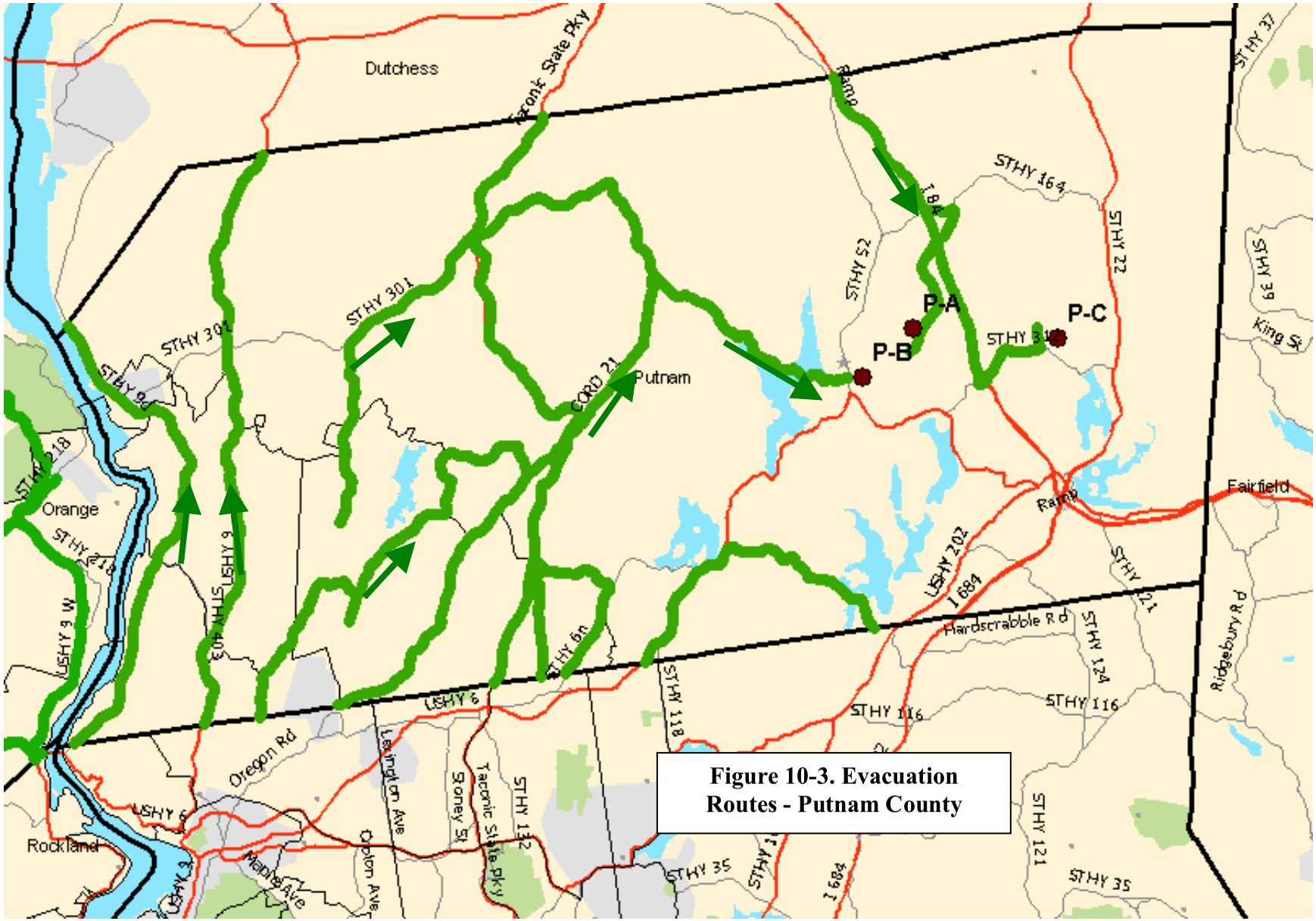


Figure 10-3. Evacuation Routes - Putnam County

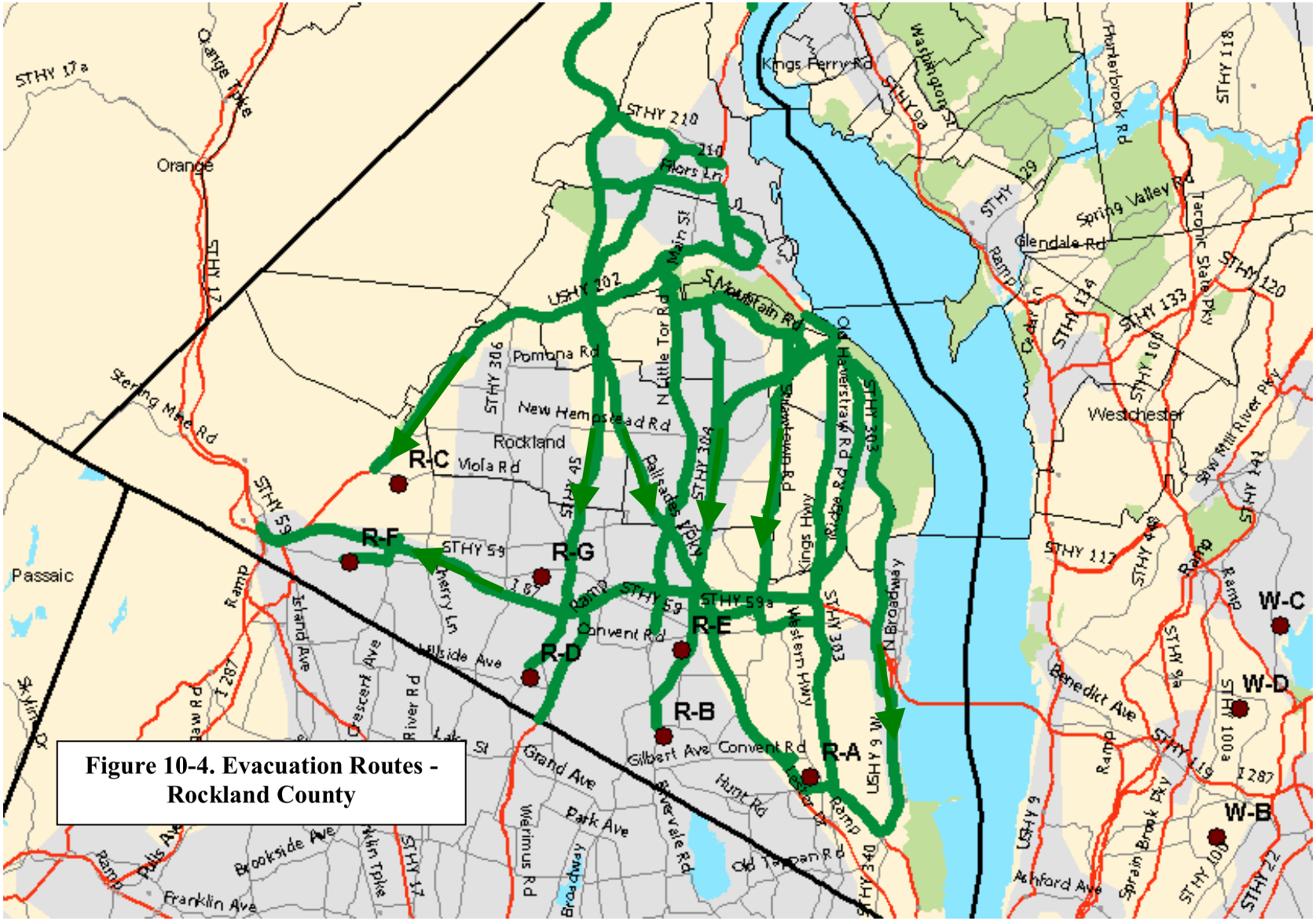


Figure 10-4. Evacuation Routes - Rockland County

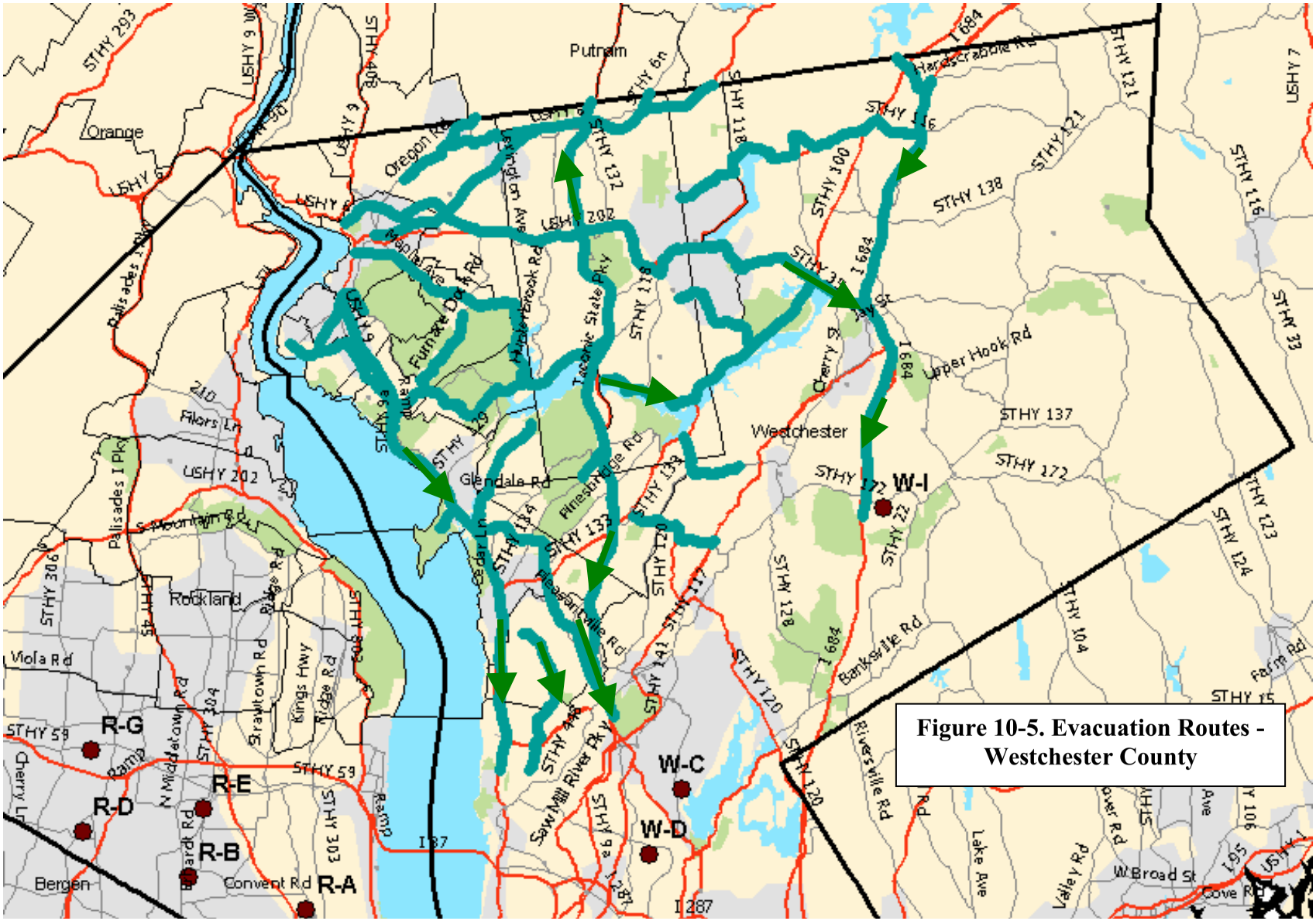


Figure 10-5. Evacuation Routes - Westchester County

11. SURVEILLANCE OF EVACUATION OPERATIONS

There is a need for surveillance of traffic operations during the evacuation. There is also a need to clear any blockage of roadways arising from accidents or vehicle disablement. Surveillance can take several forms.

1. Traffic control personnel, located at Traffic Control and Access Control points, provide fixed-point surveillance.
2. Ground patrols may be undertaken along well-defined paths to ensure coverage of those highways that serve as major evacuation routes.
3. Aerial surveillance of evacuation operations may also be conducted using helicopter or fixed-wing aircraft.
4. Cellular phone calls from motorists may also provide direct field reports of road blockages.
5. In the future, use of the new Traffic Management Center in Hawthorne, NY will be another method for monitoring traffic operations.

These concurrent surveillance procedures are designed to provide coverage of the entire EPZ as well as the area around its periphery. It is the responsibility of the Counties to support a communication system that can receive messages from the field and be in a position to respond to any reported problems in a timely manner. This coverage should quickly identify, and expedite the response to any blockage caused by a disabled vehicle.

Tow Vehicles

In a low-speed traffic environment, any vehicle disablement is likely to arise due to a low-speed collision, mechanical failure or exhausting the fuel supply. In any case, the disabled vehicle can be pushed onto the shoulder, thereby restoring traffic flow. Past experience in other emergencies indicates that evacuees who are leaving an area often perform activities such as pushing a disabled vehicle to the side of the road without prompting.

While the need for tow vehicles is expected to be low under the circumstances described above, it is still prudent to be prepared for such a need. Tow trucks may be deployed at strategic locations within, or just outside, the EPZ. These locations should be selected so that:

- They permit access to key, heavily loaded, evacuation routes.
- Responding tow trucks would most likely travel counter-flow relative to evacuating traffic.

12. CONFIRMATION TIME

It is necessary to confirm that the evacuation process is effective in the sense that the public is complying with the order to evacuate. Although the counties use their own procedures for confirmation, we will suggest an alternative.

The procedure we suggest employs a stratified random sample and a telephone survey. The size of the sample is dependent on the expected number of households that do not comply with the order to evacuate. We believe it is reasonable to assume, for the purpose of estimating sample size that at least 80 percent of the population within the EPZ will comply with the order to evacuate. On this basis, an analysis could be undertaken (see Table 12-1) to yield an estimated sample size of approximately 300.

The confirmation process should start at about 5 hours (6 hours for snow) after the Advisory to Evacuate, which is after the mobilization activities are completed. At this time, virtually all evacuees will have departed on their respective trips and the local telephone system will be largely free of traffic.

As indicated in Table 12-1, almost 8-1/2 person hours are needed to complete the telephone survey. If six people are assigned to this task, each dialing a different set of telephone exchanges (e.g., each person can be assigned a different set of ERPAs), then the confirmation process will extend over a time frame of about 85 minutes. Thus, the confirmation should be completed well before the evacuated area is cleared. Of course, fewer people would be needed for this survey if the Evacuation Region were only a portion of the EPZ.

Should the number of telephone responses (i.e., people still at home) exceed 20 percent, then the telephone survey should be repeated after an hour's interval until the confirmation process is completed.

TABLE 12-1
ESTIMATED NUMBER OF TELEPHONE CALLS REQUIRED
FOR CONFIRMATION OF EVACUATION

Problem Definition

Estimate number of phone calls, n, needed to ascertain the proportion, P of households that have not evacuated.

Reference: Burstein, H., Attribute Sampling, McGraw Hill, 1971

Given:

No. of households plus other facilities, N, within the EPZ (est.) = 100,000
Est. proportion, F, of households that will not evacuate = 0.20
Allowable error margin, e: 0.05
Confidence level, α: 0.95 (implies A = 1.96)

$$p = p + e = 0.25; \; q = 1p = 0.75$$

Applying Table 10 of cited reference,

Finite population correction:
$$n = \frac{A^2 pq + e}{e^2} = 308$$

$$n_F = \frac{nN}{nN1} = 306$$

Thus, some 300 telephone calls will confirm that approximately 20 percent of the population has not evacuated. If only 10 percent of the population does not comply with the order to evacuate, then the required sample size, $n_F = 215$.

Est. Person Hours to complete 300 telephone calls

Assume: Time to dial using touch-tone (random selection of listed numbers): 30 seconds
Time for 8 rings (no answer): 48 seconds
Time for 4 rings plus short conversation: 60 sec.
Interval between calls: 20 sec.

Person Hours: 300[30+20+0.8(48)+0.2(60)]/3600 = 8.4

APPENDIX A

Glossary of Traffic Engineering Terms

APPENDIX A: GLOSSARY OF TRAFFIC ENGINEERING TERMS

Term	Definition
Capacity	Maximum number of vehicles which have a reasonable expectation of passing a given section of roadway in one direction during a given time period under prevailing roadway and traffic conditions. These are estimates which are expressed as vehicles per hour (vph).
Centroid	An origin or destination located in the interior of the EPZ.
Content	Number of vehicles occupying a section of roadway at a particular point in time.
Destination	A location in the network, either within the interior or on the periphery, of the EPZ to which trips are attracted.
Entry Node	A network node, that serves only as an origin. Vehicles are generated there and move onto the network to travel toward their respective destinations.
Exit Node	A network node, usually located on the periphery of a network, which serves only as a destination. Vehicles that arrive at an exit node are discharged from the network.
Green-Time to Cycle Time Ratio (G/C Ratio)	The ratio of the duration of a green interval to the signal cycle length. This ratio is the proportion of time available to service specified traffic movement discharging from specified approaches to an intersection.
Internal Node	All nodes that are not Entry or Exit nodes. Vehicles travel through these nodes from one link to the next along their respective paths toward their respective destinations.
Level of Service	An index (A, B, ..., F) which is a qualitative descriptor of the operational performance of traffic on a section of roadway, usually expressed in terms of speed, travel time or density. In practice, each Level of Service index is often associated with a range of service volumes. This relation depends on the type of facility (freeway, rural road, urban street).

Term	Definition
Link	A network link represents a specific, one-directional section of roadway. A link has both physical (length, number of lanes, topology, etc.) and operational (turn movement percentages, service rate, free-flow speed) characteristics.
Measures of Effectiveness	Statistics describing traffic operations on a roadway network.
Node	A network node generally represents an intersection of network links. A node has control characteristics, i.e., the allocation of service time to each approach link.
Origin	A location in the network, either within the interior, or on the periphery, where trips are generated at a specified rate expressed in vehicles per hour (vph). These trips enter the roadway system to travel to their respective destinations.
Network	A graphical representation of the geometric topology of a physical roadway system, which is comprised of directional links and nodes.
Prevailing roadway and traffic conditions	Relate to the physical features of the roadway, the nature (e.g., composition) of traffic on the roadway and the ambient conditions (weather, visibility, pavement conditions, etc.).
Service Rate	Maximum rate at which vehicles, executing a specific turn maneuver, can be discharged from a section of roadway at the prevailing conditions, expressed in vehicles per second (vps) or vehicles per hour (vph).
Service Volume	Maximum number of vehicles which can pass over a section of roadway in one direction during a specified time period with operating conditions at a specified Level of Service. (The Service Volume at Level of Service, E, approximates Capacity.) Service Volume is usually expressed as vehicles per hour (vph).
Signal Cycle, Cycle Time, Length	The total elapsed time to display all signal indications, in sequence. The cycle length is expressed in seconds.
Signal Interval	A single combination of signal indications. The interval duration is expressed in seconds. In general, a sequence of intervals comprise a signal phase.

Term	Definition
Signal Phase	A set of signal indications (and intervals) which services a particular combination of traffic movements on selected approaches to the intersection. The phase duration is expressed in seconds.
Traffic Assignment	A process of assigning traffic to paths of travel in such a way as to satisfy all trip objectives (i.e., the desire of each vehicle to travel from a specified origin in the network to a specified destination) and to optimize some stated objective or combination of objectives. In general, the objective is stated in terms of minimizing a generalized "cost". For example, "cost" may be expressed in terms of travel time.
Traffic Density	The number of vehicles that occupy one lane of a roadway section of specified length at a point of time, expressed as vehicles per mile (vpm).
Traffic Distribution	A process for determining the destination of all traffic generated at the origins. The result often takes the form of a Trip Table, which is a matrix of origin-destination traffic volumes.
Traffic Simulation	A computer model designed to replicate the real-world operation of vehicles on a roadway network, so as to provide statistics describing traffic performance. These statistics are called Measures of Effectiveness.
Traffic Volume	The number of vehicles that pass over a section of roadway in one direction, expressed in vehicles per hour (vph). Where applicable, traffic volume may be stratified by turn movement.
Travel Mode	Distinguishes between private auto, bus, rail and air travel modes.
Trip Table or Origin-Destination Matrix	A rectangular matrix or table, whose entries contain the number of trips generated at each specified origin, during a specified time period, that are attracted to (and travel toward) each of its specified destinations. These values are expressed in vehicles per hour (vph) or in vehicles.
Turning Capacity	The capacity associated with that component of the traffic stream which executes a specified turn maneuver from an approach at an intersection.

APPENDIX B

Traffic Assignment Model

APPENDIX B: TRAFFIC ASSIGNMENT MODEL

This section describes the integrated trip assignment and distribution model named TRAD that is expressly designed for use in analyzing evacuation scenarios. This model employs equilibrium traffic assignment principles and is one of the models of the IDYNEV System.

To apply TRAD, the analyst must specify the highway network, the volume of traffic generated at all origin centroids, a set of candidate destination nodes on the periphery of the EPZ for each origin and the capacity (i.e., "attraction") of each destination node. TRAD calculates the optimal trip distribution and the optimal trip assignment (i.e., routing) of the traffic generated at each origin node to the associated set of candidate destination nodes, so as to minimize evacuee travel times.

Overview of Integrated Distribution and Assignment Model

The underlying premise is that the selection of destinations and routes is intrinsically coupled in an evacuation scenario. That is, people in vehicles seek to travel out of an area of potential risk as rapidly as possible by selecting the "best" route. The model is designed to identify these "best" routes in a manner that distributes vehicles from origins to destinations and routes them over the highway network, in a consistent and optimal manner.

The approach we adopt is to extend the basic equilibrium assignment methodology to embrace the distribution process, as well. That is, the selection of destination nodes by travelers from each origin node, and the selection of the connecting paths of travel, are both determined by the integrated mode. This determination is subject to specified capacity constraints, so as to satisfy the stated objective function. This objective function is the statement of the User Optimization Principle by Wardrop.

To accomplish this integration, we leave the equilibrium assignment model intact, changing only the form of the objective function. It will also be necessary to create a "fictional" augmentation of the highway network. This augmentation will consist of Pseudo-Links and Pseudo-Nodes, so configured as to embed an equilibrium Distribution Model within the fabric of the Assignment Model.

Specification of TRAD Model Inputs

The user must specify, for each origin node, the average hourly traffic volume generated, as well as a set of candidate. There are no destination nodes. The number of trips generated at the origin node, that are distributed to each destination node within this set, is determined by the model in such a way as to satisfy the network-wide objective function (Wardrop's Principle).

The user must also specify the total number of trips which can be accommodated by each destination node. We call this number of trips, the "attraction" of the destination node, consistent with conventional practice. Clearly, we require that the total number of trips traveling to a destination, j, from all origin nodes, i, cannot exceed the attraction of destination node, j. By summing over all destination nodes, this constraint also states that the total trips generated at all origin nodes must not exceed the total capacity to accommodate trips at all destinations.

In summary, the user must specify the total trips generated at each of the origin nodes, the maximum number of trips that can be accommodated by each of the specified destination nodes and the highway network attributes which include the traffic control tactics. The TRAD model includes a function which expresses travel time on each network link in terms of traffic volume and link capacity. This function drives the underlying trip distribution and trip assignment decision-making process. Thus, the TRAD satisfies the objectives of evacuees to select destination nodes and of travel paths to minimize evacuation travel time. As such, this integrated model is classified as a behavioral model.

At the outset, it may appear that we have an intractable problem:

- If TRAD retains the basic assignment algorithm, it must be provided a Trip Table as input.
- On the other hand, if the distribution model is embedded within the assignment model, rather than preceding it, a Trip Table is not available as input.

The resolution of this problem is as follows:

1. We construct an "augmentation" network that allows the user to specify only the volume for each origin node. The allocation of trips from the origin node to each candidate destination node, is not specified and will be determined internally by the model.
2. We construct pseudo-links which enforce the specified values of attraction, A_j , for all destination nodes, j, by suitably calibrating the relationship of the travel time vs. volume and capacity.

This augmented network is comprised of three subnetworks:

1. The highway subnetwork, which consists of "Class I" Links and Nodes.
2. A subnetwork of "Class II" Pseudo-Links which acts as an interface between the highway subnetwork and the network augmentation.
3. The subnetwork of "Class III" Pseudo-Links and Nodes which comprises the network augmentation described above.

The need for these Class II links will become clear later. The classifications are described below:

Class I Links and Nodes

These links and nodes represent the physical highway network: sections of highway and intersections. Trips generated at each Origin [Centroid] Node are assigned to a specified Class I link via a "connector" link. These connector links are transparent to the user and offer no impedance to the traveler; they represent the aggregation of local streets which service the centroidal generated trips and feed them onto the highway network. The real-world destination nodes are part of this network. The immediate approaches to these destination nodes are Class I links.

Class II Links

These pseudo-links are constructed so as to connect each specified destination node with its Class III Pseudo-Node (P-N) counterpart on a one-to-one basis.

Class III Links and Nodes

Class III links and nodes form the augmentation to the basic network. These Pseudo-Links provide paths from the Class II links servicing traffic traveling from the specified [real] destination nodes, to the Super-Nodes which represent the user-specified set of destination nodes associated with each origin node.

Each Class of links provides a different function:

- Class I links represent the physical highway network. As such, each link has a finite capacity, a finite length and an estimated travel time for free-flowing vehicles. The nodes generally represent intersections, interchanges and, possibly, changes in link geometry. The topology of the Class I network represents that of the physical highway system.

- The Class II links represent the interface between the real highway subnetwork and the augmentation subnetwork. These pseudo-links are needed to represent the specified "attractions" of each destination node, i.e., the maximum number of vehicles that can be accommodated by each destination node. Instead of explicitly assigning a capacity limitation to the destination nodes, we assign this capacity limitation of the Class II Pseudo-Links. This approach is much more suitable, computationally.

- The topology of the network augmentation (i.e., Class III Links and Nodes) is designed so that all traffic from an origin node can only travel to the single “Super-Node” by flowing through its set of real destination nodes.

The Class II Pseudo-Links and the network augmentation of Class III Pseudo-Nodes and Links represent logical constructs of fictitious links created internally by the model allows the user to specify the identity of all destination nodes in each origin-based set, without specifying the distribution of traffic volumes from the origin to each destination node in that set.

Calculation of Capacities and Impedances

Each class of links exhibits different properties. Specifically, the relationship between travel impedance (which is expressed in terms of travel time) and both volume and capacity will differ:

- For Class I links, the capacity represents the physical limitation of the highway sections. Travel impedance is functionally expressed by relating travel time with respect to the traffic volume-link capacity relationship.

- For Class II links, link capacity represents the maximum number vehicles that can be accommodated at the [real] destination nodes which form the upstream nodes of each Class II link. Since Class II links are Pseudo-Links, there should be virtually no difference in impedance to traffic along Class II links when the assigned traffic volume on these links is below their respective capacities. That is, the assignment of traffic should not be influenced by differences in travel impedance on those Class II links where the assigned volumes do not exceed their respective capacities.

- For Class III links, both capacity and impedance have no meaning. Since the Class II links limit the number of vehicles entering the Class III subnetwork at all entry points (i.e., at the Class II Pseudo-Nodes) and since all these links are Pseudo-Links, it follows that the Class III network is definitionally an uncapacitated network.

Specification of the Objective Function

It is computationally convenient to be able to specify a single impedance (or "cost") function relating the travel time on a link, to its capacity and assigned traffic volume, for all classes of links. To achieve this, we will adopt the following form based on the original "BPR Formula":

$$T = T_o\{\alpha[1+a_1(\frac{v}{c})^{b_1}]+\beta[1+a_2(\frac{v}{c})^{b_2}]\}+I$$

Where, as for the present traffic assignment model in TRAD,

T	=	Link travel time, sec.
T_o	=	Unimpeded link travel time, sec.
V	=	Traffic volume on the link, veh/hr
C	=	Link capacity, veh/hr
a_i,b_i	=	Calibration parameters
α, ß	=	Coefficients defined below
I	=	Impedance term, expressed in seconds, which could represent turning penalties or any other factor which is justified in the user's opinion

The assignment of coefficients varies according to the Class in which a link belongs:

Class	α	ß	T_o
I	1	0	L/U_f
II	0	1	W
III	0	0	1

Here, L is a highway link length and U_f is the free-flow speed of traffic on a highway link. The values of a_1 and b_1, which are applicable only for Class I links, are based on experimental data:

$a_1 = 0.8$ $b_1 = 5.0$

The values of a_2 and b_2, which are applicable for each Class II links, are based upon the absolute requirement that the upstream destination node can service no more traffic than the user-specified value of the maximum "attraction". In addition, these parameters must be chosen so that these Pseudo-Links all offer the same impedance to traffic when their assigned volumes are less than their respective specified maximum attractions.

The weighting factor, W, is computed internally by the software.

Of course, it is still possible for the assignment algorithm within TRAD to distribute more traffic to a destination node than that node can accommodate. For emergency planning purposes, this is a desirable model feature. Such a result will be flagged by the model to alert the user to the fact that some factor is strongly motivating travelers to move to that destination node, despite its capacity limitations. This factor can take many forms: inadequate highway capacity to other destinations, improper specification of candidate destinations for some of the origins, or some other design inadequacy. The planner can respond by modifying the control tactics, changing the origin-destination distribution patter, providing more capacity at the overloaded destinations, etc.

APPENDIX C

Traffic Simulation Model: PCDYNEV

APPENDIX C: TRAFFIC SIMULATION MODEL: PCDYNEV

A model, named PCDYNEV, is an adaptation of the TRAFLO Level II simulation model, developed by KLD for the Federal Highway Administration (FHWA), with extensions in scope to accommodate all types of facilities. This model produces an extensive set of output Measures of Effectiveness (MOE) as shown in Table C-1.

The traffic stream is described internally in the form of statistical flow histograms. These histograms describe the platoon structure of the traffic stream on each network link. The simulation logic identifies five types of histograms:

- The ENTRY histogram which describes the platoon flow at the upstream end of the subject link. This histogram is simply an aggregation of the appropriate OUTPUT turn-movement-specific histograms of all feeder links.

- The INPUT histograms which describe the platoon flow pattern arriving at the stop line. These are obtained by first disaggregating the ENTRY histogram into turn-movement-specific component ENTRY histograms. Each such component is modified to account for the platoon dispersion which results as traffic traverses the link. The resulting INPUT histograms reflect the specified turn percentages for the subject link.

- The SERVICE histogram which describe the service rates for each turn movement. These service rates reflect the type of control device servicing traffic on this approach; if it is a signal, then this histogram reflects the specified movement-specific signal phasing. A separate model estimates service rates for each turn movement, given that the control is GO.

Table C-1. Measures of Effectiveness Output by PCDYNEV

Measure	Units
Travel	Vehicle-Miles and Vehicle-Trips
Moving Time	Vehicle-Minutes
Delay Time	Vehicle-Minutes
Total Travel Time	Vehicle-Minutes
Efficiency: Moving Time/ Total Travel Time	Percent

Mean Travel Time per Vehicle	Seconds
Mean Delay per Vehicle	Seconds
Mean Delay per Vehicle-Mile	Seconds/Mile
Mean Speed	Miles/Hour
Mean Occupancy	Vehicles
Mean Saturation	Percent
Vehicle Stops	Percent

These data are provided for each network link and are also aggregated over the entire network.

- The QUEUE histogram that describe the time-varying ebb and growth of the queue formation at the stop line. These histograms are derived from the interaction of the respective IN histograms with the SERVICE histograms.

- The OUT histograms that describe the pattern of traffic discharging from the subject link. Each of the IN histograms is transformed into an OUT histogram by the control applied to the subject link. Each of these OUT histograms is added into the (aggregate) ENTRY histogram of its receiving link. Note that this approach provides the model with the ability to identify the characteristics of each turn-movement-specific component of the traffic stream. Each component is serviced at a different saturation flow rate as is the case in the real world. Furthermore, the logic recognizes when one component of the traffic flow is encountering saturation conditions even if the others are not.

Algorithms provide estimates of delay and stops reflecting the interaction of the IN histograms with the SERVICE histograms. The logic also provides for properly treating spillback conditions reflecting queues extending from one link into its upstream feeder links.

A valuable feature is the ability to internally generate functions that relate mean speed to density on each link, given user-specified estimates of free-flow speed and saturation service rates for each link. Such relationships are essential in order to simulate traffic operations on freeways and rural roads, where the signal control does not exist or where its effect is not the dominant factor in impeding traffic flow.

All traffic simulation models are data-intensive. Table C-2 outlines the input data elements. This input describes:

- Topology of the roadway system
- Geometrics of each roadway component
- Channelization of traffic on each roadway component
- Motorist behavior that, in aggregate, determines the operational performance of vehicles in the system
- Specification of the traffic control devices and their operational characteristics
- Traffic volumes entering and leaving the roadway system
- Traffic composition.

To provide an efficient framework for defining these specifications, the physical environment is represented as a network. The unidirectional links of the network generally represent roadway components: either urban streets or freeway segments. The nodes of the network generally represent urban intersections or points along the freeway where a geometric property changes (e.g. a lane drop, change in grade or ramp).

Figure C-1 is an example of a small network representation. The freeway is defined by the sequence of links, (20,21), (21,22), (22,23). Links (8001, 19) and (3, 8011) are Entry and Exit links, respectively. An arterial extends from node 3 to node 19 and is partially subsumed within a grid network. Note that links (21,22) and (17,19) are grade-separated.

Table C-2. Input Requirements for the PCDYNEV Model

GEOMETRICS

- Links defined by upstream downstream node numbers
- Links lengths
- Number of lanes (up to 6)
- Turn pockets
- Grade
- Network topology defined in terms of target nodes for each receiving link

TRAFFIC VOLUMES

- On all entry links and sink/source nodes stratified by vehicle type: auto, car pool, bus, truck
- Link-specific turn movements or O-D matrix (Trip Table)

TRAFFIC CONTROL SPECIFICATIONS

- Traffic signals: link-specific, turn movement specific
- Control may be fixed-time or traffic-actuated
- Stop and Yield signs
- Right-turn-on-red (RTOR)
- Route diversion specifications
- Turn restrictions
- Lane control (i.e. lane closure)

DRIVER'S AND OPERATIONS CHARACTERISTICS

- Drivers (vehicle-specific) response mechanisms: free-flow speed, aggressiveness, discharge headway
- Link-specific mean speed for free-flowing (unimpeded) traffic
- Vehicle-type operational characteristics: acceleration, deceleration
- Such factors as bus route designation, bus station location, dwell time, headway, etc.

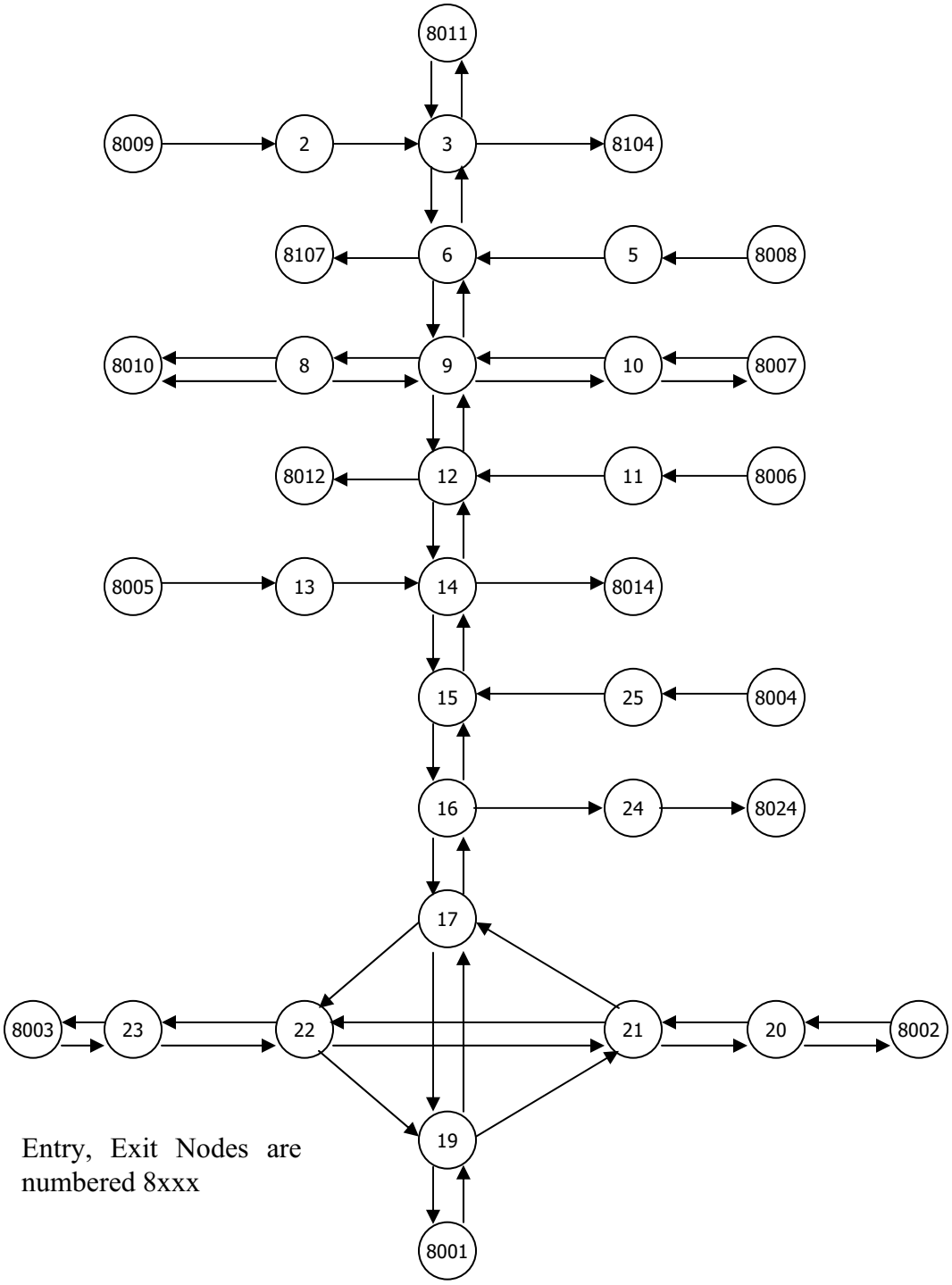


Figure C-1: Representative Analysis Network

APPENDIX D

Detailed Description of Study Procedure

APPENDIX D: DETAILED DESCRIPTION OF STUDY PROCEDURE

This appendix describes the activities that were performed to compute accurate Evacuation Time Estimates (ETE). The individual steps of this effort are represented as a flow diagram in Figure D-1. Each numbered step in the description that follows corresponds to the numbered element in this flow diagram.

Step 1.
The first activity is to obtain data defining the spatial distribution and demographic characteristics of the population within the Emergency Planning Zone (EPZ) and within the Shadow Region. These data were obtained from U.S. Census files and from results compiled by a telephone survey conducted of persons residing within the EPZ. Transient and employee population data were estimated by referencing New York State files and by direct telephone and mail surveys.

Step 2.
The next activity is to examine large-scale maps of the EPZ in both hard-copy form and using Geographical Information System (GIS) software. These maps were used to identify the analysis highway network and the access roads from each residential development to the adjoining elements of this network. This information is used to plan a field survey of the highway system and later, to assign generated evacuation trips to the correct links of the network.

Step 3.
The next step is to conduct a physical survey of the roadway system. The purpose of this survey is to determine the geometric properties of the highway elements, the channelization of lanes on each section of roadway, whether there are any turn restrictions or special treatment of traffic at intersections, the type and functioning of traffic control devices and to make the necessary observations needed to estimate realistic values of roadway capacity

Step 4.
With this information, develop the evacuation network representation of the physical roadway system.

Step 5.
With the network drawn, proceed to estimate the capacities of each link and to locate the origin centroids where trips would be generated during the evacuation process.

Step 6.
With this information at hand, the data were entered into the computer to create the input stream for the TRaffic Assignment and Distribution (TRAD) model. This model was designed to be compatible with the PCDYNEV traffic simulation model used later in the project; the input stream required for one model is entirely compatible with the input stream required by the other. Using a software system developed by KLD named UNITES, the data entry activity is performed interactively directly on the computer.

Step 7.
The TRAD model contains software that performs diagnostic testing of the input stream. These assist the user in identifying and correcting errors in the input stream

Step 8.
After creating the input stream, execute the TRAD model to compute evacuating traffic routing patterns consistent with the guidelines of NUREG 0654, Appendix 4. The TRAD model also provides estimates of traffic loading on each highway link as well as rough estimates of operational performance.

Step 9.
Critically examine the statistics produced by the TRAD model. This is a labor-intensive activity, requiring the direct participation of skilled engineers who possess the necessary practical experience to interpret the results and to determine the causes of any problems reflected in the result.

Essentially, the approach is to identify those "hot spots" in the network that represent locations where congested conditions are pronounced and to identify the cause of this congestion. This cause can take many forms, either as excess demand due to improper routing, as a shortfall of capacity, or as a quantitative error in the way the physical system was represented in the input stream. This examination leads to one of two conclusions:

- The results are as satisfactory as could be expected at this stage of the analysis process; or
- The input stream must be modified accordingly.

This decision requires, of course, the application of the user's judgment based upon the results obtained in previous applications of the TRAD model and a comparison of the results of this last case with the previous ones. In the results are satisfactory in the opinion of the user, then the process continues with Step 12. Otherwise, proceed to Step 10.

Step 10.
There are many "treatments" available to the user in resolving such problems. These treatments range from decisions to reroute the traffic by imposing turn restrictions where they can produce significant improvements in capacity, changing the control treatment at critical intersections so as to provide improved service for one or more movements, or in prescribing specific treatments for channelizing the flow so as to expedite the movement of traffic along major roadway systems or changing the trip table. Such "treatments" take the form of modifications to the original input stream.

Step 11.
As noted above, the changes to the input stream must be implemented to reflect the modifications undertaken in Step 10. At the completion of this activity, the process returns to Step 8 where the TRAD model is again executed.

Step 12.

The output of the TRAD model includes the computed turn movements for each link. These data are required – and – accessed by the PCDYNEV simulation model. This step completes the specification of the PCDYNEV input stream.

Step 13.
After the PCDYNEV input stream has been debugged, the simulation model is executed to provide detailed estimates, expressed as statistical Measures of Effectiveness (MOE), which describe the detailed performance of traffic operations on each link of the network.

Step 14.
In this step, the detailed output of the simulation model is examined to identify whether problems exist on the network. The results of the simulation model are extremely detailed and far more accurately describe traffic operations than those provided by the TRAD model. Thus, it is possible to identify the cause of any problems by carefully studying the output.

Again, one can implement corrective treatments designed to expedite the flow of traffic on the network in the event that the results are considered to be less efficient than is possible to achieve. If input changes are needed, the analysis process proceeds to Step 15. On the other hand, if the results are satisfactory, then one can decide whether to return to Step 8 to again execute the TRAD model and repeat the whole process, or to accept the simulation results. If there were no changes indicated by the activities of Step 14, because the results were satisfactory, we can then proceed to document them in Step 17. Otherwise, return to Step 8 to determine the effects of the changes implemented in Step 14 on the optimal routing patterns over the network. This determination can be ascertained by executing the TRAD model.

Step 15.
This activity implements the changes in control treatments or in the assignment of destinations associated with one or more origins in order to improve the representation of traffic flow over the network. These treatments can also include the consideration of adding roadway segments to the existing analysis network to improve the representation of the physical system.

Step 16.
Once the treatments have been identified, it is necessary to modify the simulation model input stream accordingly. At the completion of this effort, the procedure returns to Step 13 to execute the simulation model again.

Step 17.
The simulation results are analyzed, tabulated and graphed. The results are then documented, as required.

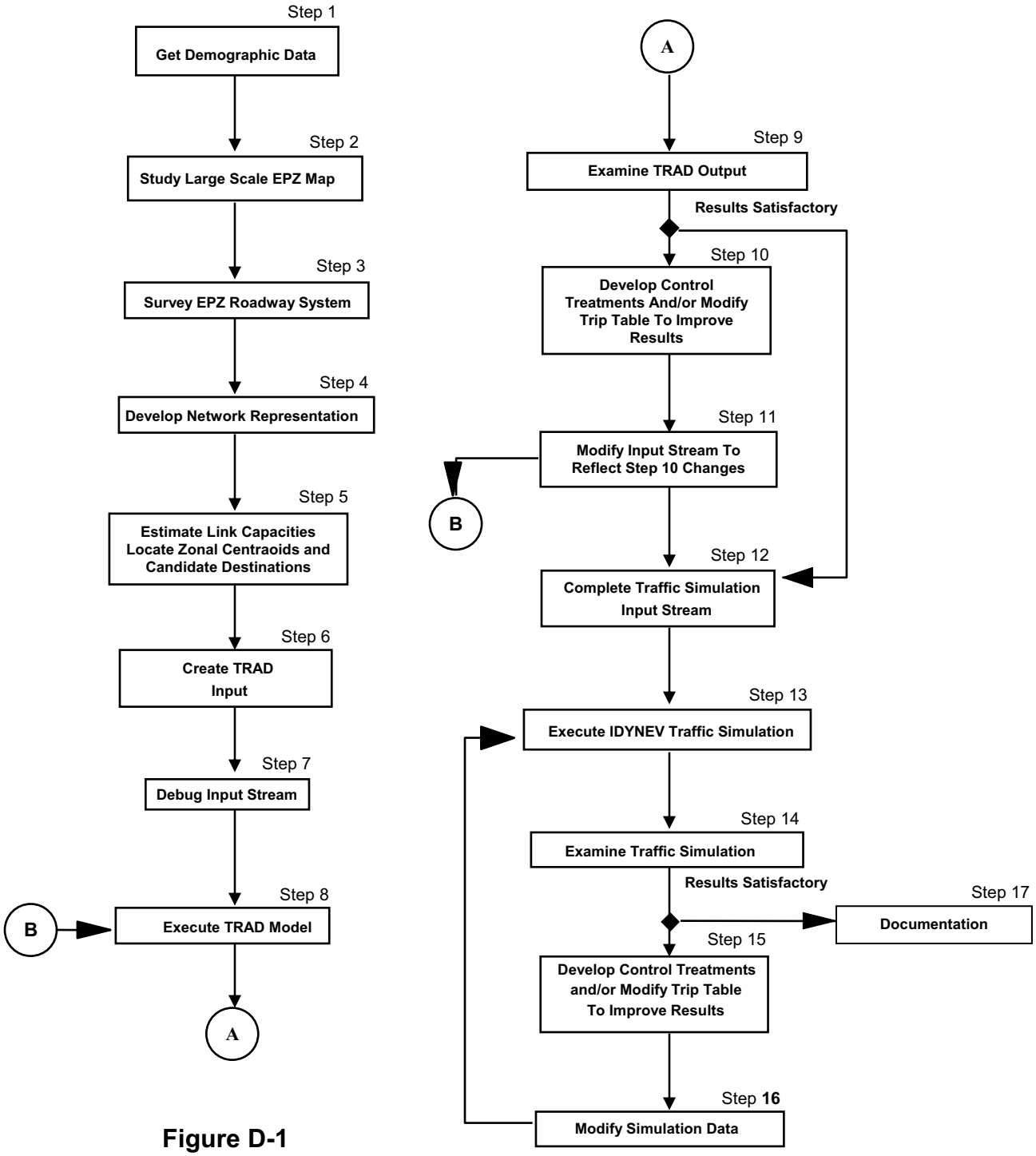


Figure D-1

Flow Diagram of Activities

APPENDIX E

Special Facility Data

APPENDIX E: SPECIAL FACILITY DATA

The following tables list population information for the special facilities that are in the Indian Point EPZ as of August, 2002. The facilities include schools, day care centers, hospitals and other medical facilities, correctional institutions, and major employers. The transient population tables include listings for state parks, county parks, hotels and motels, and other recreational areas. Each table is grouped by county. The location of the facility is defined by its distance (in miles) and compass direction relative to the Indian Point Energy Center.

The number of persons at each facility represents the peak number as defined by a representative of the facility.

Indian Point EPZ: Correctional Facilities (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street	Municipality	County	Phone	Capacity	Current Census (Inmates)
35	8	SSW	Rockland County Correctional Facility	53 New Hempstead Rd.	New City	Rockland	845-708-7108	353	270
22	8	SSE	NYS Dept of Corrections: Ossining Correctional	354 Hunter St.	Ossining	Westchester	914-941-0108	2,300	1,000
			Totals:					**2,653**	**1,270**

Indian Point EPZ: State Parks and Overnight Camps (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	Facility Name	Location	Municipality	County	Phone	Persons	Total Vehicles
40	10.8	WSW	Camp Care - Lake Stahahe	Lake Stahahe (S-11)		Orange	845-351-3425	120	10
40	10.8	W	Camp Ralph and Rose Hittman	Lake Stahahe (S-2)	Lake Stahahe	Orange	845-351-2285	130	51
40	8.6	WNW	Harriman State Park: Kiwago	Upper Twin Lake (UT-1)	Woodbury	Orange	845-928-1331	120	21
40	7	W	Harriman State Park: Lake Tiorati Beach		Bear Mountain	Orange	845-351-2568	2,700	900
40	8.4	W	Harriman State Park: Leneloc	Lake Cohassest (C-6)	Bear Mountain	Orange	845-351-4410	100	15
40	8	W	Harriman State Park: Me-Kee-Ya	Lake Cohasset (C-7 & 9)	Bear Mountain	Orange	845-351-2460	70	2
40	9	WSW	Harriman State Park: Michikamo	Lake Kanawauke (K-5 & 13)	Bear Mountain	Orange	845-351-5641	170	14
40	9	WNW	Harriman State Park: Oratam	Upper Twin Lake (UT-2)	Upper Twin Lk.	Orange	845-928-7352	200	18
40	6.2	WNW	Harriman State Park: Silver Mine		Southfields	Orange		600	200
40	7	WNW	Harriman State Park: Wakoda	Lower Twin Lake (LT-1)	Lower Twin Lk.	Orange	845-928-6729	100	10
40	7	WNW	Harriman State Park: Wakonda	Lower Twin Lake (LT-4)	Lower Twin Lk.	Orange	845-928-1333	129	14
40	10.8	W	Camp Sebago	Lake Stahahe (S-4)	Southfields	Orange	845-351-2854	125	13
40	8.4	W	Camp Sunrise	Lake Cohasset (C-2 & 3)	Tuxedo	Orange	845-351-2766	260	25
40	9	WNW	Camp TeAta	Upper Twin Lake (UT-7 & 8)	Woodbury	Orange	845-928-9460	216	15
40	7	W	Top of the Pines	Lake Tiorati (T-6, 8, 10)	Southfields	Orange	845-351-5787	250	13
16	7.5	N	Capuchin Youth Ministry	107 Glencliffe (POB 192)	Garrison	Putnam	845-424-3609	262	46
17	8.5	N	St. Basil's Academy	79 Saint Basil Rd.	Garrison	Putnam	845-424-3500	40	25
39	2	NW	Bear Mountain State Park		Bear Mountain	Rockland	845-786-2701	2,700	1,174
30	3.2	W	Camp Addisone Boyce	30 Mott Farm Rd.	Tompkins Cove	Rockland	845-638-0438	220	10
30	3.2	SW	Camp Bullowa Boy Scout Camp	45 Frank Rd.	Stony Point	Rockland	845-786-5496	225	60
35	10	S	Camp Clarkstown at Strawtown	413 Strawtown Rd.	W. Nyack	Rockland	845-634-3784	230	100
35	11	S	Felix Festa Middle School Camp	30 Parrot Rd.	W. Nyack	Rockland	845-634-3784	255	300
39	3.5	NW	Harriman State Park: Anthony Wayne Rec. A		Bear Mountain	Rockland	845-786-2701	8,015	3,455
40	6.8	WSW	Harriman State Park: Beaver Pond Campgrnd	County Rt. 106	Stony Point	Rockland	845-947-2792	880	220
40	10.2	WSW	Harriman State Park: Camp Ma-He-Tu	Seven Lakes Dr.	Bear Mountain	Rockland	845-351-4508	163	84

Indian Point EPZ: State Parks and Overnight Camps (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	Facility Name	Location	Municipality	County	Phone	Persons	Total Vehicles
40	10.2	WSW	Harriman State Park: Lake Sebago Beach	Seven Lakes Dr.	Haverstraw	Rockland	845-786-2701	5,000	1,246
40	6.8	WSW	Harriman State Park: Lake Welch Beach	County Rt. 106	Stony Point	Rockland	845-947-2444	8,000	2,500
40	10.2	WSW	Harriman State Park: Sebago Cabin Camp	Seven Lakes Dr.	Bear Mountain	Rockland	845-351-2360	250	84
31	5.6	SSW	High Tor State Park	417 So. Mountain Rd.	New City	Rockland	845-634-8074	700	190
32	10.4	S	Nyack Beach State Park	North Broadway	Nyack	Rockland	845-268-3020	1,000	50
32	8.2	S	Rockland Lake State Park	Route 9W	Congers	Rockland	845-268-3020	6,500	1,500
29	2	WSW	Stony Point Battlefield State Historic Site	Park Rd.	Stony Point	Rockland	845-786-2521	75	N/A
4	2.5	E	Blue Mountain Reservation	Welcher Ave.	Peekskill	Westchester	914-737-2194	1,500	652
12	8	ESE	Camp Kiryas Pupa-Yeshiva Kehilath Yakov	341 Illington Rd.	Ossining	Westchester	914-762-3010	222	50
50	5.6	SE	Croton Gorge Park	Route 129	Cortlandt	Westchester	914-827-9568	900	391
6	6.8	SSE	Croton Point Park	1 Croton Point Ave.	Croton-on-Hud.	Westchester	914-862-5290	10,000	4,374
13	7.5	S	Franklin D. Roosevelt State Park	2957 Crompond Rd.	Yorktown Hgts	Westchester	914-245-7727	15,090	4,387
4	2	S	George's Island Park	Dutch St.	Montrose	Westchester	914-737-7530	1,000	220
22	8.5	SE	Mariandale Center of Hope (Retreat)	299 N. Highland Ave.	Ossining	Westchester	914-941-4455	120	21
13	8	E	Mohansic Park & Golf Course	Baldwin Rd.	Yorktown Hgts	Westchester	914-862-5283	250	10
			Totals:					**68,887**	**22,430**

Indian Point EPZ: Day Camps (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Peak Time	Persons (Including Staff)
40	7.0	W	Day Camp in Park	Lake Tiorati (T14&17)	Bear Mountain	Orange	845-351-4781	5-10	450
40	8.0	W	Me-Kee-Ya	Arden Valley Rd.	Bear Mountain	Orange	845-351-2460	5-10	280
19	7.0	NE	Camp Floradan	10 Floradan Rd.	Putnam Valley	Putnam	845-528-4956	7-8	350
16	7.5	N	Capuchin Youth Ministry	107 Glencliffe	Garrison	Putnam	845-424-3609	9-5	262
19	7.5	NE	John V. Mara	221 Peekskill Hollow Rd.	Putnam Valley	Putnam	845-528-7777	6-8	350
16	5.6	N	Manitoga Nature Camp	Rt. 9D	Garrison	Putnam	845-424-3812	6-8	60
8	6.0	NE	Pine Grove Child Center of Putnam Valley	47 Peekskill Hollow Rd.	Putnam Valley	Putnam	845-528-1444	7-8	67
19	7.0	NE	Putnam Valley Summer Camp	142 Peekskill Hollow Rd.	Putnam Valley	Putnam	845-526-3292	6-8	210
37	8.6	SW	A-Rave-M Camp	656 Route 306	Pomona	Rockland	845-222-2834	7-8	172
30	3.0	WSW	Camp Bullowa Boy Scout Camp	15 Frank Rd.	Stony Point	Rockland	845-786-5490	7-8	100
32	7.8	S	Camp Clarkstown - Lakewood Elem	77 Lakeland Ave.	Congers	Rockland	845-639-6200	6-8	183
35	10.0	S	Camp Clarkstown - Laurel Plains Elem.	14 Teakwood Lane	New City	Rockland	845-639-6200	6-8	215
35	9.6	SSW	Camp Clarkstown - Link Elem	51 Red Hill Rd.	New City	Rockland	845-639-6200	6-8	225
35	8.5	SSW	Camp Clarkstown - Little Tor	56 Gregory St.	Clarkstown	Rockland	845-639-6365	6-8	100
35	8.5	S	Camp Clarkstown - New City Elem	60 Crestwood Dr.	Clarkstown	Rockland	845-639-6200	6-8	165
34	7.6	SSW	Camp Clarkstown - Woodglen Elem.	121 Phillips Hill Rd.	New City	Rockland	845-639-6200	6-8	230
30	4.4	SW	Camp Don Bosco	174 Filors Lane	Stony Point	Rockland	845-947-2200	4-8	181
36	8.5	SW	Camp Fun For Girls B.Y.C.C.	44 Camp Hill Rd.	Ramapo	Rockland	845-362-5278	6-8	250
34	7.8	SSW	Camp Gan Israel of Rockland	315 N. Main St.	Clarkstown	Rockland	845-634-0951	6-8	118
33	11.0	S	Camp Ramah	304-403 Christian Herald Rd.	Nyack	Rockland	845-358-6240	6-8	800
36	8.4	SW	Camp Ramoquois	30 Mountain Rd.	Pomona	Rockland	845-354-1600	7-8	1,100
37	9.0	SSW	Camp Shemesh	195 W. Clarkstown Rd.	New City	Rockland	732-961-1292	6-8	56
35	8.6	SSW	Candy Mountain Day Camp	420 Phillips Hill Rd.	New City	Rockland	845-638-0700	6-8	710
36	7.6	SW	Cavaliers Summer Day Camp	113 Call Hollow Rd.	Pomona	Rockland	845-362-4300	6-8	175
35	10.2	SSW	Champion Day Camp	175 West Clarkstown Rd.	New City	Rockland	845-356-5005	6-8	650
37	10.0	SSW	Colton Elementary School	40 Grandview Ave.	Spring Valley	Rockland	845-577-6250	6-8	112

Indian Point EPZ: Day Camps (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Peak Time	Persons (Including Staff)
30	3.4	SW	Cricket Town Camp	15 Cricket Town Rd.	Stony Point	Rockland	845-786-3913	7-8	100
37	10.0	SW	Deer Kill Day Camp	54 Wilder Rd.	Ramapo	Rockland	845-354-1466	7-8	700
36	7.8	SW	Deer Mountain Day Camp	63 Call Hollow Rd.	Pomona	Rockland	845-354-2727	6-8	1,050
35	11.0	S	Felix Festa	30 Parrot Rd.	W. Nyack	Rockland	845-639-6400	6-8	250
40	5.3	WSW	Gate Hill Day Camp	750 Gate Hill Rd.	Stony Point	Rockland	845-947-3223	6-8	620
37	10.8	SW	Grandview Elementary School	151 Grandview Ave.	Monsey	Rockland	845-268-3406	6-8	112
30	3.4	SSW	Haverstraw Bay County Park	21 Gagan Rd.	Haverstraw	Rockland	845-638-5413	1-12	50
34	7.0	SSW	Kennedy Dells Park	355 No. Main St.	New City	Rockland	845-638-5413	6-11	150
33	10.2	S	Playgarten	58 Lake Rd.	Clarkstown	Rockland	845-268-3406	6-8	158
37	8.8	SW	Pomona Middle School	101 Pomona Rd.	Suffern	Rockland	845-577-6200	6-8	112
37	10.5	SW	Robin Hill Day Camp	70 Wesley Chapel Rd.	Suffern	Rockland	845-354-3366	7-8	150
30	3.4	SSW	Stony Point Day Camp	74 E. Main St.	Stony Point	Rockland	845-786-2716	6-8	228
30	3.4	SSW	Stony Point Playground	74 E. Main St.	Stony Point	Rockland	845-786-2716	6-8	120
35	10.2	S	Strawtown Elementary	413 Strawtown Rd.	W. Nyack	Rockland	845-639-6200	6-8	120
31	4.8	SSW	Village of W. Haverstraw Day Cmp	130 Samsondale Ave.	Haverstraw	Rockland	845-947-2800	6-8	330
22	8.6	SSE	Alfer Camp	95 Broadway	Ossining	Westchester	914-941-3189	6-8	46
11	7.8	ENE	Ben Franklin School Camp	3477 Kamhi Dr.	Yorktown Hgts	Westchester	914-245-1359	6-8	196
22	9.8	SE	Berlow's Taekwando Academy	450 North State Rd.	Briarcliff Manor	Westchester	914-734-2438	7-8	80
51	10.4	SE	Briarcliff "Camp Adventure"-Congr. Ch.	5 School Rd.	Briarcliff Manor	Westchester	845-485-5405	7-8	93
51	10.8	SE	Briarcliff Recreation "Super" Camp	Law Park - Library Rd.	Briarcliff Manor	Westchester	914-478-0218	7-8	205
51	10.4	SSE	Briarcliff Recreation "Tree" Camp	Law Park - Pavillion	Briarcliff Manor	Westchester	914-478-0218	7-8	165
11	9.0	E	Brookside School Camp	2285 Broad St.	Yorktown Hgts	Westchester	914-245-1359	7-8	212
13	7.5	ENE	Center Nrsery Sch of Yorktown Jewish Cte	2966 Crompond Rd.	Yorktown Hgts	Westchester	914-245-6518	6-8	32
22	9.8	SE	Club Fit - Briarcliff Manor	584 North St.	Briarcliff Manor	Westchester	914-762-3444	6-8	116
11	8.5	ENE	Club Fit - Jefferson Valley	600 Bank Rd.	Jefferson Vy	Westchester	914-245-4040	6-8	24
6	5.6	SE	Croton Day Camp (CET)	10 Gerstein St.	Croton-on-Hud	Westchester	914-271-3006	7-8	96
22	6.8	SE	Gerlach Park	Old Post Rd.	Ossining	Westchester	914-941-3189	6-8	75
6	6.5	SE	Historic Hudson Valley Summer Camp	525 South Riverside Ave.	Croton-on-Hud	Westchester	914-591-7192	6-7	34

Indian Point EPZ: Day Camps (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Peak Time	Persons (Including Staff)
11	8	ENE	Mohansic School Camp	704 Locksley Rd.	Yorktown Hgts	Westchester	914-245-1359	7-8	238
10	6.4	ENE	Nabby Day Camp	1 Nabby Hill	Mohegan Lk.	Westchester	914-528-7796	7-8	570
1	0.8	SSE	Nor-West Regional Special Services	160 Westchester Ave.	Buchanan	Westchester	914-788-4623	7-8	60
22	9	SE	Ossining Day Camp (Brookside School)	Ryder Rd.	Ossining	Westchester	914- 941-3189	7-8	160
22	8.6	SSE	Ossining Day Camp (pre-K)	95 Broadway	Ossining	Westchester	914-941-3189	7-8	75
22	9	SE	Our Montessori School	2300 Crompond Rd.	Yorktown	Westchester	914-962-9466	7-8	15
2	1.8	ENE	Peekskill Day Camp	612 Depew St.	Peekskill	Westchester	914-734-7275	7-8	390
2	2.2	NE	Peekskill Teen Travel Camp	1072 Elm St.	Peekskill	Westchester	914-734-7275	7-8	92
4	1.8	SE	Premier Athletic Club	87 Albany Post Rd.	Montrose	Westchester	914-923-5645	7-8	90
13	8.8	E	Pre-School Camp	247 Veterans Rd.	Yorktown Hgts	Westchester	914-245-1359	7-8	101
22	9.5	SE	Ryder Park	Morning Side Dr.	Ossining	Westchester	914-941-3189	7-8	160
2	3	NE	Summer Friends Day Camp	1821 Main St.	Peekskill	Westchester	914-245-0413	7-8	90
14	10.2	ENE	Summer Trails Day Camp Inc.	Mahopac Ave.	Granite Sprs	Westchester	914-245-1776	7-8	560
12	7.6	ESE	Teatown Lake Reservation	1600 Spring Valley Rd.	Yorktown	Westchester	914-245-6283	7-8	189
11	9.4	ENE	Thomas Jefferson School Camp	3636 Gomer St.	Yorktown Hgts	Westchester	914-245-1359	6-8	203
6	5.8	SE	Tiny Tots Camp	3 Glen Pl.	Croton-on-Hud	Westchester	914-271-3006	7-8	192
49	3.5	E	Town of Cortlandt 5th & 6th Grade Camp	7 Furnace Woods Rd.	Cortlandt Mnr	Westchester	914-739-3743	7-8	113
4	2.2	SE	Town of Cortlandt 7th & 8th Grade Camp	2 Albany Post Rd.	Montrose	Westchester	914-734-1056	7-8	113
49	3.8	ESE	Town of Cortlandt Day Camp	293 Furnace Dock Rd.	Cortlandt Mnr	Westchester	914-734-1055	7-8	135
10	6	NE	Town of Cortlandt Day Camp (C. Cook)	3634 Lexington Ave.	Mohegan Lk	Westchester	914-734-1055	7-8	290
11	8	ENE	Travel/Adventure Camp	3417 Old Yorktown Rd.	Yorktown Hgts	Westchester	914-245-1359	7-8	186
22	8.4	SE	Veterans Park	Narragansett Ave.	Ossining	Westchester	914-941-3189	6-8	87
6	6.4	SE	West. Nature and Survival Skills Program	Croton Point Park	Croton-on-Hud	Westchester	914-937-9273	7-8	29
13	8.2	E	Yorktown Police D.A.R.E. Summer Camp	2281 Crompond Rd.	Yorktown Hgts	Westchester	914-962-3811	7-8	70
			Total:						**17,403**

Indian Point EPZ: Day Care Centers (As of August 2002)											
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	No. of Stu-dents	Before School	After School	Staff
26	5	NNW	Nursery School of the Highlands	895 Route 9W	Fort Montgomery	Orange	845-446-3131	30			2
23	10	N	Bounous Montessori School	224 Main St.	Cold Spring	Putnam	845-265-3317	25			3
23	10.4	N	Comm. Nursery School of 1st Presbyterian Chrch	10 Academy St.	Cold Spring	Putnam	845-265-9151	30			5
20	10.5	ENE	Noah's Ark Nursery School	250 Route 6N	Mahopac	Putnam	845-628-8722	52			12
19	6	NE	Pine Grove Children's Ctr. Of Putnam Valley	47 Peekskill Hollow Rd	Putnam Valley	Putnam	845-528-1444	72			16
19	7	NE	Putnam Valley Parks and Recreation Dept.	171 Oscawana Lake Rd	Putnam Valley	Putnam	845-526-3292	65			10
18	6.4	NE	St. Luke's Nursery School	65 Oscawana Lake Rd	Putnam Valley	Putnam	845-526-3560	50			9
17	8	NNE	St. Philips Nursery School	Route 9D	Garrison	Putnam	845-424-4209	14			4
23	10	N	The Nest Childcare/Nursery School	44 Chestnut Street	Cold Spring	Putnam	845-265-5091	61			12
32	8.2	S	Ages and Stages	90 Congers Rd.	Congers	Rockland	845-268-3674	40			19
35	10.4	SSW	Alphabet Express Pre School	62 Old Middletown Rd.	New City	Rockland	845-639-7488	35			7
32	7.8	S	Beechwood Pre-School	42 Beechwood Dr.	Congers	Rockland	845-268-7159	25			3
31	5.2	SSW	Building Blocks	52 Main St.	Garnerville	Rockland	845-429-3700	60			13
34	7	SSW	Clarkstown Pre-School Program	31 Zukor Road	New City	Rockland	845-634-3039	35			5
33	9.2	S	Congers Pre-School	6 Gilchrist Road	Congers	Rockland	845-268-9700	15			2
31	5.4	SSW	Cricket Town	105 Rte. 9W	W. Haverstraw	Rockland	845-786-2158	80			25
31	5.5	SSW	Cricket Town Child Care Site #1	18 N Rte. 9W	W. Haverstraw	Rockland	845-429-3108	80			10
30	3.4	SSW	Cricket Town School	Cricketown Rd.	Stony Point	Rockland	845-786-3913	50	50	35	15
31	5.4	S	Haverstraw Ecumenical Project Day Care Cntr	34 First St.	Haverstraw	Rockland	845-429-5263	62			16
31	5.5	S	Haverstraw Head Start	138-146 Maple Ave	Haverstraw	Rockland	845-429-2225	180			45
31	5	S	Head Start of Rockland, Inc. Haverstraw Site II	36 Division St.	Haverstraw	Rockland	845-429-8930	17			3
31	5	S	Headstart of Rockland	39 Division St.	Haverstraw	Rockland	845-429-8930	17			3
31	5.5	S	Headstart of Rockland	138-146 Maple Ave.	Haverstraw	Rockland	845-429-8930	140			40
34	7.6	SSW	Infant Development Program	260 Little Tor Rd. North	New City	Rockland	845-634-4648	25			14
34	7.6	SSW	Jawonio Sp. Ed. Adults	260 Little Tor Rd. North	New City	Rockland	845-634-4648	140			12
35	10.2	S	Jawonio Tech	775 N. Main St.	New Hempstead	Rockland	845-634-4648	75			65

Indian Point EPZ: Day Care Centers (As of August 2002)											
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34	7.6	SSW	Jawanio Special Ed Pre-School	260 Little Tor Rd.	New City	Rockland	845-634-4648	106			35
31	6.5	SW	Mountain View Child Care	33 Ivy La.	Pomona	Rockland	845-362-2036	6			2
31	4.5	SSW	NORSAC	Partition St.	W.Haverstraw	Rockland	845-425-0009	16		46	2
31	5	S	NORSAC	Blauvell Ave.	Haverstraw	Rockland	845-425-0009	15		15	3
31	5.5	SSW	NORSAC at North Garnerville	61 Chapel St.	Garnerville	Rockland	845-425-0009	20		20	2
31	5	SSW	NORSAC-G. Neary School	George St.	Haverstraw	Rockland	845-425-0009	30		30	3
30	2.8	SSW	NORSAC-Stony Point	7 Gurnee Dr.	Stony Point	Rockland	845-425-0009	20		20	2
31	5.5	SSW	NORSAC-Thiells Elementary School	78 Rosman Rd.	Thiells	Rockland	845-425-0009	60	20	40	4
31	5	SSW	North Rockland Senior Center	69 Bridge St	Garnerville	Rockland	845-429-9027	30			5
33	10.2	S	Playgarten	58 Lake Rd.	Valley Cottage	Rockland	845-268-3406	190			15
34	7.6	SSW	Playing and Learning Together	260 Little Tor Rd.	New City	Rockland	845-634-4648	49			13
32	7	S	Reliable Care Enterprises Inc. / Tutor Time	285 Route 303	Congers	Rockland	845-567-3380	110			27
37	10	SW	Robin Hill School	70 Wesley Chapel Rd.	Suffern	Rockland	845-354-3366	60			12
32	8.2	S	Rockland Cnty YMCA Lakewood Elem. SACC	77 Lakewood Rd.	Congers	Rockland	845-358-0245	54		54	6
35	8.4	SSW	Rockland Cnty YMCA SACC @ Little Tor El	56 Gregory St.	New City	Rockland	845-658-0245	39		39	5
35	10	S	Rockland Cnty YMCA. SACC @ Laurel Plains El	14 Teakwood La.	New City	Rockland	845-358-0245	50		50	6
33	9.8	S	Rockland Cnty YMCA. SACC @ Liberty Elem	212 Lake Rd.	Valley Cottage	Rockland	845-358-0245	39		39	5
34	7.6	SSW	Rockland Cnty YMCA. SACC @ Wood Glen El	121 Phillips Hill Rd.	New City	Rockland	845-358-0245	51		51	6
35	8	SSW	Rockland Learning Center	136 Concklin Rd.	Pomona	Rockland	845-354-5253	50			12
37	8.6	SSW	Rockland Worksite Day Care Robert Yeager Health C	Sanatorium Rd., Bldg. R	Pomona	Rockland	845-364-2697	67			18
35	9.2	SSW	Sonshine Day Care Center	384 New Hempsted Rd	New City	Rockland	845-634-2163	80			10
35	9.5	SSW	St. Paul's Christian Day School	323 S. Main Street	New City	Rockland	914-634-0929	146			30
37	8.6	SSW	Star International	Yeager Sanitorium Rd	Pomona	Rockland	845-364-2776	15			5
30	5.2	SW	Stony Point Child Care Center, Inc.	52 Delta Bldg.Letchworth	Thiells	Rockland	845-942-4740	95			24
35	9.5	S	Tappan Zee Community Nursery School	365 Strawtown Rd.	New City	Rockland	845-634-6224	51			4
30	3.5	SW	Teddy Bears Childcare	117 W. Main St.	Stony Point	Rockland	845-786-1667	55			12
35	8.8	SSW	Temple Beth Sholom Nursery	228 New Hempstead Rd.	New City	Rockland	845-638-0830	162			29
30	3.8	SSW	The Little School House	27 Fonda Dr.	Stony Point	Rockland	845-429-1543	14			3
31	5.2	S	Thiells Pre-School	64 New Main St.	Haverstraw	Rockland	845-947-1543	15			3

Indian Point EPZ: Day Care Centers (As of August 2002)											
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	No. of Stu-dents	Before School	After School	Staff
22	9	SSE	A Kid's Place, Ossining UMC SACC	1 Ernwilton Place	Ossining	Westchester	914-923-4441	65			11
22	10	SSE	Accent of Learning Child Care Center	325 South Highland Ave	Briarcliff Manor	Westchester	914-923-2223	88			30
6	5.5	SE	Asbury Play and Learn Nursery School	19 Old Post Road South	Croton-On-Hudson	Westchester	914-271-3628	62			6
2	2	NE	Aunt Bessies Open Door Day Care	137 Union Ave.	Peekskill	Westchester	914-739-6368	44			20
22	9.6	SE	Briarcliff Nursery School	40 Morningside Dr.	Ossining	Westchester	914-941-2053	100			12
14	9.5	E	Bright Beginings (Amawalk Friends Meeting Hse)	2467 Quaker Church Rd.	Yorktown Hgts	Westchester	914-245-2020	11			3
13	8.8	E	Bright Beginnings	1974 Commerce St.	Yorktown Hgts	Westchester	914-962-7868	55			12
14	10	ENE	Bright Beginnings Church of the Good Shepherd	39 Granite Springs Rd.	Granite Springs	Westchester	914-248-5333	22			3
11	7.5	ENE	Building Blocks Child Care Ctr c/o BOCES, Bldg. #8	845 Fox Meadow Rd,	Yorktown Hgts	Westchester	914-248-3680	69			27
13	7.5	ENE	Center Nursery School of the Yorktown Jewish Ctr	2966 Crompond Rd.	Yorktown Hgts	Westchester	914-245-6518	72			8
6	3.8	SE	Center Pre-School	52 Senic Dr.	Croton	Westchester	914-271-4733	60			7
6	5.5	SE	Childrenspace	119 Maple St.	Croton-on-Hudson	Westchester	914-271-5056	41			10
51	10	SE	Christian Nursery School	25 South State Rd.	Briarcliff Manor	Westchester	914-941-2923	70			8
6	6.4	SE	Circle School	56 Cleveland Dr.	Croton-on-Hudson	Westchester	914-271-8950	35			5
2	2.4	NE	City of Peekskill Youth Bureau	16 N. Broad St.	Peekskill	Westchester	914-734-1822	40		40	9
51	9.5	SE	Congregation Sons of Israel Nursery	1666 Pleasantville Rd.	Briarcliff Manor	Westchester	914-762-6396	105			22
51	10	SSE	Creative Play Care	201 Scarborough Rd.	Briarcliff Manor	Westchester	914-941-0379	40			3
6	5.5	SE	Croton Community Nursery School	25 Van Wyck St.	Croton-On-Hudson	Westchester	914-271-4451	72			5
22	7.2	SW	Croton Montessori	Rt. 9A	Croton-On-Hudson	Westchester	914-271-4503	35			4
12	5.5	ENE	Field Child Care Center	2300 Catherine St.	Cortlandt Manor	Westchester	914-739-2244	30			12
2	3	NE	First Hebrew Nursery School	1821 E. Main St.	Peekskill	Westchester	914-739-0504	140			16
22	9.8	SE	For Kids Only Inc.	577 N. State Rd.	Briarcliff	Westchester	914-941-3869	60			17
2	1.2	ENE	Hansel and Gretel Nursery School	860 Washington St.	Peekskill	Westchester	914-739-6179	30			3
6	5.5	SE	Happy Tots Day Care Center	114 Grand St.	Croton	Westchester	914-271-6992	80			18
10	7.5	ENE	Kiddie Kottage	1776 East Main St.	Shrub Oak	Westchester	914-245-3610	40			5
2	2.6	NE	KIDS Bridge @ Park St School	Park St.	Peekskill	Westchester	914-734-8142	45			5
2	2.4	NE	Kidsbridge Oakside	200 Decatur Ave.	Peekskill	Westchester	914-734-8518	50			5
2	2.9	NE	Kidsbridge Summer Fun Hillcrest Elementary Sc	4 Horton Dr.	Peekskill	Westchester	914-734-8518	125			18

Indian Point EPZ: Day Care Centers (As of August 2002)											
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	No. of Stu-dents	Before School	After School	Staff
2	2.8	NE	Kidsbridge Uriah Hill	Pernart Ave.	Peekskill	Westchester	914-734-8518	50			6
8	5.2	ENE	Lakeland Children Center @ Mohegan Colony Nursery	99 Baron de Hirsch Rd.	Crompound	Westchester	914-528-4522	44	44	44	6
8	4.6	ENE	Lakeland Childrens Center #1 @Lincoln Titus E.S.	10 Lincoln Ave.	Crompond	Westchester	914-528-8113	50	50		6
10	6.4	NE	Lakeland Childrens Center #5 @Van Cortlandtville E.S.	3100 E. Main St.	Mohegan Lake	Westchester	914-528-8119	50		50	6
10	6	NE	Lakeland Childrens Center @ GW School	3634 Lexington Ave.	Mohegan Lake	Westchester	914-928-8119	68	68		0
10	5.8	NE	Lakeland Childrens Center @ Tom Thumb	Route 6- Mohegan Lake	Mohegan Lake	Westchester	914-528-8119	50	50	50	6
11	8.8	ENE	Lakeland Childrens Center @Benjamin Franklin E.S.#2	3477 Kamhi Dr. Rm 132	Shrub Oaks	Westchester	914-528-8119	68	68	68	4
11	9.4	ENE	Lakeland Children's Cntr @ Thomas Jeff. #3	3636 Gomer St..	Yorktown Hgts.	Westchester	914-528-8119	68	68		6
9	3.4	ENE	Little Kings and Queens	822 Paulding St.	Peekskill	Westchester	914-734-2371	22			6
47	2.6	SSE	Montrose Child Care Center	FDR VA Hosp. Bldg 29	Montrose	Westchester	914-734-2745	60			24
4	3.2	ESE	Mother Connection @ Furnace Wood School	239 Watch Hill Rd.	Cortlandt Manor	Westchester	914-737-0626	40	20	40	7
1	0.8	SSE	Mother Connection Hedrick Schl Buchanan Verplank	160 Westchester Ave.	Buchanan	Westchester	914-736-5257	30	20	30	2
1	0.3	E	Mother Connection Hendrick Hudson	8 John Walsh Blvd.	Peekskill	Westchester	914-737-8976	12			3
4	1.5	SSE	Mother Connection-Frank G. Lindsey	57 Trolley Rd.	Montrose	Westchester	914-736-0732	40	20	40	6
4	1.8	SE	Mount Airy Montessori Mount Airy Nursery Sc	Old Albany Post Rd.	Montrose	Westchester	914-736-1447	41			6
22	9.5	SSE	Nancy's Family Day Care	4 Martin Rd.	Ossining	Westchester	914-941-8649	8			1
22	9	SE	Noah's Ark	199 Croton Ave.	Ossining	Westchester	914-941-5498	30			13
13	9.5	E	Nor-West Regional Special Services @ Pines Bridge	200 Boces Dr.	Yorktown Hgts	Westchester	914-737-4797	17		17	10
22	9.4	SSE	Ossining CAP/Project LOVE @ Park Elem. School	22 Edward St.	Ossining	Westchester	914-762-2369	40		40	4
22	9.4	SSE	Ossining Children's Center #1	90 South Highland Ave.	Ossining	Westchester	914-941-0230	86			20
22	9.4	SSE	Ossining Children's Center #4	92 South Highland Ave.	Ossining	Westchester	914-941-0230	40			14
22	9.2	SSE	Ossining Children's Center #2	22 Edward St.	Ossining	Westchester	914-941-0230	38			4
22	9	SE	Ossining Children's Center #3	190 Croton Ave.	Ossining	Westchester	914-941-0230	44			5
13	8.2	E	Our Montessori School	2300 Crompton Rd.	Yorktown	Westchester	914-962-9466	32			6
11	8.2	E	Our Montessori School in Yorktown	2405 Crompond Rd.	Yokrtown Hgts	Westchester	914-962-3685	64	64	48	15
13	7.5	ENE	Our Montessori School Jewish Center	2966 Crompond Rd.	Yorktown Hgts	Westchester	914-962-6077	17			2
12	6.8	E	Our Montessori School Stepping Stones (C of Nazarith)	1243 Whitehill Rd.	Yorktown Hgts	Westchester	914-245-7135	24			5

Indian Point EPZ: Day Care Centers (As of August 2002)											
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	No. of Stu-dents	Before School	After School	Staff
22	8.8	SE	Peas and Karrots St. Ann Parish School	10 Elizabeth St.	Ossining	Westchester	914-941-0312	31			4
2	1.8	NE	Peekskill Middle School Westcop - Peekskill Yes Prog.	212 Ringold St..	Peekskill	Westchester	914-737-4542	65		65	8
13	8.5	E	Pied Piper Pre-School	2051 Baldwin Rd.	Yorktown Hgts	Westchester	914-962-5196	90			5
12	5.5	ENE	Richard G. Rosenthal YM-YWHA	3565 Crompond Rd.	Cortlandt Manor	Westchester	914-736-3076	85			13
51	10.2	SSE	Scarborough Presbyterian Children's Center	671 Scarborough Rd.	Scarborough	Westchester	914-941-0025	90			12
51	10	SSE	Sleepy Hollow Nursery School	201 Scarborough Rd.	Briarcliff	Westchester	914-941-2107	50			6
22	9	SE	Small Miracles Pre-School	15 Campwoods Rd.	Ossining	Westchester	914-762-0531	90			12
22	9	SE	Small Miracles Preschool Center	17 Campwoods Rd.	Ossining	Westchester	914-762-0531	13			26
22	8.5	SSE	St. Mathews Day Care Center	50 North Malcolm St.	Ossining	Westchester	914-941-1715	55			23
3	1.5	SSW	St. Patrick's Pre K	115 7th St.	Verplanck	Westchester	914-737-1348	20			2
2	2.4	NE	St. Peters Headstart Day Care	1001 Howard St.	Peekskill	Westchester	914-737-9121	46			20
10	6.4	NE	Strawberry Road Early Learning Center	1770 Strawberry Rd.	Mohegan Lake	Westchester	914-526-4401	80			25
4	1.6	SSE	Sunset Nursery Sch. Episcopal Chrch of Divine Love	80 Sunset Rd.	Montrose	Westchester	914-737-1818	42			5
6	5.2	SE	Temple Israel of Northern Westchester	Glengary Rd.	Croton	Westchester	914-271-4705	575			35
11	7.5	ENE	The Building Block Childcare Center (BOCES) Bldg. 8	845 Fox Meadow Rd.	Yorktown Hgts	Westchester	914-248-3680	69			27
8	3.8	NE	The Flying Goose	100 Oregon Rd.	Peekskill	Westchester	914-739-5100	70			31
13	8.8	E	The Learning Garden	365 Columbine Ct.	Yorktown	Westchester	914-243-0871	9			3
51	11	SE	The Little School Faith Lutheran Bretheran Church	480 Pleasantville Rd.	Briarcliff Manor	Westchester	914-769-4255	70			12
13	8.5	E	The Seed Day Care Center	2084 Baldwin Rd.	Yorktown Hgts	Westchester	914-962-9622	68			20
9	5.2	ENE	Tina Langsman	18 North First St.	Cortlandt Manor	Westchester	914-736-0398	12			3
10	6	NE	Tom Thumb Pre School Center	1949 E. Main St., Ste. 2	Mohegan Lake	Westchester	914-528-5600	130			22
21	8.8	SE	Torbank Community Nursery School	108 Pinesbridge Rd.	Ossining	Westchester	914-941-1563	41			8
9	3.2	ENE	Tutor Time Child Care Peekskill	50 Dayton Lane	Peekskill	Westchester	914-734-4473	111			25
14	11	ENE	Wescop Therapeutic/Headstart	6 Old Tomahawk St.	Granite Springs	Westchester	914-243-0501	105			43
13	8.8	E	Wescop Yorktown Heights - (Yorktown Head Start)	1882 Commerce St.	Yorktown Hgts	Westchester	914-962-9399	51			14
2	2	NE	Wescop/Peekskill Headstart & Daycare Center	705 South St.	Peekskill	Westchester	914-737-9166	51			12
9	3.5	ENE	Westchester/Putnam Adult Day Care	2123 Crompond Rd.	Cortlandt Manor	Westchester	914-736-9436	25			9
11	8.8	ENE	Wiggles-N-Giggles	2731 Hedwig Dr.	Yorktown	Westchester	914-962-1925	12			3

Indian Point EPZ: Day Care Centers (As of August 2002)											
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	No. of Stu-dents	Before School	After School	Staff
11	9	E	Yorktown Community Nursery School	247 Veterans Rd.	Yorktown Hgts	Westchester	914-962-7868	32			7
13	8.5	E	Yorktown Consortium Enrichment Center / Pied Piper	2051 Baldwin Rd.	Yorktown Hgts	Westchester	914-243-8170	40		40	10
51	9.8	SE	Young Wonders, LLC	446 North State Rd.	Briarcliff Manor	Westchester	914-944-9434	41			11
			Totals:					8,258	542	1,011	1,626

Indian Point EPZ: Hotels / Retail / Entertainment (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Persons	Vehicles
26	5.5	NNW	Best Western	17 Main St.	Highland Falls	Orange	845-446-9400	69	32
26	5.0	NNW	Holiday Inn Express	1106 Route 9W	Ft Montgomery	Orange	845-446-4277	111	55
26	5.0	NNW	Palisades Motel	Rt.9W and 218	Ft Montgomery	Orange	845-446-9400	110	55
24	8.5	N	The Hotel Thayer	674 Thayer Rd.	West Point	Orange	845-446-4731	292	97
26	5.6	NNW	The Pointer's Echo Motel	1610 Rt. 9W No.	Highland Falls	Orange	845-446-2696	12	6
26	7.2	N	US Academy Hotel	41 Main St.	Highland Falls	Orange	845-446-2021	16	8
26	7.2	N	West Point Motel	156 Main St.	Highland Falls	Orange	845-446-4180	65	30
28	10.0	W	Woodbury Commons	498 Red Apple Ct.	Central Valley	Orange	845-928-4000	13,948	5,914
23	10	N	Hudson House-A Country Inn	2 Main St.	Cold Spring	Putnam	845-265-9355	2	1
23	10	N	Pig Hill Bed & Breakfast	73 Main St.	Cold Spring	Putnam	845-265-9247	9	4
39	2.8	NW	Bear Mountain Inn & Conf.	Rt. 9W South	Bear Mountain	Rockland	845-786-2731	120	30
32	8.5	S	Green Inn Motel on the Lake	65 No. Rte. 9W	Congers	Rockland	845-268-6836	30	15
32	8.5	S	Holiday Court Motel	30No. Rte.9W	Congers	Rockland	845-268-3300	78	39
33	8.5	S	Raintree Motel	2S.Rte.9W	Congers	Rockland	845-268-5600	40	60
31	7.2	SW	Rockland Motel	152 Rte.202	Garnerville	Rockland	845-354-1373	20	10
30	3.8	SSW	Stony Point Center	17 Cricketown Rd.	Stony Point	Rockland	845-786-5674	240	120
30	3.6	SSW	Stony Point Motel	Rte.9W	Stony Point	Rockland	845-942-0681	68	34
6	5.5	SE	Alexander Hamilton House	49 Van Wyck St.	Croton-on-Hudson	Westchester	914-271-6737	24	12
22	7.5	SE	Cambridge House	321 North Highland Ave.	Ossining	Westchester	914-762-7980	205	205
22	8.9	SE	Catholic Foreign Mission Society	55 Ryder Rd.	Maryknoll	Westchester	914-941-7590	124	124
10	5.5	NE	Cortlandt Town Center	3105 E. Main St.	Mohegan Lake	Westchester	914-526-4995	4,551	1,764
51	10.2	SE	Edith Macy Conference Center	550 Old Chappaqua Rd.	Briarcliff Manor	Westchester	914-945-8004	60	30
13	13.0	ESE	Holiday Inn	1 Holiday Dr.	Mount Kisco	Westchester	914-241-2600	183	81
11	8.5	ENE	Jefferson Valley Mall	650 Lee Blvd.	Jefferson Valley	Westchester	914-245-4688	5,826	2,256
22	8.5	SE	Mariondale Center of Hope	299 N. Highland Ave.	Ossining	Westchester	914-941-4455	250	217

Indian Point EPZ: Hotels / Retail / Entertainment (As of August 2002)									
ERPA	**Distance (Miles)**	**Dir-ection**	**Facility Name**	**Street Name**	**Municipality**	**County**	**Phone**	**Persons**	**Vehicles**
22	8.0	SE	Maryknoll Mission Faithful	40 Somerstown Rd.	Ossining	Westchester	914-762-6364	60	60
49	3.2	E	Ohr Hamier Seminary School	141 Furnace Woods Rd.	Peekskill	Westchester	914-736-1500	230	12
51	11	SE	Pace University	861 Bedford Rd.	Briarcliff Manor	Westchester	914-923-2818	558	372
51	13	SE	Pace University	235 Elm Rd.	Pleasantville	Westchester	914-923-2818	636	424
2	1.8	NE	Peekskill Inn	634 Main St.	Peekskill	Westchester	914-739-1500	90	45
9	3.8	ENE	Town Lyne Motel	2381 Crompond Rd.	Cortlandt	Westchester	914-737-8202	76	38
2	1.8	NE	Union Hotel	59 Hudson Ave.	Peekskill	Westchester	914-737-9762	48	24
6	3.5	SE	Watergate Inn	Route 9A/Furnace Dk. Rd.	Croton-on-Hudson	Westchester	914-271-4322	90	30
13	8.0	E	Yorktown Community & Cultural Cntr	1974 Commerce St.	Yorktown Heights	Westchester	914-962-2970	600	20
			Totals:					**28,841**	**12,224**

Indian Point EPZ: Major Employers (As of August 2002)								
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Total Number of Employees
24	7.5	N	United States Military Academy	646 Swift Rd.	West Point	Orange	845-429-2432	2,200
36	8	SW	Bar Laboratories	Quacker Rd.	Pomona	Rockland	845-362-1100	300
35	8.8	SSW	Clarkstown Town Hall	10 Maple Ave.	New City	Rockland	845-639-2000	150
37	8.8	SSW	Department of Social Services	50 Sanitorium Rd.	Pomona	Rockland	845-364-3223	425
37	9.5	SSW	Friedwald Center	475 New Hempstead	New City	Rockland	845-678-2000	240
32	7	S	Haverstraw Quarry	66 Scratchup Rd.	Haverstraw	Rockland	845-634-3298	102
31	5.8	S	Haverstraw Transit	200 Riverside Ave.	Haverstraw	Rockland	845-429-3407	260
31	4.5	SSW	Helen Hayes Hospital	Route 9W	West Haverstraw	Rockland	845-786-4000	800
37	10.2	SSW	Hillcrest Nursing Home	661 North Main St.	Spring Valley	Rockland	845-356-0567	155
31	6	SW	Hudson Valley Dev. Disabilities Serv Office	7 Wilbur Rd.	Thiells	Rockland	845-947-6300	225
30	4	SSW	INSL-X Products Corp.	50 Holt Drive, K Fries Dr.	Stony Point	Rockland	845-786-5000	109
34	7.8	SSW	Jawonio, Inc.	260 Little Tor Rd. N.	New City	Rockland	845-634-4648	300
30	4	SSW	Lighting Services, Inc.	2 Kay Fries Drive Industrial Pk	Stony Point	Rockland	845-942-2800	100
31	4.8	S	Louis Hornick & Company, Inc.	152 North Broadway	Haverstraw	Rockland	845-429-5301	225
33	10.2	S	Medilabs Inc.	140 Rt. 303	Valley Cottage	Rockland	845-268-6565	100
34	8	SSW	Mid-Rockland Imaging	18 Squadron Blvd.	New City	Rockland	845-634-9729	167
31	5.2	S	Northern Riverview Healthcare	87-89 South Route 9W	Haverstraw	Rockland	845-429-5381	200
52	11	S	Palisades Center Mall	1000 Palisades Center Dr.	W. Nyack	Rockland	845-348-1000	4,000
32	7.4	S	Rockland ARC (Day Hab)	25 Hemlock Dr.	Congers	Rockland	845-267-2500	172
30	3.2	SSW	US Gypsum Company	70 Grassy Point Rd.	Stony Point	Rockland	845-942-7016	197
13	8.8	E	A & P	100 Triangle Shopping Center	Yorktown Heights	Westchester	914-962-0968	126
48	2.8	SSE	Bethel Nursing Rehabilitation Center	67 Springvale Rd.	Croton-on-Hudson	Westchester	914-739-6700	270
12	6.5	ENE	BJ's Wholesale Club, Inc.	3303 Crompond Rd.	Yorktown Heights	Westchester	914-734-9700	136
51	11	SSE	Brandywine Nursing Home Inc.	620 Sleepy Hollow Rd.	Briarcliff Manor	Westchester	914-941-5100	160
7	3	N	Camp Smith Military Reservation			Westchester		200

Indian Point EPZ: Major Employers (As of August 2002)								
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Total Number of Employees
22	7.8	SE	Cedar Manor Nursing & Rehabilitation Cntr	Cedar Ln & Stormy Town Rd.	Ossining	Westchester	914-762-1600	160
11	8.6	ENE	Club Fit	Lee Blvd.	Jefferson Valley	Westchester	914-245-4040	100
8	3.8	NE	Cortlandt Health Care	110 Oregon Rd.	Cortlandt Manor	Westchester	914-739-9150	174
50	6.5	SE	Dolce International/Crotonville	1 Old Albany Post Rd.	Ossining	Westchester	914-944-2100	135
11	7.2	ENE	Empire Blue Cross Blue Shield	2651 Strang Blvd.	Yorktown Heights	Westchester	914-248-2955	360
2	0.8	E	Engelhard Corp.	217 N. Highland Ave.	Ossining	Westchester	914-737-2554	325
12	5.5	ENE	Holy Comforter Nursing Home	2300 Catherine St.	Cortlandt Manor	Westchester	914-739-2244	180
10	6.5	NE	Home Depot	3131 E. Main St.	Mohegan Lake	Westchester	914-528-1539	300
2	2.5	NE	Hudson River Community Health / Peekskill	1037 Main St.	Peekskill	Westchester	914-734-8800	150
22	9	SSE	Hudson River Inlay	34 State St.	Ossining	Westchester	914-762-9606	100
9	3.4	ENE	Hudson Valley Hospital Center	1980 Crompond Rd.	Cortlandt Manor	Westchester	914-734-3210	800
12	8	ESE	IBM/Watson Research Center	1101 Kitchawan Rd.	Yorktown Heights	Westchester	914-94503416	2,000
1	0.3	E	Indian Point Energy Center	Broadway & Bleakley Ave.	Buchanan	Westchester	914-272-3352	500
51	13	SE	JCCA Edenwald, Inc.	1075 Broadway	Pleasantville	Westchester	914-769-7150	105
11	8.5	ENE	Jefferson Valley Mall	650 Lee Blvd.	Yorktown Heights	Westchester	914-962-2489	1,532
2	0.8	E	Karta Co.	1011-1017 Lower South St.	Peekskill	Westchester	914-737-9018	120
22	9	SE	Maryknoll Fathers and Brothers	55 Ryder Rd.	Ossining	Westchester	914-941-7590	304
22	9	SE	Maryknoll Sisters of St. Dominick	10 Pinesbridge Rd	Ossining	Westchester	914-941-7575	182
22	8.8	SE	Metallized Carbon Co.	19 S. Water St.	Ossining	Westchester	914-941-3738	140
9	4.5	E	Mines Press Inc.	231 Croton Ave.	Cortlandt Manor	Westchester	914-788-1800	120
51	13	SE	Pace University	861 Bedford Rd.	Pleasantville	Westchester	914-923-2818	662
51	11	SE	Pace University	235 Elm Rd.	Briarcliff Manor	Westchester	914-923-2818	180
51	10	SSE	Phillips Research	345 Scarborough Rd.	Briarcliff Manor	Westchester	914-945-6000	250
15	9.6	E	Putnam/No. Westchester BOCES (Admin.)	200 BOCES Dr.	Yorktown Heights	Westchester	914-248-2304	90
6	6.6	SE	Shoprite Supermarkets	Riverside Ave.	Croton-on Hudson	Westchester	914-271-6400	150
4	2	SE	Skyview Health Care Center	Route 9A & Alban Post Rd.	Croton-on-Hudson	Westchester	914-277-3690	220
21	7.5	SE	St. Mary's Rehabilitation Center	15 Spring Valley Rd.	Ossining	Westchester	914-333-7000	140
22	8.4	SE	Stony Lodge Hospital	40 Croton Dam Rd.	Ossining	Westchester	914-941-7400	300

Indian Point EPZ: Major Employers (As of August 2002)								
ERPA	Distance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Total Number of Employees
22	9.8	SSE	Stop & Shop Supermarkets	246 S. Highland Ave.	Ossining	Westchester	914-762-6955	118
13	8.6	E	Telemarketing Concepts, Inc.	80 Triangle Center	Yorktown Heights	Westchester	914-245-0701	150
22	9.5	SSE	Testwell Laboratories, Inc.	47 Hudson St.	Ossining	Westchester	914-762-9000	100
8	3.8	NE	Town of Cortlandt	1 Heady St.	Cortlandt Manor	Westchester	914-734-1020	200
51	13	SE	Town of New Castle	200 S Greeley Ave.	Chappaqua	Westchester	914-248-4742	135
10	5.8	NE	Treetops At Mohegan Lake Inc.	3550 Lexington Ave.	Mohegan Lake	Westchester	914-528-2000	141
13	9	E	United Parcel Service, Inc.	178 Front St.	Yorktown	Westchester	800-742-5877	200
4	1.8	SE	VA Hudson Valley Healthcare System	Albany Post Rd.	Montrose	Westchester	914-737-4400	1,450
2	2.5	NE	Verizon	1023 Brown St.	Peekskill	Westchester	914-734-4430	100
51	10.5	SE	Village of Briarcliff Manor	1111 Pleasantville Rd.	Briarcliff Manor	Westchester	914-941-4800	100
22	8.8	SSE	Village of Ossining	16 Croton Ave.	Ossining	Westchester	914-941-3554	165
10	6.2	NE	Wal-Mart Associates Inc.	3133 East Main St.	Mohegan Lake	Westchester	914-526-1100	300
9	3.8	ENE	Westledge Nursing Home	2000 East Main St.	Peekskill	Westchester	914-737-8400	130
2	0.8	ENE	White Plains Coat & Apron	4 John Walsh Blvd.	Peekskill	Westchester	914-737-2532	151
2	2.5	NE	White Plains Coat and Apron	411 Highland Ave.	Peekskill	Westchester	914-737-2532	150
13	9	E	Yorktown Printing and Pennysaver Corp.	1520 Front St.	Yorktown Heights	Westchester	914-962-2526	175
			Total:					**24,863**

Indian Point EPZ: Medical Facilities (As of August 2002)									
ERPA	Dis-tance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Capac-ity	Employ-ees
17	6	NNE	Franciscan Sisters of Atonement	Graymoor, 41 Old Highland.	Garrison	Putnam	845-424-3624	70	30
17	6.4	NNE	Mother Lurana Home	166 Old West Point Rd.	Garrison	Putnam	845-424-3184	11	1
17	5.5	NNE	St. Christopher's Inn	Rt. 9, Box 150, Graymoor	Garrison	Putnam	845-424-3616	128	60
17	5.5	NNE	St. Paul's Friary of the Atonement	PO Box 300, Rt. 9,Graymoor	Garrison	Putnam	845-424-3671	10	1
17	6	NNE	Walter Hoving Home	40 Walter Hoving Rd.	Garrison	Putnam	845-424-3674	70	10
30	3.2	SSW	Sopko Apartments	Knights Corner	Stony Point	Rockland	845-368-2400	75	N/A
31	5.2	SSW	Garnerville Home	216 Ramapo Rd.	Garnerville	Rockland	845-429-5306	38	7
31	5.4	S	Green Hills Estate Home for Adults	1 South Route 9W	Haverstraw	Rockland	845-429-8411	164	46
31	4.5	SSW	Helen Hayes Hospital	Route 9W	West Haverstraw	Rockland	845-786-4000	155	800
31	5.2	S	Northern Riverview Healthcare	87-89 S Route 9W	Haverstraw	Rockland	845-429-5381	182	200
31	5.4	SW	Venture North	100 Suffern La.	Thiells	Rockland	845-947-2099	13	11
31	4.5	SSW	Walnut Hill Apts.	Route 9W	West Haverstraw	Rockland	845-429-3033	180	6
31	5	SSW	Warren Knolls Apartments	500 Warren Knolls Dr.	Haverstraw	Rockland	845-429-3003	96	2
32	7.4	S	Rockland ARC (Day Hab)	25 Hemlock Dr.	Congers	Rockland	845-267-2500	612	172
33	10.5	S	Nyack Manor Nursing Home	Christian Herald Rd.	Valley Cottage	Rockland	845-268-6861	160	225
33	10	S	Tolstoy Foundation Center	104 Lake R.	Valley Cottage	Rockland	845-268-6140	42	20
33	10	S	Tolstoy Foundation Nursing Home Cottage	100 Lake Rd.	Valley Cottage	Rockland	845-268-6813	96	140
35	9.8	SSW	L'Dor Adult Home (was Laurel Manor)	156 West Clarkstown Rd.	New City	Rockland	845-356-4108	44	12
35	8	SSW	Rockland ARC: Prime Time for Kids	60 Phillips Hill Rd.	New City	Rockland	845-639-2425	160	95
35	8	SSW	Squadron Gardens	1 Squadron Blvd.	New City	Rockland	845-638-2262	100	3
37	9.4	SSW	Friedwald Center for Rehab. & Nursing	475 New Hempstead Rd.	New City	Rockland	845-678-2000	180	240
37	10.2	SSW	Hillcrest Nursing Home	661 N. Main St.	Spring Valley	Rockland	845-356-0567	200	155
37	9.8	SW	Keahon House / Loeb House Inc.	17 Skyline Terrace	Wesley Hills	Rockland	845-362-0281	12	4
37	8.8	SSW	Rockland County Adult Home	50 Sanatorium Rd. Bldg C	Pomona	Rockland	845-364-3589	38	11
37	8.8	SSW	Rockland Cnty Infirmary/Summit Park	50 Sanatorium Rd.	Pomona	Rockland	845-364-2700	341	600

Indian Point EPZ: Medical Facilities (As of August 2002)									
ERPA	Dis-tance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Capac-ity	Employ-ees
1	1.0	SE	Beaver Ridge (Senior Housing)	1965 Allan Ave.	Yorktown Heights	Westchester	516-487-0041	167	2
2	1.6	NE	Bethel Adult Day Services	17-19 Narragansett Ave	Ossining	Westchester	914-941-7300	65	9
2	3.6	ENE	Bethel Nursing & Rehab. Cntr at Ossining	17-19 Narragansett Ave.	Ossining	Westchester	914-941-7300	79	88
2	2.8	ENE	Bethel Nursing Rehabilitation Center	67 Springvale Rd.	Croton On Hudson	Westchester	914-739-6700	200	102
2	1.2	NE	Bethel Springvale Inn	500 Albany Post Rd.	Croton-on-Hudson	Westchester	914-739-4404	125	90
4	2	SE	Brandywine Adult Home	620 Sleepy Hollow Rd.	Briarcliff Manor	Westchester	914-941-7507	31	25
4	1.8	SE	Brandywine Nursing Home Inc.	620 Sleepy Hollow Rd.	Briarcliff Manor	Westchester	914-941-5100	131	160
6	5	SE	Camary-Statewide Services	8 Dyckman Dr.	Mohegan Lake	Westchester	914-526-6167	10	18
8	5.4	ENE	Cardinal McCloskey (GH)	46 Waterbury Pkwy.	Cortlandt Manor	Westchester	914-739-7434	6	9
8	3.8	NE	Card. McCloskey Grp Emerg. Foster Care.	155 North Highland Ave.	Ossining	Westchester	914-762-5302	20	30
8	3.5	NNE	Cardinal McCloskey I.R.A.	15 Susan La.	Cortlandt Manor	Westchester	914-739-6327	5	4
8	3.8	NE	Cedar Manor Nursing & Rehabilition Center	Stormytown Rd. & Cedar La.	Ossining	Westchester	914-762-1600	153	160
9	3.4	ENE	Community-Based Services	14 Hawkes Close	Ossining	Westchester	914-923-5405	7	15
9	5	E	Community-Based Services	197 Henry St.	Buchanan	Westchester	914-277-4771	10	17
9	3.8	ENE	Community-Based Services (ICF Autism)	2466 Broad St.	Yorktown Heights	Westchester	914-277-4771	10	16
10	5.8	NE	Community-Based Services (ICS) Group	129 Willow Dr.	Briarcliff Manor	Westchester	914-762-1501	10	16
10	7.4	ENE	Cortlandt Healthcare Center	110 Oregon Rd.	Cortlandt Manor	Westchester	914-739-9150	120	174
10	5.8	NE	Country House in Westchester	2000 Baldwin Rd.	Yorktown Heights	Westchester	914-962-3625	100	75
10	6.5	ENE	Danish Home for Aged	1065 E. Quaker Bridge Rd.	Croton-on-Hudson	Westchester	914-271-3052	24	11
10	6.5	ENE	Faith Adult Home	141 Spring St.	Ossining	Westchester	914-762-8492	14	2
11	9	ENE	Family Services of West.-Maple Hse (Sr.)	15 Maple Pl.	Ossining	Westchester	914-941-4509	106	6
11	9.2	ENE	Field Home-Holy Comforter	Catherine St.	Yorktown Heights	Westchester	914-739-2244	200	100
12	5.5	ENE	Green Chimineys Childrens Serv.-Grp Home	183 Cedar La.	Ossining	Westchester	914-762-7350	8	11
12	5.5	ENE	Holy Comforter Nursing Home	2300 Catherine St.	Cortlandt Manor	Westchester	914-739-2244	202	180
12	6.4	ENE	Hudson Valley Hospital Center	1980 Crompond Rd.	Cortlandt Manor	Westchester	914-734-3210	120	800
13	8.5	E	Lafayette House	287 Lafayette Ave.	Cortlandt Manor	Westchester	914-329-3481	6	11
13	8.4	E	Mohegan Manor	3441 Lexington Ave.	Mohegan Lake	Westchester	914-528-3512	150	30
13	8.6	E	Mt. St. Francis Convent & Franciscan Sisters	250 South St.	Peekskill	Westchester	914-737-3373	47	12
13	9.2	E	North Hill Senior Housing	345 North State Rd.	Briarcliff Manor	Westchester	914-941-3431	96	3

Indian Point EPZ: Medical Facilities (As of August 2002)									
ERPA	Dis-tance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Capac-ity	Employ-ees
21	9.5	ESE	Opengate-Grasso	2043 Crompond Rd.	Yorktown Heights	Westchester	914-277-3661	8	16
21	7.5	SE	Ossining House	53 Somerstown Rd.	Ossining	Westchester	914-329-0706	6	N/A
22	8.6	SE	Phoenix House	3151 Stoney St.	Shrub Oak	Westchester	914-962-2491	300	50
22	8.6	SE	Skyview Health Care Center	Route 9A & Albany Post Rd.	Croton-On-Hudson	Westchester	914-271-5179	120	220
22	8.5	SE	Society Hill at Westchester	7 Redtwig Ct.	Peekskill	Westchester	914-736-3668	10	N/A
22	7.8	SE	Special Citizens Futures	106 Watch Hill Rd.	Cortlandt Manor	Westchester	914-737-6164	8	20
22	8.4	SE	St. Jude Habilitation Inst.	1 Mount Green Rd.	Croton-on-Hudson	Westchester	914-271-5588	8	13
22	9.2	SSE	St. Jude Habilitation Inst. - Millwood House	45 Shinglehouse Rd.	Milwood	Westchester	914-941-8753	8	7
22	8.8	SSE	St. Mary's Rehabilitation Center	15 Spring Valley Rd.	Ossining	Westchester	914-333-7000	44	140
22	7.5	SE	St. Theresa's Residence (Maryknoll)	105 Ryder Rd.	Maryknoll	Westchester	914-941-4240	70	75
22	9.2	SE	Stony Lodge Hospital, Inc.	40 Croton Dam Rd.	Ossining	Westchester	914-941-7400	61	250
22	9	SE	Treetops at Mohegan Lake	3550 Lexington Ave.	Mohegan Lake	Westchester	914-528-3583	120	170
22	8.4	SE	VA Hudson Valley Healthcare System	Albany Post Rd.	Montrose	Westchester	914-737-4400	400	1,450
22	8.5	SE	Victoria Home	25 N. Malcolm St.	Ossining	Westchester	914-941-2450	49	80
22	6.5	SE	Westchester ARC	2500 Lynett Ct.	Yorktown	Westchester	914-788-0056	6	8
22	9	SSE	Westchester ARC	87 Old Post Rd.	Croton-on-Hudson	Westchester	914-271-4399	9	10
22	8.5	SE	Westchester ARC	7 Riverview Farm Rd.	Ossining	Westchester	914-762-4148	7	12
48	2.8	SSE	Westchester ARC (ICFMR)	86 Macy Rd.	Briarcliff Manor	Westchester	914-941-3868	7	12
48	2.8	SSE	Westchester ARC-Cortlandt House	17 Shaw Hwy.	Cortlandt Manor	Westchester	914-736-1171	10	13
48	2.8	SE	Westchester ARC-Hunter House	94 Hunter St.	Ossining	Westchester	914-945-8940	3	1
49	3	ENE	Westchester ARC-The Villa at the Woods	1703 Crompond Rd.	Peekskill	Westchester	914-734-2808	2	1
49	2.8	ESE	Westchester DDSO (ICFMR)	2749 Stoney St.	Mohegan Lake	Westchester	914-962-2661	6	10
49	3.8	E	Westchester DDSO-(BRIARCLIFF IRA)	510 Rt. 9	Briarcliff	Westchester	845-947-6000	10	12
50	6.2	SE	Westchester DDSO-(CROTON IRA)	455 Croton Ave.	Cortlandt Manor	Westchester	845-947-6000	8	12
51	11	SSE	Westchester DDSO-(ECHO LAKE IRA)	90 Sawmill River Rd.	Briarcliff	Westchester	845-947-6000	12	15
51	11	SSE	Westchester DDSO-(GOMER IRA)	3492 Gomer St.	Yorktown Heights	Westchester	845-947-6000	13	N/A
51	9.8	SE	Westchester DDSO-(HUDSON IRA)	47 Naragansett Ave.	Ossining	Westchester	845-947-6000	12	N/A
51	10.2	SE	Westchester DDSO-(MOSEMAN IRA)	52 Moseman Ave.	Yorktown Heights	Westchester	845-947-6000	8	N/A
51	9.5	SE	Westchester DDSO-(STONY IRA)	2745 Stony St.	Mohegan Lake	Westchester	845-947-6000	6	N/A

Indian Point EPZ: Medical Facilities (As of August 2002)									
ERPA	Dis-tance (Miles)	Dir-ection	Facility Name	Street Name	Municipality	County	Phone	Capac-ity	Employ-ees
51	10.2	SE	Westchester-Water View Estates	5 Water View Estates	Peekskill	Westchester	914-788-0687	2	1
51	10.2	SE	Westledge Nursing Home	2000 E. Main St.	Peekskill	Westchester	914-737-8400	100	130
			Totals:					**3,177**	**7,755**

Indian Point EPZ: Schools (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	School Name	Street Name	Municipality	County	Phone	Enroll-ment	Staff
24	7.5	N	West Point Elementary School	705 Barry Rd.	West Point	Orange		900	100
24	7.5	N	United States Military Academy	646 Swift Rd.	West Point	Orange	845-429-2432	4,000	2,200
26	5	NNW	Fort Montgomery Elementary School	895 Route 9W	Highland Falls	Orange	845-446-1008	114	24
26	7	N	Highland Falls Elementary School	51 Mountain Ave.	Highland Falls	Orange	845-446-5898	196	22
26	7	N	Highland Falls Middle School	52 Mountain Ave.	Highland Falls	Orange	845-446-4761	308	46
26	5	NNW	James O'Neill High School	Rt. 9W	Highland Falls	Orange	845-446-4914	611	48
26	7	N	Sacred Heart of Jesus Elem. School	7 Cozzens Ave.	Highland Falls	Orange	845-446-2674	250	35
17	10	N	Garrison ES	1100 Rt. 9D	Garrison	Putnam	845-424-3689	300	50
23	10.5	N	Haldane Central	16 Craigside Dr.	Cold Spring	Putnam	845-265-9254	880	165
19	7	NE	Putnam Valley ES	171 Oscawana Lake Rd.	Putnam Valley	Putnam	845-528-8092	680	95
19	7	NE	Putnam Valley H.S.	146 Peekskill Hollow Rd.	Putnam Valley	Putnam	845-5267847	620	84
19	7	NE	Putnam Valley Middle School	142 Peekskill Hollow Rd.	Putnam Valley	Putnam	845-528-8101	465	80
35	10.2	SSW	Albertus Magnus High School	798 Route 304	Bardonia	Rockland	845-623-8842	486	55
36	8.5	SW	Bais Yaakov Chofetz Chaim of Pomona	44 Camphill Rd.	Pomona	Rockland	845-362-3166	150	28
30	4.5	SW	Children of Mary Kindergarten	174 Filors La.	Stony Point	Rockland	845-947-3183	152	13
35	8.2	S	Clarkstown Senior High School North	151 Congers Road	New City	Rockland	845-639-6501	1,654	130
32	8.5	S	Congers Elementary School	9 Lake Road	Congers	Rockland	845-268-5010	346	24
35	10.2	SSW	Congregation Hor Yitzchok	195 W Clarkstown Rd.	New City	Rockland	845-371-9810	12	7
35	9	SSW	Cornerstone Christian School	384 New Hempstead Rd.	New City	Rockland	845-634-7977	104	20
35	11	S	Felix V. Festa Jr. High "A Wing"	30 Parrot Rd.	W. Nyack	Rockland	845-639-6400	488	61
35	11	S	Felix V. Festa Jr. High "C Wing"	30 Parrot Rd.	W. Nyack	Rockland	845-639-6410	389	61
35	11	S	Felix V. Festa Jr. High "D Wing"	30 Parrot Rd.	W. Nyack	Rockland	845-639-6420	526	61
31	5	SSW	Gerald F. Neary Elementary School	20 George St.	Haverstraw	Rockland	845-942-3450	491	79
37	10.8	SW	Grandview School	151 Grandview Ave.	Monsey	Rockland	845-577-6260	454	60
31	5	S	Haverstraw Middle School	16 Grant St.	Haverstraw	Rockland	845-942-3400	823	131
35	8.4	SSW	Hebrew Academy Early Childhood	315 N. Main St.	New City	Rockland	845-634-0951	31	9

Indian Point EPZ: Schools (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	School Name	Street Name	Municipality	County	Phone	Enroll-ment	Staff
37	10	SSW	Hempstead Elementary School	80 Brick Church Rd.	Spring Valley	Rockland	845-577-6270	500	60
35	9.8	SSW	Hillcrest School	32 Addison Boyce	New City	Rockland	845-577-6180	398	62
30	3.2	SSW	Immaculate Conception School	24 E. Main St.	Stony Point	Rockland	845-786-5245	220	20
30	3.8	SW	James A. Farley Middle School	140 Route 210	Stony Point	Rockland	845-942-3200	874	122
32	7.8	S	Lakewood Elementary School	77 Lakeland Ave.	Congers	Rockland	845-268-5760	469	29
35	10	S	Laurel Plains Elementary School	14 Teakwood La.	New City	Rockland	845-639-6350	454	34
33	9.8	S	Liberty Elementary School	142 Lake Rd.	Valley Cottage	Rockland	845-353-7240	493	69
37	10	SW	Lime Kiln Elementary School	35 Lime Kiln Rd.	Suffern	Rockland	845-577-6280	332	N/A
35	9.8	SSW	Link Elementary School	51 Red Hill Rd.	New City	Rockland	845-639-6370	547	32
35	8.5	SSW	Little Tor Elementary School	56 Gregory St.	New City	Rockland	845-639-6365	316	20
37	10	SSW	Merrill L. Colton School	40 Grandview Ave.	Spring Valley	Rockland	845-577-6250	466	60
35	10.4	SSW	Mesifta Ohr Hatorah	195 West Clarkstown Rd.	New City	Rockland	845-371-9810	11	4
35	8.5	S	New City Elementary School	60 Crestwood Dr.	New City	Rockland	845-639-6360	474	24
35	8.5	S	New City Jewish Center	47 Old Schoolhouse Rd.	New City	Rockland	845-634-3619	400	40
31	4.5	SSW	North Garnerville Elementary School	63 Chapel St.	Garnerville	Rockland	845-942-3120	338	55
31	4.8	SW	North Rockland High School	106 Hammond Rd.	Thiells	Rockland	845-942-3300	2,562	343
37	8.8	SW	Pomona Jr. High School	101 Pomona Rd.	Suffern	Rockland	845-577-6200	976	145
37	11	SSW	Ramapo Senior High School	400 Viola Rd.	Spring Valley	Rockland	845-577-6400	1,850	N/A
35	9	SSW	Reuben Gittleman Hebrew Day School	360 New Hempstead Rd.	New City	Rockland	845-634-5200	355	60
31	5.2	S	Rockland Christian School	64 New Main St.	Haverstraw	Rockland	845-429-0585	22	3
33	8.5	S	Rockland Country Day School	34 Kings Hwy.	Congers	Rockland	845-268-6802	203	40
34	8	SSW	Rockland Learning Center	136 Concklin Rd.	Pomona	Rockland	945-354-5253	61	8
35	9	SSW	St. Augustine's Elementary School	114 S. Main St.	New City	Rockland	845-634-7060	275	25
31	4.5	SSW	St. Gregory Barbarigo School	29 Cinder Rd.	Garnerville	Rockland	845-947-1330	210	25
33	9.5	S	St. Paul School	365 Kings Hwy.	Valley Cottage	Rockland	845-268-6506	450	30
31	5	S	St. Peter's School	21 Ridge St.	Haverstraw	Rockland	845-429-5311	225	25
30	2.8	SW	Stony Point Elementary School	7 Gurnee Dr.	Stony Point	Rockland	845-942-3140	733	104
35	10	S	Strawtown Elementary School	413 Strawtown Rd.	W. Nyack	Rockland	845-353-4480	425	22
37	8.5	SSW	Summit Park Elementary School	30 Route 45	New City	Rockland	845-577-6290	504	72
31	5.5	SW	Thiells Elementary School	78 Rosman Rd.	Thiells	Rockland	845-942-3160	764	117

Indian Point EPZ: Schools (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	School Name	Street Name	Municipality	County	Phone	Enroll-ment	Staff
31	4.2	SSW	West Haverstraw Elementary School	71 Blauvelt Ave.	W. Haverstraw	Rockland	845-942-3180	718	135
31	5.5	SW	Willow Grove School	153 Storrs Rd.	Thiells	Rockland	845-942-4075	942	150
34	8.2	SSW	Woodglen Elementary School	121 Phillips Hill Rd.	New City	Rockland	845-639-6355	538	38
37	10	SSW	Yeshiva Avir Yakov	15 N. Roosevelt Ave.	Spring Valley	Rockland	845-354-9675	90	N/A
37	9	SSW	Yeshiva Avir Yakov	766 N. Main St.	Spring Valley	Rockland	845-354-9675	90	N/A
37	9	SSW	Yeshiva Avir Yakov Girls	Route 45	Spring Valley	Rockland	845-354-0874	2,455	N/A
22	8.2	SE	Anne M. Dorner MS	100 Van Cortlandt Ave.	Ossining	Westchester	914-941-7700	904	128
2	2.2	NE	Assumption ES	920 1st St.	Peekskill	Westchester	914-737-0680	270	20
11	7.8	ENE	Benjamin Franklin ES	3477 Kamhi Dr.	Yorktown Heights	Westchester	914-245-7444	600	50
49	3.5	E	Blue Mountain MS	7 Furnace Woods Rd.	Cortlandt Manor	Westchester	914-736-5300	725	120
51	11.5	SE	Briarcliff HS	444 Pleasantville Rd.	Briarcliff Manor	Westchester	914-941-8880	475	80
51	11.5	SE	Briarcliff MS	444 Pleasantville Rd.	Briarcliff Manor	Westchester	914-941-8880	374	68
11	9	E	Brookside ES	2285 Broad St.	Yorktown Heights	Westchester	914-243-8130	502	60
22	9	SE	Brookside ES	Pinesbidge Rd.	Ossining	Westchester	914-941-7700	607	74
1	0.75	SSE	Buchanan-Verplank ES	160 Westchester Ave.	Buchanan	Westchester	914-736-5450	439	75
6	5.5	SE	Carrie E. Thompkins ES	Gerstein St.	Croton-On-Hudson	Westchester	914-271-5184	744	59
22	8.2	SE	Claremont ES	1 Claremont Rd.	Ossining	Westchester	914-941-7700	686	75
51	9.5	SE	Congregation Sons of Israel	1666 Pleasantville Rd.	Briarcliff Manor	Westchester	914-762-6396	400	18
11	7.5	ENE	Crompond ES	2901 Manor St.	Yorktown Heights	Westchester	914-243-8140	485	75
48	3	SE	Croton-Harmon HS	36 Old Post Rd.S.	Croton-On-Hudson	Westchester	914-271-2147	357	49
11	7.5	ENE	Fox Meadow Center	845 Fox Meadow La.	Yorktown Heights	Westchester	914-248-3640	80	N/A
4	1.5	SSE	Frank G. Lindsey ES	57 Trolley Rd.	Montrose	Westchester	914-736-5350	510	75
13	8.4	E	French Hill ES (K-2)	2051 Baldwin Rd.	Yorktown Heights	Westchester	914-243-8090	437	60
49	3.2	E	Furnace Woods ES	239 Watch Hill Rd.	Cortlandt Manor	Westchester	914-736-5400	366	66
10	6	NE	George Washington ES	3634 Lexington Ave.	Mohegan Lake	Westchester	914-528-2021	570	40
4	1.5	SE	Hendrick Hudson HS	2 Albany Post Rd.	Montrose	Westchester	914-736-5250	810	135
2	2.8	NE	Hillcrest ES	Horton Dr.	Peekskill	Westchester	914-739-2284	470	60
13	8.8	E	Huntington Learning Center	1857 Commerce St.	Yorktown Hgts	Westchester	914-245-8882	50	13
10	8	ENE	Lakeland Alternative HS	Rt. 132	Shrub Oak	Westchester	914-245-3382	24	6

Indian Point EPZ: Schools (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	School Name	Street Name	Municipality	County	Phone	Enroll-ment	Staff
10	7	NE	Lakeland HS	Route 6	Shrub Oak	Westchester	914-528-0600	1,029	95
11	8	ENE	Lakeland-Copper Beech MS	3417 Old Yorktown Rd.	Yorktown Heights	Westchester	914-245-1885	1,478	80
8	4.6	ENE	Lincoln-Titus ES	10 Lincoln Ave.	Crompond	Westchester	914-528-2519	466	42
11	7	ENE	Mercy College, Yorktown Center	2651 Strang Blvd.	Yorktown Heights	Westchester	914-245-6100	800	170
13	7.8	ENE	Mildred E. Strang MS	2701 Crompond Rd.	Yorktown Heights	Westchester	914-243-8100	1,050	133
11	7.8	ENE	Mohansic ES	704 Locksley Rd.	Yorktown Heights	Westchester	914-243-8160	440	72
2	2.2	NE	Oakside ES	220 Decatur Ave.	Peekskill	Westchester	914-737-1591	487	47
49	3.2	E	Ohr Hamier Seminary School	141 Furnace Woods Rd.	Peekskill	Westchester	914-736-1500	200	30
22	9	SSE	Ossining High School	29 S. Highland Ave.	Ossining	Westchester	914-941-7700	1,176	134
13	8.2	E	Our Montessori School	2300 Crompond Rd.	Yorktown	Westchester	914-962-9466	30	6
51	12	SE	Pace University	861 Bedford Rd.	Pleasantville	Westchester	914-923-2818	3,815	662
22	9.2	SSE	Park Early Childhood Center	Edward St. & Everett Ave	Ossining	Westchester	914-941-7700	631	133
2	2.5	NE	Park Street School	1432 Park St.	Peekskill	Westchester	914-737-2088	140	15
2	2.2	NE	Peekskill HS	1072 Elm St.	Peekskill	Westchester	914-737-0201	715	110
2	1.8	NE	Peekskill MS	212 Ringold St.	Peekskill	Westchester	914-737-4542	405	61
6	5.8	SE	Pierre Van Cortlandt MS	Larkin Pl.	Croton-On-Hudson	Westchester	914-271-2191	349	50
13	9.5	E	Pines Bridge School	200 BOCES Dr.	Yorktown Heights	Westchester	914-248-2304	96	86
11	7.5	ENE	Regional Alternative High School	Fox Meadow Rd.	Yorktown Heights	Westchester	914-248-2304	78	19
22	9	SE	Roosevelt Education Center	190 Croton Ave.	Ossining	Westchester	914-941-7700	104	22
22	9	SE	St. Ann's Parochial School	16 Elizabeth St.	Ossining	Westchester	914-941-0312	385	38
22	8.4	SE	St. Augustine's School	Eagle Park, N. Highland	Ossining	Westchester	914-941-3849	570	40
8	4	NE	St. Columbanus ES	122 Oregon Rd.	Contlandt Manor	Westchester	914-739-1200	300	20
10	7	NE	St. Elizabeth Ann Seton School	1375 E. Main St.	Shrub Oak	Westchester	914-528-3563	570	30
13	9.4	E	St. Patrick's Elementary School	117 Moseman Rd.	Yorktown Heights	Westchester	914-962-2211	400	25
51	10.2	SE	St. Theresa's School	300 Dalmeny Rd.	Briarcliff Manor	Westchester	914-762-1050	191	15
13	9.5	E	Tech Center at Yorktown	200 BOCES Dr.	Yorktown Heights	Westchester	914-248-2304	996	130
51	10.2	SSE	The Clearview School (AMIC)	550 Albany Post Rd.	Briatcliff Manor	Westchester	914-941-9513	119	NA
13	9.5	E	The Learning Center at Walden	200 BOCES Dr.	Yorktown Heights	Westchester	914-248-2304	97	70
11	9.5	ENE	Thomas Jefferson ES	3636 Gomer St.	Yorktown Heights	Westchester	914-245-4802	519	40
51	11	SE	Todd ES	Ingham Rd.	Briarcliff Manor	Westchester	914-941-8880	780	125

Indian Point EPZ: Schools (As of August 2002)									
ERPA	Distance (Miles)	Dir-ection	School Name	Street Name	Municipality	County	Phone	Enroll-ment	Staff
2	2.8	NE	Uriah Hill ES	980 Pemart Ave	Peekskill	Westchester	914-739-0682	310	30
10	6.2	NE	Van Cortlandtville ES	3100 E. Main St.	Mohegan Lake	Westchester	914-528-1354	645	65
13	9.5	E	Walden School	200 Boces Dr.	Yorktown Heights	Westchester	914-248-2270	130	75
11	7.5	ENE	Walkabout	845 Fox Meadow Rd.	Yorktown Heights	Westchester	914-248-2304	53	8
9	5	E	Walter Panas HS	300 Croton Ave.	Cortlandt Manor	Westchester	914-739-2823	874	85
21	10	ESE	Westorchard ES	25 Granite Rd.	Chappaqua	Westchester	914-238-7200	570	N/A
2	1.8	ENE	Woodside ES	612 Depew St.	Peekskill	Westchester	914-739-0093	484	50
14	10.5	ENE	Yorktown Christian Academy	253 Mahopac Ave.	Yorktown Heights	Westchester	914-628-7444	35	N/A
13	7.8	ENE	Yorktown HS	2727 Crompond Rd.	Yorktown Heights	Westchester	914-243-8040	1,293	190
			Totals:					**69,865**	**10,070**

APPENDIX F

Telephone Survey

APPENDIX F: TELEPHONE SURVEY

1. SAMPLING METHODOLOGY

The development of Evacuation Time Estimates (ETE) for the Emergency Planning Zone (EPZ) of the Indian Point Energy Center (IPEC) requires the identification of travel patterns, car ownership and household size of the population within the EPZ. Demographic information generally available is obtained from Census data that are reported on a county-by-county basis. The use of these data has limitations when applied to emergency planning. Census data do not contain some detailed information needed to quantify estimates of mobilization time and certainly provide no insight on residents' anticipated usage of automobiles in responding to an Advisory to Evacuate. Such data can be invaluable in developing ETE.

A telephone survey is a technique that has been successfully used to address these concerns. This survey is designed to elicit information from the public concerning family demographics and estimates of response times to well defined events.

2. SURVEY INSTRUMENT AND SAMPLING PLAN

A survey instrument was developed by KLD (See Annex A) and reviewed by State and County Emergency Management Personnel. Several changes and additions were made. Following the completion of the instrument, a sampling plan was developed. Previous experience has indicated that a sample size of approximately 1,000 completed survey forms yields results with an acceptable sampling error. Since the sample is drawn from the EPZ population, a list of EPZ zip codes was developed as shown in Table F-1. An estimate of the population in each zip code area was determined. The proportional number of planned desired completed survey interviews for each zip code area is also shown in Table F-1.

Unavoidably, some of the zip code areas in the neighborhood of the EPZ boundary extend outside the EPZ. The inclusion of these zip codes in the survey is important to allow us 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.

Rockland County EPZ	Average Household Size (Persons)
With Zip Code 10901 Area	3.36
Without Zip Code 10901 Area	3.37

A total of 1002 surveys were completed. The completed survey adhered to the sampling plan as shown in Figure F-1.

A list of randomly generated household telephone numbers was purchased which was ten times larger than the number of completed interviews required in each zip code. From this list of telephone numbers, a random starting point was assigned and then every nth number was called. If an interview was not completed after three calls to a telephone number, the next number on the list was selected and the procedure repeated. All telephone calls were made during weekday evenings and on weekends, when there is an equal opportunity of reaching households with workers and non-workers. The survey was conducted in English. Generally, when surveying a geographic area the size of the EPZ, fewer than 1,000 interviews are sufficient to limit the survey error to an acceptable low value. We opted for the larger sample size of 1,000 because we sought reasonable sample sizes for each county.

First Market Research conducted the survey in June 2002, from their offices in Boston. In conducting this project, First Market Research abided by the principles of ethics and professional conduct as outlined in the MRA Code of Data Collection Standards (See Annex B of this Appendix).

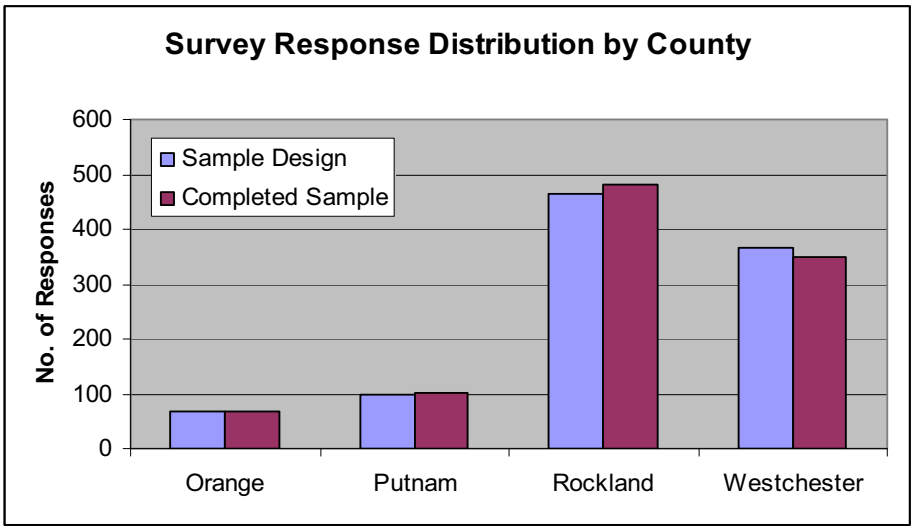


Figure F-1. Survey Sampling Plan Adherence

ZIP	Post Office	Population	Sample
10501	AMAWALK	1270	3
10911	BEAR MOUNTAIN	17	0
10510	BRIARCLIFF MANOR	9631	20
10511	BUCHANAN	2218	5
10917	CENTRAL VALLEY	1366	3
10514	CHAPPAQUA	11634	24
10516	COLD SPRING	5408	11
10920	CONGERS	8535	17
12518	CORNWALL	6291	13
10567	CORTLANDT MANOR	19584	40
10520	CROTON ON HUDSON	11919	24
10923	GARNERVILLE	8020	16
10524	GARRISON	3845	8
10527	GRANITE SPRINGS	1164	2
10926	HARRIMAN	3375	7
10927	HAVERSTRAW	9916	20
10928	HIGHLAND FALLS	5829	12
10930	HIGHLAND MILLS	7462	15
10535	JEFFERSON VALLEY	248	1
10536	KATONAH	11124	23
10537	LAKE PEEKSKILL	1801	4
10541	MAHOPAC	27015	55
10546	MILLWOOD	1162	2
10547	MOHEGAN LAKE	6490	13
10952	MONSEY	27655	57
10548	MONTROSE	5446	11
10549	MOUNT KISCO	15116	31
10956	NEW CITY	32638	67
10960	NYACK	15514	32
10562	OSSINING	30305	62
10566	PEEKSKILL	21493	44
10970	POMONA	8629	18
10579	PUTNAM VALLEY	9062	19
10588	SHRUB OAK	2217	5
10974	SLOATSBURG	3469	7
10977	SPRING VALLEY	47253	97
10980	STONY POINT	12944	27
10901	SUFFERN	23090	47
10984	THIELLS	4064	8
10986	TOMKINS COVE	1370	3
10989	VALLEY COTTAGE	10483	21
10993	WEST HAVERSTRAW	5653	12
10994	WEST NYACK	8123	17
10996	WEST POINT	8096	17
10598	YORKTOWN HEIGHTS	30095	62
	Totals	**488039**	**1002**

Table F-1. Survey Sampling Plan

3. SURVEY RESULTS

The results of the survey fall into two categories: (1) household demographics; and (2) estimated time to perform certain activities. Demographic information includes household size, automobile ownership, and automobile availability. The estimated times to perform certain pre-evacuation activities formed the basis for developing the trip generation distributions used in the evacuation modeling effort.

3.1 Household Demographic Results

Household Size

Figure F-2 presents the distribution of household size within the EPZ. The average household contains 3.15 people.

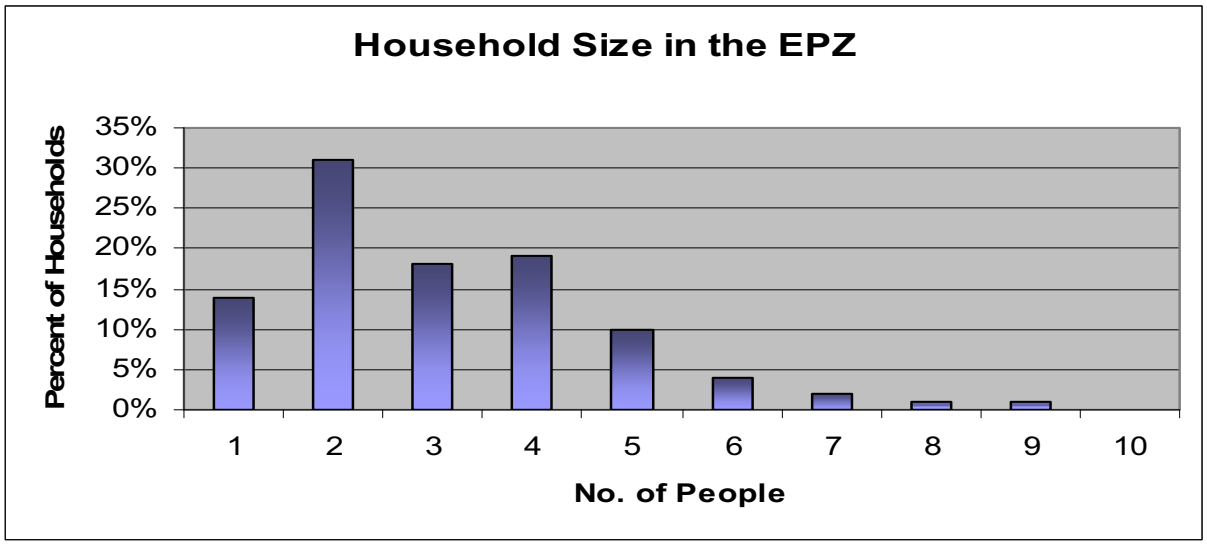


Figure F-2. Household Size in the EPZ

Automobile Ownership

The average number of automobiles per household in the EPZ is 1.98. Approximately 5 percent of households do not have access to an automobile. The distribution of automobile ownership is presented in Figure F-3. Figures F-4 and F-5 present the automobile availability by household size. About one-sixth of all one-person households within the EPZ have no access to a vehicle. As expected, nearly all households of 2 or more people have access to at least one vehicle.

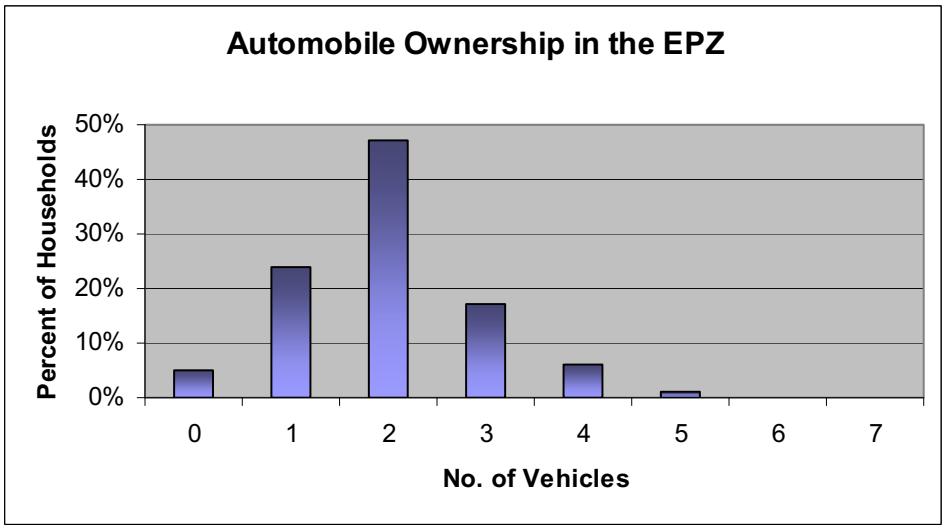


Figure F-3. Automobile Ownership in the EPZ

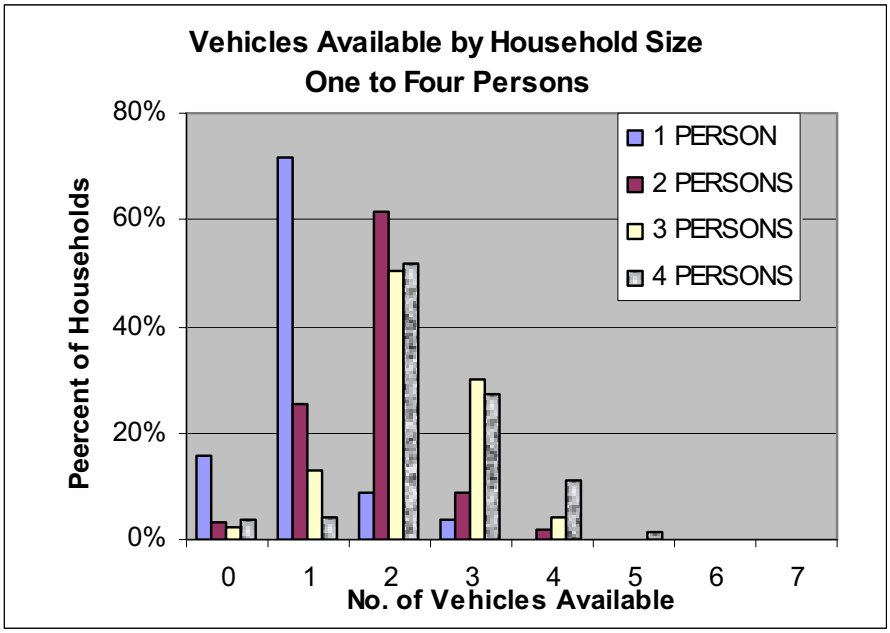


Figure F-4. Vehicle Availability – 1 to 4 Person Households

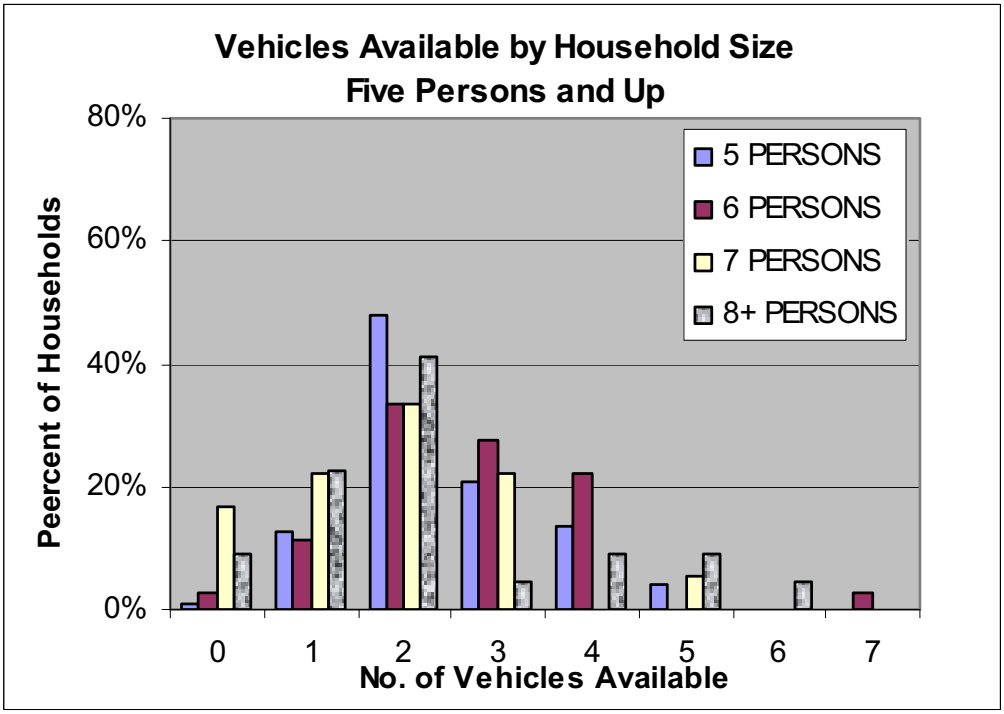


Figure F-5. Vehicle Availability - 5 Person and More Households

School Children

The average number of school children identified by the survey is 0.83 children per EPZ household. Figure F-6 presents the distribution of school children by household.

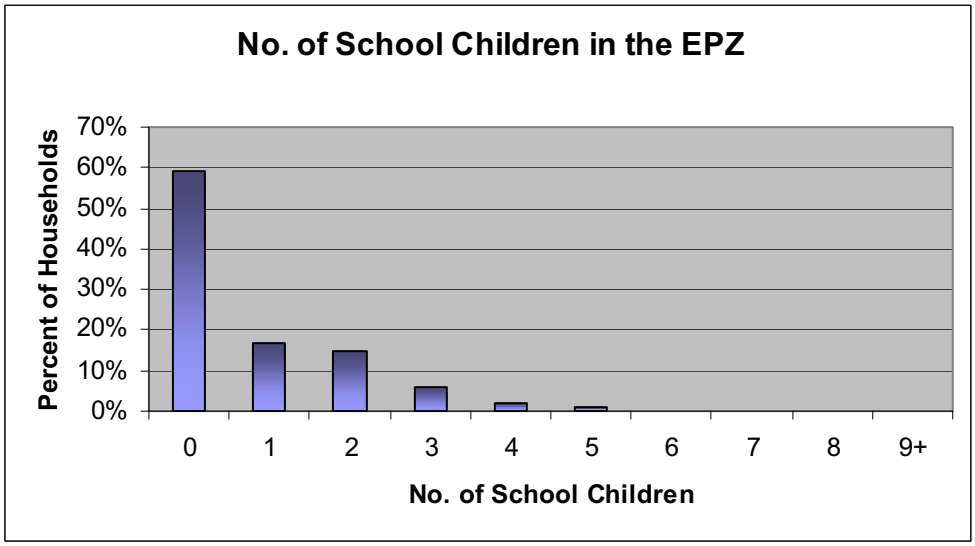


Figure F-6. School Children in Households

Commuters

Figure F-7 presents the distribution of the number of commuters in each household. The data show an average of 1.29 commuters per EPZ household.

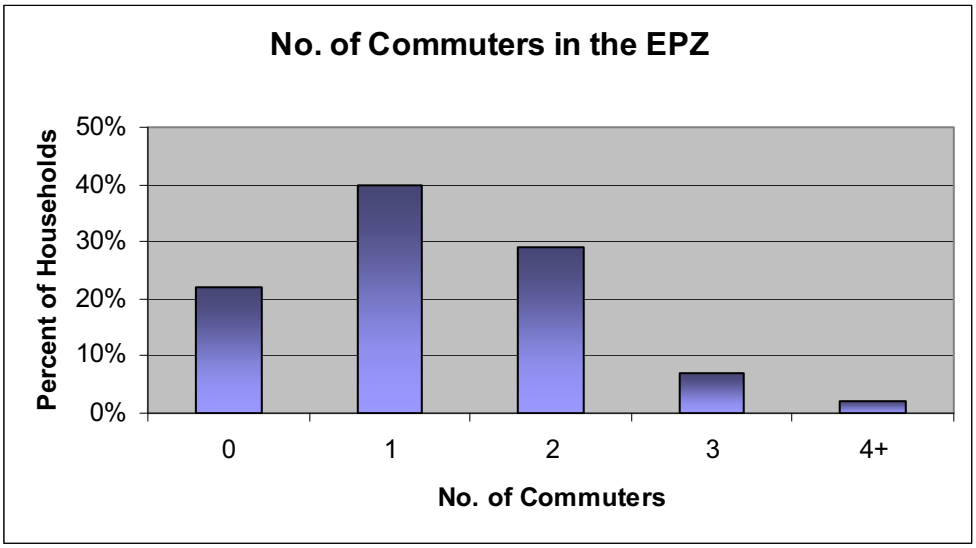


Figure F-7. Commuters in Households in the EPZ

Commuter Travel Modes

Figure F-8 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 or to school. Approximately 93 percent of commuters travel to destinations in New York State; 5 percent travel to New Jersey; and the remainder travel to Connecticut or Pennsylvania.

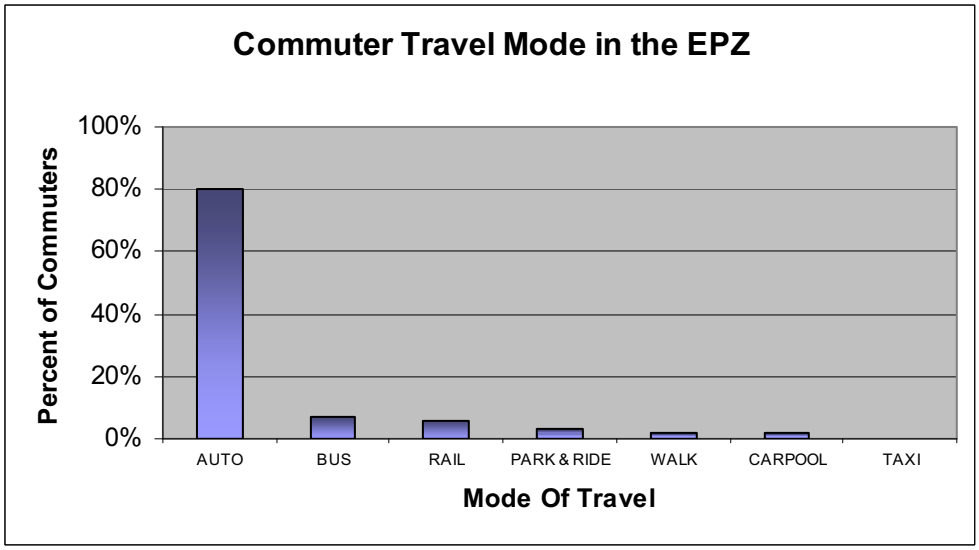


Figure F-8. Modes of Travel in the EPZ

3.2 Evacuation Response

Several questions were asked to gauge the population response to an emergency. The first of these asked **"How many of the vehicles that are usually available to the household, would your family use during an evacuation?"** The response is shown in Figure F-9. On average, 1.26 vehicles would be used per household for evacuation purposes.

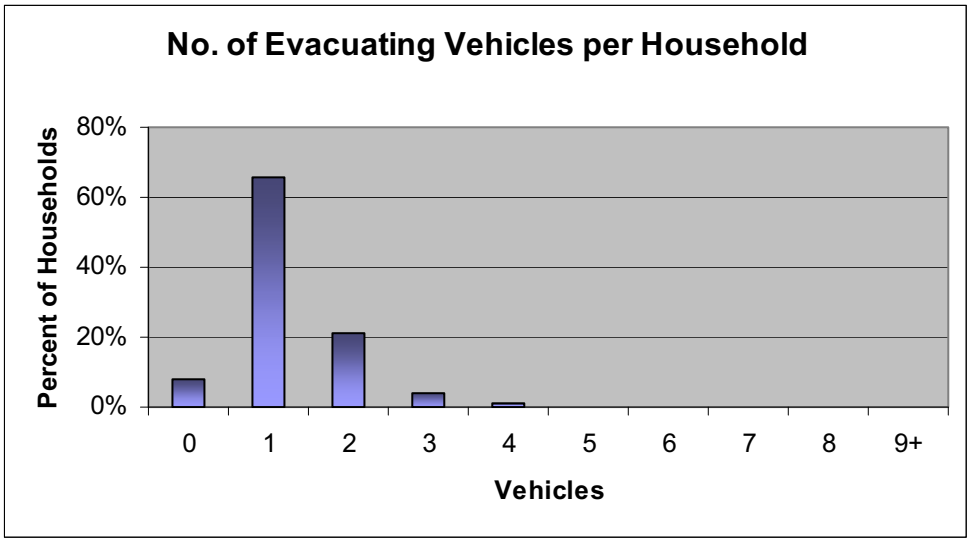


Figure F-9. Number of Vehicles Used for Evacuation

The second evacuation response question asked was **"When the commuters are away from home, is there a vehicle at home that is available for evacuation during any emergency?"** Of the survey participants who responded, 58 percent said that there was another vehicle available to evacuate, while 42 percent answered that there would be no vehicle available for evacuation.

3.3 Time Distribution Results

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

How long does it take the commuter to complete preparation for leaving work? Figure F-10 presents the cumulative distributions by county. About 2 out of 3 commuters complete this activity within 30 minutes.

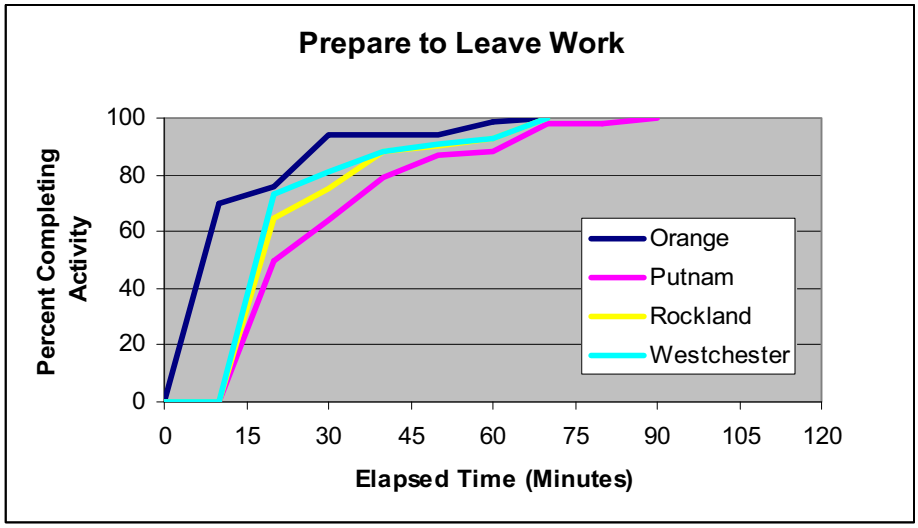


Figure F-10. Preparation to Leave Work

How long would it take the commuter to travel home? Figure F-11 presents the work to home travel time for each county. In all cases, more than 95 percent of commuters can arrive home within 90 minutes of leaving work. Travel time for the 50th percentile ranges from about 15 minutes for commuters from Orange County to about 40 minutes for those from Putnam County.

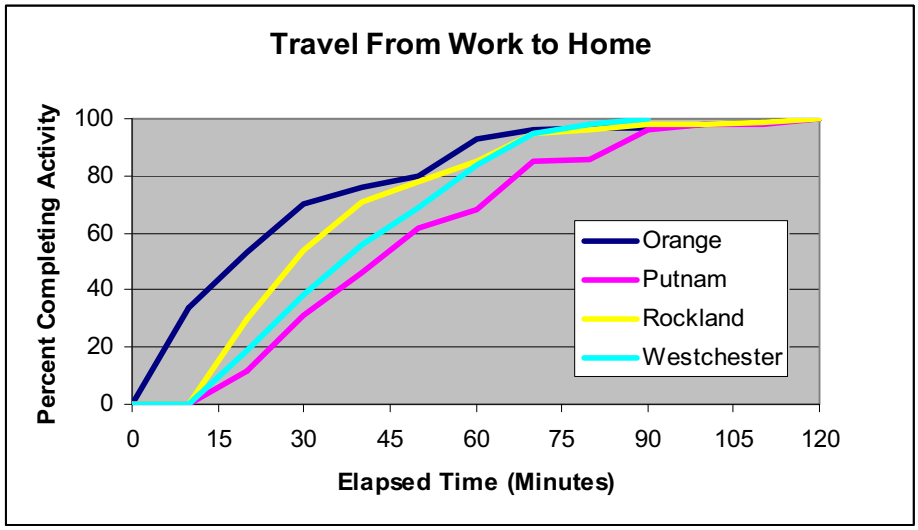


Figure F-11. Work to Home Travel Time

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 complete preparations prior to leaving for an evacuation trip. Figure 12 presents the aggregate of all the counties surveyed.

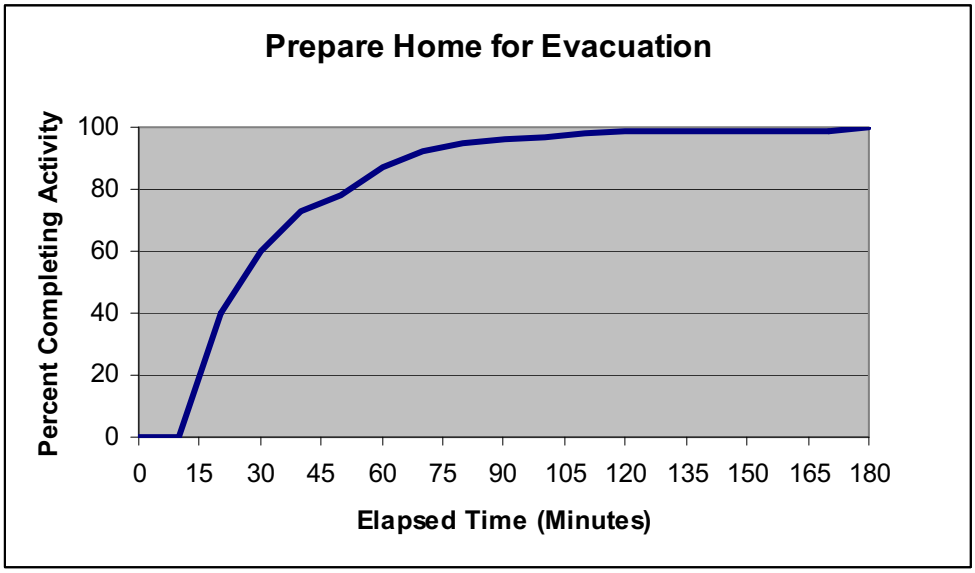


Figure F-12. Time To Prepare Home for Evacuation

The distribution shown in Figure F-12 has a long "tail." Almost 90 percent of all households can be ready to leave home within one hour. However, the remaining 10 percent of households require up to 2-1/2 hours to prepare for a trip.

How long would it take you to clear 6 to 8 inches of snow? During adverse, snow weather conditions an additional activity must 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 would be necessary to clear a private driveway prior to leaving the home so that the vehicle can access the street. Figure F-13 presents these results. The time distribution for clearing the driveway has a long tail; about 90 percent of driveways are passable within 75 minutes. However, the last driveway is not cleared almost 3 hours after the start of this activity.

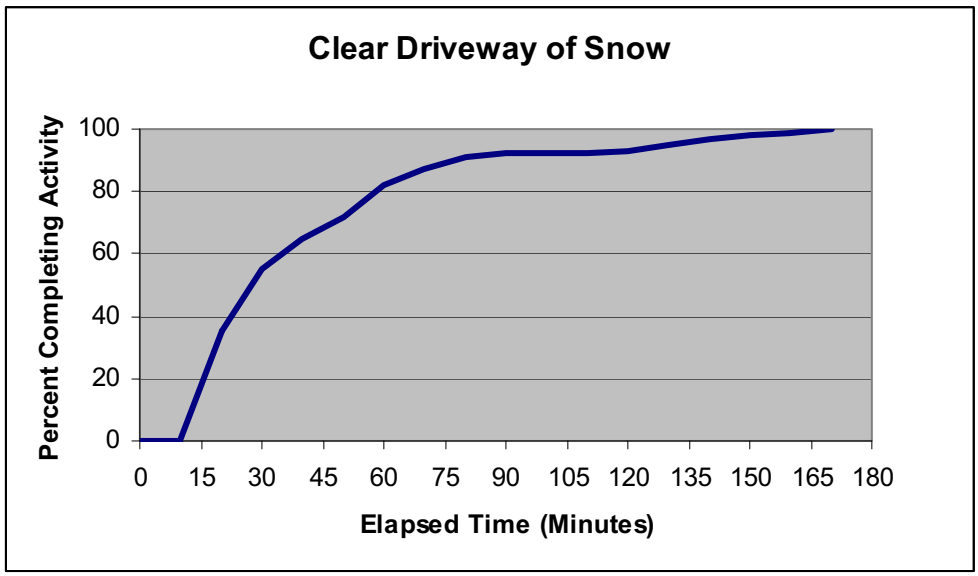


Figure F-13. Time to Clear Driveways of Snow

Annex A

Survey Instrument

Hello, my name is _____ and I'm working on a survey being made for [insert marketing firm name] designed to identify local travel patterns in your area. The information obtained will be used in a traffic engineering study and in connection with an update of the county's emergency response plans. Your participation in this survey will greatly enhance the county's emergency preparedness program.

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)

DO NOT ASK:

1. Record exchange number. To Be Determined

   COL. 9-11

---

2. In total, how many cars, or other vehicles are usually available to the household? (DO NOT READ ANSWERS.)

COL.12
1 ONE
2 TWO
3 THREE
4 FOUR
5 FIVE
6 SIX
7 SEVEN
8 EIGHT
9 NINE OR MORE
0 ZERO (NONE)
X REFUSED

---

3. How many people usually live in this household? (DO NOT READ ANSWERS.)

COL.13
1 ONE
2 TWO
3 THREE
4 FOUR
5 FIVE
6 SIX
7 SEVEN
8 EIGHT
9 NINE

COL.14
0 TEN
1 ELEVEN
2 TWELVE
3 THIRTEEN
4 FOURTEEN
5 FIFTEEN
6 SIXTEEN
7 SEVENTEEN
8 EIGHTEEN
9 NINETEEN OR MORE
X REFUSED

4. How many children living in this household go to local public, private, or parochial schools? (DO NOT READ ANSWERS.)

COL.15	
0	ZERO
1	ONE
2	TWO
3	THREE
4	FOUR
5	FIVE
6	SIX
7	SEVEN
8	EIGHT
9	NINE OR MORE
X	REFUSED

5. How many people in the household commute to a job, or to college, at least 4 times a week?

COL.16		SKIP TO
0	ZERO	Q. 11
1	ONE	Q. 6
2	TWO	Q. 6
3	THREE	Q. 6
4	FOUR OR MORE	Q. 6
5	DON'T KNOW/REFUSED	Q. 11

INTERVIEWER: For each person identified in Question 5, ask Questions 6, 7, 8, and 9.

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

	Commuter #1 COL.17	Commuter #2 COL.18	Commuter #3 COL.19	Commuter #4 COL.20
Rail	1	1	1	1
Bus	2	2	2	2
Walk/Bicycle	3	3	3	3
Driver Car/Van	4	4	4	4
Park & Ride (Car/Rail, Xpress_bus)	5	5	5	5
Driver Carpool-2 or more people	6	6	6	6
Passenger Carpool-2 or more people	7	7	7	7
Taxi	8	8	8	8
Refused	9	9	9	9

7. What is the name of the city, town or community in which Commuter #1 works or attends school? (REPEAT QUESTION FOR EACH COMMUTER.) (FILL IN ANSWER.)

COMMUTER #1			COMMUTER #2			COMMUTER #3			COMMUTER #4		
City/Town		State	City/Town		State	City/Town		State	City/Town		State
COL.21	COL.22	COL.23	COL.24	COL.25	COL.26	COL.27	COL.28	COL.29	COL.30	COL.31	COL.32
0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9

8. How long would it take Commuter #1 to travel home from work or college? (REPEAT QUESTION FOR EACH COMMUTER.) (DO NOT READ ANSWERS.)

COMMUTER #1

COL.33		COL.34	
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

COMMUTER #2

COL.35		COL.36	
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

COMMUTER #3

COL.37		COL.38	
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

COMMUTER #4

COL.39		COL.40	
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. Approximately how long 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

COL. 41		COL. 42	
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

COMMUTER #2

COL. 43		COL. 44	
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

COMMUTER #3

COL. 45		COL. 46	
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

COMMUTER #4

COL. 47		COL. 48	
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

When the commuters are away from home, is there a vehicle at home that is available for evacuation during any emergency?

Col. 49
1 Yes
2 No
3 Don't Know/Refused

10. Would you await the return of family members prior to evacuating the area?

Col. 50
1 Yes
2 No
3 Don't Know/Refused

11. How many of the vehicles that are usually available to the household would your family 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 REFUSED

13. How long would it take the family to pack clothing, secure the house, load the car, and complete preparations prior to evacuating the area? (DO NOT READ ANSWERS.)

COL.52
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

COL.53
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 15 MINUTES
0 5 HOURS 16 MINUTES TO 5 HOURS 30 MINUTES
X 5 HOURS 31 MINUTES TO 5 HOURS 45 MINUTES
Y 5 HOURS 46 MINUTES TO 6 HOURS

COL.54
1 DON'T KNOW

13A. How long would it take you to clear 6-8" of snow to move the car from the driveway or curb to begin the evacuation trip? Assume the roads are passable.
(DO NOT READ RESPONSES.)

COL.55

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

COL.56

1 MORE THAN 3 HOURS
2 DON'T KNOW

Thank you very much. _____
(TELEPHONE NUMBER CALLED)

If requested:

For Additional information

Contact your County Emergency Management Office

ANNEX B
Code of Data Collection Standards With Notes Section
Market Research Association

P.O. Box 230 • Rocky Hill, CT 06067-0230 • 860-257-4008 • Fax: 860-257-3990

Code Approved May 1997
Notes Added September 1999

RESPONSIBILITIES TO RESPONDENTS

Data Collection Companies ...

1. will make factually correct statements to secure cooperation and will honor promises to respondents, whether verbal or written;
2. will not use information to identify respondents without the permission of the respondent, except to those who check the data or are involved in processing the data. If such permission is given, it must be recorded by the interviewer at the time the permission is secured;
3. will respect the respondent's right to withdraw or to refuse to cooperate at any stage of the study and not use any procedure or technique to coerce or imply that cooperation is obligatory;
4. will obtain and document respondent consent when it is known that the name and address or identity of the respondent may be passed to a third party for legal or other purposes, such as audio or video recordings;
5. will obtain permission and document consent of a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger;
6. will give respondents the opportunity to refuse to participate in the research when there is a possibility they may be identifiable even without the use of their name or address (e.g., because of the size of the population being sampled).

Interviewers ...

1. will treat the respondent with respect and not influence him or her through direct or indirect attempts, including the framing of questions and/or a respondent's opinion or attitudes on any issue;
2. will obtain and document permission from a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger. Prior to obtaining permission, the interviewer should divulge the subject matter, length of the interview and other special tasks that will be required.

RESPONSIBILITIES TO CLIENTS

Data Collection Companies ...

1. will ensure that each study is conducted according to the client's exact specifications;
2. will observe confidentiality with all research techniques or methodologies and with information considered confidential or proprietary. Information will not be revealed that could be used to identify clients or respondents without proper authorization;
3. will ensure that companies, their employees and subcontractors involved in data collection take all reasonable precautions so that more than one survey is not conducted in one interview without explicit permission from the Client
4. will report research results accurately and honestly;
5. will not misrepresent themselves as having qualifications, experience, skills or facilities that they do not possess;
6. will refrain from referring to membership in the Marketing Research Association as proof of competence, since the Association does not certify any person's or organization's competency or skill level.

RESPONSIBILITIES TO DATA COLLECTORS

Clients ...

1. will be responsible for providing products and services that are safe and fit or their intended use and disclose/label all product contents;
2. will provide verbal or written instructions;
3. will not ask our members who subcontract research to engage in any activity that is not acceptable as defined in this Code or that is prohibited under any applicable federal, state, local laws, regulations and/or ordinances.

RESPONSIBILITIES TO THE GENERAL PUBLIC AND BUSINESS COMMUNITY

Data Collection Companies ...

1. will not intentionally abuse public confidence in marketing and opinion research;
2. will not represent a non-research activity to be marketing and opinion research, such as:
    - questions whose sole objective is to obtain personal information about respondents, whether for legal, political, private or other purposes,

- the compilation of lists, registers or data banks of names and addresses for any non-research purposes (e.g., canvassing or fundraising),
- industrial, commercial or any other form of espionage,
- the acquisition of information for use by credit rating services or similar organizations,
- sales or promotional approaches to the respondent,
- the collection of debts;

3. will make interviewers aware of any special conditions that may be applicable to any minor (18 years old or younger).

These notes are intended to help users of the Code to interpret and apply it in practice. Any questions about how to apply the Code in a specific situation should be addressed to MRA Headquarters.

RESPONSIBILITIES TO RESPONDENTS

Data Collection Companies ...

1. will make factually correct statements to secure cooperation and honor promises to respondents, whether oral or written; *Interviewers will not knowingly provide respondents with information that misrepresents any portion of the interviewing process, such as; length of the interview, scope of task involved, compensation, or intended use of the information collected.*
2. will not use information to identify respondents without the permission of the respondent, except to those who check the data or are involved in processing the data. If such permission is given, it must be recorded by the interviewer at the time the permission is secured; *Respondent information will be linked to data collected only for research purposes such as validation, evaluating data in aggregate based on demographic information, modeling. Providing respondent information is not permissible for any purpose other than legitimate research purposes as mentioned above. If anyone requests respondent identifiable information it will only be provided upon receipt of written declaration of and agreement of some intended use. Such use shall be determined by the provider to qualify as legitimate research use. (i.e. validation, planned recalls, modeling, demographic analysis.) No other use of this information falls within the boundaries of the Code. This applies to all types of respondent sample sources including client supplied lists.*
3. will respect the respondent's right to withdraw or to refuse to cooperate at any stage of the study and not use any procedure or technique to coerce or imply that cooperation is obligatory. *Respondent cooperation is strictly on a voluntary basis. Respondents are entitled to withdraw from an interview at any stage or to refuse to cooperate in a research project. Interviewers should never lead respondents to believe they have no choice in their participation.*
4. will obtain and record respondent consent when it is known that the name and addresses or identity of the respondent may be passed to a third party for legal or other purposes, such as audio or video recordings; *By documenting the respondent's consent for a defined specific use of his/ her name and address we are confirming the respondent realizes we are asking something new of them, i.e., possible participation in another research project.*
5. will obtain permission and document consent of a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger; *Interviewers must take special care when interviewing children or young people. The informed consent of the parent or responsible adult must first be obtained for interviews with children.*
6. will give respondents the opportunity to refuse to participate in the research when there is a possibility they may be identifiable even without the use of their name or address (e.g., because of the size of the population being sampled.) *Respondent cooperation is strictly on a voluntary basis. Respondents are entitled to withdraw from a research project. Company policies and/or interviewer instructions should state the interviewer must give respondents the opportunity to not participate for any reason.*

Interviewers ...

1. will treat the respondent with respect and not influence him or her through direct or indirect attempts, including the framing of questions, a respondent's opinion or attitudes on any issue. *Interviewers cannot ask questions in a way that leads or influences respondents' answers, nor can they provide their own opinions, thoughts or feelings that might bias a respondent and therefore impact the answers they give.*
2. will obtain and document permission of a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger. Prior to obtaining permission, the interviewer should divulge the subject matter, length of interview and other special tasks that will be required. *Interviewers must take special care when interviewing children and young people. The informed consent of the parent or responsible adult must first be obtained for interviews with children. Parents or responsible adults must be told some specifics about the interview process and special tasks, such as audio or video recording, taste testing, respondent fees and special tasks, before permission is obtained.*

RESPONSIBILITIES TO CLIENTS

Data Collection Companies ...

1. will ensure that each study is conducted according to the client's specifications; *Procedures are implemented to conform or verify that client specifications are being followed.*
2. will observe confidentiality with all research techniques or methodologies and with information considered confidential or proprietary. Information will not be revealed that could be used to identify clients or respondents without proper authorization; *Respondent information will be linked to data collected only for research purposes and will not be used for any purpose other than legitimate research. Protect the confidentiality of anything learned about the respondent and/or his or her business.*
3. will ensure that companies, their employees and subcontractors involved in data collection take all reasonable precautions so that no more than one survey is conducted in one interview without explicit permission from the sponsorship company or companies; *Company policies or procedures indicate the practice of conducting more than one survey within an interview is not done without specific permission from the relevant clients.*
4. will report research results accurately and honestly; *Describe how the research was done in enough detail that a skilled researcher could repeat the study; provide data representative of a defined population or activity and enough data to yield projectable results; present the results understandably and fairly, including any results that may seem contradictory or unfavorable.*
5. will not misrepresent themselves as having qualifications, experience, skills or facilities that they do no possess; *If regularly subcontracting data collection, should not infer to clients and prospective clients that they possess this capability "in house"; claim only legitimate academic degrees, clients and other qualifications.*
6. will refrain from referring to membership in the Marketing Research Association as proof of competence, since the Association does not certify any person's or organization's competency or skill level. *MRA does not currently have a certification program for marketing research competency, therefore while members can state their membership in the Association, they cannot claim that this automatically conveys a message of their competency to carry out the marketing research process.*

RESPONSIBILITIES TO DATA COLLECTORS

Clients ...

1. will be responsible for providing products and services that are safe and fit for their intended use and disclose/label all product contents; *It is the client's responsibility to ensure that all test products are in compliance with all safety standards and that all product contents information is provided to the data collectors. Data Collectors should request in writing all pertinent information as well as emergency numbers for respondents and themselves.*
2. will provide oral or written instructions; *To ensure the success of the research, detailed instructions are to be provided prior to the start of any project. These instructions must be written and then confirmed orally for: understanding, ability of the agency to implement and agreement to comply.*
3. will not ask our members who subcontract research to engage in any activity that is not acceptable as defined in this Code or that is prohibited under any applicable federal, state and local laws, regulations and ordinances. *All MRA Members have agreed to comply with the Code as written and thus will not agree to, or ask anyone else to, knowingly violate any of the points of the Code.*

RESPONSIBILITIES TO THE GENERAL PUBLIC AND BUSINESS COMMUNITY

Data Collection Companies ...

1. will not intentionally abuse public confidence in marketing and opinion research; *Marketing research shall be conducted and reported for the sole purpose of providing factual information upon which decisions will be made. At no time is marketing research information to be used to intentionally mislead public opinion. Instances of abuse of public confidence undermine the credibility of our Industry.*
2. will not represent a non-research activity to be marketing and opinion research, such as:
    - questions whose sole objective is to obtain personal information about respondents, whether for legal, political, private or other purposes,
    - the compilation of lists, registers or data banks of names and addresses for any non-research purposes (e.g., canvassing or fundraising),
    - industrial, commercial or any other form of espionage,
    - the acquisition of information for use by credit rating services or similar organizations,
    - sales or promotional approaches to the respondent,

APPENDIX G

Traffic Management Plan Schematics

APPENDIX G: TRAFFIC MANAGEMENT PLAN SCHEMATICS

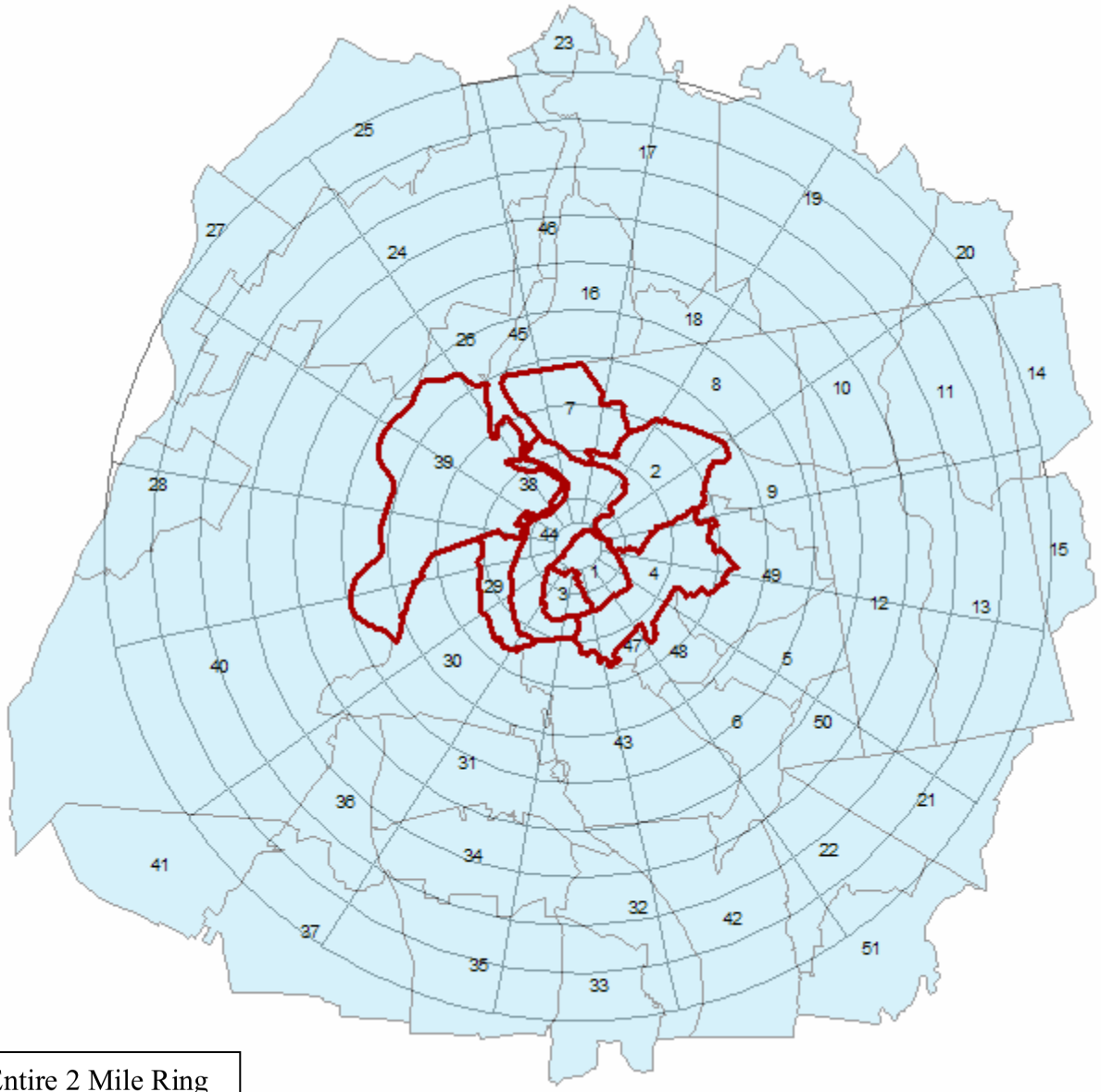
The schematics for each county along with overhead photos, maps, identifying the location of each TCP, and a spreadsheet summarizing the equipment needed at each TCP have been bound and distributed to each county in the EPZ. In addition, a CD-ROM containing the schematics, overhead photos, maps, and spreadsheets was distributed to each county. Master CD-ROMS containing the traffic management plan for all four counties were provided to IPEC, NYS and FEMA.

APPENDIX H

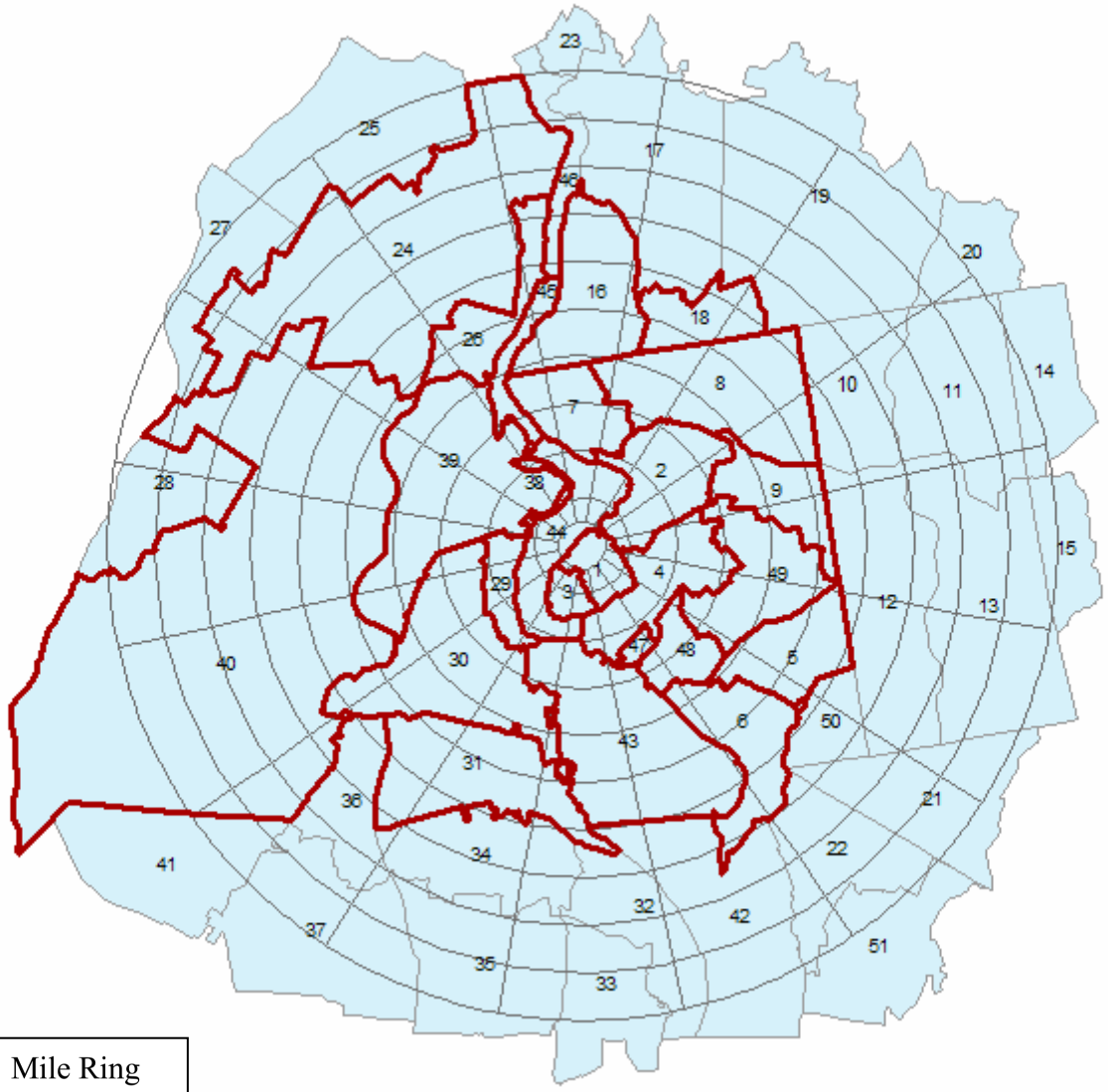
Evacuation Region Maps

APPENDIX H: EVACUATION REGION MAPS

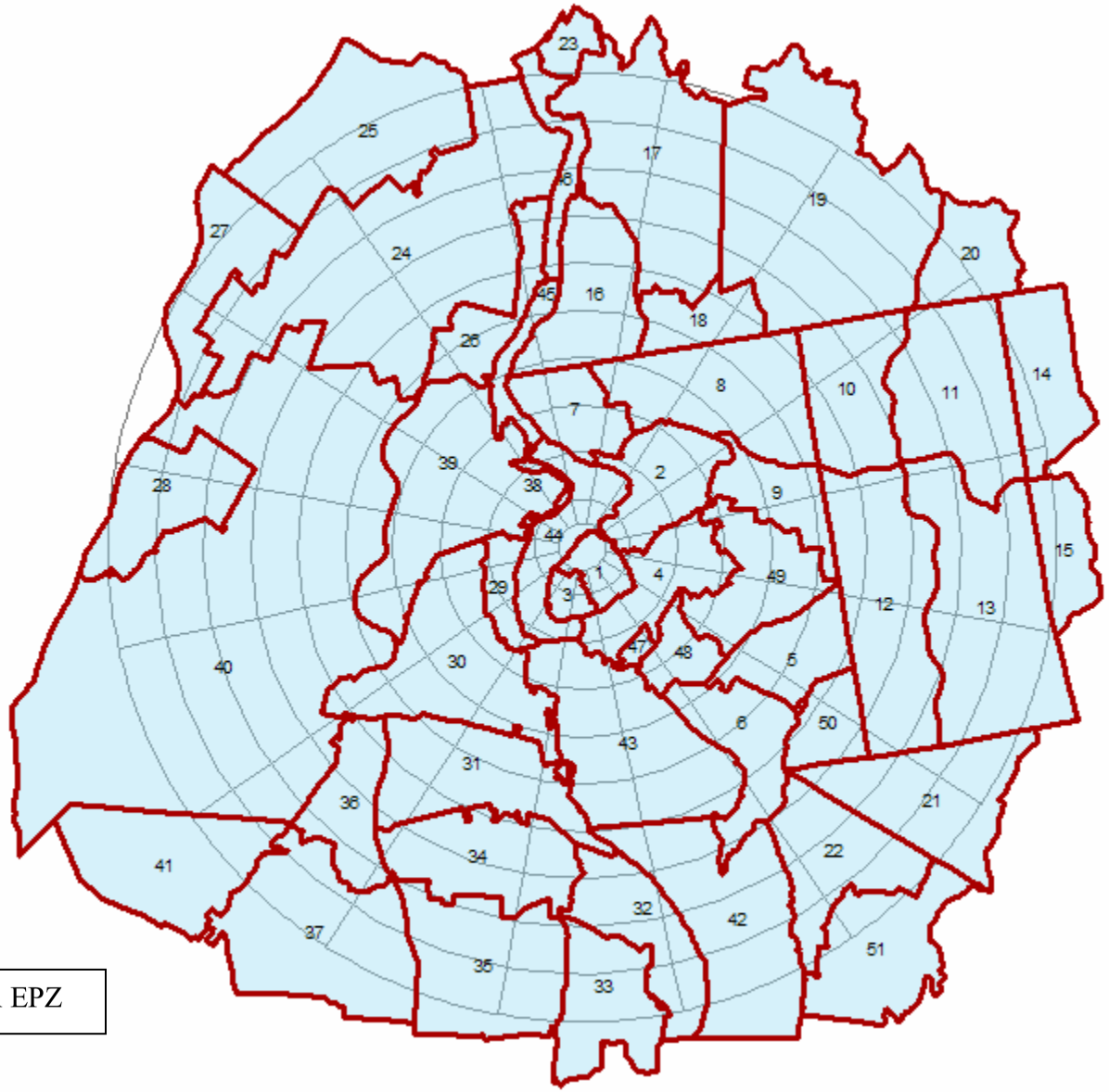
This appendix presents maps of all evacuation regions.



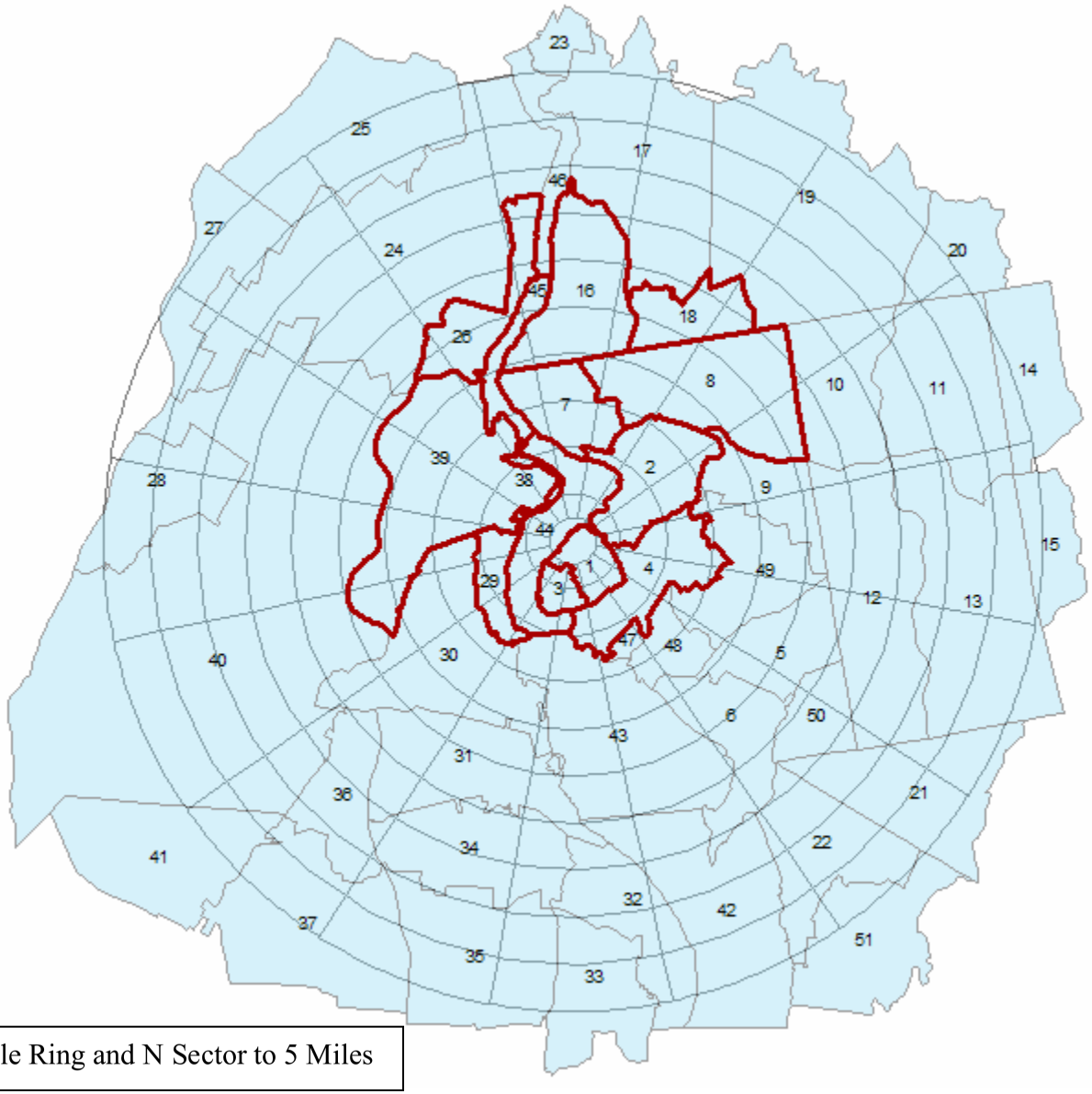
Region 1: Entire 2 Mile Ring



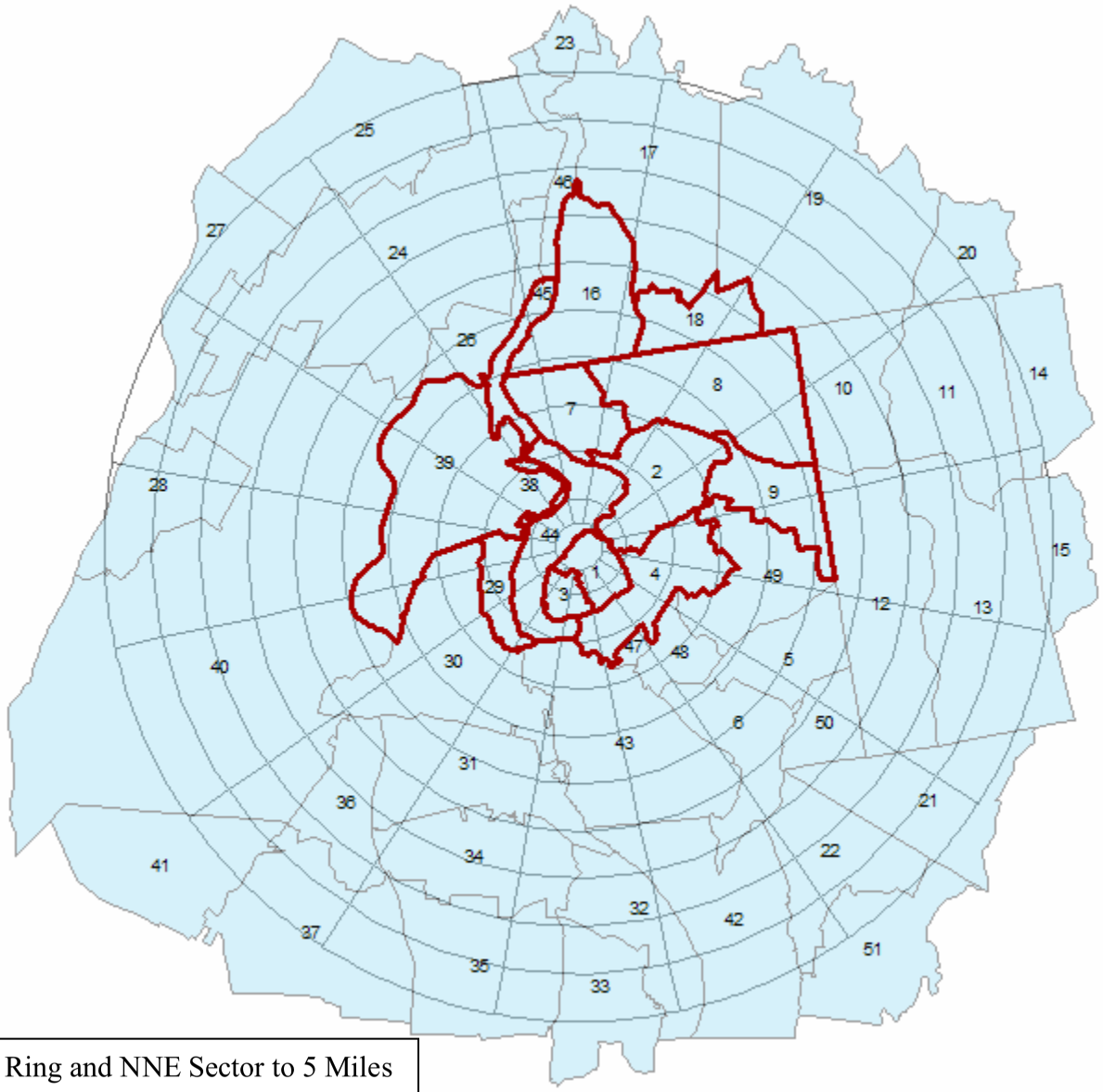
Region 2: Entire 5 Mile Ring



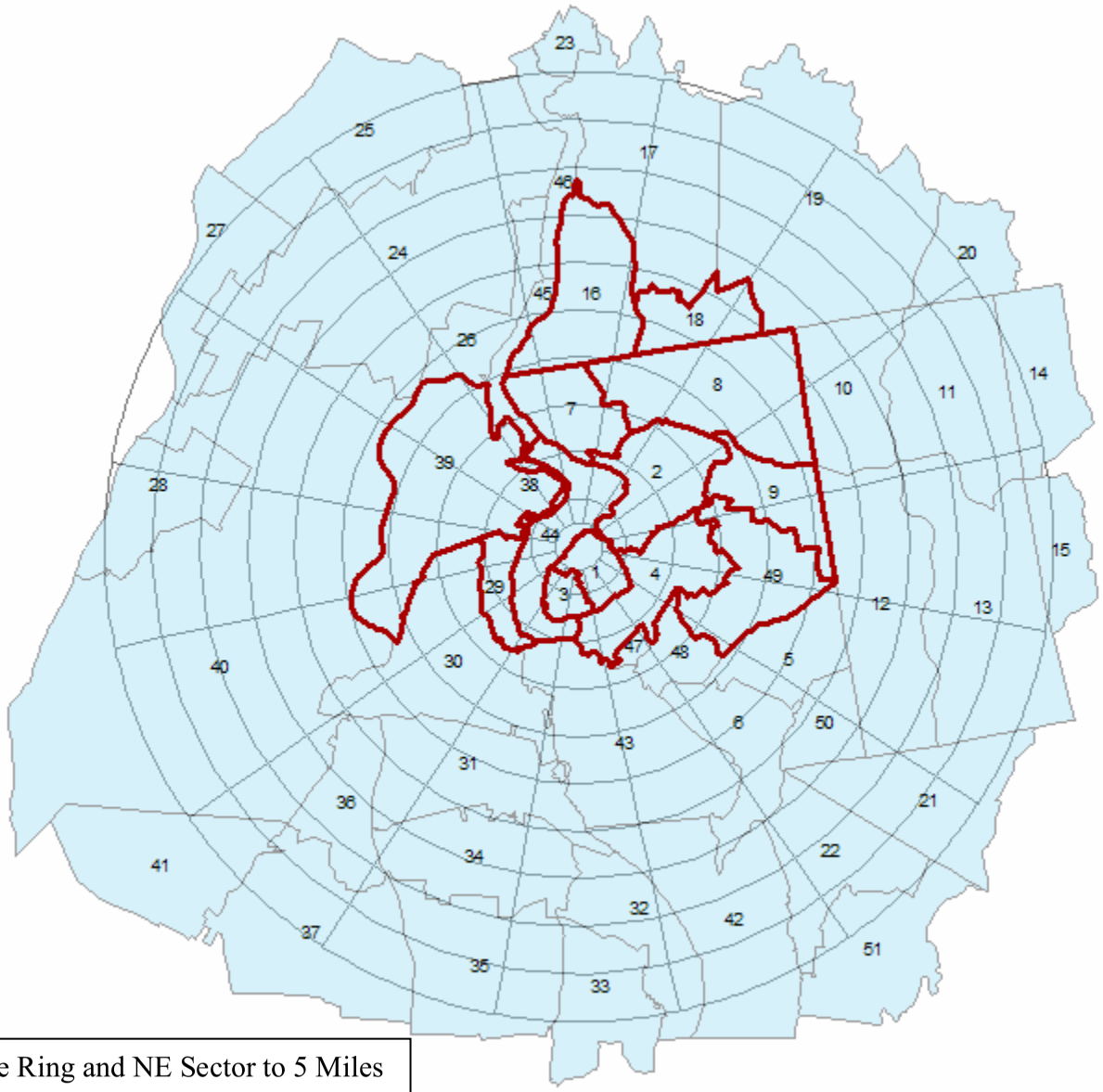
Region 3: Full EPZ



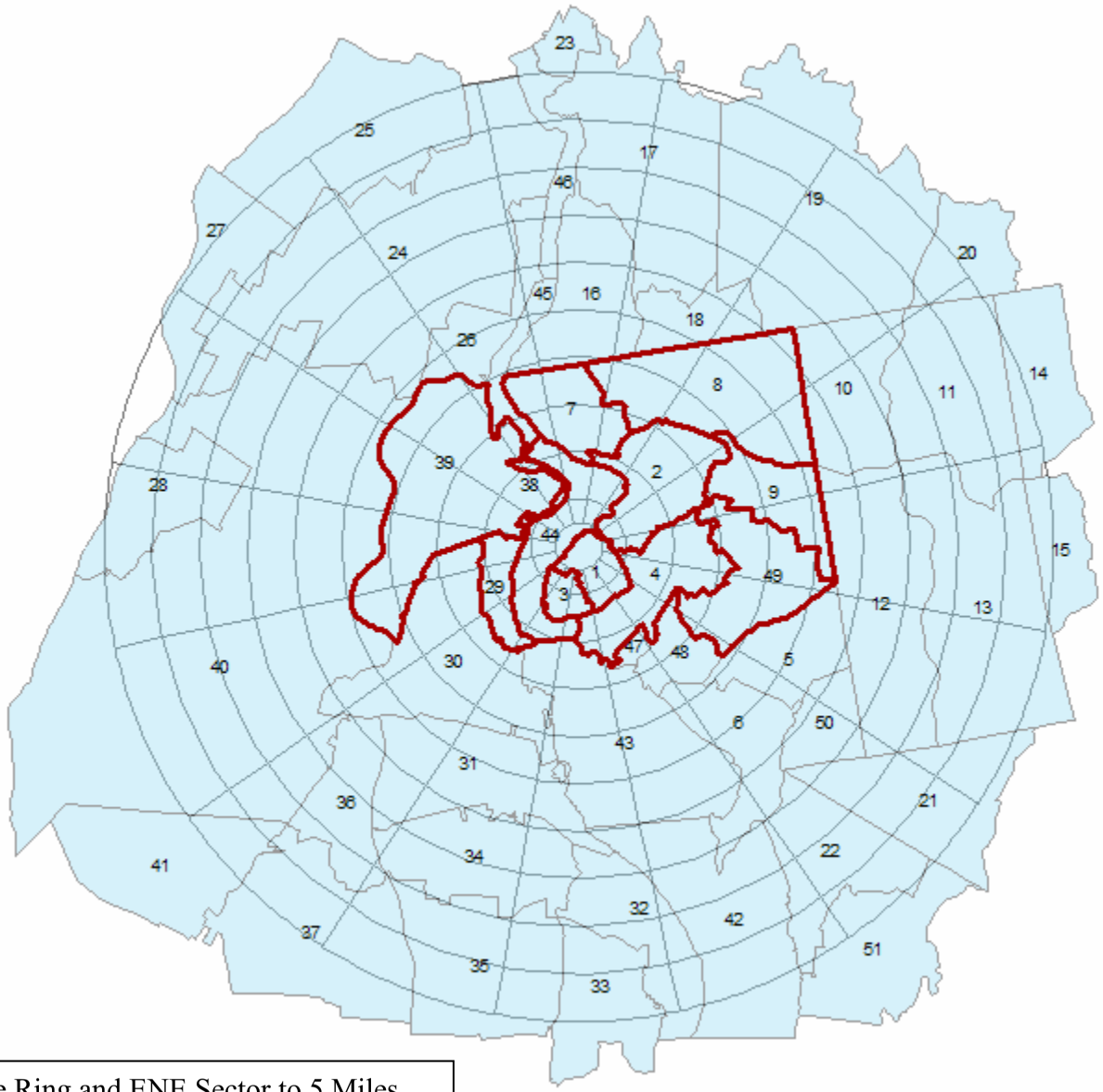
Region 4: 2 Mile Ring and N Sector to 5 Miles



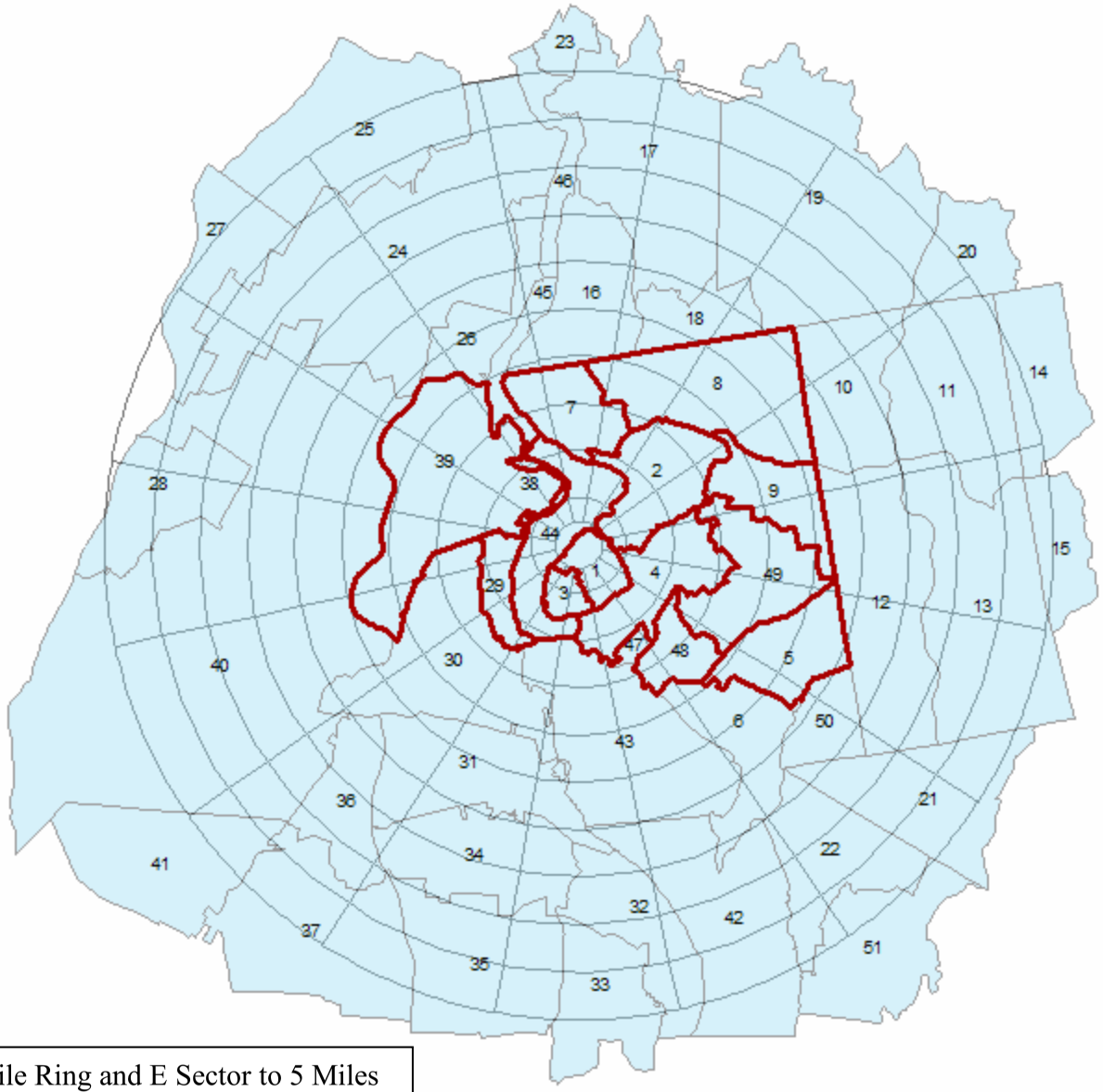
Region 5: 2 Mile Ring and NNE Sector to 5 Miles



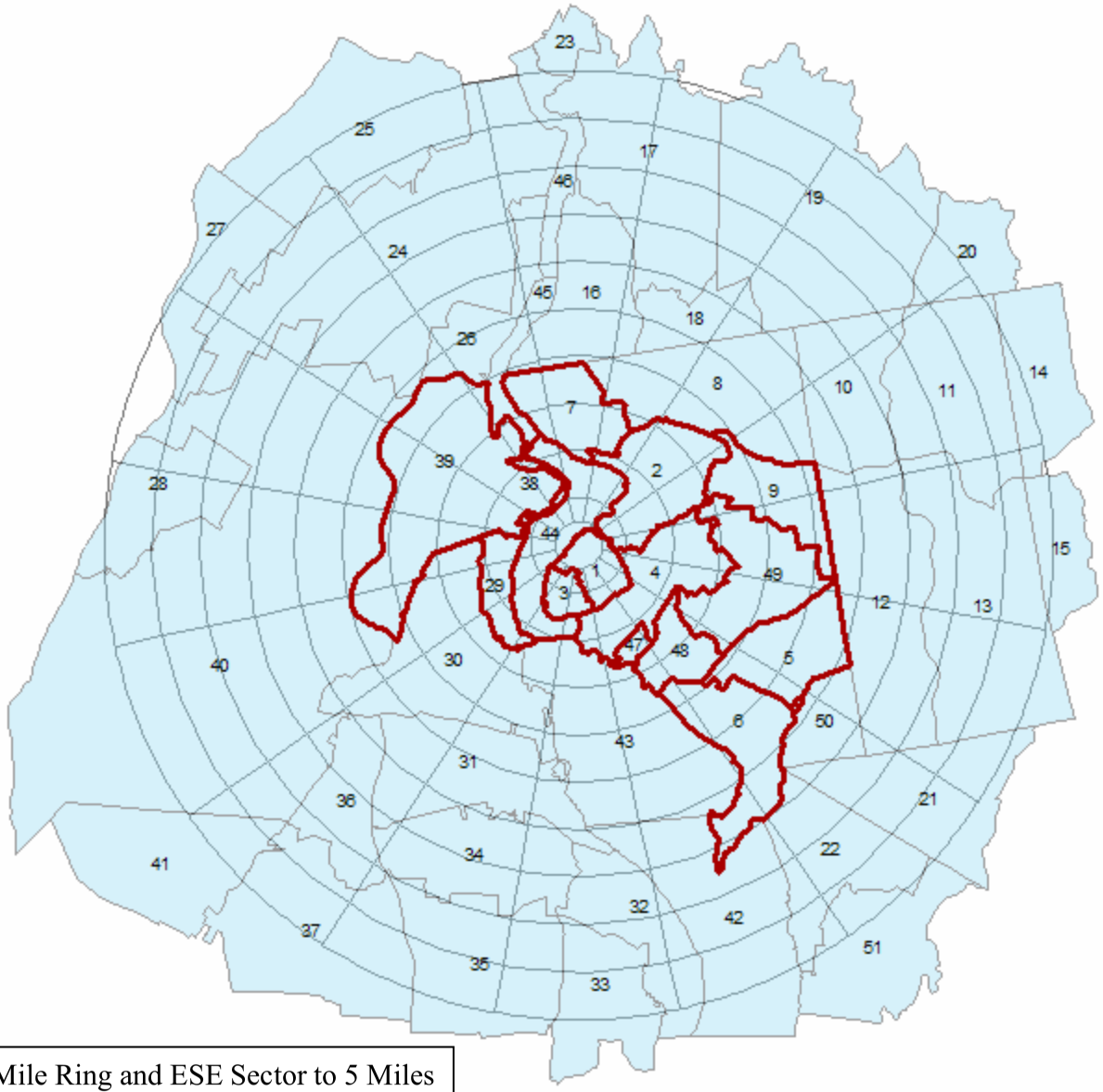
Region 6: 2 Mile Ring and NE Sector to 5 Miles



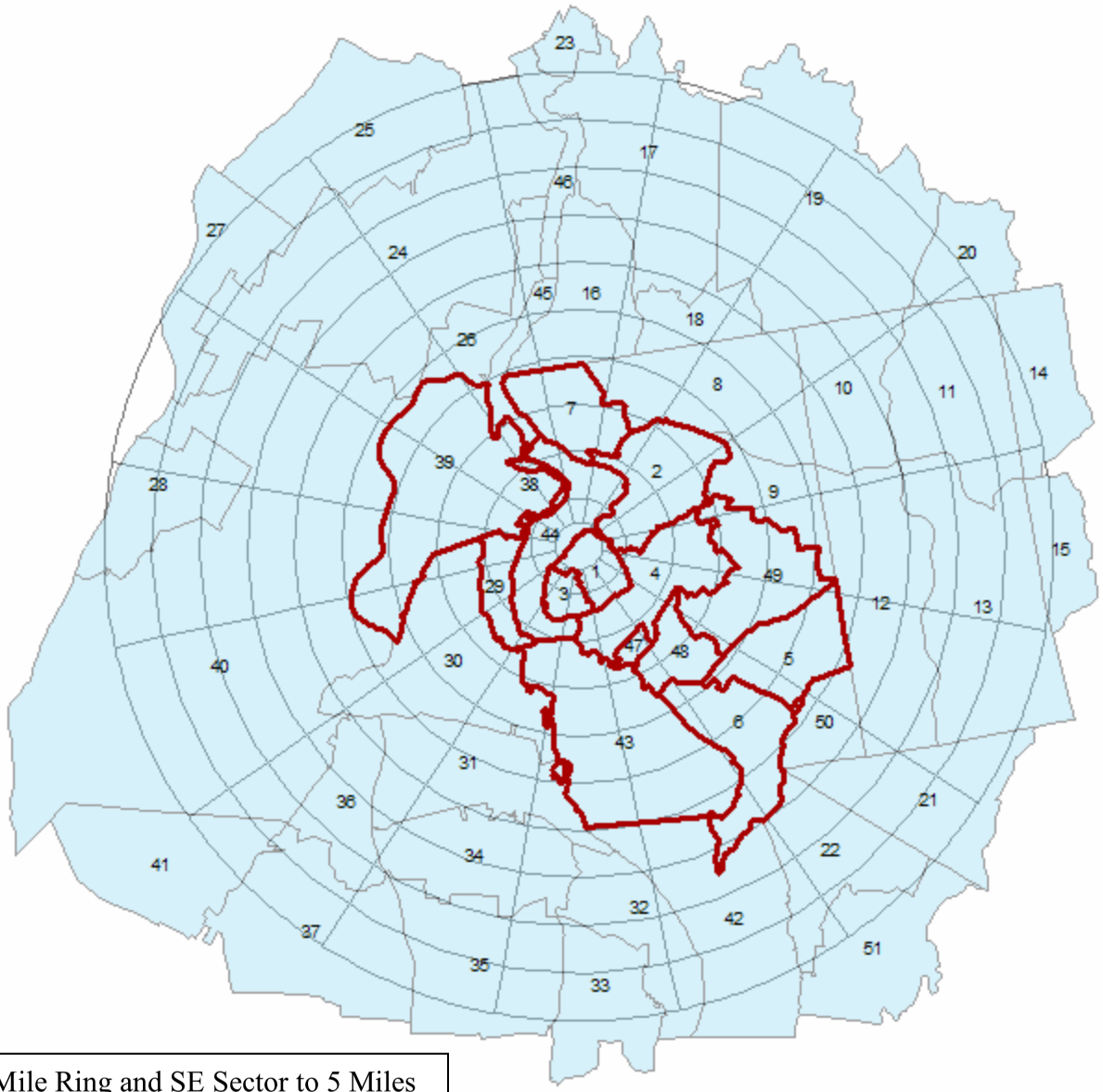
Region 7: 2 Mile Ring and ENE Sector to 5 Miles



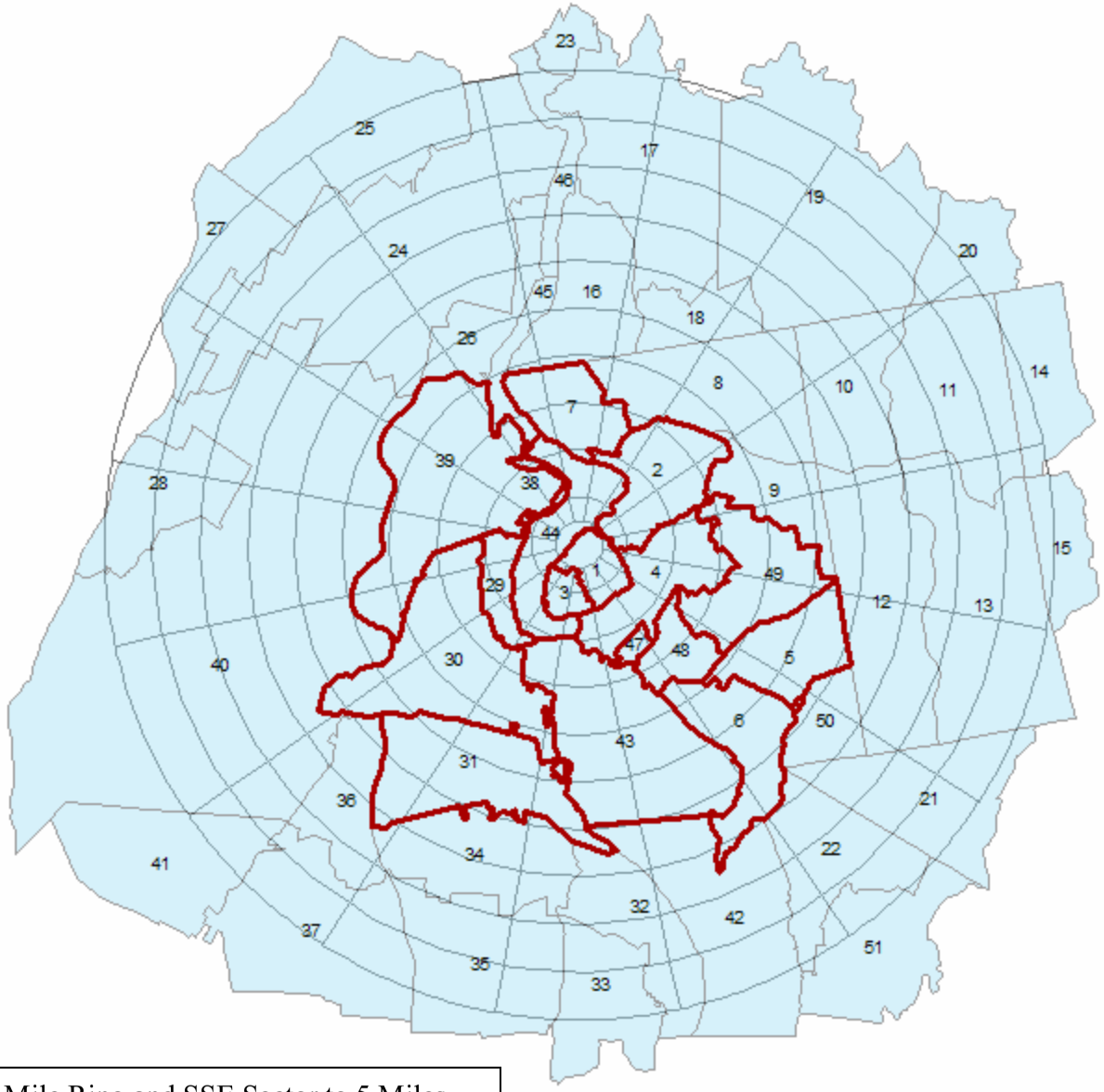
Region 8: 2 Mile Ring and E Sector to 5 Miles



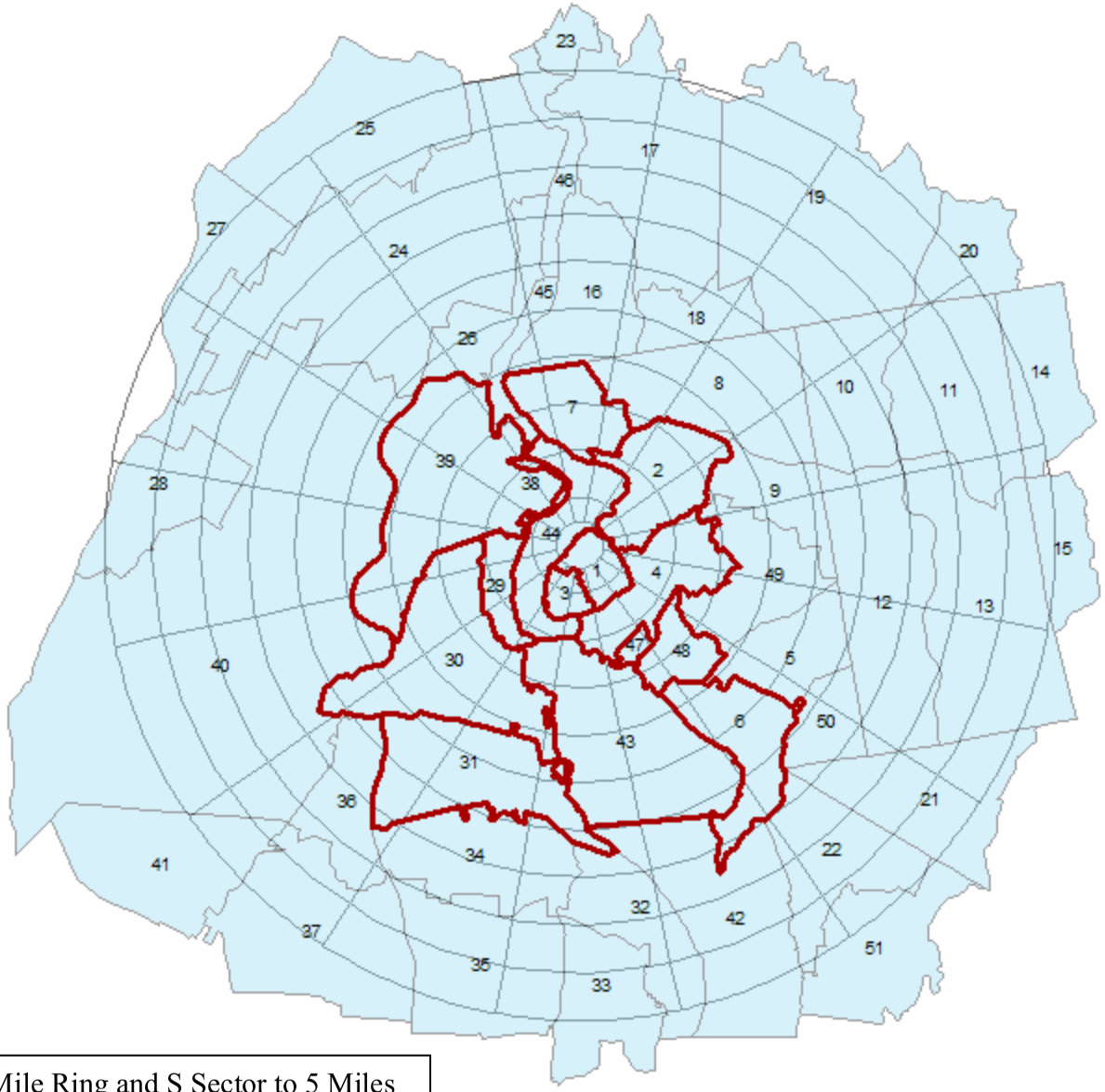
Region 9: 2 Mile Ring and ESE Sector to 5 Miles



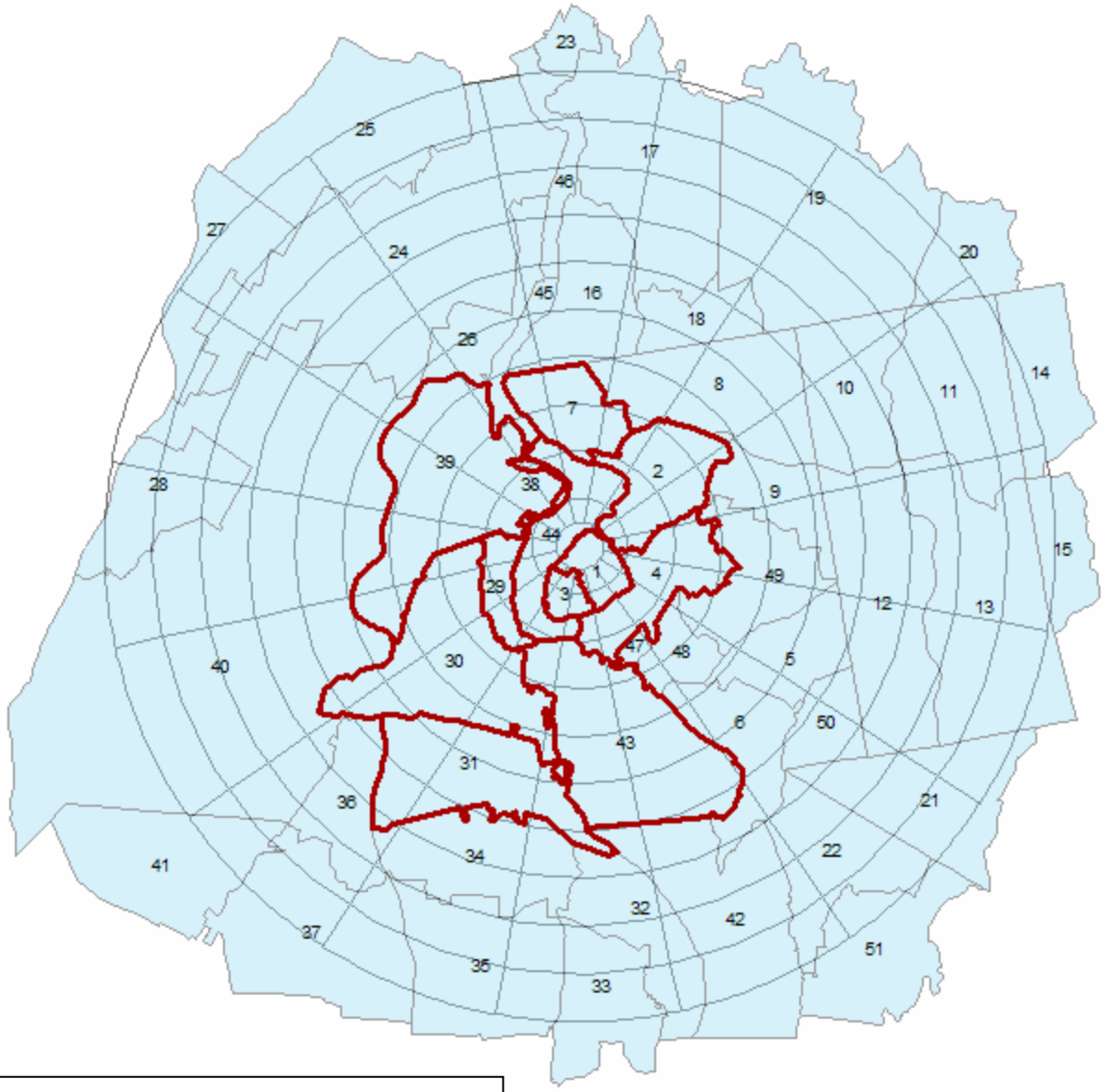
Region 10: 2 Mile Ring and SE Sector to 5 Miles



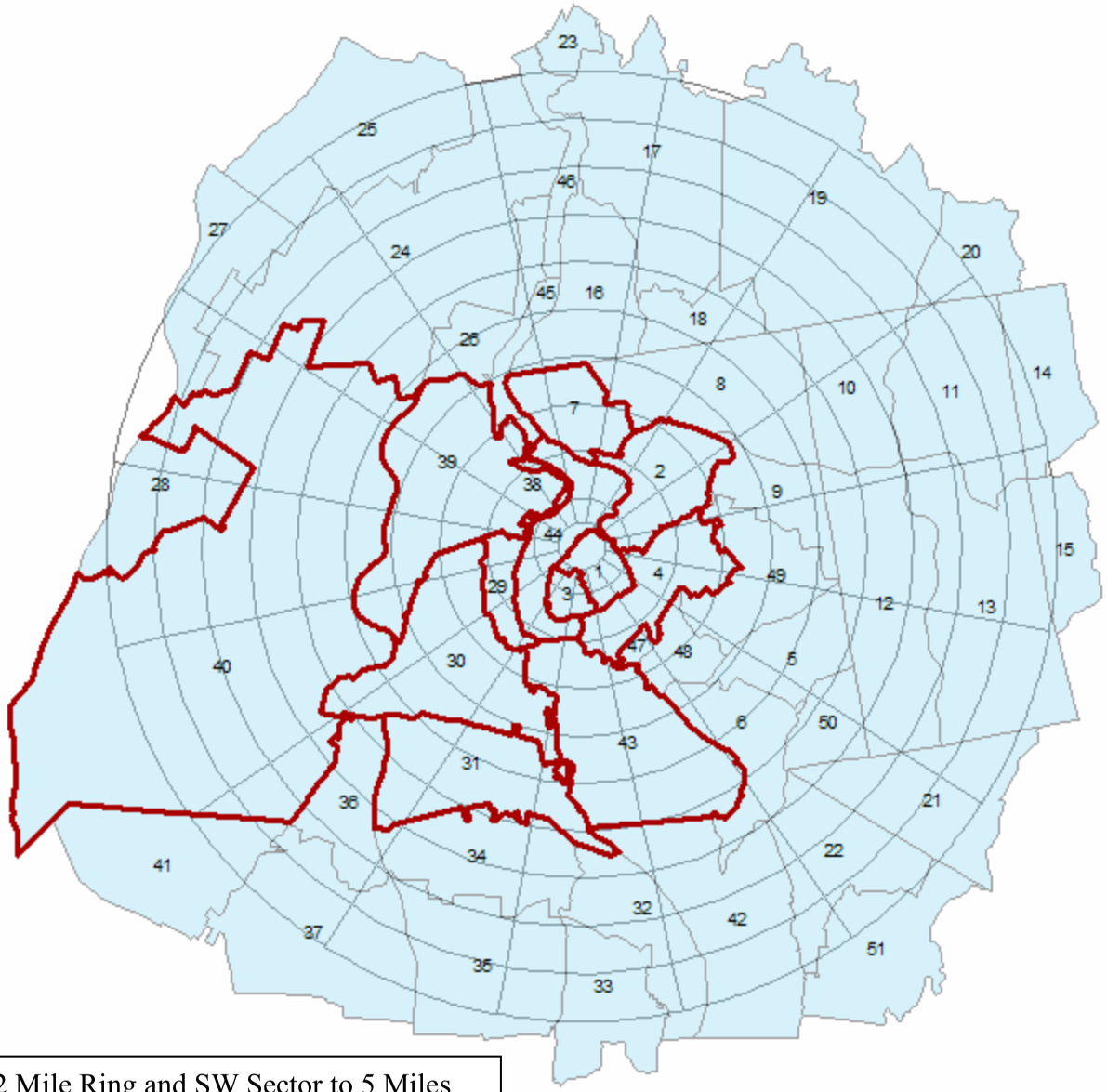
Region 11: 2 Mile Ring and SSE Sector to 5 Miles



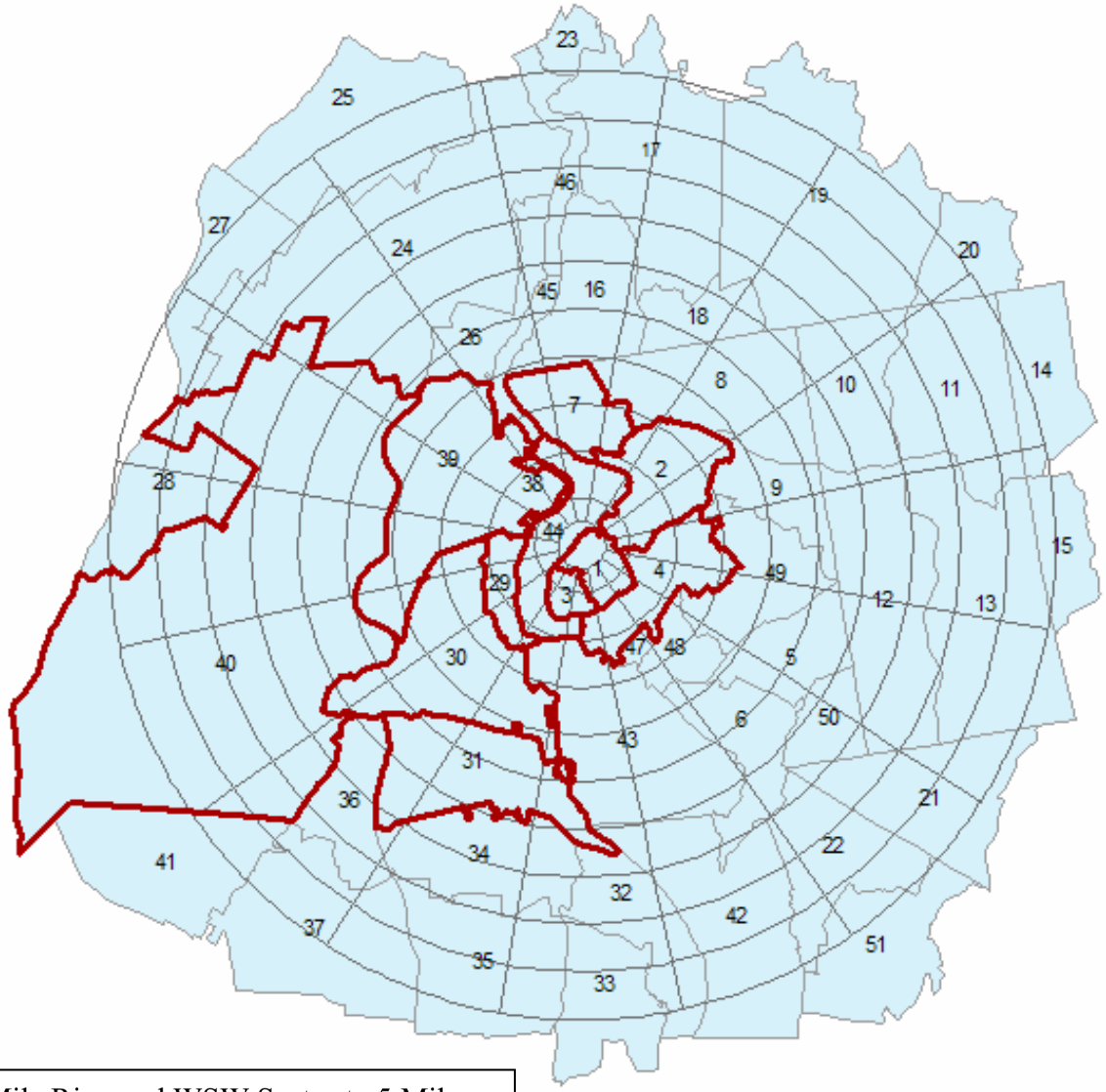
Region 12: 2 Mile Ring and S Sector to 5 Miles



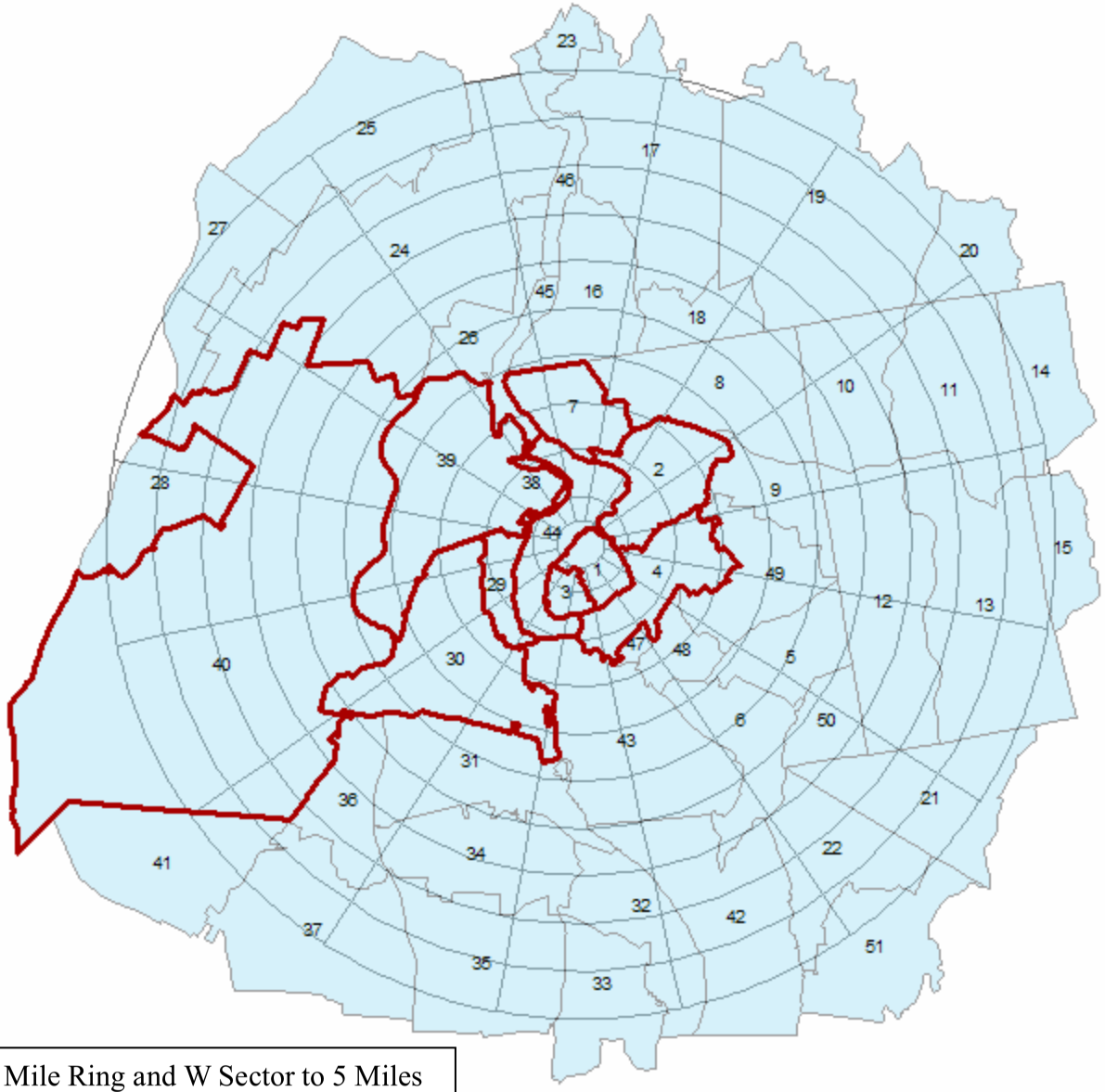
Region 13: 2 Mile Ring and SSW Sector to 5 Miles



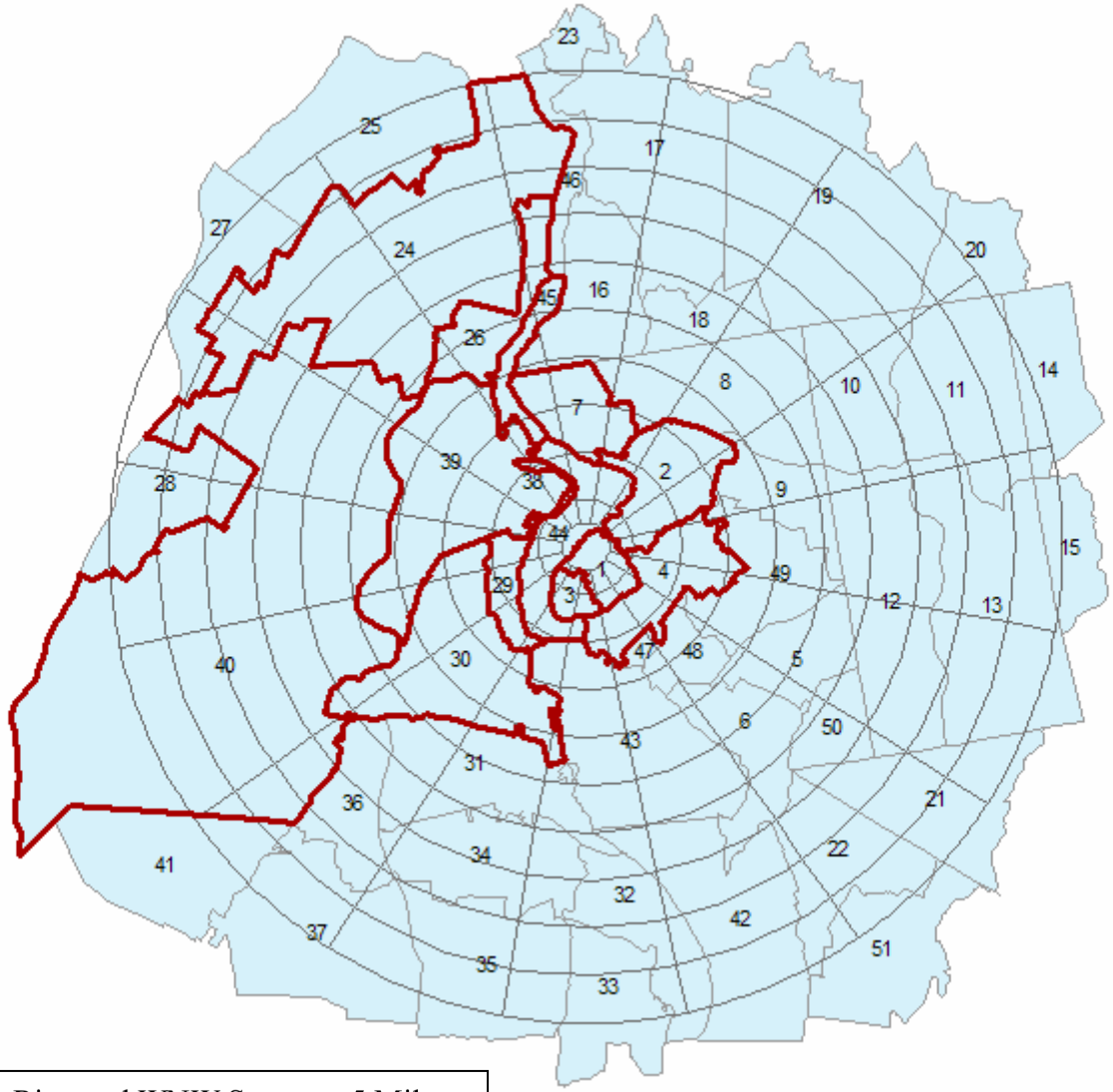
Region 14: 2 Mile Ring and SW Sector to 5 Miles



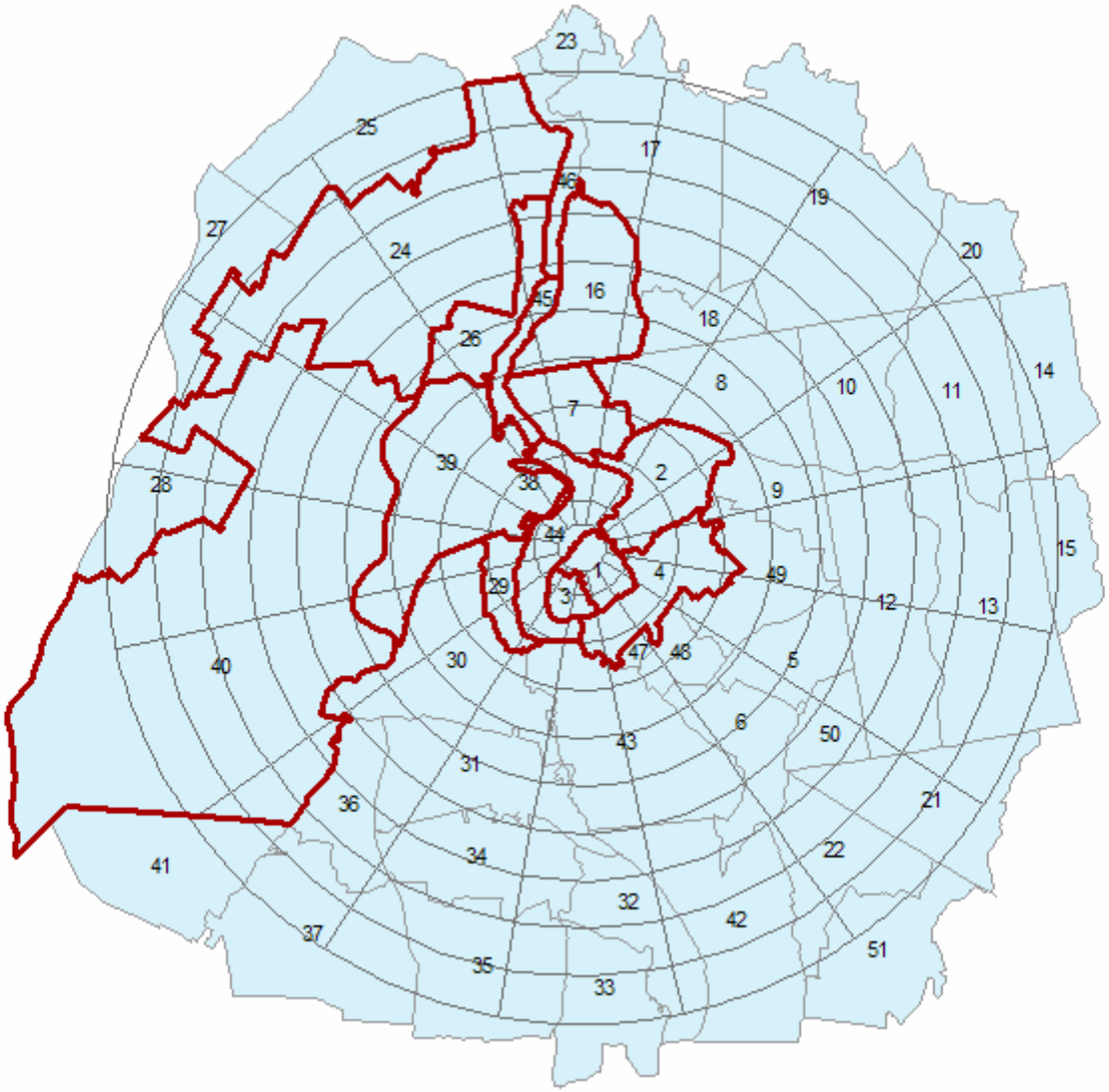
Region 15: 2 Mile Ring and WSW Sector to 5 Miles



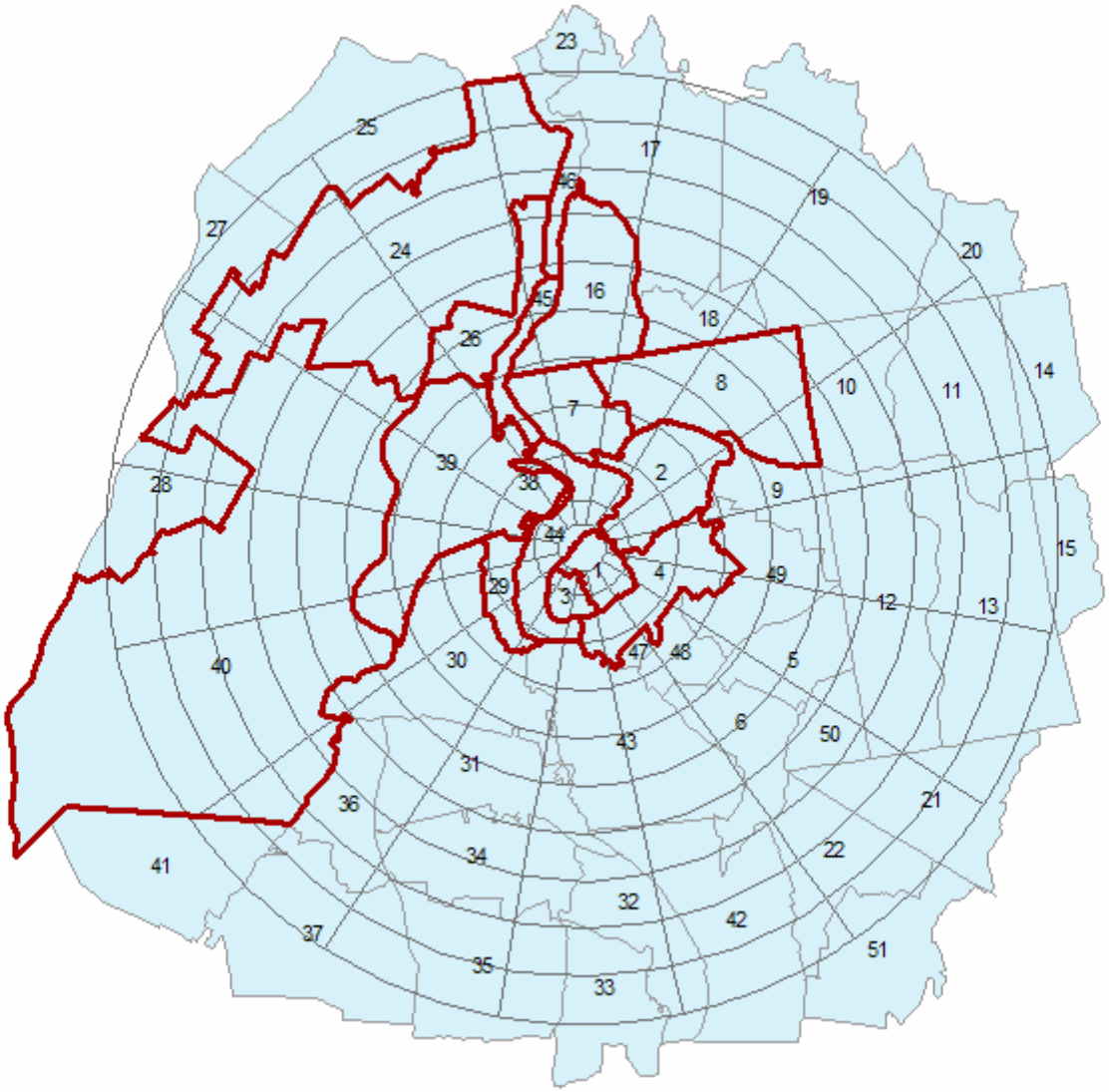
Region 16: 2 Mile Ring and W Sector to 5 Miles



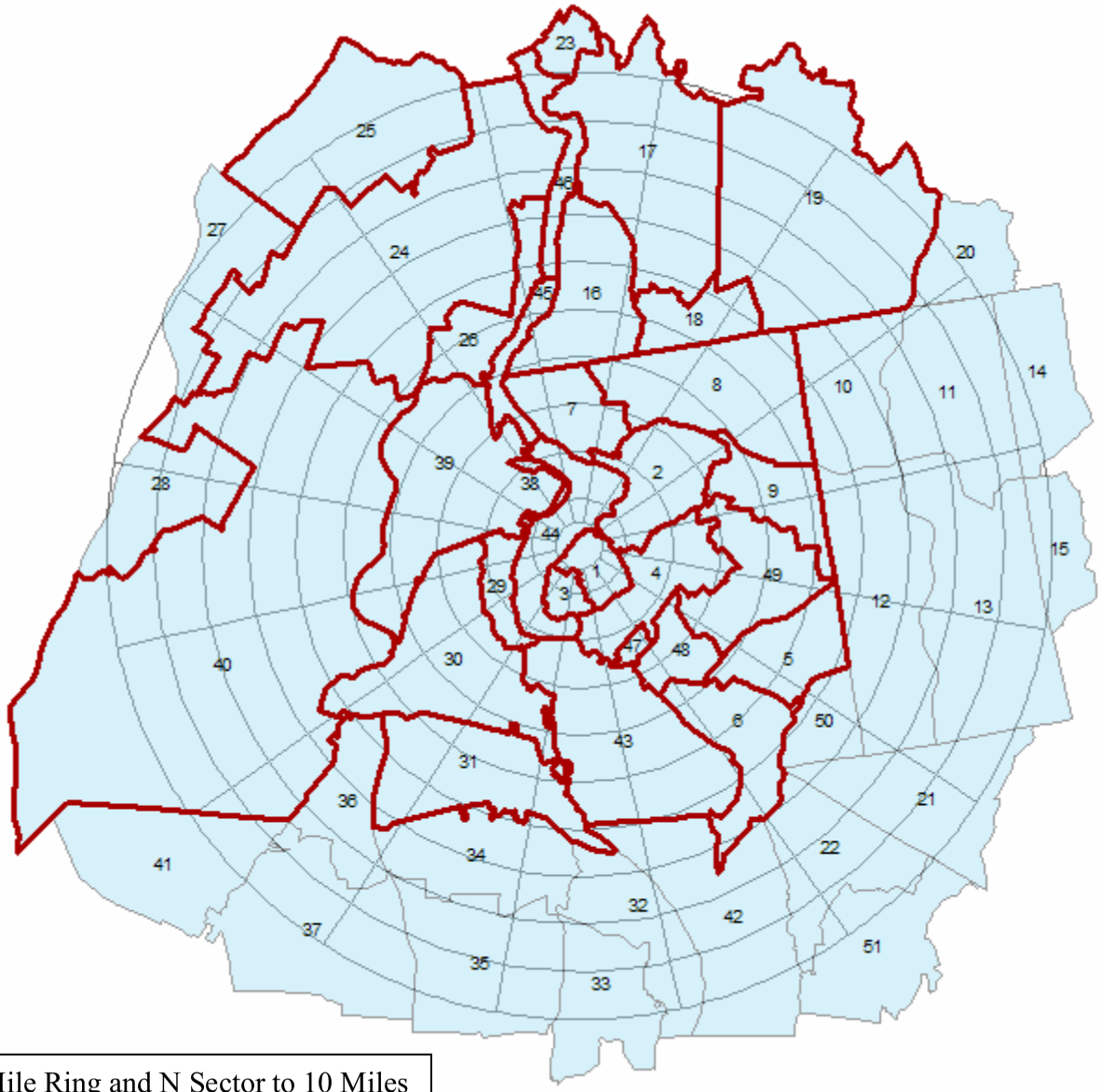
Region 17: 2 Mile Ring and WNW Sector to 5 Miles



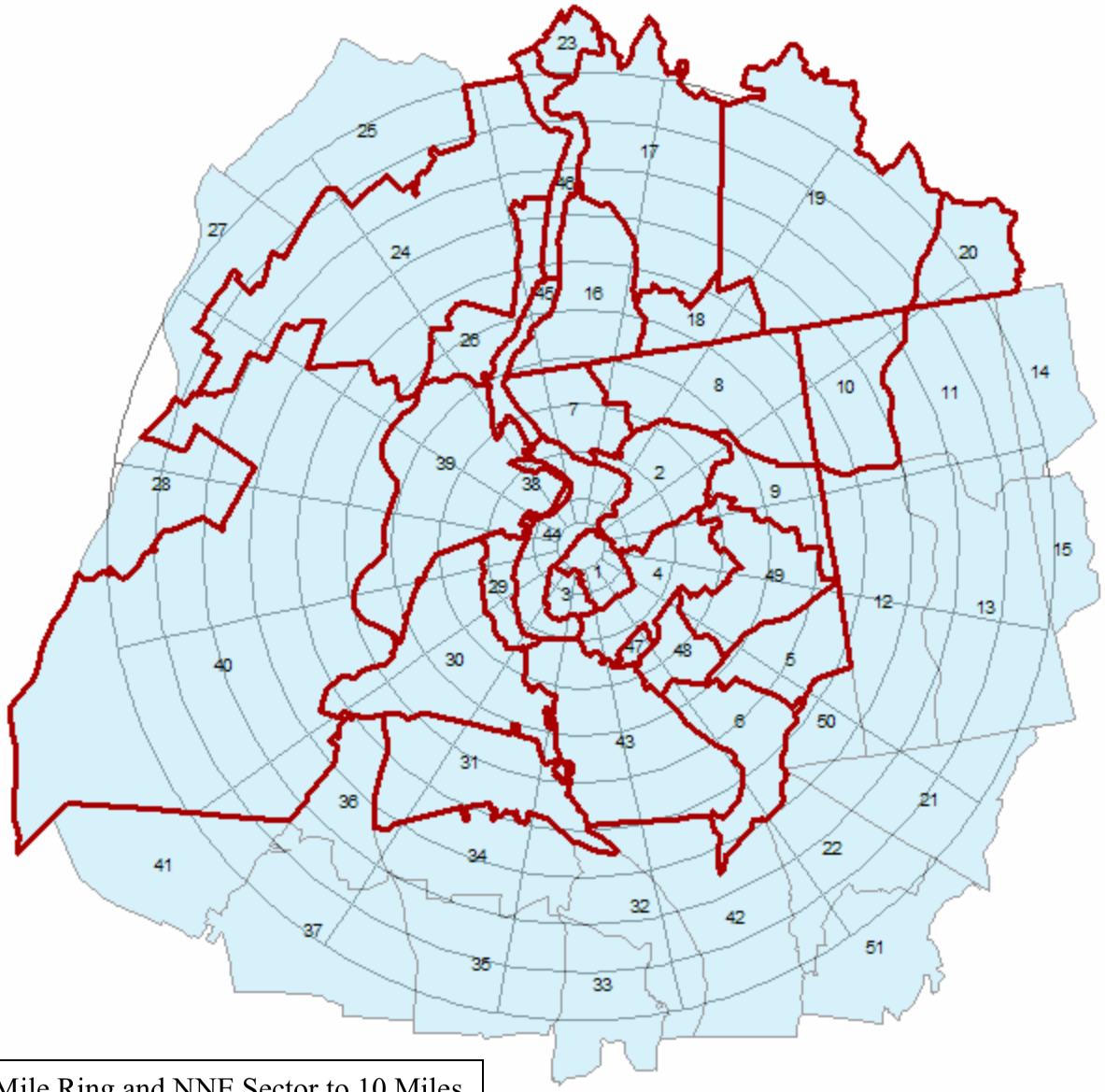
Region 18: 2 Mile Ring and NW Sector to 5 Miles



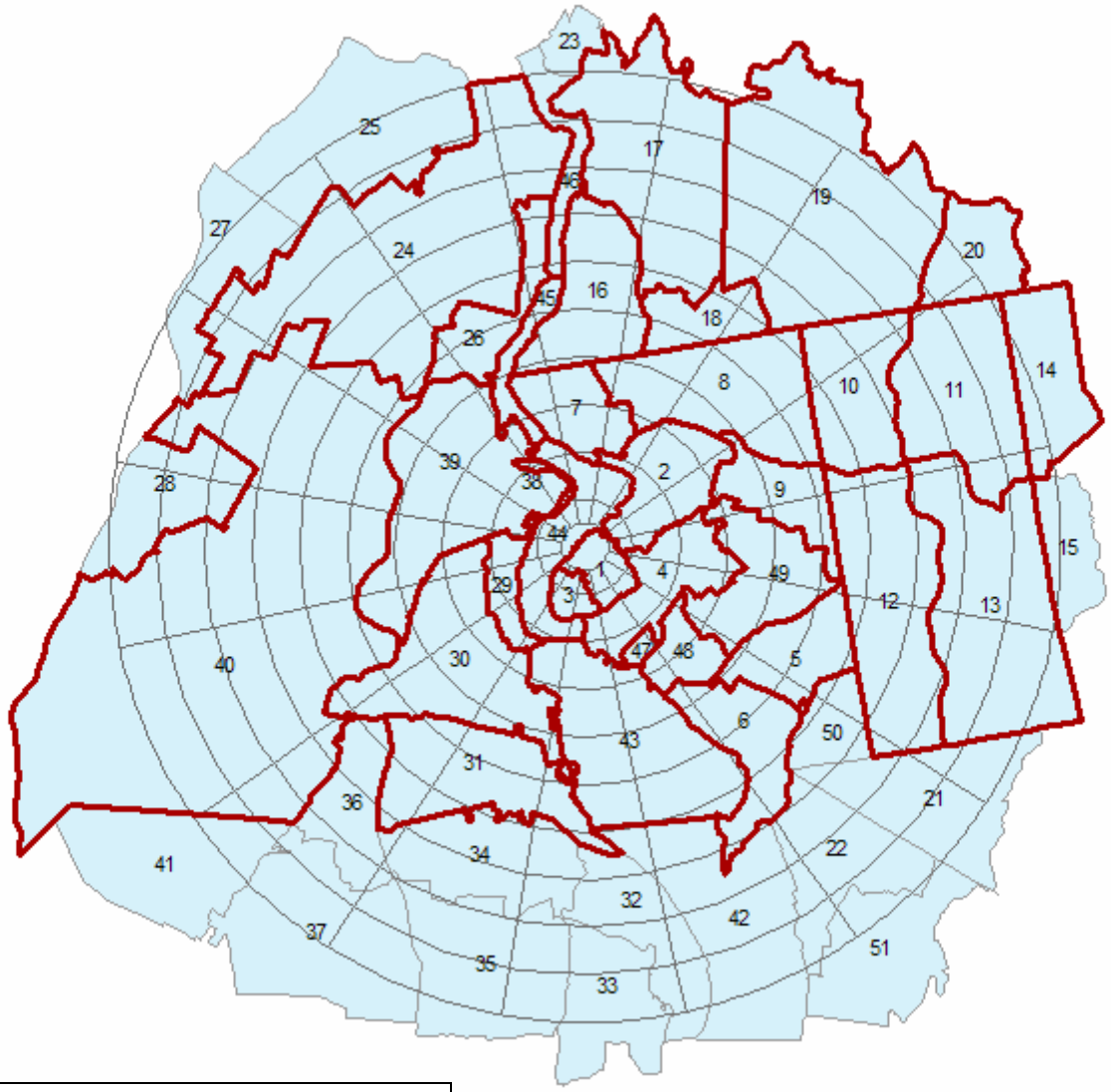
Region 19: 2 Mile Ring and NNW Sector to 5 Miles



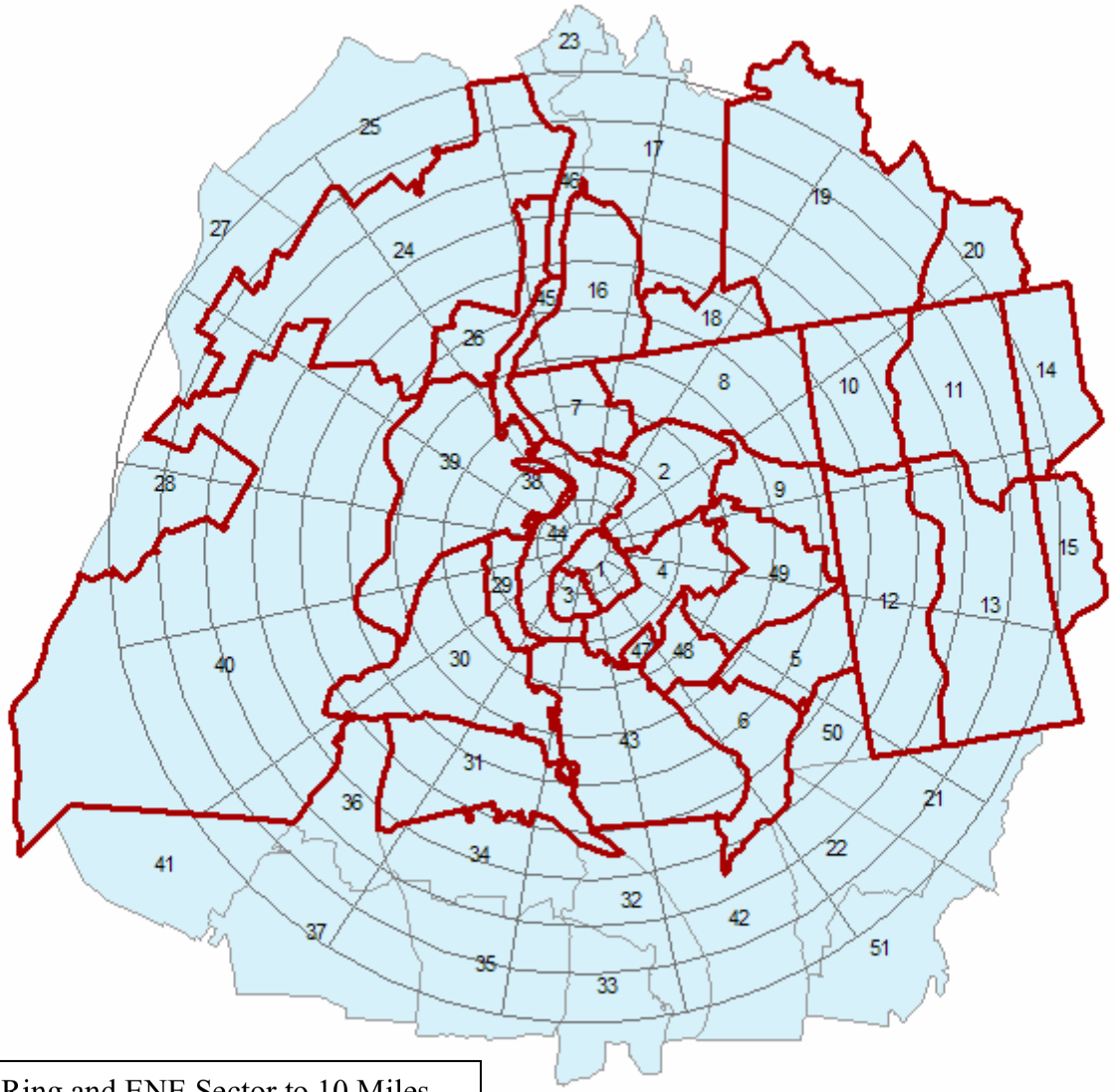
Region 20: 5 Mile Ring and N Sector to 10 Miles



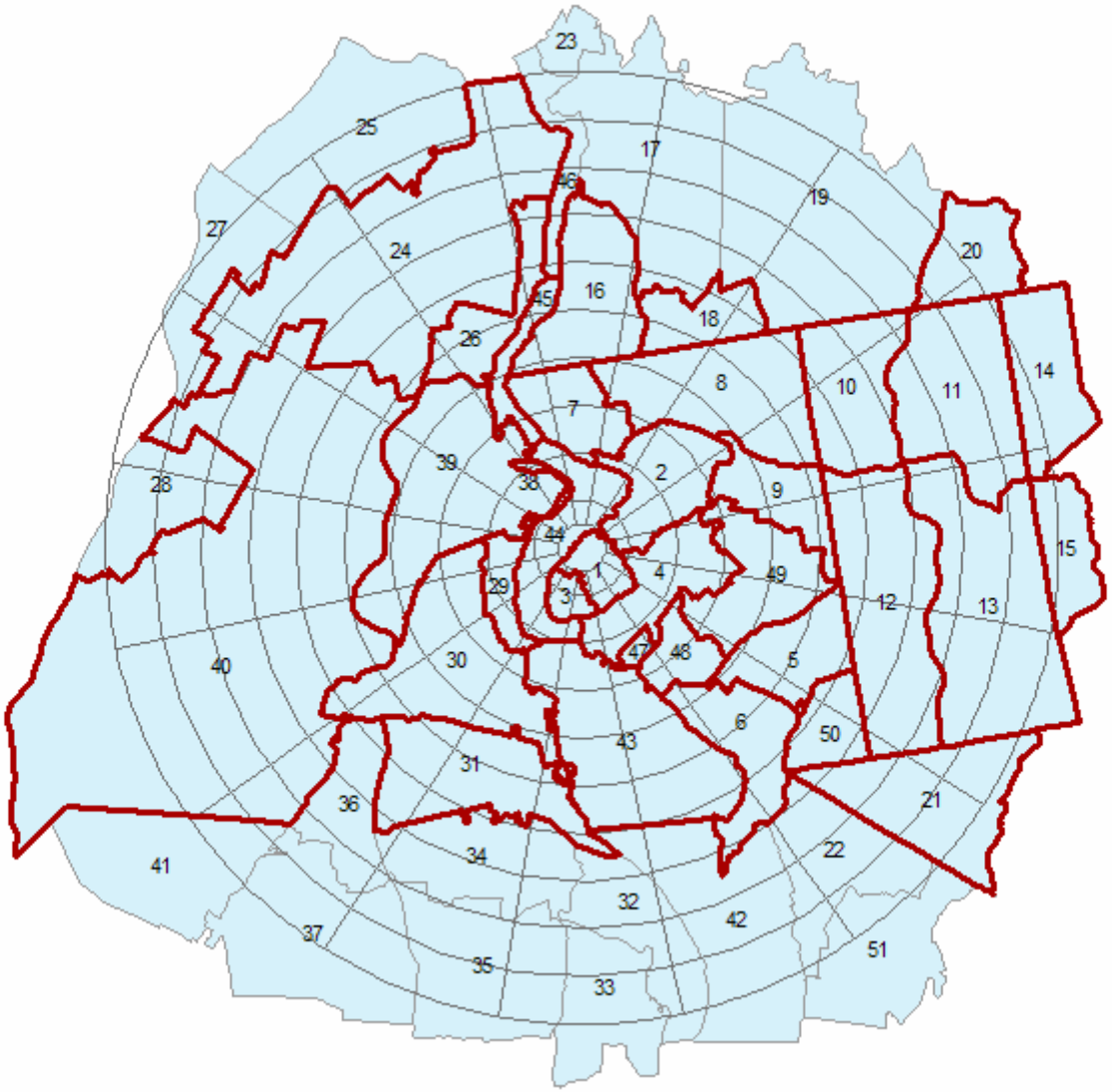
Region 21: 5 Mile Ring and NNE Sector to 10 Miles



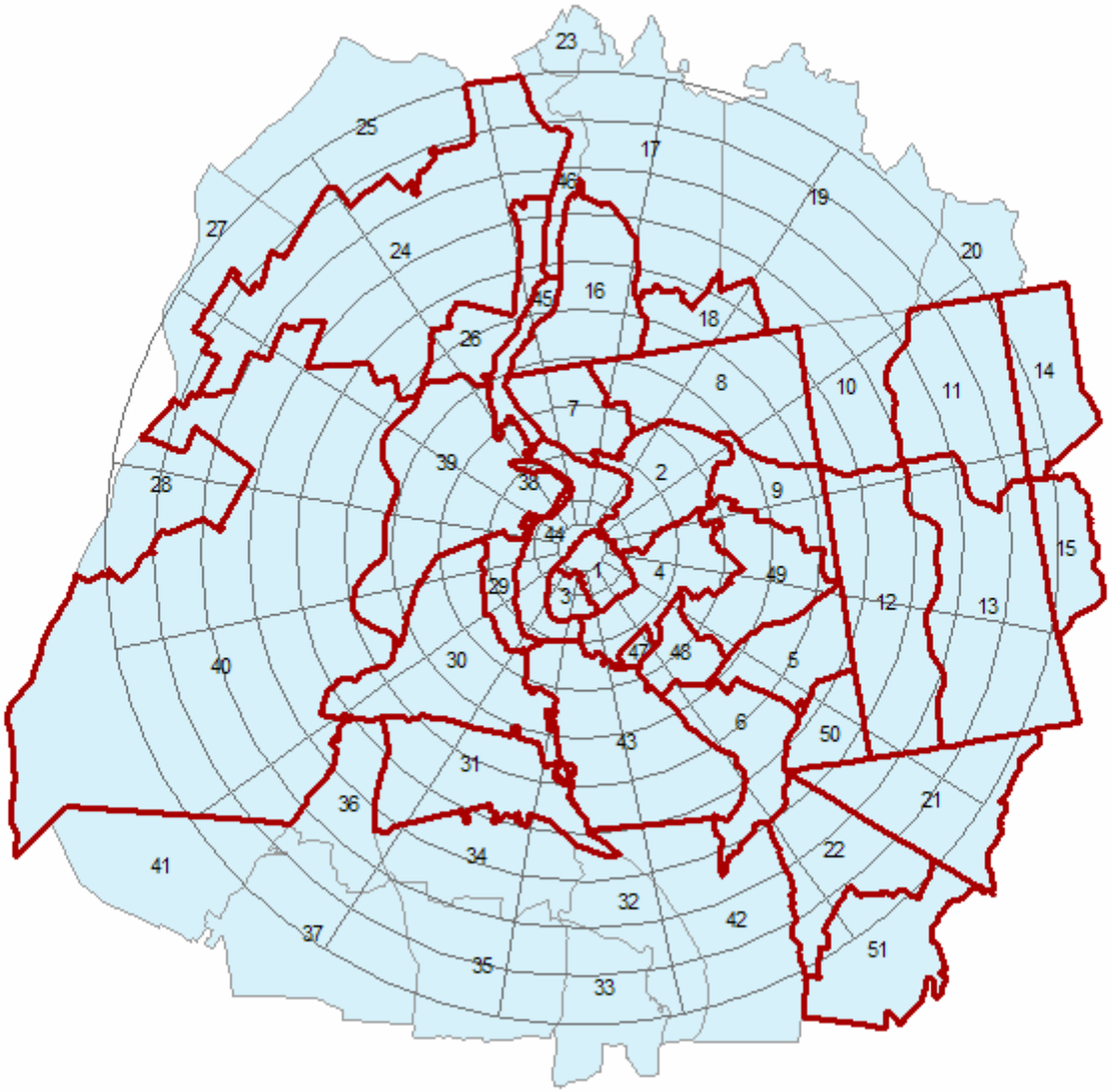
Region 22: 5 Mile Ring and NE Sector to 10 Miles



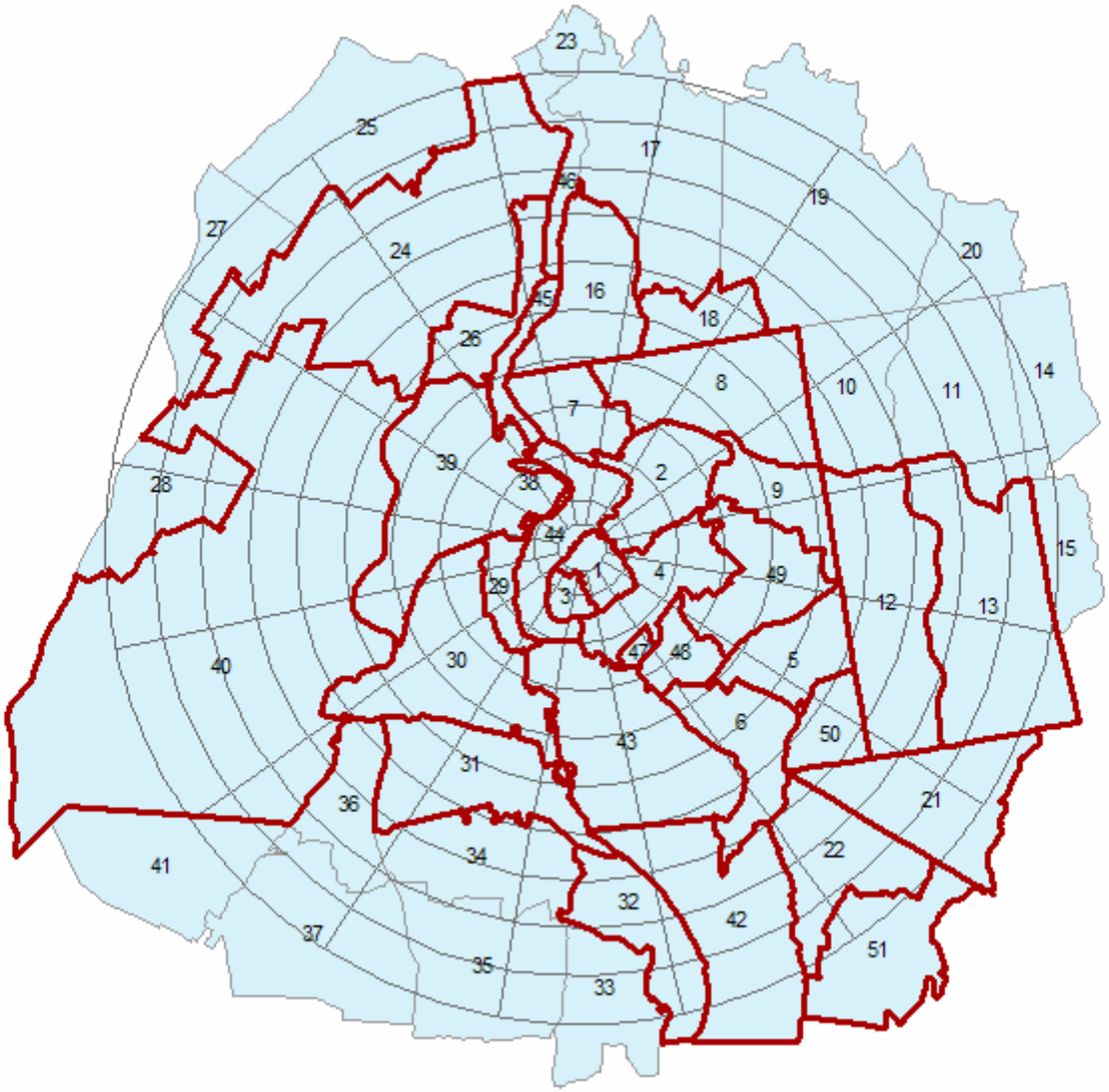
Region 23: 5 Mile Ring and ENE Sector to 10 Miles



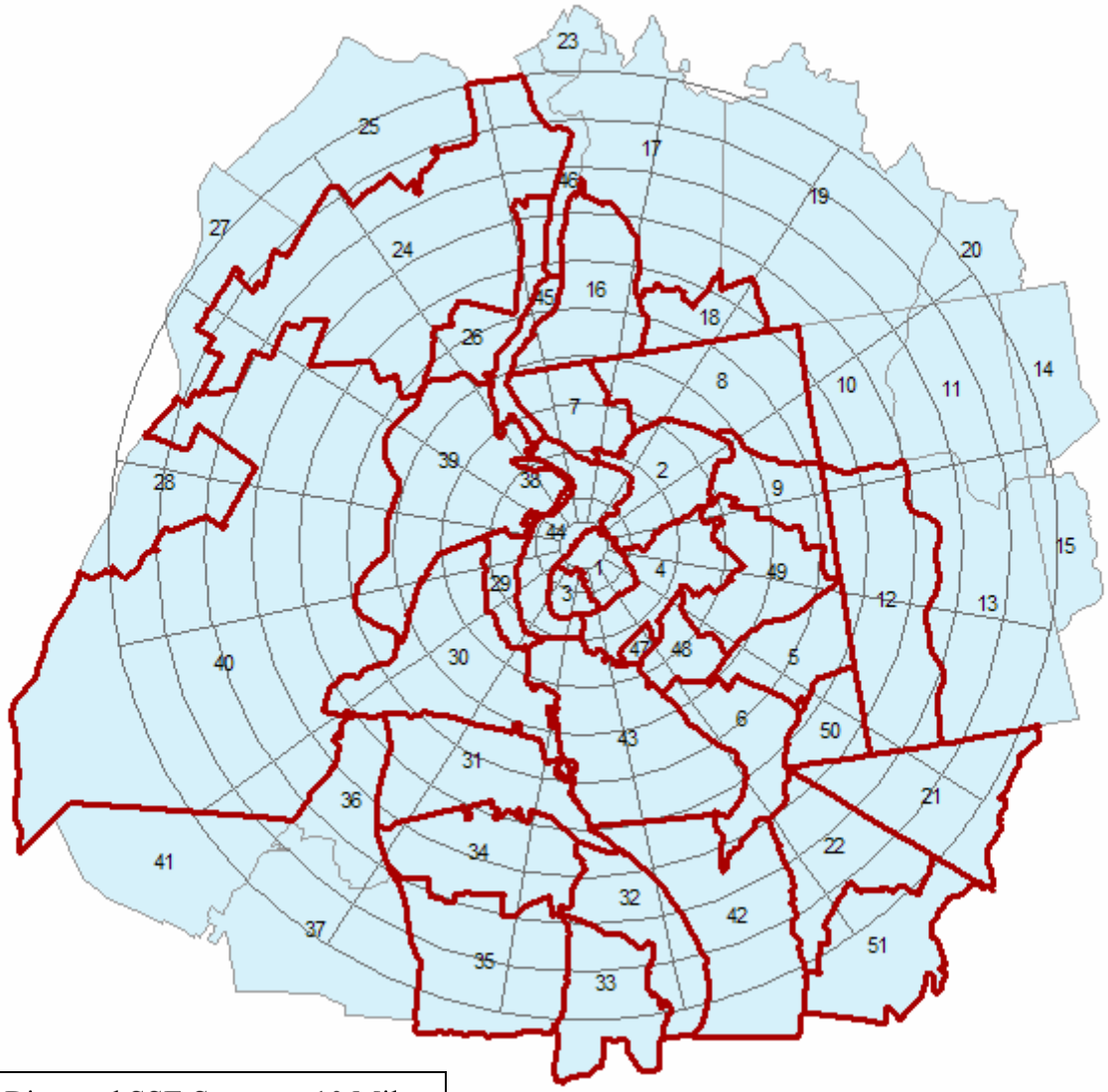
Region 24: 5 Mile Ring and E Sector to 10 Miles



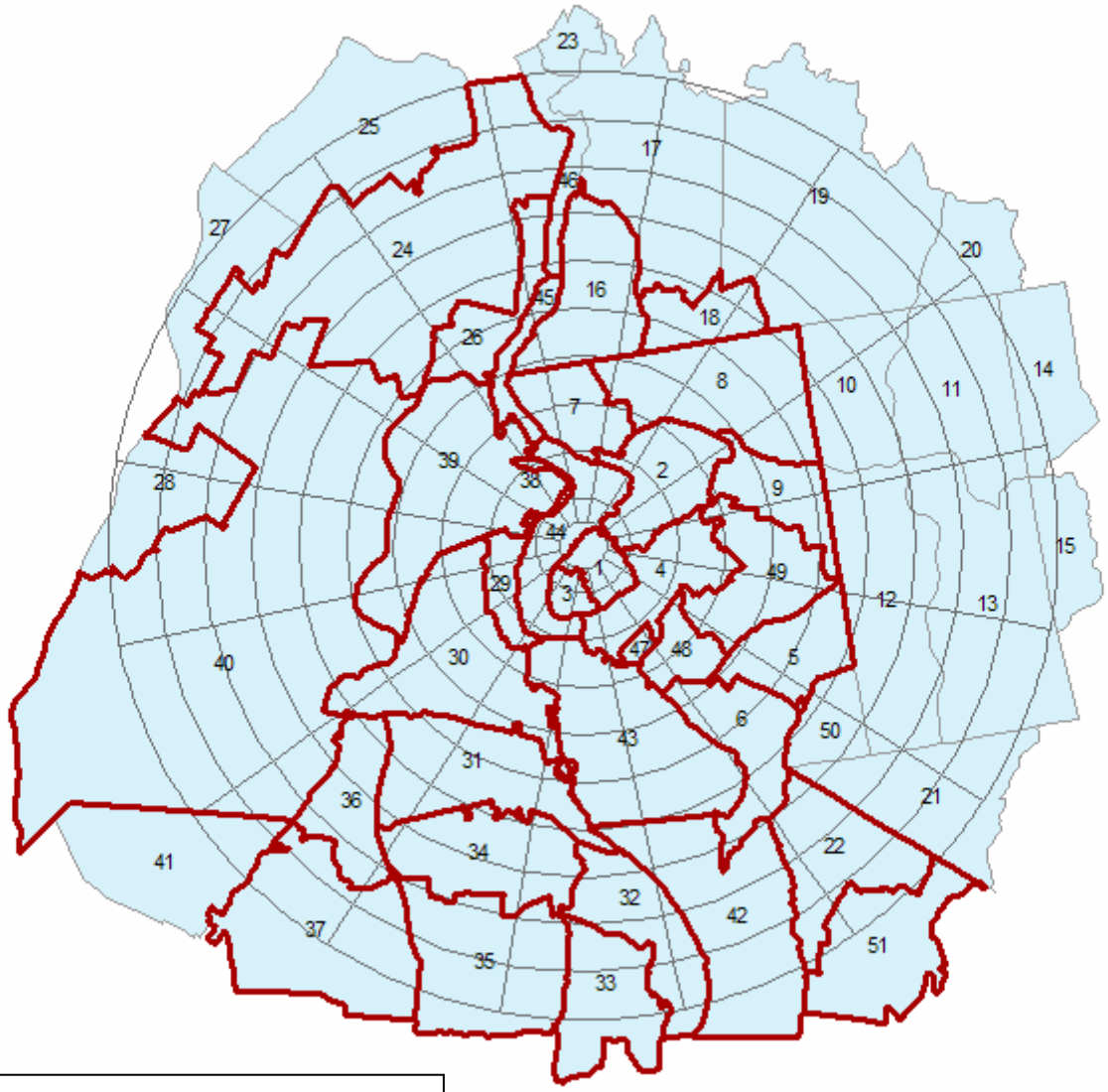
Region 25: 5 Mile Ring and ESE Sector to 10 Miles



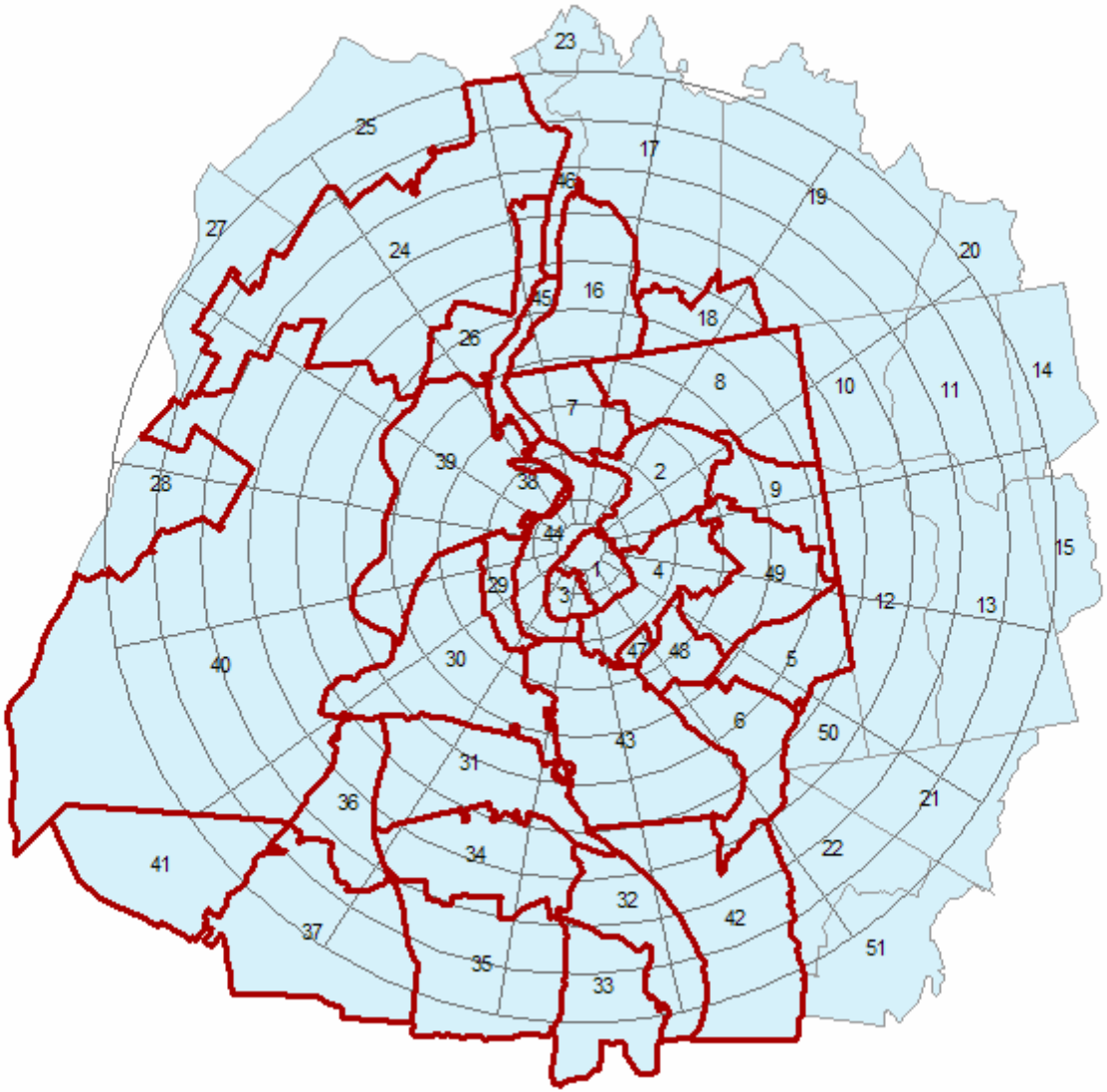
Region 26: 5 Mile Ring and SE Sector to 10 Miles



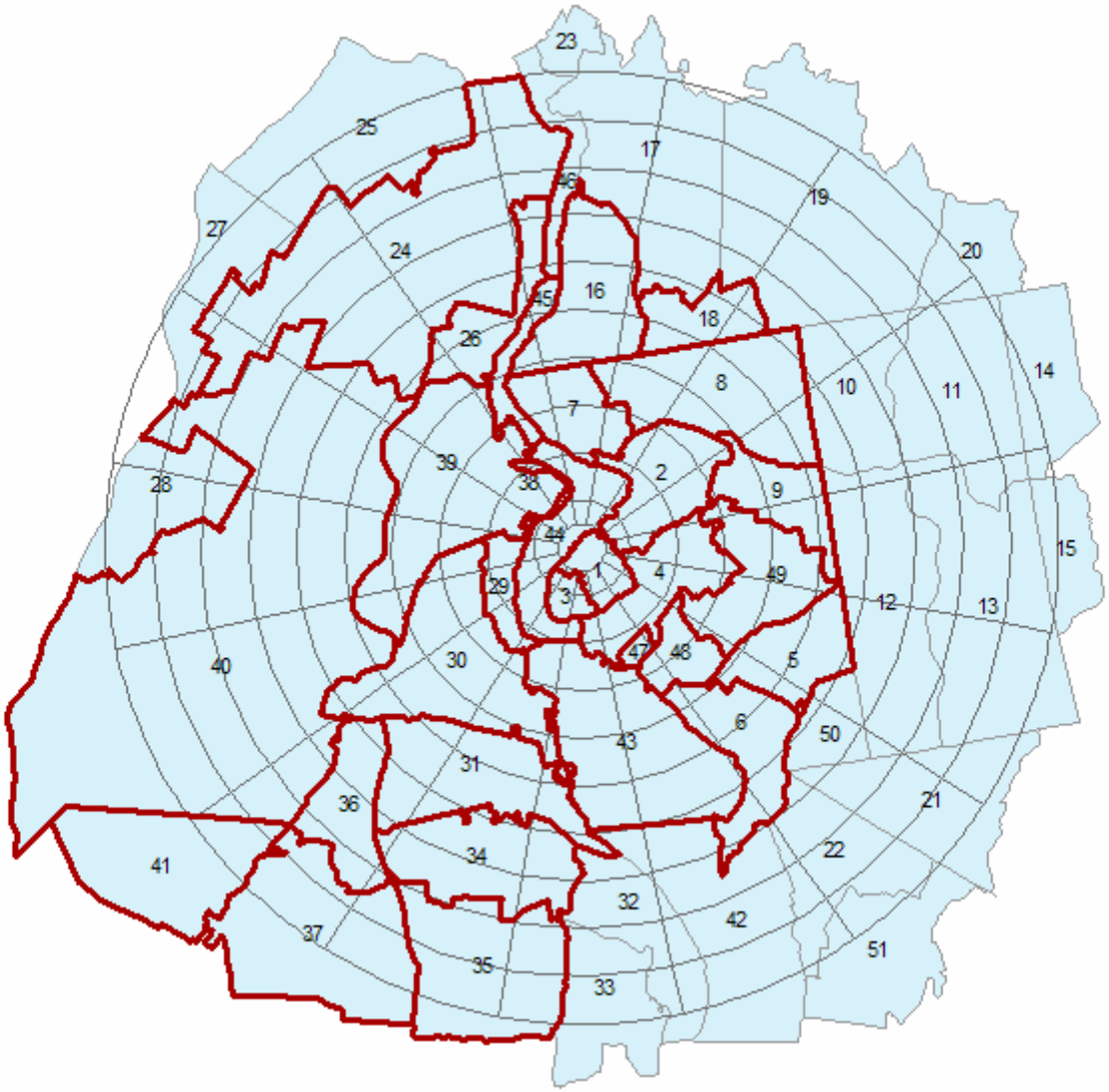
Region 27: 5 Mile Ring and SSE Sector to 10 Miles



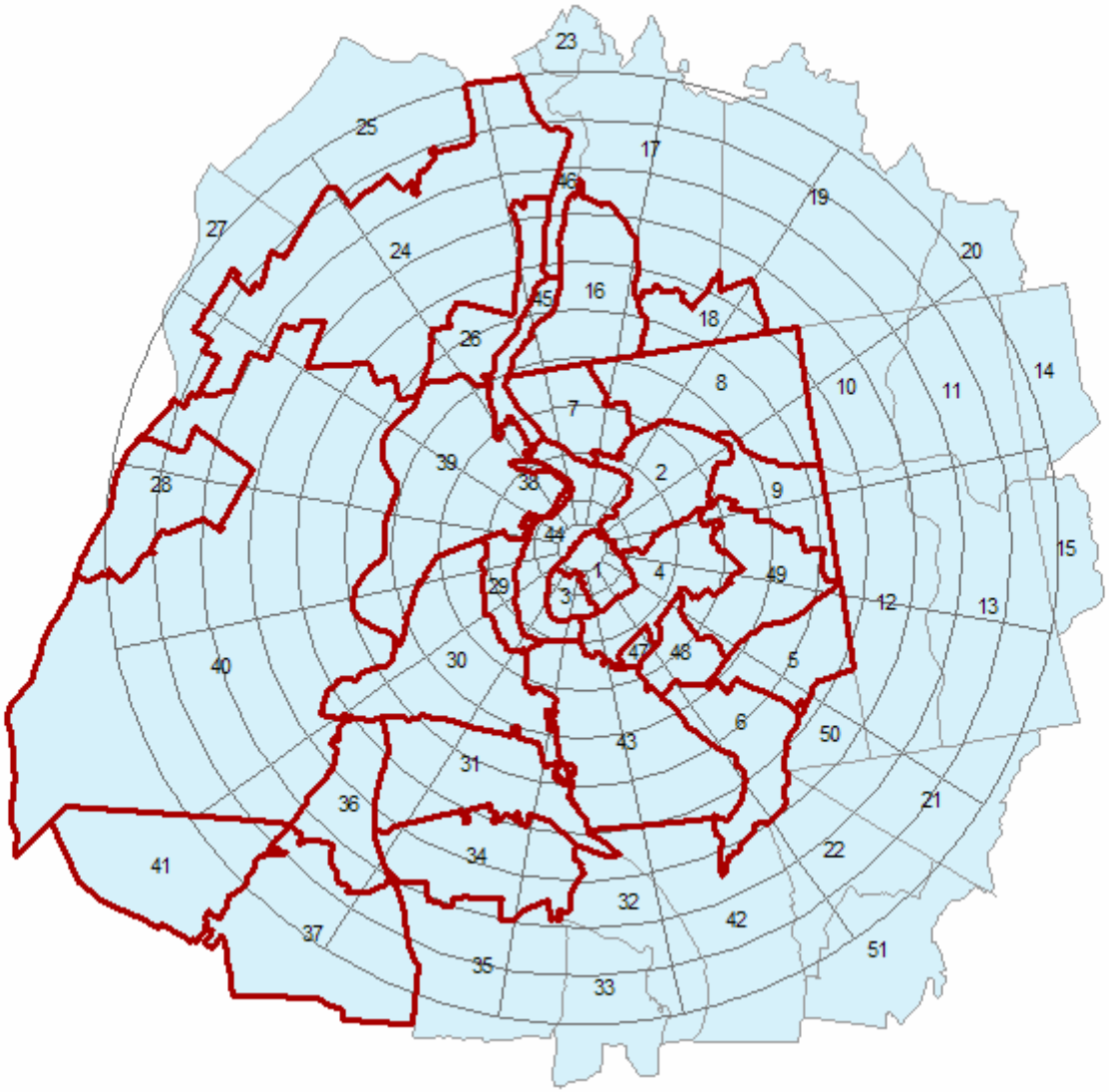
Region 28: 5 Mile Ring and S Sector to 10 Miles



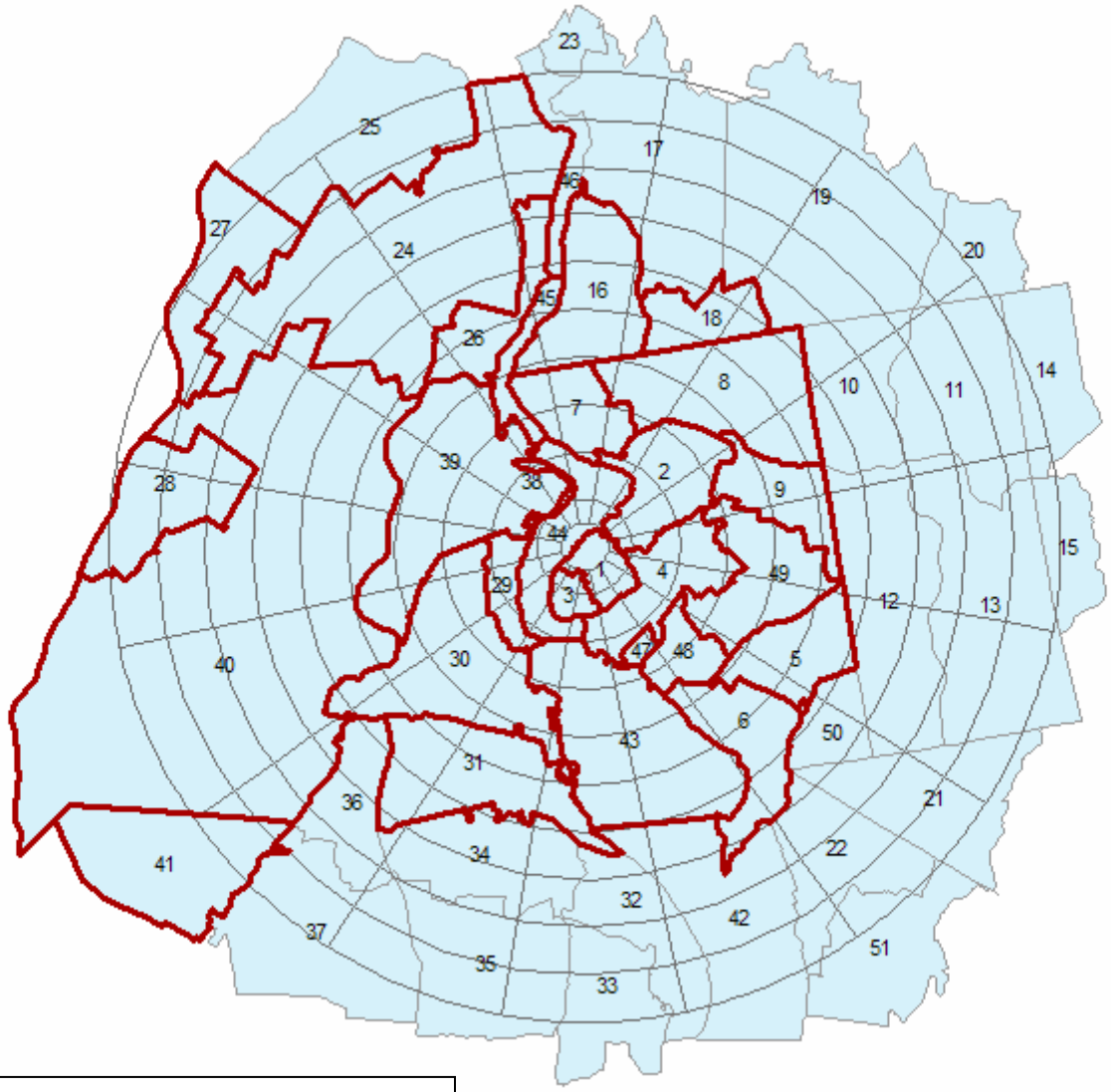
Region 29: 5 Mile Ring and SSW Sector to 10 Miles



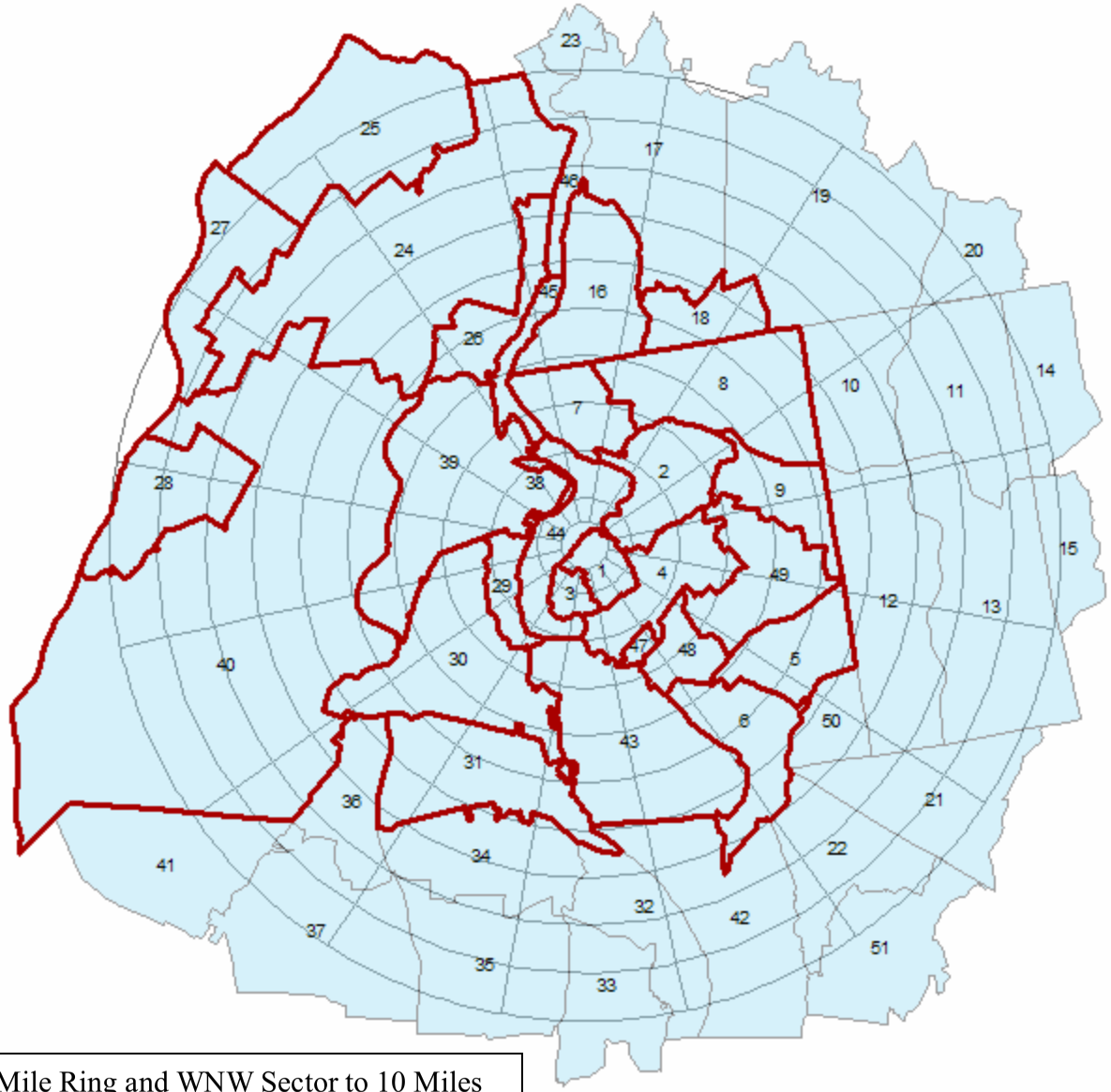
Region 30: 5 Mile Ring and SW Sector to 10 Miles



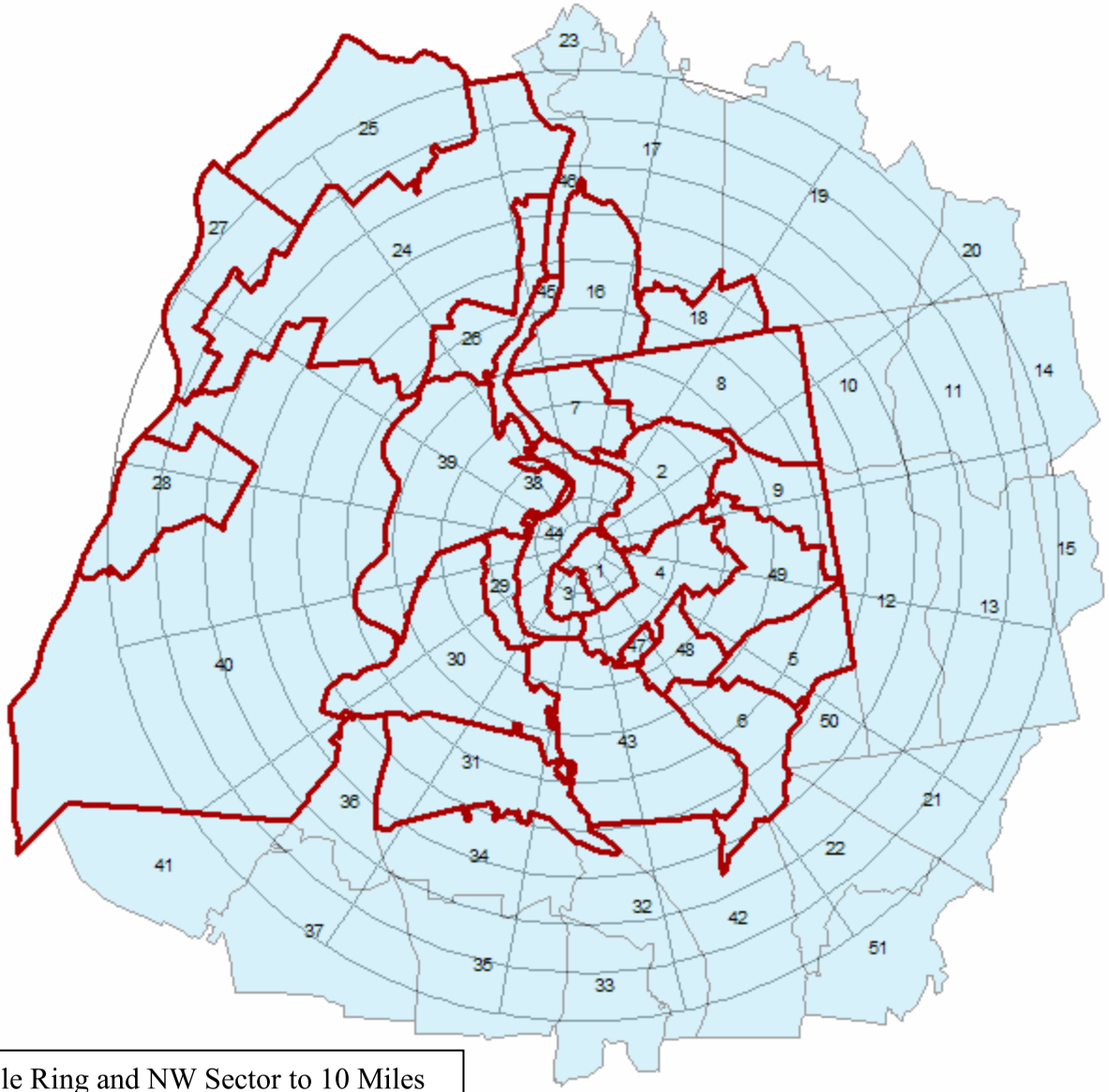
Region 31: 5 Mile Ring and WSW Sector to 10 Miles



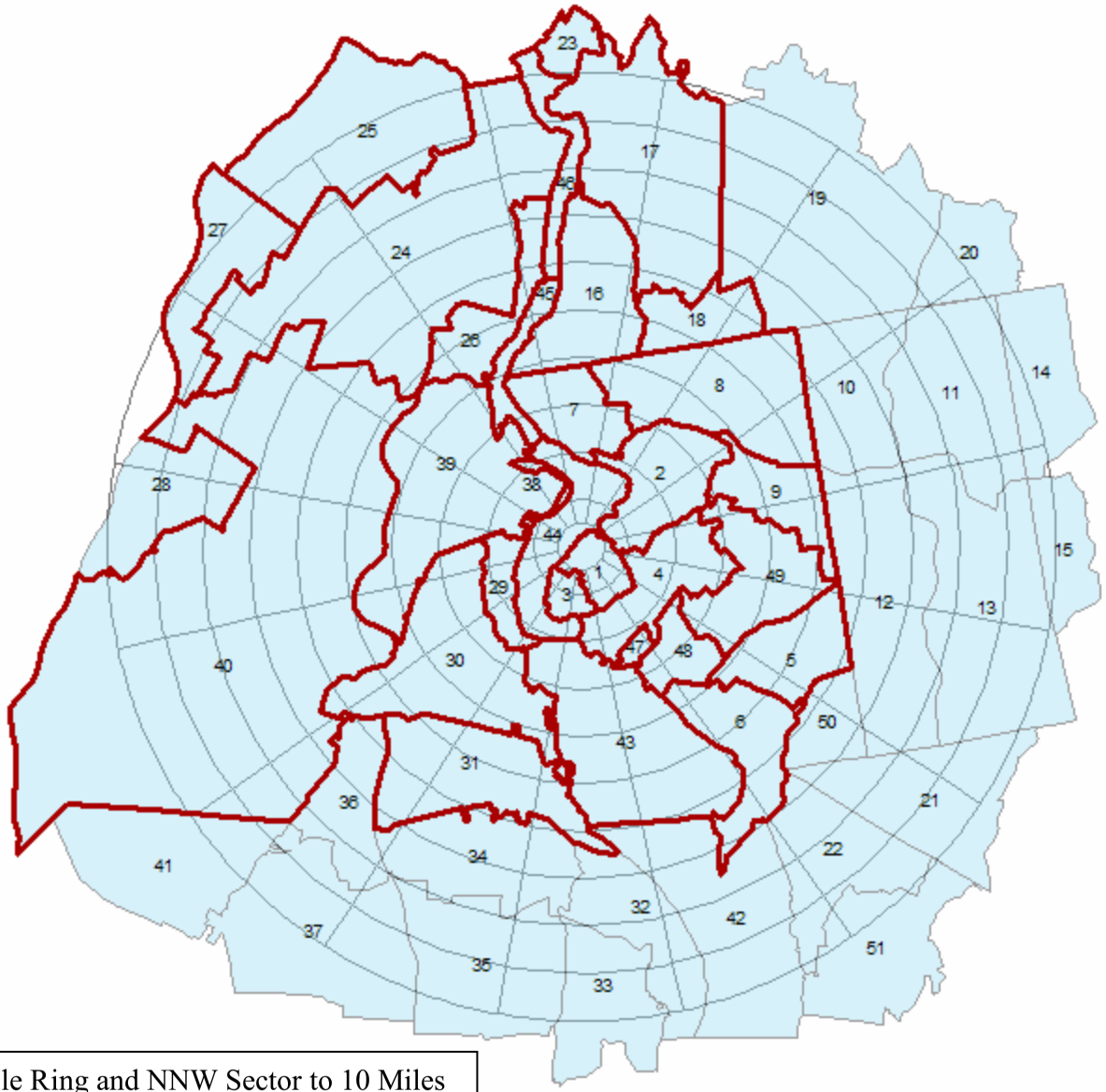
Region 32: 5 Mile Ring and W Sector to 10 Miles



Region 33: 5 Mile Ring and WNW Sector to 10 Miles



Region 34: 5 Mile Ring and NW Sector to 10 Miles



Region 35: 5 Mile Ring and NNW Sector to 10 Miles

APPENDIX I

Evacuation Sensitivity Studies

APPENDIX I: EVACUATION SENSITIVITY STUDIES

A sensitivity study was conducted to determine the effects on Evacuation Time Estimates (ETE) of changes in the percentage of people who decide to relocate from the Shadow Region. The movement of people in the shadow region, described earlier as the region between the Emergency Planning Zone (EPZ) boundary and the bounding Interstate Highways, has a potential to impede vehicles evacuating from an Evacuation Region within the EPZ.

Table I-1 presents the number of vehicles originating trips within the Shadow Region over a range of assumed "Percent Shadow Traffic". The case selected for this study is Scenario 1 (Summer, Midweek, Midday, Good Weather) and Evacuation Region R3: the entire EPZ. Note that the evacuating vehicles remain constant as the number of shadow vehicles varies.

Table I-1. Numbers of Vehicles For Various Shadow Percentages

Percent Shadow Traffic	Evacuating Vehicles	Shadow Vehicles	Total Vehicles
15	238,685	31,510	270,195
30	238,685	63,020	301,705
50	238,685	105,033	343,718
60	238,685	126,040	364,725

Table I-2 presents the evacuation time estimates for each of these cases. The ETE for the entire EPZ increases from 8 hours 45 minutes to 10 hours as the percent shadow traffic increases from 15 to 60 percent. The clearance time for vehicles originating their trips within the shadow region increases from 9 hours to 11 hours 30 minutes under the same conditions.

Table I-2 shows that the effects of shadow traffic are more pronounced within the Shadow Region then within the EPZ. Further, the traffic movement within the outer ring of the EPZ beyond 5 miles is more affected than that within the inner areas of the EPZ.

Table I-2. Evacuation Time Estimates for Shadow Sensitivity Study

	Evacuation Time Estimate			
Percent Shadow Evacuation	2-Mile Region	5-Mile Region	Entire EPZ	Shadow Region
15	8:00	8:40	8:45	9:00
30	9:00	9:05	9:25	9:45
50	9:20	9:25	9:40	10:50
60	9:25	9:30	10:00	11:30

Figure I-1 presents the results for the entire EPZ graphically. The evacuation time estimates tend to have a long "tail." At the 90th percentile of evacuated vehicles, the ETE increases from about 6 hours 20 minutes to about 7 hours 30 minutes as the amount of shadow traffic is increases.

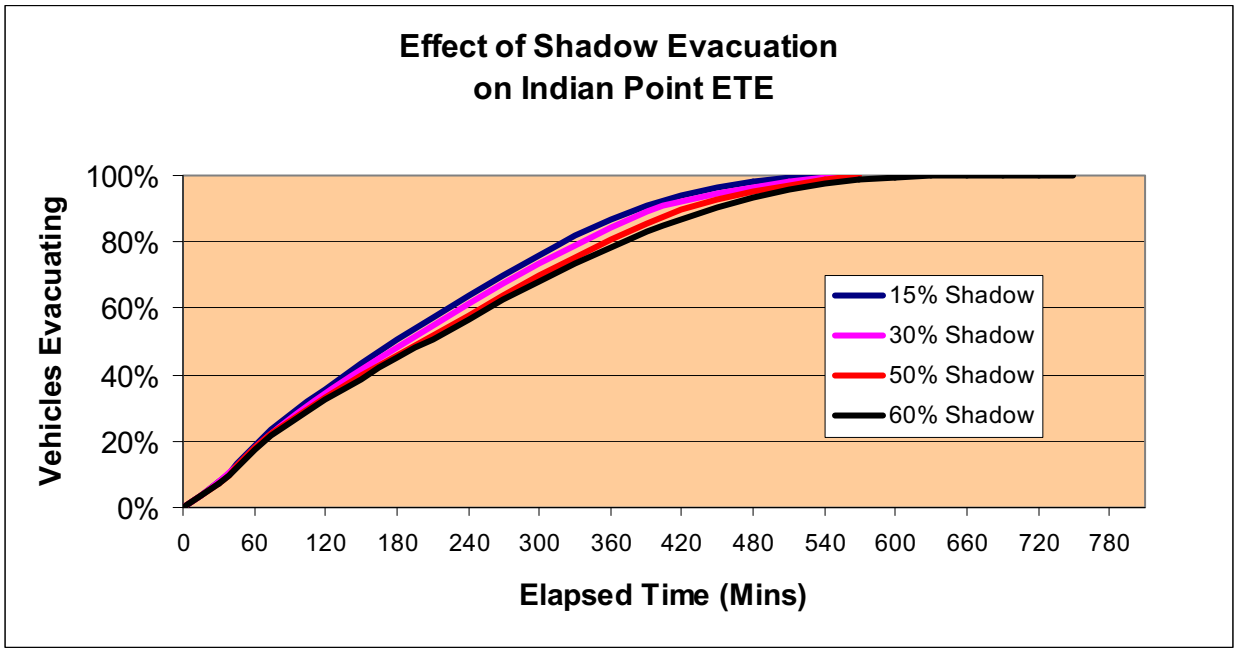


Figure I-1. Evacuation Times For The Entire EPZ For Various Estimates Of Shadow Population Movement

APPENDIX J

Evacuation Time Estimates for All Evacuation Regions and Scenarios

And

Evacuation Time Graphs for Region R3, for all Scenarios

APPENDIX J: EVACUATION TIME ESTIMATES FOR ALL EVACUATION REGIONS AND SCENARIOS

AND

EVACUATION TIME GRAPHS FOR REGION R3, FOR ALL SCENARIOS

This appendix presents the ETE Results for all 35 Regions and all 14 Scenarios (Tables J-1A through J-1D). In addition to the four tables presenting the ETE results, a fifth table, Table J-1E, presents "EPZ Clearance Times".

Tables of ETE and of EPZ Clearance Times are also presented for Regions R1, R2, and R3, for all Scenarios in a format that displays these values for the 50^{th}, 90^{th}, 95^{th}, and 100^{th} percentiles of evacuating population. (Tables J-3A and J-3B).

Plots of Evacuating Population vs. Elapsed Time leaving the 2-mile and 5-mile circular areas around IPEC and the entire EPZ for Region R3, for all 14 scenarios. Each plot has points indicating the evacuation times corresponding to the 50^{th}, 90^{th}, and 95^{th} percentiles of evacuated population.

J.1 Guidance on Using ETE Tables

Tables J-1A through J-1D present the ETE values for all 35 Evacuation Regions and all 14 Evacuation Scenarios. They are organized as follows:

Table	Contents
J-1A	ETE represents the elapsed time required for 50 percent of the population within a Region, to evacuate from that Region.
J-1B	ETE represents the elapsed time required for 90 percent of the population within a Region, to evacuate from that Region.
J-1C	ETE represents the elapsed time required for 95 percent of the population within a Region, to evacuate from that Region.
J-1D	ETE represents the elapsed time required for 100 percent of the population within a Region, to evacuate from that Region.

The user first determines the percentile of population for which the ETE is sought. The applicable value of ETE within the chosen Table may then be identified using the following procedure:

1. Identify the applicable **Scenario**:
   - The Season
     1. Summer
     2. Winter (also Autumn and Spring)
   - The Day of Week
     3. Midweek
     4. Weekend
   - The Time of Day
     5. Midday
     6. Evening
   - Weather Condition
     7. Good Weather
     8. Rain
     9. Snow
   - Special Event (if any)
     10. Football game at West Point
     11. Commencement Exercises at West Point

While these Scenarios are designed, in aggregate, to represent conditions throughout the year, some further clarification is warranted:

- The conditions of a summer evening (either midweek or weekend) and rain are not explicitly identified in Tables J-1A through J-1E. For these conditions, Scenario (4) applies.
- The conditions of a winter evening (either midweek or weekend) and rain or snow are not explicitly identified in Tables J-1A through J-1E. For these conditions, Scenarios (10) for rain and (11) for snow, apply.
- The seasons are defined as follows:
  - Summer implies that public schools are *not* in session.
  - Winter, Spring and Autumn imply that public schools *are* in session.
- Time of Day: Midday implies the time over which most commuters are at work.

2. With the Scenario identified, now identify the **Evacuation Region**:
   - Determine the projected azimuth direction of the plume (coincident with the wind direction). This direction is expressed in terms of compass orientation: *towards* N, NNE, NE, …
   - Determine the distance that the Evacuation Region will extend from IPEC. The applicable distances and their associated candidate Regions are given below:
     - 2 Miles (Region R1)
     - 5 Miles (Regions R2 and R4-R19)
     - to EPZ Boundary (Regions R3 and R20-R35)

- Enter Table J-2 and identify the applicable group of candidate Regions based on the distance that the selected Region extends from IPEC. Within this group, identify the row corresponding to the Azimuth Direction identified in the 2nd bullet above (see column with the heading, DESCRIPTION OF REGION). Select the Evacuation Region identifier in that row from the first column of the Table.

3. Determine the **ETE for the Scenario** identified in Step 1 and the Region identified in Step 2, as follows:
   - The columns of Table J-1 are labeled with the Scenario numbers. Identify the proper column in the selected Table using the Scenario number determined in Step 1.
   - Identify the row in this table that provides ETE values for the Region identified in Step 2.
   - The unique data cell defined by the column and row so determined contains the desired value of ETE expressed in Hours:Minutes.

Example

It is desired to identify the ETE for the following conditions:

- Sunday, August 10th at 4:00 AM.
- It is raining.
- Wind direction is *to* the northeast.
- Wind speed is such that the distance to be evacuated is judged to be 10 miles (to EPZ boundary).
- The desired ETE is that value needed to evacuate 95 percent of the population from within the impacted Region.

Table J-1C is applicable because the 95-percentile population is desired. Proceed as follows:

1. Identify the Scenario as summer, weekend, evening and raining. Entering Table J-1C, it is seen that there is no match for these descriptors. However, the clarification given above assigns this combination of circumstances to Scenario 4.

2. Enter Table J-2 and locate the group entitled "5 Mile Ring and Sector to EPZ Boundary". Under "DESCRIPTION OF REGION", identify the NE (northeast) azimuth (wind direction) and read REGION R22 in the first column of that row.

3. Enter Table J-1C to locate the data cell containing the value of ETE for Scenario 4 and Region 22. This data cell is in column (4) and in the row for Region R22; it contains the ETE value of **7:00**.

Table J-1A. Time To Clear The Indicated Area of 50 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	1:45	1:50	1:35	1:40	1:20	R1	1:45	1:55	2:20	1:30	1:35	2:00	1:25	R1	1:30	1:45
R2	2:10	2:25	2:00	2:15	1:40	R2	2:20	2:30	2:55	1:55	2:05	2:30	1:45	R2	1:55	2:20
R3	3:05	3:25	2:30	2:50	2:10	R3	3:10	3:30	3:55	2:30	2:50	3:15	2:10	R3	2:35	3:10
2-Mile Ring and Keyhole to 5 Miles																
R4	1:55	2:00	1:45	1:50	1:35	R4	1:55	2:05	2:30	1:40	1:45	2:15	1:35	R4	1:50	1:55
R5	2:00	2:10	1:55	2:00	1:40	R5	2:05	2:15	2:45	1:50	2:00	2:30	1:45	R5	1:50	2:05
R6	2:00	2:10	1:50	1:55	1:40	R6	2:05	2:15	2:40	1:45	1:55	2:25	1:40	R6	1:45	2:05
R7	2:00	2:05	1:50	1:55	1:35	R7	2:05	2:15	2:40	1:45	1:50	2:20	1:40	R7	1:45	2:05
R8	2:05	2:10	1:50	2:00	1:35	R8	2:05	2:15	2:45	1:45	1:55	2:20	1:40	R8	1:45	2:05
R9	2:10	2:25	2:00	2:15	1:40	R9	2:20	2:30	2:55	1:55	2:00	2:30	1:40	R9	1:55	2:20
R10	2:05	2:20	2:00	2:10	1:30	R10	2:15	2:25	2:50	1:50	1:55	2:20	1:30	R10	1:50	2:15
R11	2:10	2:25	2:00	2:15	1:40	R11	2:20	2:30	2:50	1:55	2:05	2:30	1:40	R11	1:55	2:20
R12	2:10	2:25	2:00	2:15	1:40	R12	2:20	2:30	2:50	1:55	2:05	2:30	1:40	R12	1:55	2:20
R13	1:55	2:10	1:50	2:00	1:40	R13	2:05	2:15	2:35	1:50	2:00	2:25	1:40	R13	1:50	2:05
R14	1:55	2:10	1:50	2:00	1:40	R14	2:05	2:15	2:35	1:50	2:00	2:25	1:40	R14	1:50	2:05
R15	1:55	2:10	1:50	2:00	1:40	R15	2:05	2:15	2:35	1:50	2:00	2:25	1:40	R15	1:50	2:05
R16	1:45	1:50	1:35	1:35	1:20	R16	1:45	1:55	2:20	1:30	1:35	2:00	1:25	R16	1:30	1:45
R17	1:45	1:50	1:35	1:35	1:20	R17	1:45	1:55	2:20	1:30	1:35	2:00	1:25	R17	1:45	1:45
R18	1:45	1:50	1:35	1:35	1:20	R18	1:45	1:55	2:20	1:30	1:35	2:00	1:15	R18	1:40	1:45
R19	1:50	1:55	1:40	1:50	1:30	R19	1:55	2:00	2:30	1:35	1:45	2:10	1:30	R19	1:45	1:55

Table J-1A. Time To Clear The Indicated Area of 50 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	2:25	2:40	2:05	2:20	1:50	R20	2:25	2:50	3:10	2:05	2:20	2:50	1:50	R20	2:15	2:25
R21	2:35	2:50	2:10	2:25	1:55	R21	2:40	3:00	3:25	2:10	2:25	2:55	1:55	R21	2:20	2:40
R22	2:45	3:05	2:20	2:40	2:00	R22	2:50	3:10	3:35	2:20	2:35	3:05	2:00	R22	2:20	2:50
R23	2:45	3:05	2:20	2:40	1:55	R23	2:50	3:10	3:35	2:20	2:35	3:00	1:55	R23	2:20	2:50
R24	2:55	3:15	2:25	2:45	2:00	R24	2:55	3:20	3:40	2:20	2:35	3:00	2:00	R24	2:20	2:55
R25	3:00	3:20	2:30	2:50	2:10	R25	3:05	3:30	3:50	2:30	2:50	3:10	2:10	R25	2:30	3:05
R26	2:45	3:05	2:25	2:40	2:00	R26	2:50	3:10	3:35	2:20	2:40	3:00	2:00	R26	2:25	2:50
R27	2:55	3:10	2:25	2:45	2:05	R27	3:00	3:15	3:40	2:25	2:45	3:05	2:05	R27	2:25	3:00
R28	2:40	3:00	2:10	2:25	1:55	R28	2:45	3:00	3:25	2:10	2:25	2:45	1:55	R28	2:15	2:45
R29	2:35	2:50	2:10	2:20	1:55	R29	2:40	3:00	3:20	2:10	2:25	2:50	1:55	R29	2:15	2:40
R30	2:35	2:50	2:10	2:20	1:55	R30	2:40	2:55	3:20	2:10	2:25	2:50	1:55	R30	2:15	2:40
R31	2:15	2:25	2:00	2:15	1:40	R31	2:20	2:35	3:05	1:55	2:00	2:30	1:45	R31	1:55	2:20
R32	2:10	2:25	2:00	2:15	1:40	R32	2:20	2:35	2:55	1:55	2:00	2:30	1:45	R32	1:55	2:20
R33	2:10	2:25	2:00	2:15	1:40	R33	2:20	2:40	3:00	1:55	2:10	2:35	1:45	R33	2:05	2:20
R34	2:10	2:25	2:00	2:15	1:40	R34	2:20	2:40	3:00	1:55	2:10	2:35	1:45	R34	2:05	2:20
R35	2:15	2:30	2:00	2:15	1:45	R35	2:20	2:40	3:05	1:55	2:10	2:40	1:45	R35	2:10	2:20

Table J-1B. Time To Clear The Indicated Area of 90 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	3:50	4:10	3:15	3:25	2:55	R1	3:55	4:15	4:50	3:15	3:30	4:05	2:55	R1	3:15	3:55
R2	4:50	5:10	4:20	4:45	3:55	R2	4:55	5:20	6:20	4:15	4:40	5:40	3:55	R2	4:15	4:55
R3	6:30	7:20	5:45	6:25	4:55	R3	6:30	7:10	8:05	5:30	6:05	7:00	5:00	R3	5:30	6:30
2-Mile Ring and Keyhole to 5 Miles																
R4	4:30	4:55	3:55	4:20	3:40	R4	4:35	5:05	5:50	4:05	4:30	5:15	3:35	R4	4:05	4:35
R5	4:45	5:10	4:15	4:35	3:55	R5	4:55	5:20	6:20	4:15	4:40	5:40	3:55	R5	4:15	4:55
R6	4:50	5:10	4:15	4:35	3:55	R6	4:50	5:20	6:20	4:15	4:40	5:35	3:55	R6	4:15	4:50
R7	4:50	5:10	4:10	4:35	3:55	R7	4:50	5:20	6:15	4:15	4:40	5:35	3:55	R7	4:15	4:50
R8	4:50	5:10	4:10	4:35	3:55	R8	4:50	5:20	6:15	4:15	4:40	5:35	3:55	R8	4:15	4:50
R9	4:50	5:10	4:15	4:45	3:55	R9	4:50	5:20	6:15	4:15	4:40	5:35	3:55	R9	4:15	4:50
R10	4:30	4:55	4:05	4:35	3:15	R10	4:30	4:55	5:35	3:50	4:05	4:40	3:10	R10	3:50	4:30
R11	4:35	5:00	4:10	4:40	3:35	R11	4:35	5:00	5:35	4:00	4:20	4:55	3:25	R11	4:00	4:35
R12	4:35	5:00	4:10	4:40	3:35	R12	4:35	5:00	5:35	4:00	4:20	4:55	3:25	R12	4:00	4:35
R13	4:20	4:50	3:50	4:15	3:35	R13	4:20	4:45	5:25	3:55	4:15	4:55	3:25	R13	3:55	4:20
R14	4:20	4:50	3:50	4:15	3:35	R14	4:20	4:45	5:25	3:55	4:15	4:55	3:25	R14	3:55	4:20
R15	4:20	4:50	3:50	4:15	3:35	R15	4:20	4:45	5:25	3:55	4:15	4:55	3:25	R15	3:55	4:20
R16	3:50	4:10	3:15	3:25	3:00	R16	3:55	4:15	4:50	3:20	3:30	4:10	3:00	R16	3:20	3:55
R17	3:50	4:10	3:15	3:30	3:00	R17	3:55	4:15	4:50	3:20	3:30	4:10	3:00	R17	4:15	3:55
R18	3:50	4:10	3:15	3:30	2:55	R18	3:55	4:15	4:55	3:15	3:30	4:05	2:55	R18	4:15	3:55
R19	4:30	4:50	3:50	4:15	3:35	R19	4:30	5:00	5:50	3:55	4:25	5:10	3:30	R19	4:15	4:30

Table J-1B. Time To Clear The Indicated Area of 90 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	5:25	6:05	4:50	5:25	4:20	R20	5:30	6:05	6:55	4:55	5:15	6:10	4:15	R20	4:55	5:30
R21	5:50	6:30	5:15	5:45	4:40	R21	5:55	6:30	7:30	5:10	5:40	6:40	4:40	R21	5:10	5:55
R22	6:15	6:55	5:35	6:10	4:55	R22	6:25	7:05	8:05	5:30	6:05	7:00	5:00	R22	5:30	6:25
R23	6:15	6:55	5:35	6:10	4:55	R23	6:20	7:00	7:55	5:25	6:00	7:00	4:55	R23	5:25	6:20
R24	6:15	7:00	5:35	6:15	4:50	R24	6:20	7:00	7:50	5:20	5:55	6:50	4:50	R24	5:20	6:20
R25	6:30	7:20	5:45	6:25	4:45	R25	6:30	7:10	8:05	5:30	6:05	6:55	4:40	R25	5:30	6:30
R26	6:10	6:45	5:20	6:00	4:20	R26	6:10	6:45	7:30	5:10	5:40	6:25	4:20	R26	5:10	6:10
R27	6:05	6:40	5:25	5:55	4:30	R27	6:10	6:40	7:30	5:10	5:40	6:25	4:20	R27	5:10	6:10
R28	5:50	6:35	5:10	5:40	4:25	R28	5:55	6:30	7:20	5:00	5:25	6:10	4:15	R28	5:00	5:55
R29	5:35	6:10	4:55	5:25	4:15	R29	5:35	6:10	6:55	4:45	5:10	5:55	4:05	R29	4:45	5:35
R30	5:30	6:10	4:50	5:20	4:15	R30	5:30	6:10	6:55	4:40	5:05	5:55	4:05	R30	4:40	5:30
R31	5:10	5:45	4:25	4:55	3:55	R31	5:15	5:45	6:35	4:20	4:45	5:30	3:55	R31	4:20	5:15
R32	5:05	5:45	4:25	4:55	3:55	R32	5:10	5:40	6:25	4:20	4:45	5:30	3:55	R32	4:20	5:10
R33	5:05	5:45	4:30	5:00	4:00	R33	5:10	5:40	6:25	4:25	4:50	5:40	3:55	R33	4:40	5:10
R34	5:05	5:45	4:30	5:00	4:00	R34	5:10	5:40	6:25	4:25	4:50	5:40	3:55	R34	4:40	5:10
R35	5:10	5:45	4:35	5:05	4:05	R35	5:10	5:45	6:25	4:30	4:50	5:40	3:55	R35	4:40	5:10

Table J-1C. Time To Clear The Indicated Area of 95 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	4:15	4:40	3:35	3:50	3:15	R1	4:20	4:40	5:20	3:40	3:55	4:30	3:15	R1	3:40	4:20
R2	5:20	5:45	4:45	5:15	4:15	R2	5:20	6:00	6:55	4:40	5:05	6:10	4:15	R2	4:40	5:20
R3	7:20	8:10	6:35	7:15	5:35	R3	7:20	8:00	9:10	6:15	7:00	8:10	5:40	R3	6:15	7:20
2-Mile Ring and Keyhole to 5 Miles																
R4	5:00	5:25	4:20	4:45	4:00	R4	5:00	5:30	6:25	4:25	4:50	5:40	3:55	R4	4:25	5:00
R5	5:20	5:45	4:40	5:00	4:15	R5	5:20	6:00	6:55	4:40	5:05	6:10	4:15	R5	4:40	5:20
R6	5:20	5:45	4:40	5:00	4:15	R6	5:20	6:00	6:55	4:40	5:05	6:10	4:15	R6	4:40	5:20
R7	5:20	5:45	4:40	5:00	4:15	R7	5:20	5:50	6:55	4:40	5:05	6:05	4:15	R7	4:40	5:20
R8	5:20	5:45	4:40	5:00	4:15	R8	5:20	5:50	6:55	4:40	5:05	6:05	4:15	R8	4:40	5:20
R9	5:20	5:45	4:40	5:00	4:15	R9	5:20	5:50	6:55	4:20	5:05	6:05	4:15	R9	4:40	5:20
R10	4:50	5:15	4:25	4:55	3:30	R10	4:50	5:15	5:55	4:05	4:25	5:00	3:25	R10	4:10	4:50
R11	4:55	5:25	4:35	5:10	4:00	R11	4:55	5:25	6:00	4:25	4:45	5:20	3:55	R11	4:35	4:55
R12	4:55	5:25	4:35	5:10	4:00	R12	4:55	5:25	6:00	4:25	4:45	5:20	3:55	R12	4:35	4:55
R13	4:50	5:20	4:20	4:50	4:00	R13	4:50	5:20	6:00	4:25	4:45	5:20	3:55	R13	4:35	4:50
R14	4:50	5:20	4:20	4:50	4:00	R14	4:50	5:20	6:00	4:25	4:45	5:25	4:00	R14	4:35	4:50
R15	4:50	5:20	4:20	4:50	4:00	R15	4:50	5:20	6:00	4:25	4:45	5:25	4:00	R15	4:35	4:50
R16	4:15	4:40	3:35	3:50	3:20	R16	4:20	4:40	5:30	3:40	3:55	4:40	3:20	R16	3:40	4:20
R17	4:15	4:40	3:35	3:55	3:20	R17	4:20	4:40	5:30	3:40	3:55	4:40	3:20	R17	4:40	4:40
R18	4:15	4:40	3:35	3:55	3:15	R18	4:20	4:40	5:30	3:40	3:55	4:40	3:15	R18	4:40	4:25
R19	5:00	5:20	4:15	4:45	4:05	R19	5:00	5:30	6:30	4:20	4:50	5:40	4:00	R19	4:40	5:00

Table J-1C. Time To Clear The Indicated Area of 95 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	5:55	6:40	5:25	6:00	4:55	R20	6:00	6:45	7:35	5:30	5:50	6:55	4:50	R20	5:30	6:00
R21	6:30	7:10	5:55	6:30	5:15	R21	6:35	7:15	8:20	5:45	6:25	7:30	5:15	R21	5:45	6:35
R22	7:10	8:00	6:25	7:00	5:35	R22	7:20	8:00	9:10	6:15	7:00	8:10	5:40	R22	6:15	7:20
R23	7:10	8:00	6:25	7:00	5:35	R23	7:15	8:00	9:10	6:15	6:55	8:10	5:35	R23	6:15	7:15
R24	7:10	8:00	6:25	7:10	5:30	R24	7:15	7:55	9:05	6:10	6:50	8:00	5:30	R24	6:10	7:15
R25	7:10	7:55	6:25	7:05	5:20	R25	7:10	8:00	8:55	6:05	6:45	7:45	5:15	R25	6:05	7:10
R26	6:55	7:35	6:05	6:50	4:55	R26	6:50	7:30	8:25	5:45	6:20	7:10	4:50	R26	5:45	6:50
R27	6:50	7:30	6:05	6:40	5:00	R27	6:50	7:25	8:20	5:45	6:20	7:10	4:50	R27	5:45	6:50
R28	6:30	7:20	5:50	6:25	4:55	R28	6:35	7:15	8:10	5:35	6:00	6:55	4:45	R28	5:35	6:35
R29	6:00	6:45	5:25	5:55	4:40	R29	6:05	6:45	7:30	5:10	5:40	6:25	4:30	R29	5:10	6:05
R30	6:00	6:40	5:20	5:55	4:40	R30	6:00	6:40	7:30	5:05	5:35	6:25	4:30	R30	5:10	6:00
R31	5:40	6:20	4:55	5:25	4:20	R31	5:45	6:20	7:10	4:50	5:15	6:10	4:15	R31	4:50	5:45
R32	5:35	6:20	4:55	5:25	4:20	R32	5:40	6:15	7:00	4:50	5:15	6:10	4:15	R32	4:50	5:40
R33	5:35	6:15	5:00	5:30	4:25	R33	5:35	6:15	7:00	4:55	5:20	6:10	4:20	R33	5:10	5:35
R34	5:35	6:15	5:00	5:30	4:25	R34	5:35	6:15	7:00	4:55	5:20	6:10	4:20	R34	5:10	5:35
R35	5:40	6:20	5:05	5:35	4:30	R35	5:40	6:20	7:05	5:00	5:25	6:15	4:25	R35	5:15	5:40

Table J-1D. Time To Clear The Indicated Area of 100 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	4:55	5:30	4:50	5:25	4:45	R1	5:15	5:15	6:50	4:55	5:30	5:55	4:30	R1	5:30	5:15
R2	6:20	7:10	5:55	6:45	5:25	R2	6:20	7:00	8:00	5:55	6:25	7:20	5:25	R2	6:30	6:20
R3	9:25	10:30	8:50	9:50	7:15	R3	9:30	10:55	12:00	7:55	8:50	10:10	7:10	R3	8:45	9:30
2-Mile Ring and Keyhole to 5 Miles																
R4	5:45	6:20	5:10	5:35	4:50	R4	5:45	6:25	7:30	5:15	5:30	6:35	4:45	R4	5:55	5:45
R5	6:00	6:45	5:25	5:50	5:15	R5	6:10	7:00	8:00	5:25	5:45	7:10	5:15	R5	5:55	6:10
R6	6:00	6:45	5:25	5:50	5:15	R6	6:10	7:00	8:00	5:25	5:45	7:10	5:15	R6	5:55	6:10
R7	6:00	6:40	5:20	5:50	5:10	R7	6:10	6:45	8:00	5:20	5:40	7:05	5:15	R7	5:55	6:10
R8	6:10	6:40	5:20	5:50	5:10	R8	6:10	6:45	8:00	5:20	5:45	7:10	5:15	R8	6:00	6:10
R9	6:10	6:40	5:55	6:40	5:10	R9	6:10	6:45	8:00	5:20	5:45	7:10	5:15	R9	6:00	6:10
R10	5:25	5:45	5:55	6:40	4:25	R10	5:20	5:55	6:45	4:40	5:25	5:55	4:25	R10	5:30	5:20
R11	6:20	6:55	5:55	6:40	5:25	R11	6:20	6:55	7:45	5:55	6:20	7:20	5:25	R11	6:30	6:20
R12	6:20	6:55	5:55	6:40	5:25	R12	6:20	6:55	7:45	5:55	6:20	7:20	5:25	R12	6:30	6:20
R13	6:20	6:55	5:55	6:40	5:25	R13	6:20	6:55	7:40	5:55	6:20	7:15	5:25	R13	6:30	6:20
R14	6:20	7:10	5:55	6:45	5:25	R14	6:20	6:55	7:40	5:55	6:25	7:15	5:25	R14	6:30	6:20
R15	6:20	7:10	5:55	6:45	5:25	R15	6:20	6:55	7:40	5:55	6:25	7:15	5:25	R15	6:30	6:20
R16	5:25	5:40	4:50	5:10	4:25	R16	5:10	5:45	6:45	4:45	5:30	5:55	4:25	R16	5:30	5:10
R17	5:25	5:40	4:50	5:10	4:25	R17	5:10	5:45	6:45	4:45	5:30	5:55	4:25	R17	6:30	5:10
R18	5:20	5:40	4:50	5:10	4:25	R18	5:10	5:45	6:45	4:45	5:30	5:50	4:25	R18	6:30	5:10
R19	5:40	6:20	4:55	5:30	4:45	R19	5:40	6:35	7:30	5:15	5:30	6:35	4:45	R19	6:30	5:40

Table J-1D. Time To Clear The Indicated Area of 100 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	7:25	8:10	6:45	7:30	6:25	R20	7:30	8:15	9:25	6:55	7:25	8:40	6:25	R20	6:50	7:30
R21	8:00	8:55	7:20	8:15	6:45	R21	8:10	8:55	10:20	7:10	8:05	9:20	6:40	R21	7:00	8:10
R22	8:55	9:55	7:50	8:45	7:15	R22	8:55	9:55	11:15	7:55	8:45	10:05	7:10	R22	8:45	9:15
R23	8:55	9:55	7:50	8:45	7:15	R23	8:55	9:55	11:15	7:50	8:45	10:05	7:05	R23	8:45	9:15
R24	8:45	9:40	7:55	9:00	7:05	R24	8:50	9:40	11:00	7:45	8:20	9:50	7:00	R24	8:45	9:20
R25	9:25	10:30	8:50	9:30	6:55	R25	9:25	10:55	12:00	7:30	8:05	9:30	6:50	R25	8:15	9:25
R26	9:25	10:30	8:50	9:30	6:15	R26	9:25	10:55	12:00	7:20	7:55	8:45	6:00	R26	7:50	9:25
R27	9:20	10:30	8:20	9:25	6:15	R27	9:25	10:55	11:55	7:05	7:55	8:45	6:00	R27	7:50	9:25
R28	9:20	10:25	8:20	9:25	6:15	R28	9:25	10:30	11:55	7:05	7:35	8:45	6:00	R28	7:50	9:25
R29	8:10	8:55	7:20	7:40	6:25	R29	8:10	8:55	9:50	6:50	7:20	8:15	6:15	R29	6:45	8:10
R30	8:00	8:55	7:20	7:40	6:25	R30	8:00	8:45	9:50	6:45	7:20	8:15	6:15	R30	6:45	8:00
R31	7:15	8:25	6:45	7:20	6:20	R31	7:20	7:55	8:50	6:45	7:00	8:25	6:15	R31	7:30	7:20
R32	6:40	7:45	6:40	7:10	5:50	R32	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R32	6:50	6:45
R33	6:40	7:45	6:40	7:10	5:50	R33	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R33	6:50	6:45
R34	6:40	7:45	6:40	7:10	5:50	R34	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R34	6:50	6:45
R35	6:55	7:45	6:40	7:10	5:50	R35	6:55	7:40	8:30	6:20	6:55	7:55	5:50	R35	6:50	6:55

Table J-1E. Time To Clear The EPZ Boundary of 100 Percent of the Affected Population (Page 1 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
Entire 2-Mile Region, 5-Mile Region, and EPZ																
R1	5:45	6:20	5:40	6:15	5:35	R1	6:05	6:05	7:40	5:45	6:20	6:45	5:20	R1	6:20	6:05
R2	6:50	7:40	6:25	7:15	5:55	R2	6:50	7:30	8:30	6:25	6:55	7:50	5:55	R2	7:00	6:50
R3	9:25	10:30	8:50	9:50	7:15	R3	9:30	10:55	12:00	7:55	8:50	10:10	7:10	R3	8:45	9:30
2-Mile Ring and Keyhole to 5 Miles																
R4	6:15	6:50	5:40	6:05	5:20	R4	6:15	6:55	8:00	5:45	6:00	7:05	5:15	R4	6:25	6:15
R5	6:30	7:15	5:55	6:20	5:45	R5	6:40	7:30	8:30	5:55	6:15	7:40	5:45	R5	6:25	6:40
R6	6:30	7:15	5:55	6:20	5:45	R6	6:40	7:30	8:30	5:55	6:15	7:40	5:45	R6	6:25	6:40
R7	6:30	7:10	5:50	6:20	5:40	R7	6:40	7:15	8:30	5:50	6:10	7:35	5:45	R7	6:25	6:40
R8	6:40	7:10	5:50	6:20	5:40	R8	6:40	7:15	8:30	5:50	6:15	7:40	5:45	R8	6:30	6:40
R9	6:40	7:10	6:25	7:10	5:40	R9	6:40	7:15	8:30	5:50	6:15	7:40	5:45	R9	6:30	6:40
R10	5:55	6:15	6:25	7:10	4:55	R10	5:50	6:25	7:15	5:10	5:55	6:25	4:55	R10	6:00	5:50
R11	6:50	7:25	6:25	7:10	5:55	R11	6:50	7:25	8:15	6:25	6:50	7:50	5:55	R11	7:00	6:50
R12	6:50	7:25	6:25	7:10	5:55	R12	6:50	7:25	8:15	6:25	6:50	7:50	5:55	R12	7:00	6:50
R13	6:50	7:25	6:25	7:10	5:55	R13	6:50	7:25	8:10	6:25	6:50	7:45	5:55	R13	7:00	6:50
R14	6:50	7:40	6:25	7:15	5:55	R14	6:50	7:25	8:10	6:25	6:55	7:45	5:55	R14	7:00	6:50
R15	6:50	7:40	6:25	7:15	5:55	R15	6:50	7:25	8:10	6:25	6:55	7:45	5:55	R15	7:00	6:50
R16	5:55	6:10	5:20	5:40	4:55	R16	5:40	6:15	7:15	5:15	6:00	6:25	4:55	R16	6:00	5:40
R17	5:55	6:10	5:20	5:40	4:55	R17	5:40	6:15	7:15	5:15	6:00	6:25	4:55	R17	7:00	5:40
R18	5:50	6:10	5:20	5:40	4:55	R18	5:40	6:15	7:15	5:15	6:00	6:20	4:55	R18	7:00	5:40
R19	6:10	6:50	5:25	6:00	5:15	R19	6:10	7:05	8:00	5:45	6:00	7:05	5:15	R19	7:00	6:10

Table J-1E. Time To Clear The EPZ Boundary of 100 Percent of the Affected Population (Page 2 of 2)

	Summer		Summer		Summer		Winter			Winter			Winter		Autumn	Spring
	Midweek		Weekend		Midweek Weekend		Midweek			Weekend			Midweek Weekend		Weekend USMA Football	Midweek USMA Graduation
Scenario:	(1)	(2)	(3)	(4)	(5)	Scenario:	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:	(13)	(14)
Region	Midday		Midday		Evening	Region	Midday			Midday			Evening	Region	Midday	Midday
	Good Weather	Rain	Good Weather	Rain	Good Weather		Good Weather	Rain	Snow	Good Weather	Rain	Snow	Good Weather		Good Weather	Good Weather
5 Mile Ring and Keyhole to EPZ Boundary																
R20	7:25	8:10	6:45	7:30	6:25	R20	7:30	8:15	9:25	6:55	7:25	8:40	6:25	R20	6:50	7:30
R21	8:00	8:55	7:20	8:15	6:45	R21	8:10	8:55	10:20	7:10	8:05	9:20	6:40	R21	7:00	8:10
R22	8:55	9:55	7:50	8:45	7:15	R22	8:55	9:55	11:15	7:55	8:45	10:05	7:10	R22	8:45	9:15
R23	8:55	9:55	7:50	8:45	7:15	R23	8:55	9:55	11:15	7:50	8:45	10:05	7:05	R23	8:45	9:15
R24	8:45	9:40	7:55	9:00	7:05	R24	8:50	9:40	11:00	7:45	8:20	9:50	7:00	R24	8:45	9:20
R25	9:25	10:30	8:50	9:30	6:55	R25	9:25	10:55	12:00	7:30	8:05	9:30	6:50	R25	8:15	9:25
R26	9:25	10:30	8:50	9:30	6:15	R26	9:25	10:55	12:00	7:20	7:55	8:45	6:00	R26	7:50	9:25
R27	9:20	10:30	8:20	9:25	6:15	R27	9:25	10:55	11:55	7:05	7:55	8:45	6:00	R27	7:50	9:25
R28	9:20	10:25	8:20	9:25	6:15	R28	9:25	10:30	11:55	7:05	7:35	8:45	6:00	R28	7:50	9:25
R29	8:10	8:55	7:20	7:40	6:25	R29	8:10	8:55	9:50	6:50	7:20	8:15	6:15	R29	6:45	8:10
R30	8:00	8:55	7:20	7:40	6:25	R30	8:00	8:45	9:50	6:45	7:20	8:15	6:15	R30	6:45	8:00
R31	7:15	8:25	6:45	7:20	6:20	R31	7:20	7:55	8:50	6:45	7:00	8:25	6:15	R31	7:30	7:20
R32	6:40	7:45	6:40	7:10	5:50	R32	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R32	6:50	6:45
R33	6:40	7:45	6:40	7:10	5:50	R33	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R33	6:50	6:45
R34	6:40	7:45	6:40	7:10	5:50	R34	6:45	7:40	8:30	6:10	6:40	7:55	5:40	R34	6:50	6:45
R35	6:55	7:45	6:40	7:10	5:50	R35	6:55	7:40	8:30	6:20	6:55	7:55	5:50	R35	6:50	6:55

Notes

1. The distance traveled from the Regional boundary to the boundary of the EPZ is 8 miles for the two-mile region and 5 miles for all of the the five-mile regions.
2. Speeds beetween the regional boundary and the boundary of the EPZ are conservatively assumed to be 10 mph.

Table J-2. Definition of Evacuation Regions

DESCRIPTION OF REGION	ERPAs IN ORANGE COUNTY	ERPAs IN PUTNAM COUNTY	ERPAs IN ROCKLAND COUNTY	ERPAs IN WESTCHESTER COUNTY	DESCRIPTION OF REGION	ERPAs IN REGION
R1	39	NONE	29, 38, 39	1-4, 7, 44	Entire 2 mile ring	1-4, 7, 29, 38, 39, 44
R2	26, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	Entire 5 mile ring	1-9, 16, 18, 24, 26, 29-31, 38-40, 43-45, 47-49
R3	24-28, 39, 40	16-20, 23, 45, 46	29-41	1-15, 21, 22, 42-44, 47-51	Full EPZ	1-51
2 Mile Ring and Sector to 5 Miles						
R4	26, 39, 45	16, 18, 45	29, 38, 39	1-4, 7, 8, 44	N	1-4, 7, 8, 16, 18, 26, 29, 38, 39, 44, 45
R5	39, 45	16, 18, 45	29, 38, 39, 44, 45	1-4, 7-9, 44, 45	NNE	1-4, 7-9, 16, 18, 29, 38, 39, 44, 45
R6	39	16, 18	29, 38, 39, 44	1-4, 7-9, 44, 49	NE	1-4, 7-9, 16, 18, 29, 38, 39, 44, 49
R7	39	NONE	29, 38, 39, 44	1-4, 7-9, 44, 49	ENE	1-4, 7-9, 29, 38, 39, 44, 49
R8	39	NONE	29, 38, 39, 44	1-5, 7-9, 44, 48, 49	E	1-5, 7-9, 29, 38, 39, 44, 48, 49
R9	39	NONE	29, 38, 39, 44	1-7, 9, 44, 47-49	ESE	1-7, 9, 29, 38, 39, 44, 47-49
R10	39	NONE	29, 38, 39, 43, 44	1-7, 43, 44, 47-49	SE	1-7, 29, 38, 39, 43, 44, 47-49
R11	39	NONE	29-31, 38, 39, 43, 44	1-7, 43, 44, 47-49	SSE	1-7, 29-31, 38, 39, 43, 44, 47-49
R12	39	NONE	29-31, 38, 39, 43, 44	1-4, 6, 7, 43, 44, 47, 48	S	1-4, 6, 7, 29-31, 38, 39, 43, 44, 47, 48
R13	39	NONE	29-31, 38, 39, 43, 44	1-4, 7, 43, 44	SSW	1-4, 7, 29-31, 38, 39, 43, 44
R14	39, 40	NONE	29-31, 38-40, 43, 44	1-4, 7, 43, 44	SW	1-4, 7, 29-31, 38-40, 43, 44
R15	39, 40	NONE	29-31, 38-40, 44	1-4, 7, 44	WSW	1-4, 7, 29-31, 38-40, 44
R16	39, 40	NONE	29, 30, 38-40, 44	1-4, 7, 44	W	1-4, 7, 29, 30, 38-40, 44
R17	24, 26, 39, 40, 45	45	29, 30, 38-40, 44, 45	1-4, 7, 44, 45	WNW	1-4, 7, 24, 26, 29, 30, 38-40, 44, 45
R18	24, 26, 39, 40, 45	16, 45	29, 38-40, 44, 45	1-4, 7, 44, 45	NW	1-4, 7, 16, 24, 26, 29, 38-40, 44, 45
R19	24, 26, 39, 40, 45	16, 45	29, 38, 39, 40, 44, 45	1-4, 7, 8, 44, 45	NNW	1-4, 7, 8, 16, 24, 26, 29, 38, 39, 40, 44, 45

Table J-2. Definition of Evacuation Regions

(Concluded)

DESCRIPTION OF REGION	ERPAs IN ORANGE COUNTY	ERPAs IN PUTNAM COUNTY	ERPAs IN ROCKLAND COUNTY	ERPAs IN WESTCHESTER COUNTY	DESCRIPTION OF REGION	ERPAs IN REGION
5 Mile Ring and Sector to EPZ Boundary						
R20	24-26, 39, 40	16-19, 23, 45, 46	29-31, 38-40	1-9, 43, 44, 47-49	N	1-9, 16-19, 23-26, 29-31, 38-40, 43-49
R21	24, 26, 39, 40	16-20, 23, 45, 46	29-31, 38-40	1-10, 43, 44, 47-49	NNE	1-10, 16-20, 23, 24, 26, 29-31, 38-40, 43-49
R22	24,26, 39, 40	16-20, 45	29-31, 38-40	1-14, 43, 44, 47-49	NE	1-14, 16-20, 24,26, 29-31, 38-40, 43-45, 47-49
R23	24,26, 39, 40	16, 18, 19, 20, 45	29-31, 38-40	1-15, 43, 44, 47-49	ENE	1-16, 18-20, 24,26, 29-31, 38-40, 43-45, 47-49
R24	24,26, 39, 40	16, 18, 20, 45	29-31, 38-40	1-15, 21, 43, 44, 47-50	E	1-16, 18, 20, 21, 24,26, 29-31, 38-40, 43-45, 47-50
R25	24,26, 39, 40	16, 18, 45	29-31, 38-40	1-9, 11-15, 21, 22, 43, 44, 47-51	ESE	1-9, 11-16, 18, 21, 22, 24,26, 29-31, 38-40, 43-45, 47-51
R26	24,26, 39, 40	16, 18, 45	29-32, 38-40	1-9, 12, 13, 21, 22, 42-44, 47-51	SE	1-9, 12-13, 16, 18, 21-22, 24,26, 29-32, 38-40, 42-45, 47-51
R27	24,26, 39, 40	16, 18, 45	29-35, 38-40	1-9, 12, 21, 22, 42-44, 47-51	SSE	1-9, 12, 16, 18, 21, 22, 24,26, 29-35, 38-40, 42-45, 47-51
R28	24,26, 39, 40	16, 18, 45	29-40	1-9, 22, 42-44, 47-49, 51	S	1-9, 16, 18, 22, 24,26, 29-40, 42-45, 47-49, 51
R29	24,26, 39, 40	16, 18, 45	29-41	1-9, 42-44, 47-49	SSW	1-9, 16, 18, 24,26, 29-45, 47-49
R30	24,26, 39, 40	16, 18, 45	29-31, 34-41	1-9, 43, 44, 47-49	SW	1-9, 16, 18, 24,26, 29-31, 34-41, 43-45, 47-49
R31	24,26, 28, 39, 40	16, 18, 45	29-31, 34, 36-41	1-9, 43, 44, 47-49	WSW	1-9, 16, 18, 24,26, 28-31, 34, 36-41, 43-45, 47-49
R32	24, 26-28, 39, 40	16, 18, 45	29-31, 38-41	1- 9, 43, 44, 47-49	W	1-9, 16, 18, 24, 26-31, 38-41, 43-45, 47-49
R33	24-28, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	WNW	1-9, 16, 18, 24-31, 38-40, 43-45, 47-49
R34	24-28, 39, 40	16, 18, 45	29-31, 38-40	1-9, 43, 44, 47-49	NW	1-9, 16, 18, 24-31, 38-40, 43-45, 47-49
R35	24-27, 39, 40	16-18, 23, 45, 46	29-31, 38-40	1-9, 43, 44, 47-49	NNW	1-9, 16-18, 23-27, 29-31, 38-40, 43-49

Table J-3A. Evacuation Percentiles for the 2-Mile, 5-Mile Rings and the EPZ Boundary - Summer Scenarios

	Summer									
	Midweek									
Scenario:	(1)					(2)				
Region	Midday									
	Good Weather					Rain				
	Percentile					Percentile				
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry
R1	1:45	3:50	4:15	4:55	5:45	1:50	4:10	4:40	5:30	6:20
R2	2:10	4:50	5:20	6:20	6:50	2:25	5:10	5:45	7:10	7:40
R3	3:05	6:30	7:20	9:25	9:25	3:25	7:20	8:10	10:30	10:30
	Summer									
	Weekend									
Scenario:	(3)					(4)				
Region	Midday									
	Good Weather					Rain				
	Percentile					Percentile				
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry
R1	1:35	3:15	3:35	4:50	5:40	1:40	3:25	3:50	5:25	6:15
R2	2:00	4:20	4:45	5:55	6:25	2:15	4:45	5:15	6:45	7:15
R3	2:30	5:45	6:35	8:50	8:50	2:50	6:25	7:15	9:50	9:50
	Summer									
	Midweek, Weekend									
Scenario:	(5)									
Region	Evening									
	Good Weather									
	Percentile									
	50	90	95	100	EPZ Bdry					
R1	1:20	2:55	3:15	4:45	5:35					
R2	1:40	3:55	4:15	5:25	5:55					
R3	2:10	4:55	5:35	7:15	7:15					

Table J-3B. Evacuation Percentiles for the 2-Mile, 5-Mile Rings and the EPZ Boundary
Winter Scenarios

	Winter														
	Midweek														
Scenario:	(6)					(7)					(8)				
Region	Midday														
	Good Weather					Rain					Snow				
	Percentile					Percentile					Percentile				
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry
R1	1:45	3:55	4:20	5:15	6:05	1:55	4:15	4:40	5:15	6:05	2:20	4:50	5:20	6:50	7:40
R2	2:20	4:55	5:20	6:20	6:50	2:30	5:20	6:00	7:00	7:30	2:55	6:20	6:55	8:00	8:30
R3	3:10	6:30	7:20	9:30	9:30	3:30	7:10	8:00	10:55	10:55	3:55	8:05	9:10	12:00	12:00
	Winter														
	Weekend														
Scenario:	(9)					(10)					(11)				
Region	Midday														
	Good Weather					Rain					Snow				
	Percentile					Percentile					Percentile				
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry
R1	1:30	3:15	3:40	4:55	5:45	1:35	3:30	3:55	5:30	6:20	2:00	4:05	4:30	5:55	6:45
R2	1:55	4:15	4:40	5:55	6:25	2:05	4:40	5:05	6:25	6:55	2:30	5:40	6:10	7:20	7:50
R3	2:30	5:30	6:15	7:55	7:55	2:50	6:05	7:00	8:50	8:50	3:15	7:00	8:10	10:10	10:10
	Winter														
	Midweek, Weekend														
Scenario:	(12)														
Region	Evening														
	Good Weather														
	Percentile														
	50	90	95	100	EPZ Bdry										
R1	1:25	2:55	3:15	4:30	5:20										
R2	1:45	3:55	4:15	5:25	5:55										
R3	2:10	5:00	5:40	7:10	7:10										
	Autumn					Spring									
	Weekend USMA Football					Midweek USMA Graduation									
Scenario:	(13)					(14)									
Region	Midday					Midday									
	Good Weather					Good Weather									
	Percentile					Percentile									
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry					
R1	1:30	3:15	3:40	5:30	6:20	1:45	3:55	4:20	5:15	6:05					
R2	1:55	4:15	4:40	6:30	7:00	2:20	4:55	5:20	6:20	6:50					
R3	2:35	5:30	6:15	8:45	8:45	3:10	6:30	7:20	9:30	9:30					

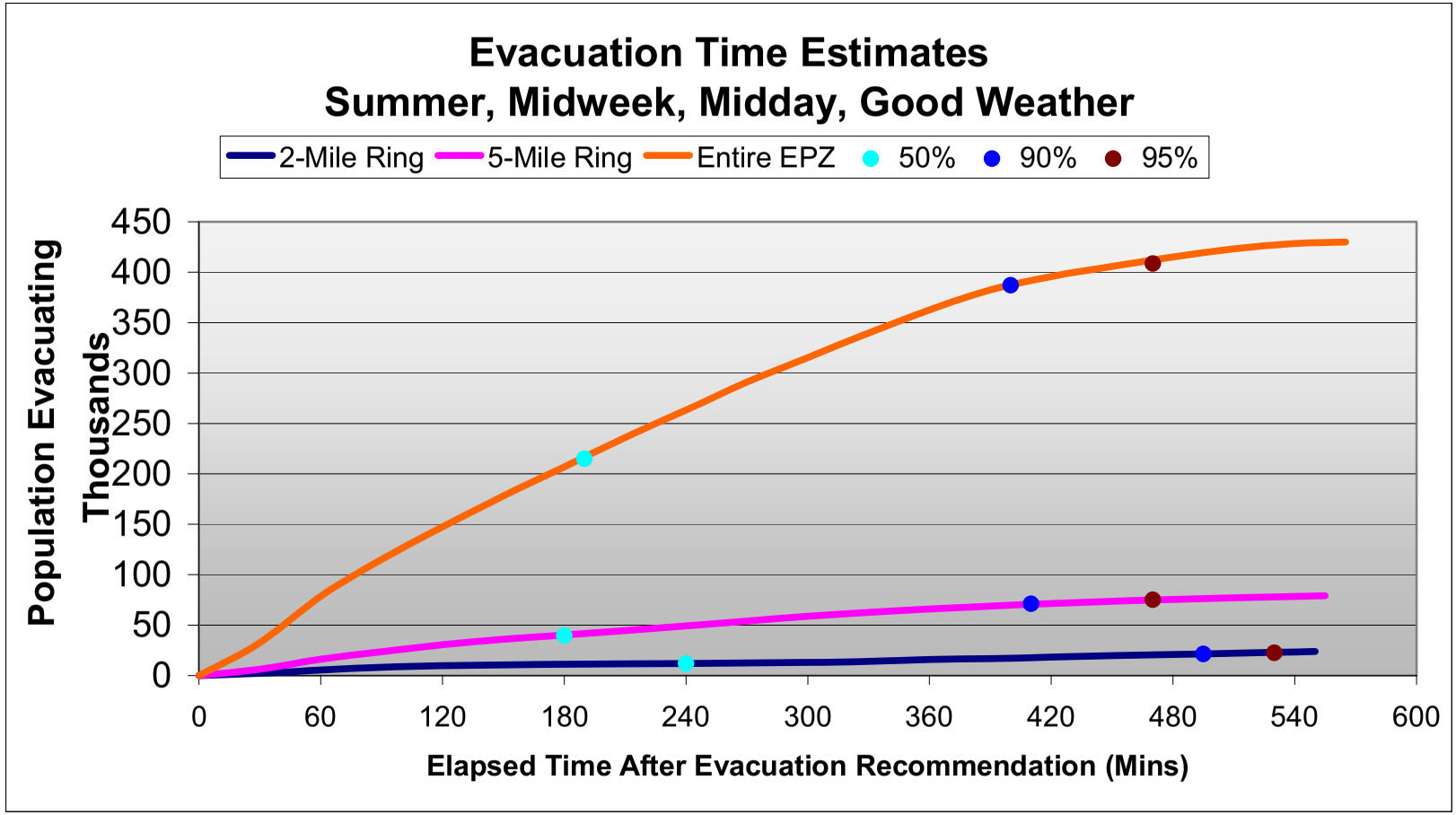


Figure J-1. Evacuation Time Estimates – Scenario 1 for Region R3 (Entire EPZ)

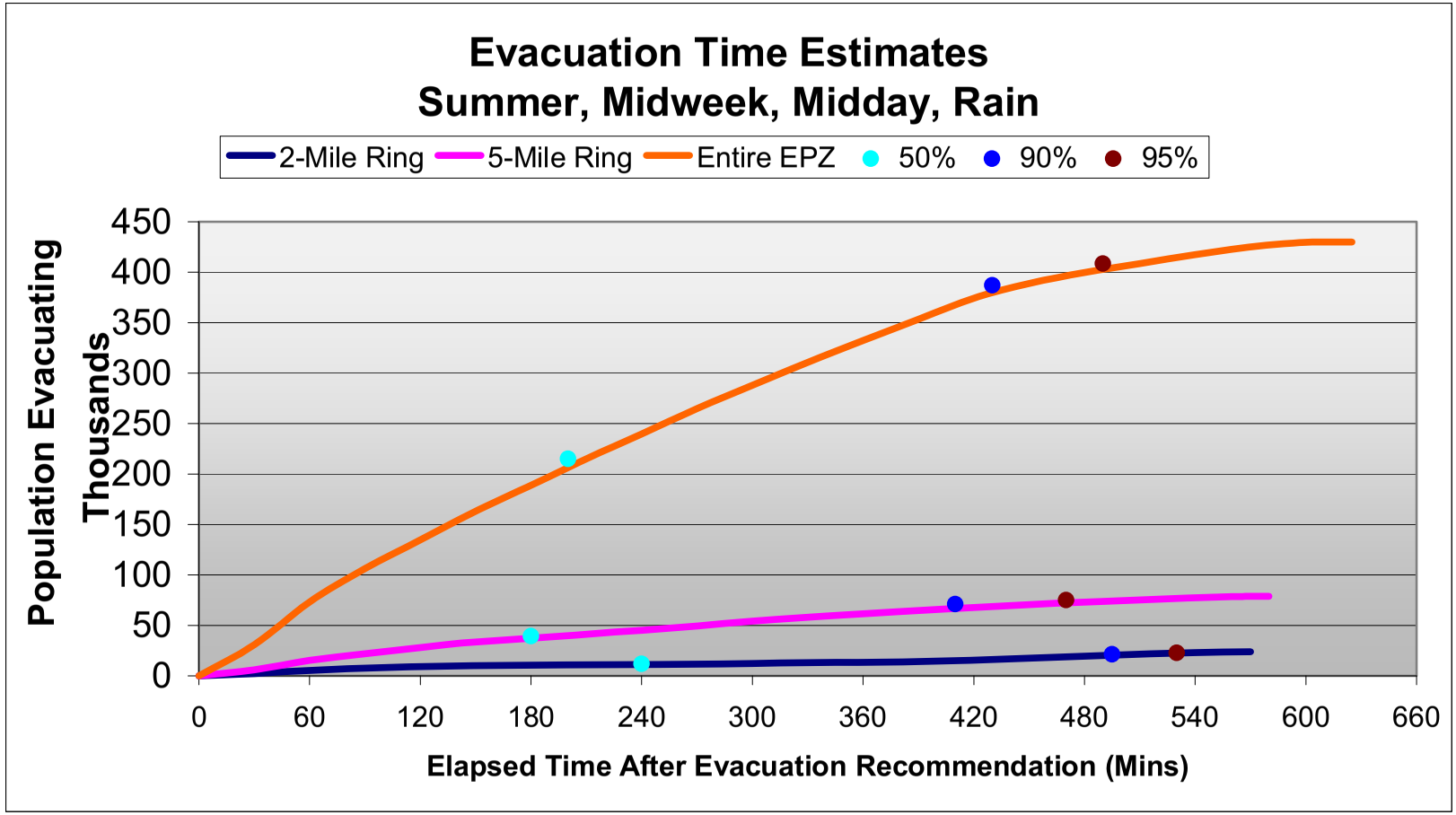


Figure J-2. Evacuation Time Estimates – Scenario 2 for Region R3 (Entire EPZ)

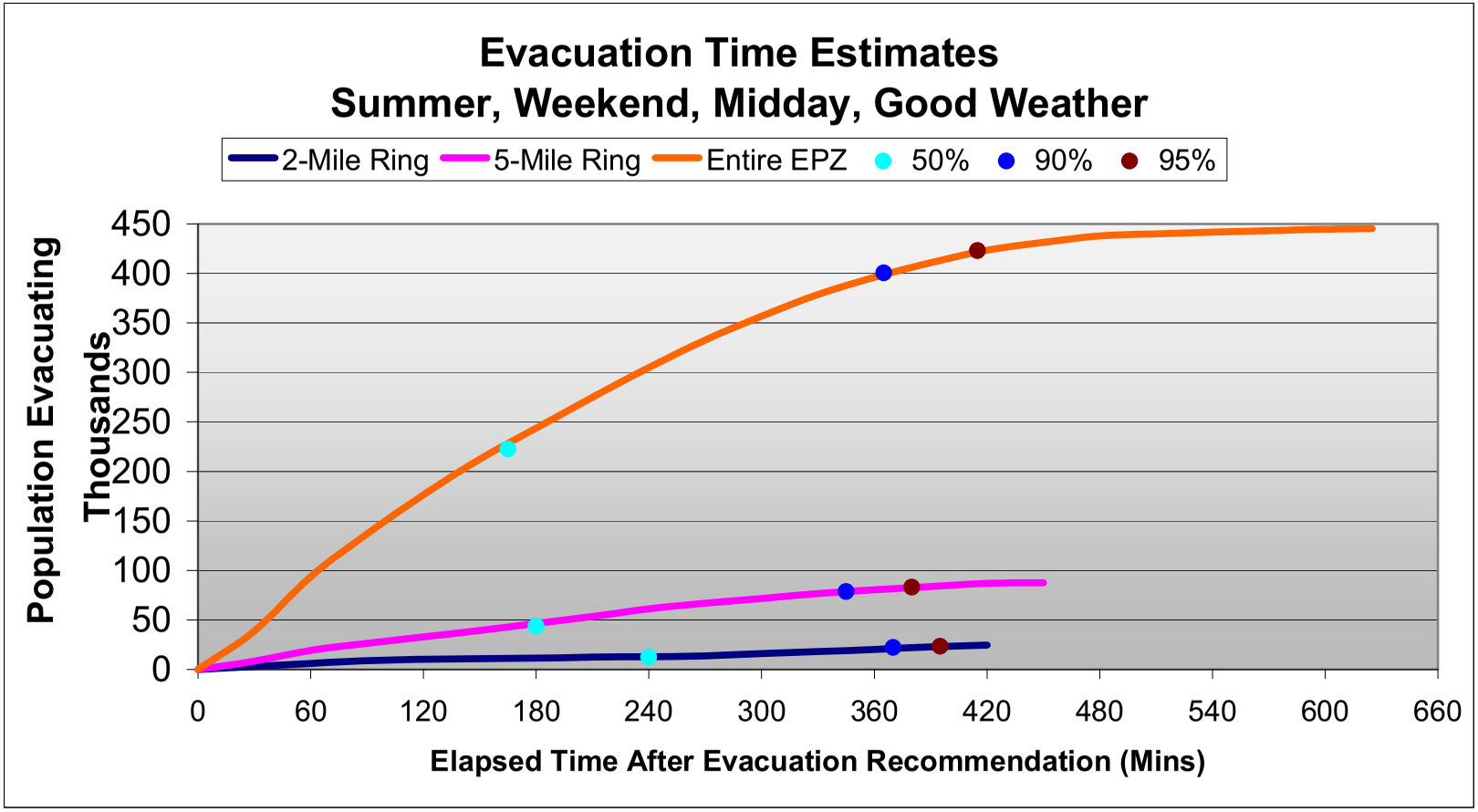


Figure J-3. Evacuation Time Estimates – Scenario 3 for Region R3 (Entire EPZ)

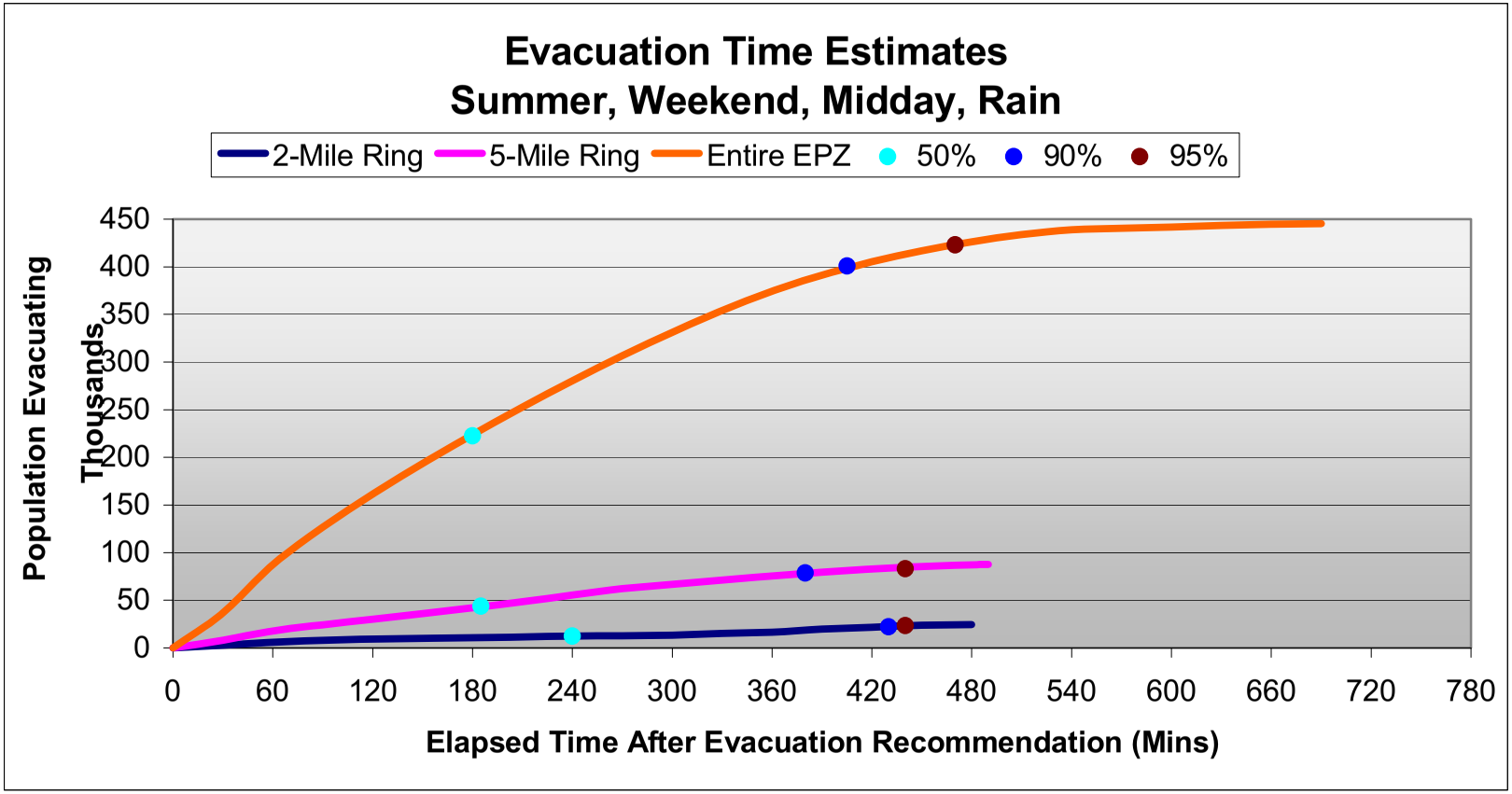


Figure J-4. Evacuation Time Estimates – Scenario 4 for Region R3 (Entire EPZ)

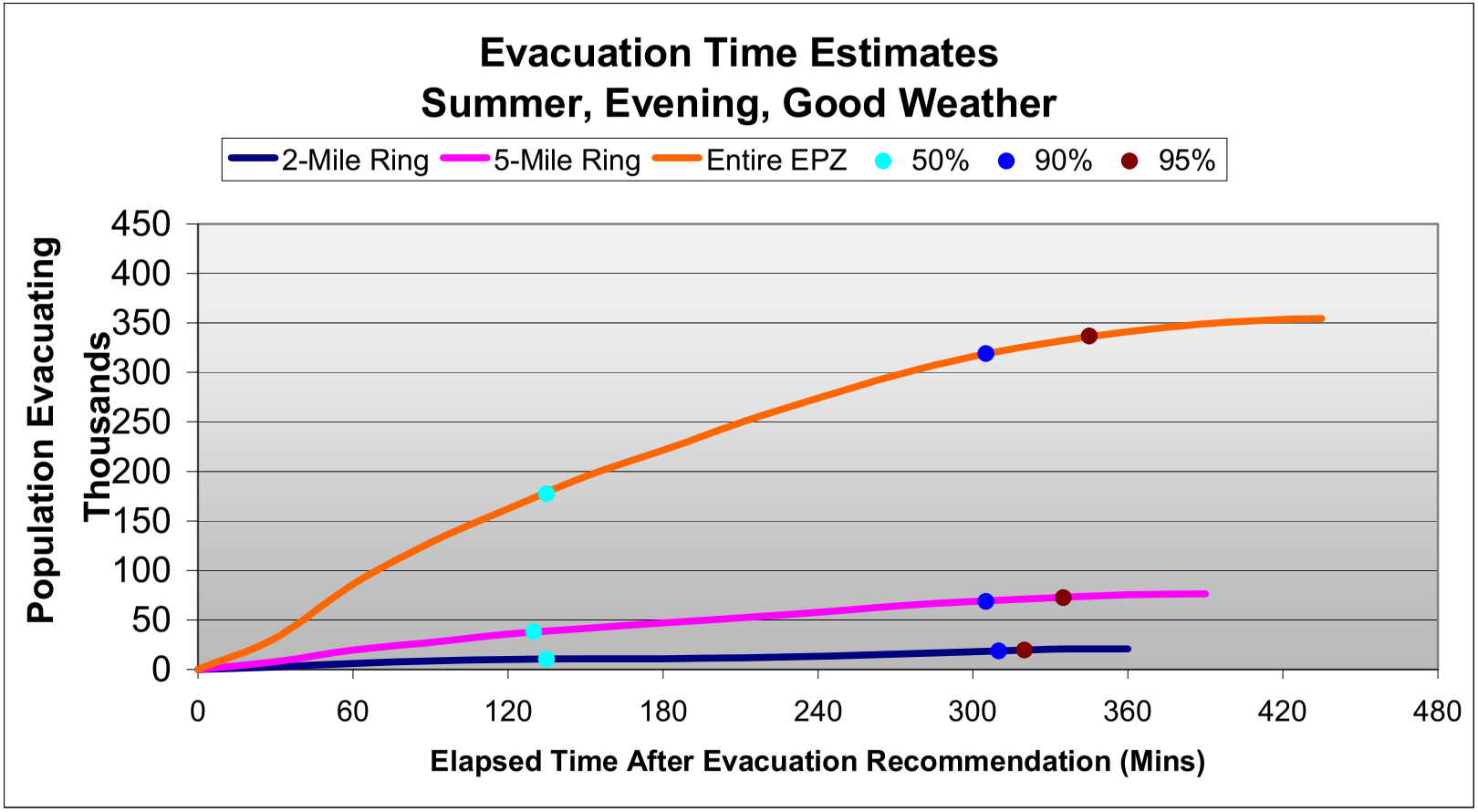


Figure J-5. Evacuation Time Estimates – Scenario 5 for Region R3 (Entire EPZ)

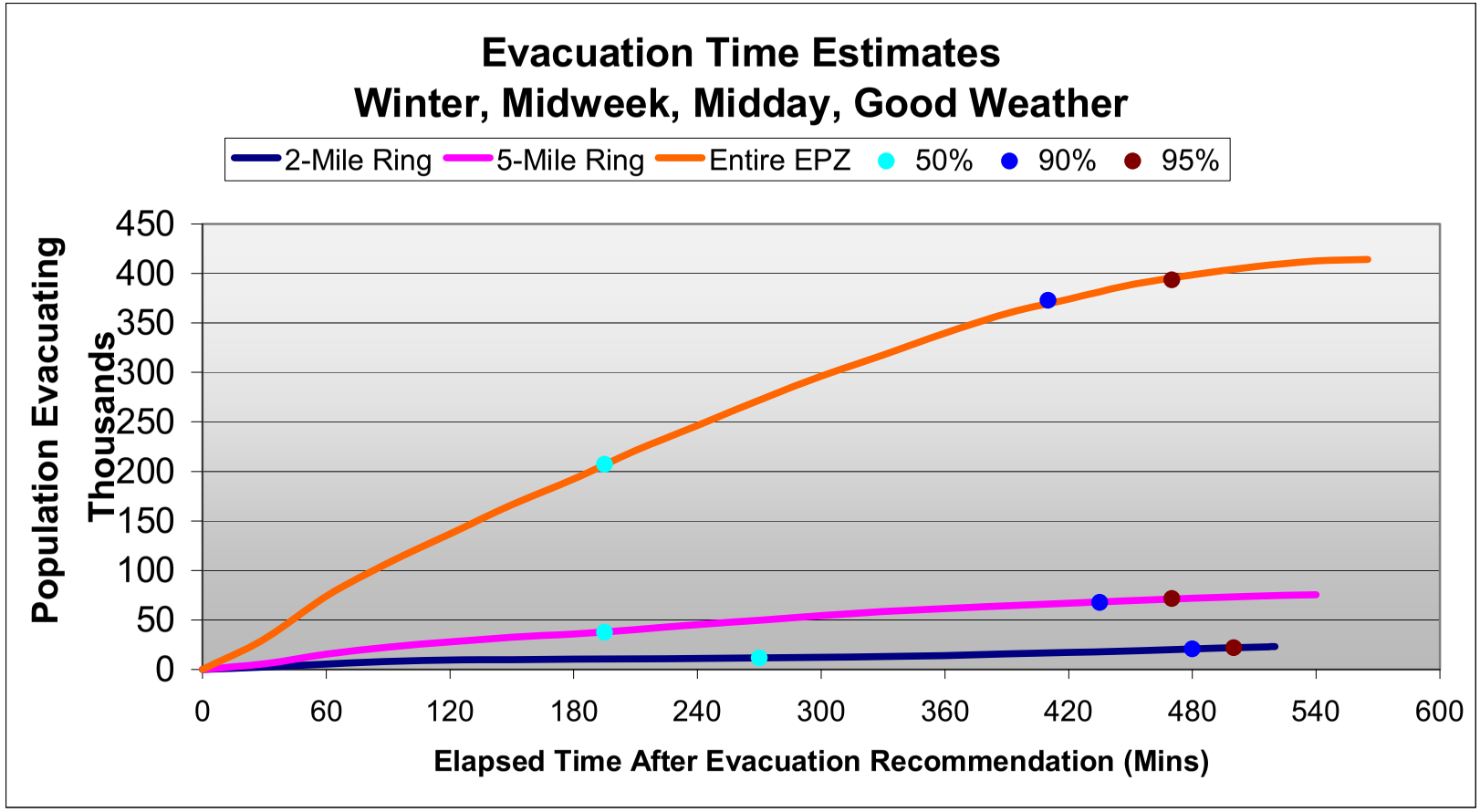


Figure J-6. Evacuation Time Estimates – Scenario 6 for Region R3 (Entire EPZ)

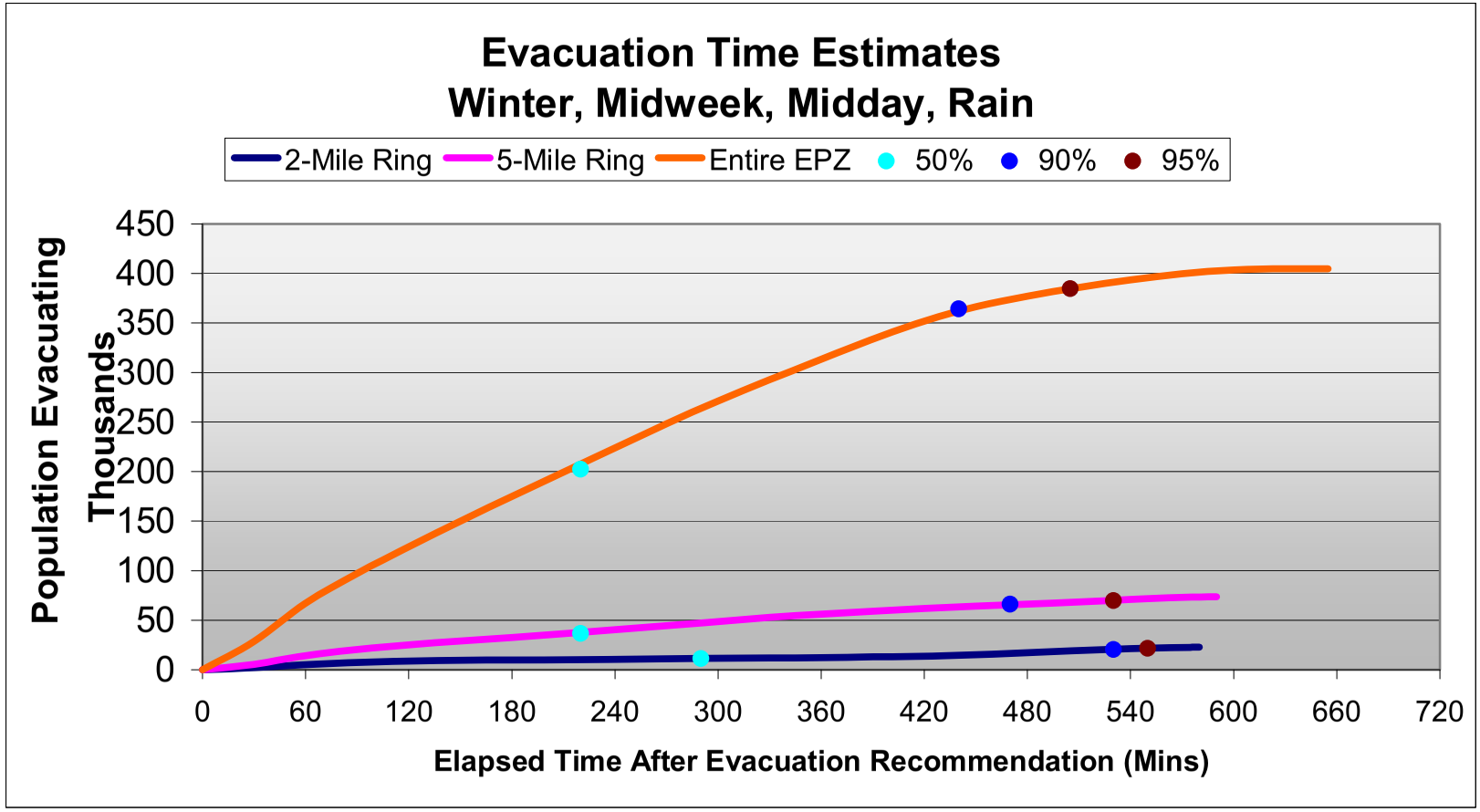


Figure J-7. Evacuation Time Estimates – Scenario 7 for Region R3 (Entire EPZ)

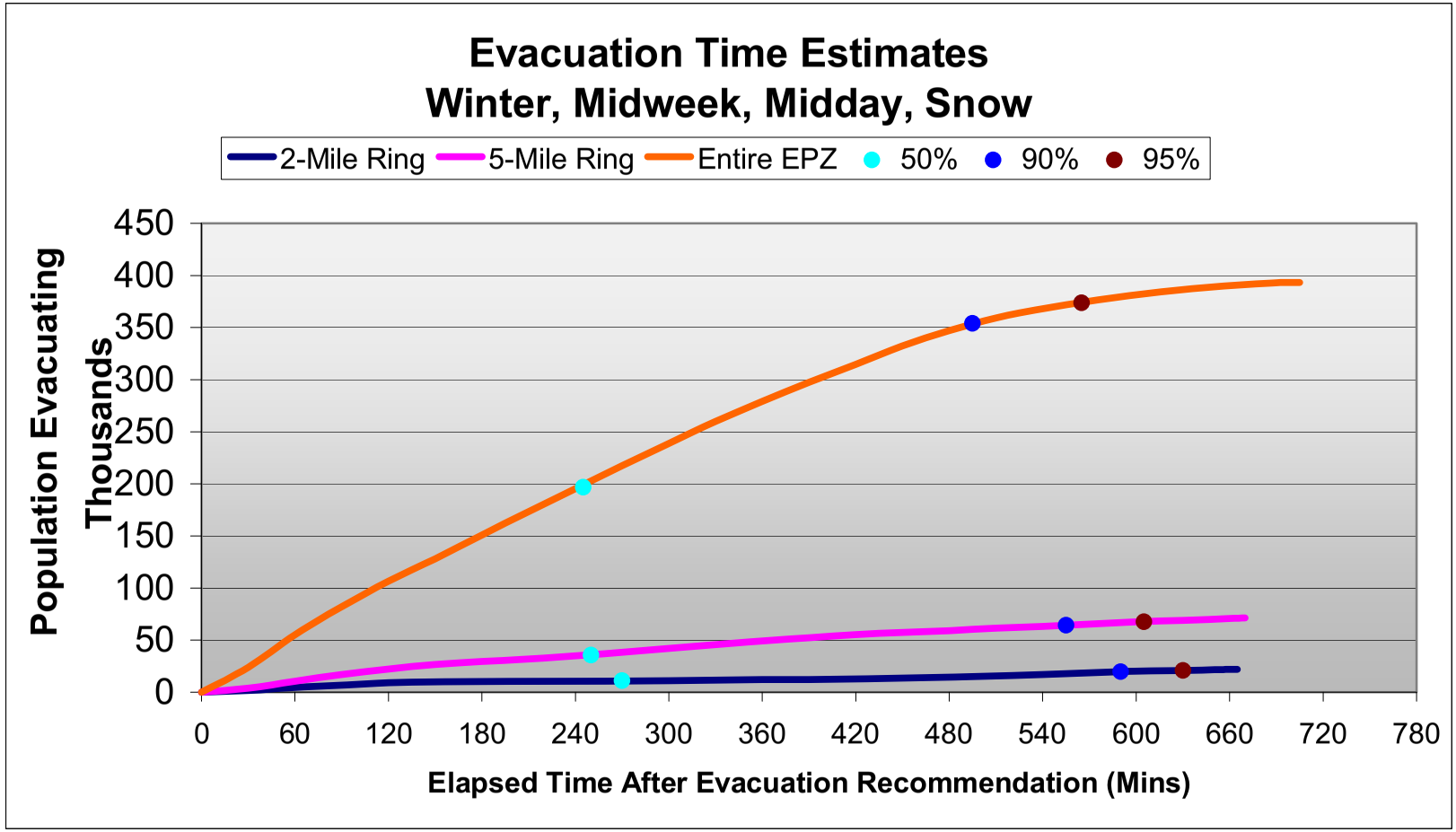


Figure J-8. Evacuation Time Estimates – Scenario 8 for Region R3 (Entire EPZ)

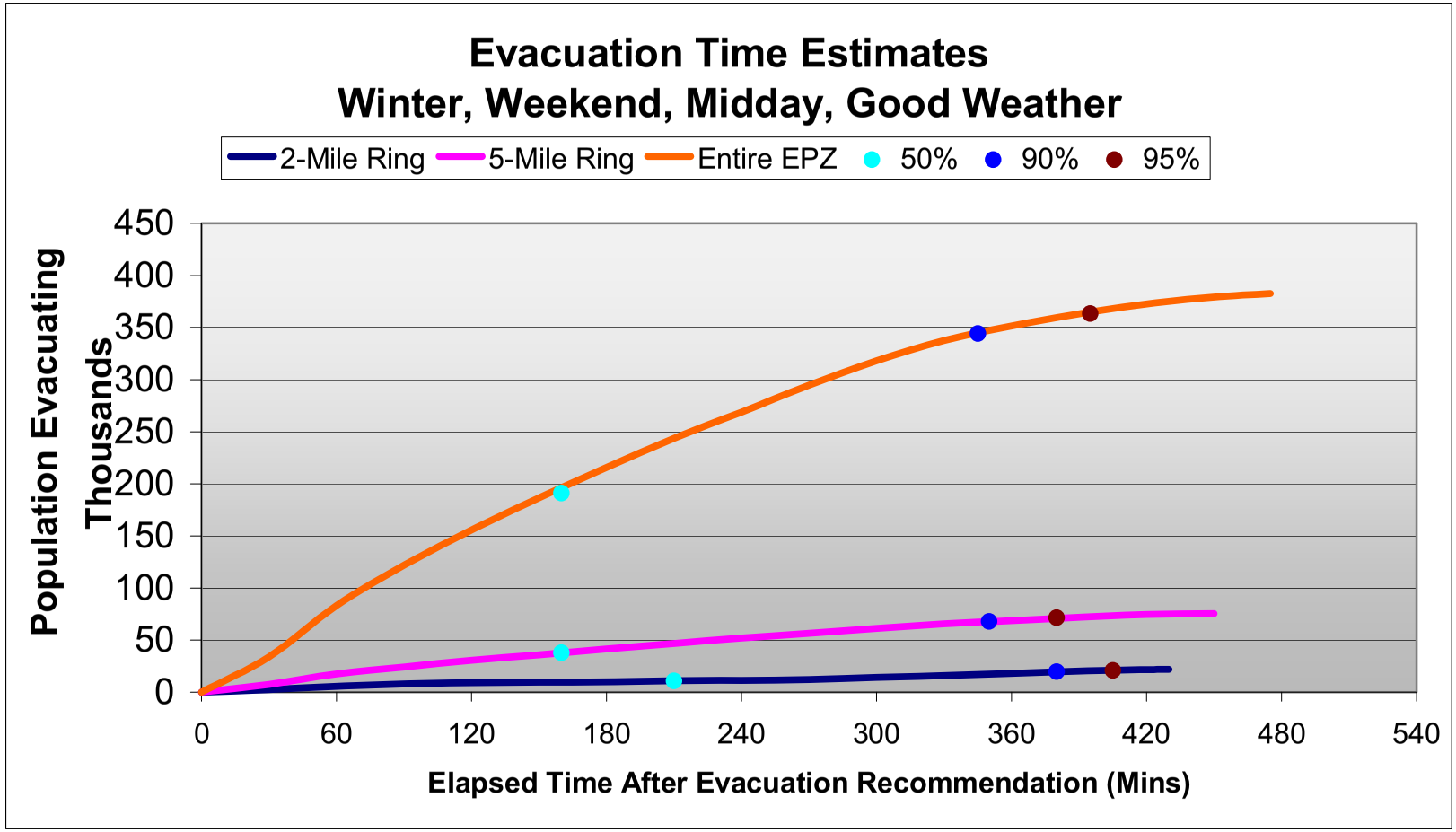


Figure J-9. Evacuation Time Estimates – Scenario 9 for Region R3 (Entire EPZ)

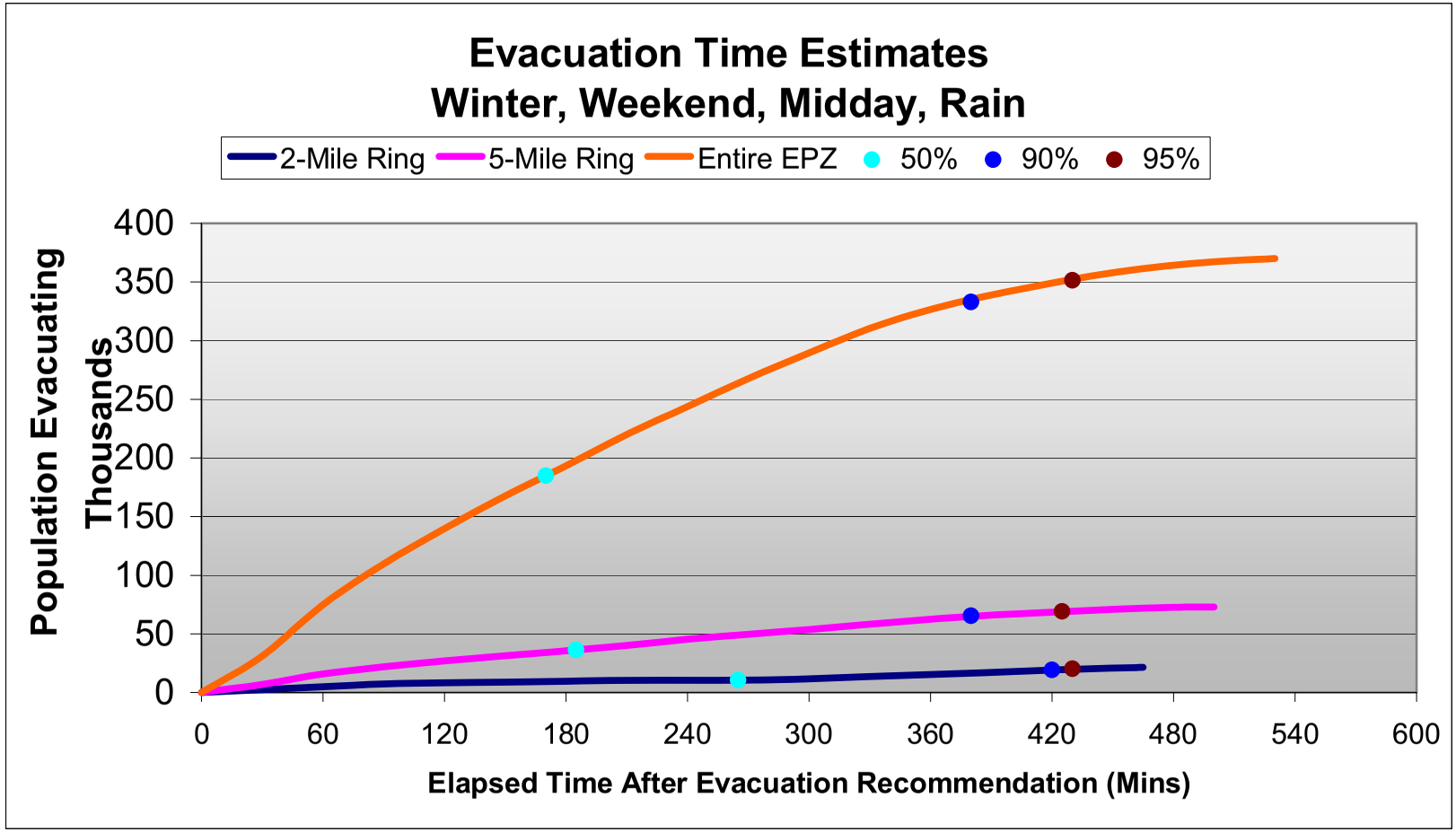


Figure J-10. Evacuation Time Estimates – Scenario 10 for Region R3 (Entire EPZ)

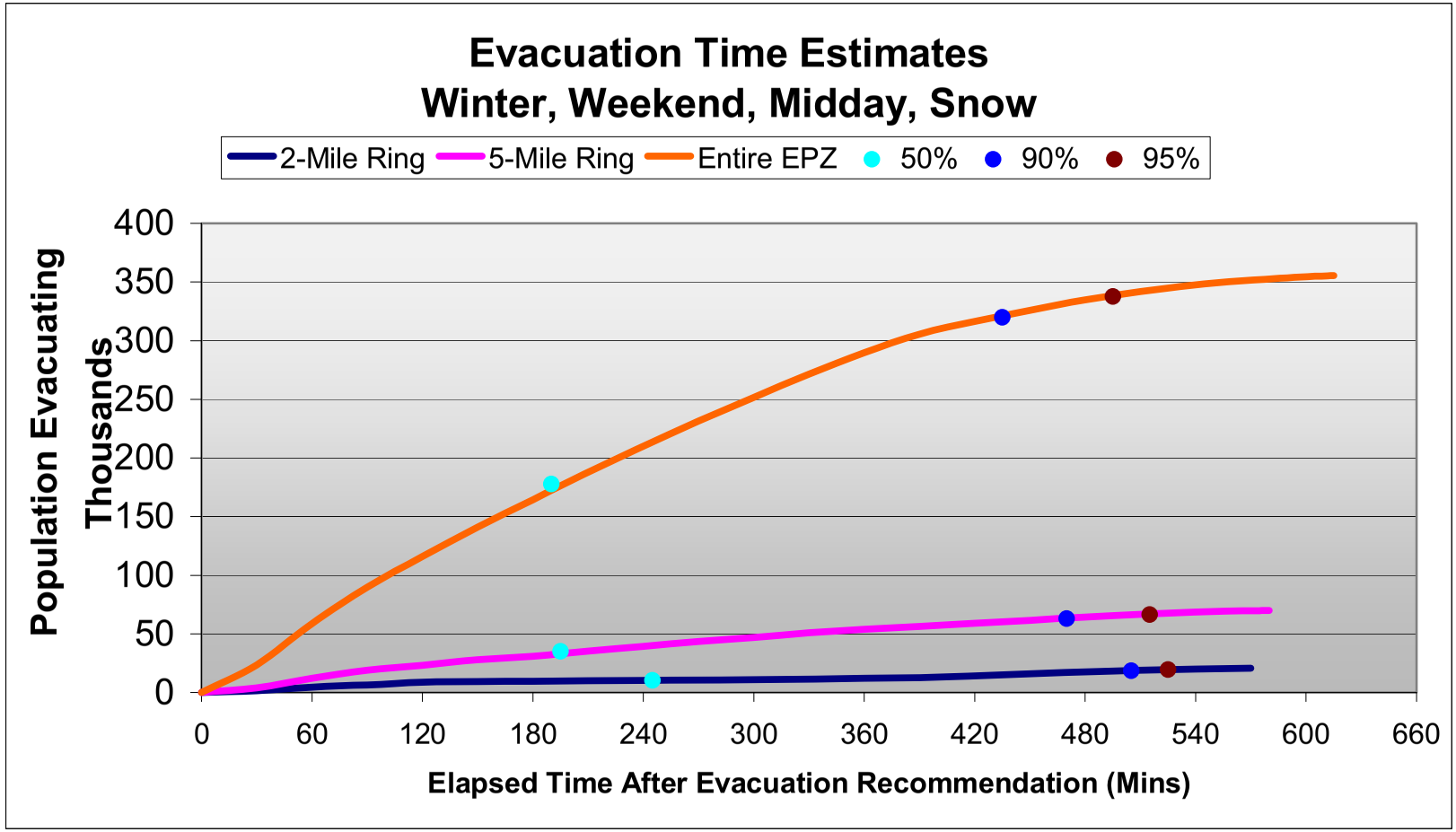


Figure J-11. Evacuation Time Estimates – Scenario 11 for Region R3 (Entire EPZ)

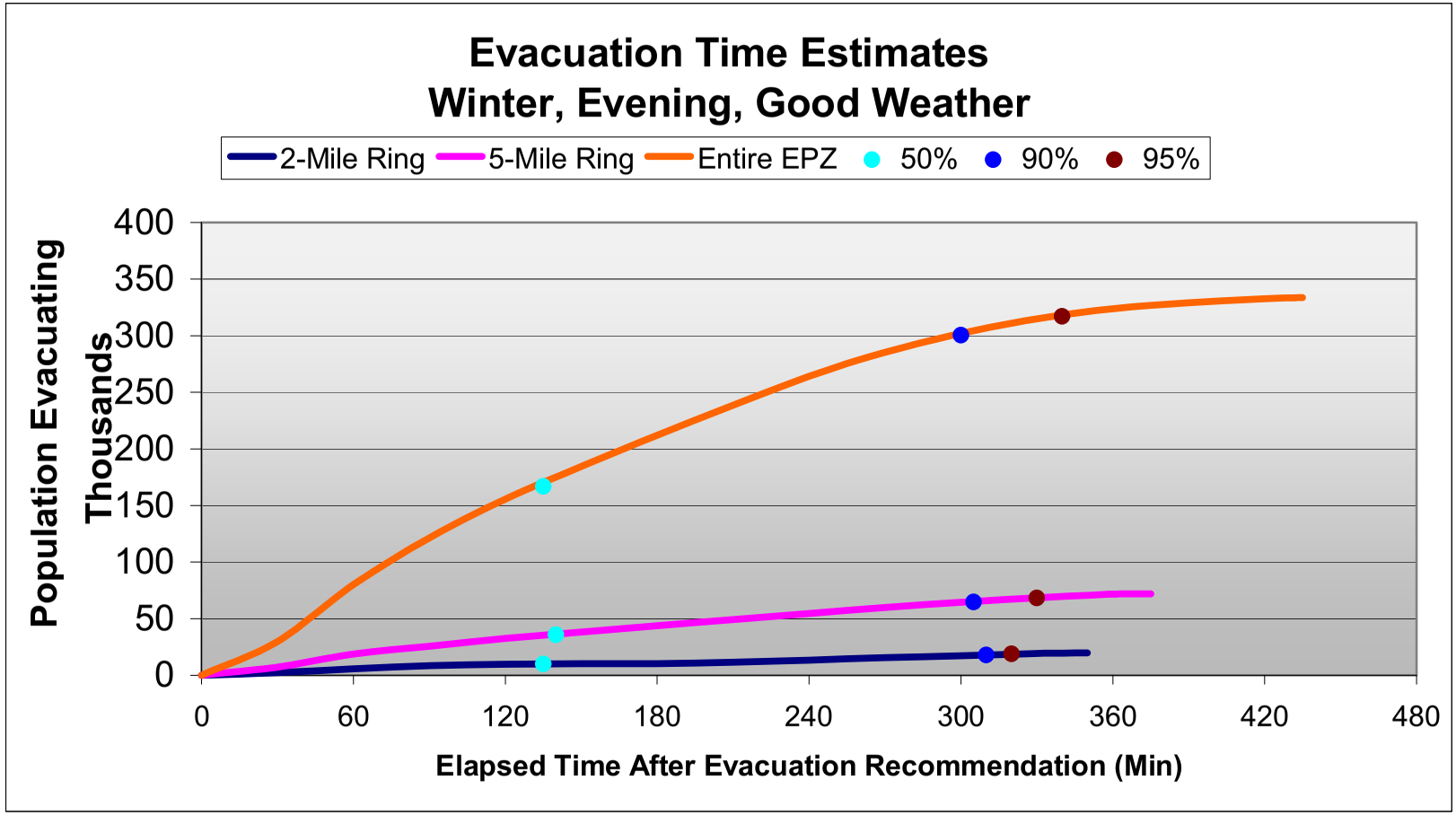


Figure J-12. Evacuation Time Estimates – Scenario 12 for Region R3 (Entire EPZ)

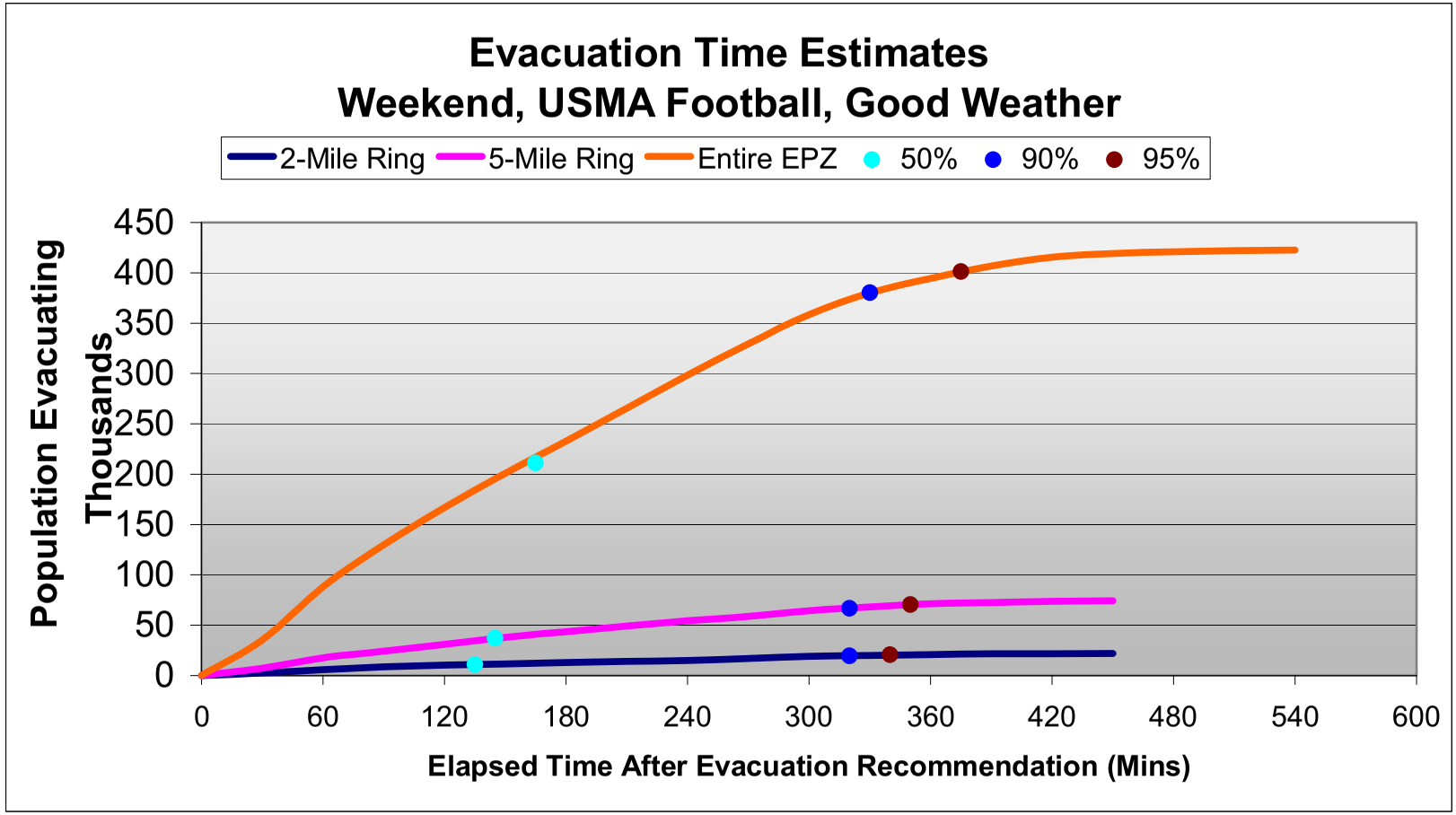


Figure J-13. Evacuation Time Estimates – Scenario 13 for Region R3 (Entire EPZ)

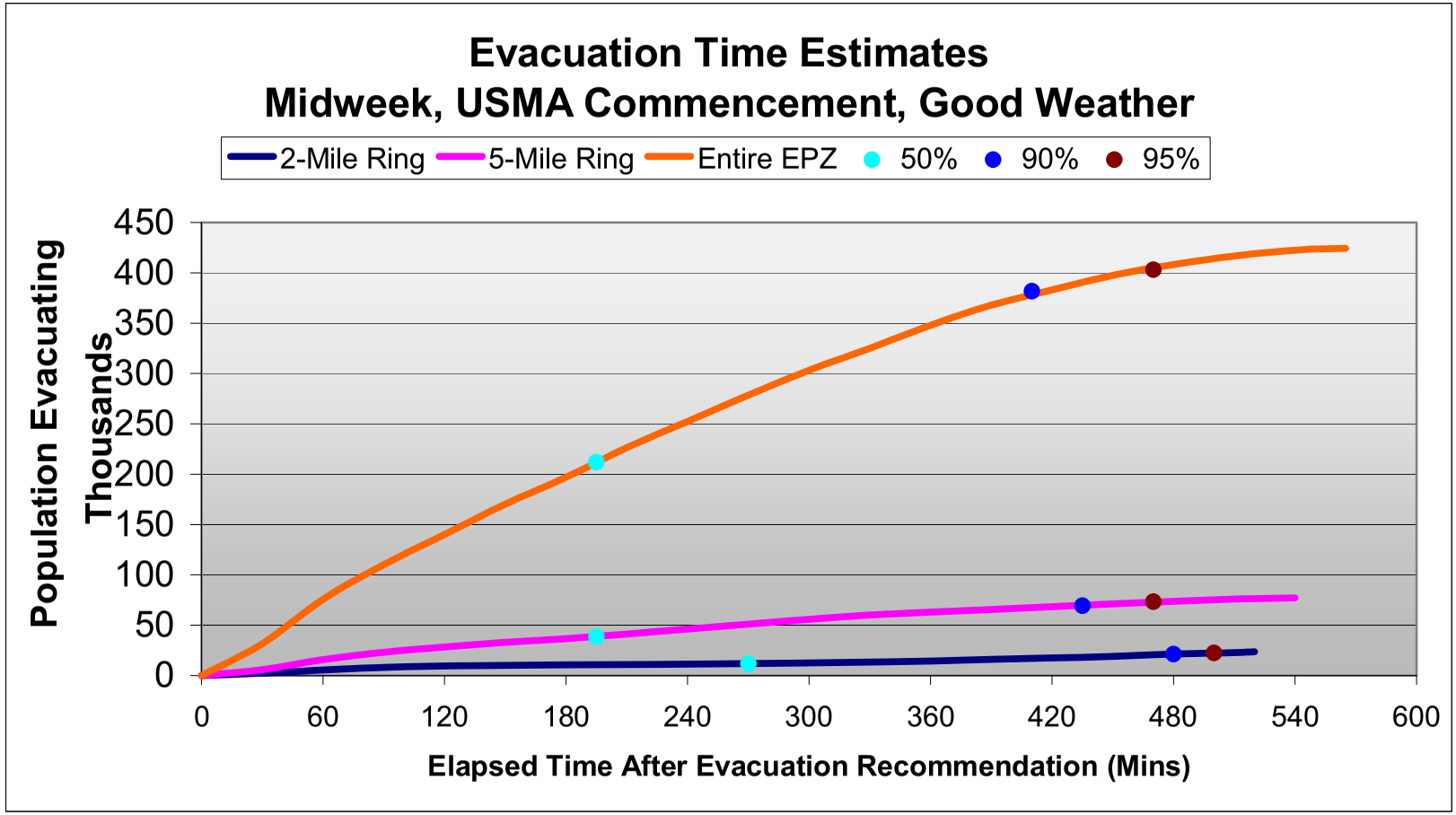


Figure J-14. Evacuation Time Estimates – Scenario 14 for Region R3 (Entire EPZ)

APPENDIX K

Evacuation Roadway Network Characteristics

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1	870	21	2	0	0	2.0	2,250	65
1	1151	39	2	0	0	2.0	2,250	65
2	3	122	1	1	0	2.0	1,714	55
2	33	65	1	0	0	2.0	1,714	40
2	521	71	1	0	0	2.0	1,714	55
3	2	122	1	0	0	2.0	1,714	55
3	4	60	1	0	0	2.0	1,714	55
3	21	103	1	0	0	2.0	1,714	40
3	88	82	1	0	0	2.0	1,714	40
4	3	60	1	1	0	2.0	1,714	55
4	12	77	1	1	0	2.0	1,895	40
5	6	64	2	0	0	2.0	2,000	65
5	13	59	2	0	0	2.0	2,000	65
6	5	64	2	0	0	2.0	2,000	65
6	29	152	2	0	0	2.0	2,000	65
7	145	17	2	0	0	2.0	1,895	50
7	686	84	2	0	0	2.0	1,895	50
8	22	29	1	1	0	2.0	1,714	40
8	29	25	1	0	0	2.0	1,714	40
8	441	33	1	0	1	2.0	1,714	40
9	75	183	2	0	0	2.0	2,000	65
9	583	14	2	0	0	2.0	2,000	65
10	339	28	1	0	0	2.0	1,714	40
10	383	19	1	0	0	2.0	1,714	40
10	418	30	2	0	0	2.0	2,250	60
10	583	107	2	0	0	2.0	2,000	65
11	871	36	1	0	0	2.0	1,895	30
11	1153	87	2	0	0	2.0	2,250	60
12	4	77	1	0	0	2.0	1,714	55
12	13	39	1	0	0	2.0	1,714	40
12	14	23	1	1	0	2.0	1,895	40
13	5	59	2	0	0	2.0	2,000	65
13	12	39	1	0	1	2.0	1,714	25
13	17	19	1	0	1	2.0	1,714	30
13	81	122	2	0	0	2.0	1,895	60
14	12	23	1	0	1	2.0	1,895	40
14	17	44	1	0	0	2.0	1,714	40
14	152	10	2	0	0	2.0	1,895	40
15	5	13	1	0	0	2.0	1,714	40
15	18	44	1	0	0	2.0	1,895	45
15	152	21	1	1	1	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
16	36	129	1	0	0	2.0	1,895	55
16	152	66	1	1	0	2.0	1,895	40
17	14	44	2	0	0	2.0	1,714	40
17	110	85	1	0	0	2.0	1,714	40
18	15	44	1	0	0	2.0	1,895	40
18	40	151	1	0	0	2.0	1,714	35
18	935	45	1	0	0	2.0	1,895	40
19	20	97	1	0	0	2.0	1,714	45
19	22	135	1	1	0	2.0	1,714	40
19	935	16	1	1	0	2.0	1,895	40
20	19	97	1	0	1	2.0	1,714	40
20	21	72	1	0	0	2.0	1,714	40
21	3	103	1	0	0	2.0	1,714	40
21	20	72	1	0	0	2.0	1,714	45
21	450	52	1	0	0	2.0	1,714	40
22	8	29	1	1	0	2.0	1,714	40
22	19	135	1	1	0	2.0	1,895	45
22	26	47	1	0	0	2.0	1,714	40
22	166	148	1	1	0	2.0	1,714	40
23	164	27	1	0	0	2.0	1,714	40
23	525	91	1	0	0	2.0	1,714	40
23	590	60	1	0	0	2.0	1,714	40
24	964	39	2	0	1	2.0	1,714	40
24	1005	74	1	1	0	2.0	1,714	35
25	27	88	1	0	0	2.0	1,714	40
25	30	94	1	1	0	2.0	1,895	40
25	169	48	1	0	0	2.0	1,714	40
25	450	82	1	0	0	2.0	1,714	40
26	22	47	1	1	0	2.0	1,714	40
26	28	40	1	0	0	2.0	1,714	40
26	167	151	1	0	0	2.0	1,714	40
27	25	88	1	0	0	2.0	1,714	40
27	28	33	1	0	0	2.0	1,714	40
28	26	40	1	0	0	2.0	1,714	40
28	27	33	1	0	0	2.0	1,714	40
29	6	152	2	0	0	2.0	2,000	65
29	8	25	1	1	0	2.0	1,714	25
29	75	48	2	0	0	2.0	2,000	65
30	25	94	1	1	0	2.0	1,714	40
30	78	83	1	0	0	2.0	1,714	40
30	165	69	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
30	1002	122	2	0	0	2.0	1,895	40
31	11	24	1	0	0	2.0	1,714	30
31	869	184	2	0	0	2.0	2,118	40
31	1154	149	2	0	0	2.0	1,714	40
32	877	13	1	0	0	2.0	1,714	35
32	889	59	1	0	0	2.0	1,714	35
33	2	65	1	0	0	2.0	1,714	40
33	169	86	1	0	0	2.0	1,714	40
33	450	66	1	0	0	2.0	1,714	40
33	521	62	1	0	0	2.0	1,714	40
34	42	44	1	1	0	2.0	1,714	40
34	442	8	1	1	0	2.0	1,714	40
35	1000	157	1	0	0	2.0	1,714	55
36	16	129	1	0	0	2.0	1,895	50
36	45	24	2	0	0	2.0	1,895	50
37	36	56	1	0	0	2.0	1,714	40
38	37	18	1	0	0	2.0	1,714	30
39	38	30	1	0	0	2.0	1,714	30
40	18	151	1	0	0	2.0	1,714	35
40	39	33	1	0	0	2.0	1,714	30
40	41	135	1	0	0	2.0	1,714	40
40	51	96	1	0	0	2.0	1,714	35
41	40	135	1	0	0	2.0	1,714	45
41	42	120	1	1	0	2.0	1,714	40
42	34	44	1	0	1	2.0	1,714	40
42	41	120	1	0	0	2.0	1,714	40
42	177	115	1	0	0	2.0	1,714	40
42	545	89	1	1	0	2.0	1,714	40
43	576	50	1	0	0	2.0	1,714	40
43	582	28	1	0	1	2.0	1,714	40
43	590	15	1	0	0	2.0	1,714	40
44	792	33	1	0	0	2.0	1,714	40
45	36	24	2	0	0	2.0	1,895	55
45	46	99	1	0	1	2.0	1,895	40
46	45	99	1	0	0	2.0	1,895	40
46	48	153	1	0	1	2.0	1,895	50
46	89	95	1	1	0	2.0	1,895	35
47	79	101	1	0	0	2.0	1,714	35
47	98	54	1	0	0	2.0	1,714	40
48	46	153	1	1	0	2.0	1,714	50
48	49	56	1	0	0	2.0	1,895	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
48	54	66	1	0	0	2.0	1,895	50
49	48	56	1	0	0	2.0	1,895	40
49	50	27	1	0	0	2.0	1,714	35
49	52	73	1	1	0	2.0	1,714	40
50	49	27	1	0	0	2.0	1,895	40
50	51	115	1	0	0	2.0	1,714	35
50	55	49	1	0	0	2.0	1,714	45
51	40	96	1	0	0	2.0	1,714	35
51	50	115	1	0	0	2.0	1,714	35
52	49	73	1	0	0	2.0	1,895	40
52	59	142	1	0	0	2.0	1,895	50
52	74	61	1	0	0	2.0	1,714	40
52	494	81	1	0	0	2.0	1,714	50
53	54	27	1	0	0	2.0	1,895	50
53	193	45	1	1	0	2.0	1,895	50
53	494	21	1	0	0	2.0	1,714	50
54	48	66	1	1	0	2.0	1,895	50
54	53	27	1	0	1	2.0	1,895	50
55	50	49	1	0	0	2.0	1,714	40
55	56	83	1	0	0	2.0	1,714	45
56	55	83	1	0	0	2.0	1,714	45
56	57	101	1	1	0	2.0	1,714	40
57	34	41	1	0	0	2.0	1,714	40
57	59	17	1	0	0	2.0	1,714	35
58	60	27	1	0	0	2.0	1,714	45
58	438	16	1	0	0	2.0	1,714	40
59	57	17	1	1	0	2.0	1,714	40
59	251	47	2	0	1	2.0	1,895	50
60	180	83	2	1	0	2.0	1,895	45
62	63	117	1	0	0	2.0	1,714	60
62	193	55	1	1	0	2.0	1,895	50
63	62	117	1	0	0	2.0	1,895	60
63	64	80	1	0	0	2.0	1,714	60
63	67	30	1	0	0	2.0	1,714	40
64	63	80	1	0	0	2.0	1,714	60
64	196	41	1	0	0	2.0	1,714	40
65	196	114	1	1	0	2.0	1,714	40
65	963	110	1	0	0	2.0	1,714	40
66	106	21	2	0	0	2.0	1,714	25
66	749	36	2	0	0	2.0	1,714	35
67	63	30	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
67	71	62	1	0	0	2.0	1,714	30
67	198	69	1	0	0	2.0	1,714	45
68	72	39	1	0	0	2.0	1,714	40
68	196	112	1	0	0	2.0	1,714	40
68	443	43	1	0	0	2.0	1,895	50
69	222	33	4	0	0	2.0	2,250	65
69	427	60	3	0	0	2.0	2,250	30
70	71	81	1	0	0	2.0	1,714	30
71	67	62	1	0	0	2.0	1,714	40
71	74	109	1	0	0	2.0	1,714	40
71	197	84	1	0	0	2.0	1,714	45
72	68	39	1	0	0	2.0	1,714	40
72	73	92	1	0	0	2.0	1,895	40
73	201	20	2	0	1	2.0	1,714	50
74	71	109	1	0	0	2.0	1,714	30
74	76	157	1	0	0	2.0	1,714	40
74	437	25	1	0	0	2.0	1,714	40
75	9	183	2	0	0	2.0	2,000	65
75	29	48	2	0	0	2.0	2,000	65
75	441	23	1	1	0	2.0	1,714	40
76	438	115	1	0	0	2.0	1,714	30
76	440	55	1	0	0	2.0	1,714	40
77	448	79	1	0	0	2.0	2,250	60
78	30	83	1	1	0	2.0	1,714	40
78	169	90	1	0	0	2.0	1,714	40
78	370	104	1	0	1	2.0	1,714	35
78	1004	69	1	0	0	2.0	1,714	40
79	47	101	1	0	0	2.0	1,714	40
79	1154	64	1	0	0	2.0	1,714	40
79	1166	90	2	0	1	2.0	1,714	40
81	13	122	2	0	0	2.0	2,000	65
81	82	62	2	0	0	2.0	1,895	60
82	81	62	2	0	0	2.0	1,895	60
82	83	44	2	0	0	2.0	1,895	60
82	84	21	1	0	0	2.0	1,714	25
83	82	44	2	0	0	2.0	1,895	60
83	85	29	1	0	0	2.0	1,714	25
83	97	39	2	0	0	2.0	2,118	60
84	82	21	1	0	0	2.0	1,895	60
84	85	34	1	0	0	2.0	1,714	40
84	930	18	1	0	0	2.0	1,333	30

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
85	83	29	1	0	0	2.0	1,895	60
85	84	34	1	0	0	2.0	1,714	40
85	86	37	1	0	0	2.0	1,714	40
86	85	37	1	0	0	2.0	1,714	40
86	87	70	1	0	0	2.0	1,714	40
86	107	78	1	0	0	2.0	1,714	40
87	86	70	1	0	0	2.0	1,714	40
87	88	123	1	0	0	2.0	1,714	40
88	3	82	1	0	0	2.0	1,714	40
88	87	123	1	0	0	2.0	1,714	40
88	162	65	1	0	0	2.0	1,714	40
89	46	95	1	0	0	2.0	1,714	50
89	90	52	1	1	0	2.0	1,895	40
89	92	61	1	0	0	2.0	1,333	40
90	89	52	1	0	1	2.0	1,895	35
90	91	49	1	0	0	2.0	1,333	40
90	103	32	1	1	0	2.0	1,895	35
91	90	49	1	0	1	2.0	1,714	40
91	92	68	1	0	0	2.0	1,333	40
91	96	79	1	0	0	2.0	1,333	40
91	102	35	1	0	0	2.0	1,333	40
92	45	47	1	0	0	2.0	1,714	35
92	89	61	1	0	1	2.0	1,714	35
92	91	68	1	1	0	2.0	1,333	40
92	94	72	1	0	0	2.0	1,333	35
93	95	66	1	0	0	2.0	1,714	40
93	96	18	1	0	0	2.0	1,333	40
93	930	63	1	0	0	2.0	1,333	30
94	92	72	1	0	0	2.0	1,333	40
94	95	40	1	0	0	2.0	1,714	40
95	94	40	1	0	0	2.0	1,333	35
95	141	18	1	0	0	2.0	1,714	40
96	91	79	1	0	0	2.0	1,333	40
96	93	18	1	0	0	2.0	1,333	40
96	101	44	1	0	0	2.0	1,333	40
97	83	39	2	0	0	2.0	1,895	60
97	119	91	2	0	0	2.0	2,000	65
97	288	35	1	0	0	2.0	1,714	30
98	189	60	1	0	0	2.0	1,714	40
98	1160	25	1	0	0	2.0	1,714	40
99	286	84	1	0	0	2.0	1,714	35

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
100	99	35	1	0	0	2.0	1,333	35
100	101	35	1	0	0	2.0	1,333	40
100	104	92	1	0	0	2.0	1,714	30
101	96	44	1	0	0	2.0	1,333	40
101	100	35	1	0	0	2.0	1,385	35
101	102	66	1	0	0	2.0	1,333	40
102	91	35	1	1	0	2.0	1,333	40
102	101	66	1	0	1	2.0	1,333	40
102	103	46	1	1	0	2.0	1,714	35
103	90	32	1	0	0	2.0	1,895	40
103	102	46	1	1	0	2.0	1,333	40
103	104	50	1	0	0	2.0	1,714	35
104	100	92	1	1	0	2.0	1,895	30
104	103	50	1	0	1	2.0	1,895	35
104	134	113	1	0	0	2.0	1,895	35
105	66	21	2	0	0	2.0	1,714	25
105	421	51	1	1	0	2.0	1,895	50
106	741	20	2	0	0	2.0	1,714	25
107	108	42	1	0	0	2.0	1,714	40
107	290	63	1	0	0	2.0	1,714	35
108	109	91	1	0	0	2.0	1,714	40
109	111	111	1	0	0	2.0	1,714	40
110	17	85	1	0	0	2.0	1,714	40
110	141	57	1	0	0	2.0	1,714	40
111	112	75	1	0	0	2.0	1,714	40
112	765	10	1	0	0	2.0	1,714	25
113	114	63	1	0	0	2.0	1,714	35
114	115	65	1	0	0	2.0	1,714	35
117	297	187	2	0	0	2.0	2,250	65
117	535	178	2	0	0	2.0	2,250	65
118	145	75	2	0	0	2.0	1,895	50
118	811	40	2	0	0	2.0	2,250	50
119	97	91	2	0	0	2.0	2,118	60
119	120	100	2	0	0	2.0	2,000	65
120	119	100	2	0	0	2.0	2,000	65
120	131	60	2	0	0	2.0	2,000	65
122	123	173	2	0	0	2.0	2,250	65
122	358	157	2	0	0	2.0	2,250	65
123	122	173	2	0	0	2.0	2,250	65
123	639	43	2	0	0	2.0	2,250	65
124	640	112	1	0	0	2.0	1,895	60

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
124	1224	170	1	0	0	2.0	1,895	30
124	1230	63	1	0	0	2.0	1,895	40
125	184	34	1	0	0	2.0	1,714	40
125	999	78	3	0	0	2.0	2,250	65
125	1009	162	2	0	0	2.0	2,250	65
126	1120	150	1	0	0	2.0	1,714	40
126	1121	18	1	0	0	2.0	1,714	40
126	1122	60	1	1	0	2.0	1,714	40
127	128	82	1	0	0	2.0	1,714	40
128	129	111	1	0	0	2.0	1,714	50
129	130	133	1	0	0	2.0	1,714	50
130	298	114	1	0	0	2.0	1,714	50
131	120	60	2	0	0	2.0	2,000	65
131	132	74	2	0	0	2.0	2,000	65
132	131	74	2	0	0	2.0	2,000	65
132	133	141	2	0	0	2.0	2,000	65
133	132	141	2	0	0	2.0	2,000	65
133	514	86	2	0	0	2.0	2,000	65
134	104	113	1	0	0	2.0	1,714	35
134	205	109	1	0	0	2.0	1,895	40
134	611	59	1	0	0	2.0	1,895	30
135	146	107	1	0	0	2.0	1,714	45
135	205	104	1	0	0	2.0	1,895	40
136	137	19	1	0	0	2.0	1,714	40
137	142	88	2	0	0	2.0	1,895	65
137	1126	107	2	0	0	2.0	2,250	65
139	146	40	1	0	0	2.0	1,714	45
139	147	115	1	0	0	2.0	1,714	40
140	1050	42	1	0	0	2.0	1,714	40
141	95	18	1	0	0	2.0	1,714	40
141	110	57	1	0	0	2.0	1,714	40
141	930	74	1	0	0	2.0	1,333	30
142	137	88	2	0	0	2.0	2,250	65
142	1151	118	2	0	0	2.0	2,250	65
144	639	48	2	0	0	2.0	2,250	65
145	7	17	2	0	0	2.0	1,895	50
145	118	75	2	0	0	2.0	2,250	50
146	135	107	1	0	0	2.0	1,714	50
146	139	40	1	0	0	2.0	1,714	40
147	139	115	1	0	0	2.0	1,714	40
147	148	99	1	0	0	2.0	1,714	55

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
148	147	99	1	0	0	2.0	1,714	50
148	150	70	1	0	0	2.0	1,714	40
148	509	64	1	0	0	2.0	1,714	40
149	249	63	1	0	0	2.0	1,714	40
149	254	39	1	0	0	2.0	1,714	40
149	257	13	1	0	0	2.0	1,714	40
150	151	88	1	0	0	2.0	1,714	40
151	381	82	1	0	0	2.0	1,714	40
152	14	10	1	0	1	2.0	1,895	40
152	15	21	1	0	0	2.0	1,895	40
152	16	66	1	0	0	2.0	1,714	50
153	278	71	2	0	0	2.0	1,895	50
153	499	30	2	0	0	2.0	1,895	50
157	163	54	1	1	1	2.0	1,895	40
157	166	79	1	1	0	2.0	1,714	40
157	1002	127	1	1	0	2.0	1,714	30
161	21	31	1	0	0	2.0	1,714	30
162	4	27	1	0	0	2.0	1,714	40
163	157	54	1	1	0	2.0	1,714	40
163	1243	136	2	1	0	2.0	1,895	40
164	23	27	1	1	0	2.0	1,714	40
164	166	89	1	1	0	2.0	1,714	40
164	446	69	1	0	0	2.0	1,714	40
165	30	69	1	1	0	2.0	1,714	40
165	168	28	1	0	0	2.0	1,714	30
166	22	148	1	1	0	2.0	1,714	40
166	157	79	1	0	0	2.0	1,714	40
166	164	89	1	0	1	2.0	1,714	40
166	167	27	1	0	0	2.0	1,714	40
167	166	27	1	1	0	2.0	1,714	40
167	168	34	1	0	0	2.0	1,714	30
168	165	28	1	0	0	2.0	1,714	40
168	167	34	1	0	0	2.0	1,714	40
169	25	48	1	0	0	2.0	1,714	40
169	33	86	1	0	0	2.0	1,714	40
169	78	90	1	0	0	2.0	1,714	40
169	449	96	1	0	0	2.0	1,714	40
171	515	28	1	0	0	2.0	1,714	35
172	192	31	1	0	0	2.0	1,714	40
172	1129	79	1	0	0	2.0	1,714	40
173	177	23	1	0	0	2.0	1,714	30

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
174	1158	113	3	0	0	2.0	2,250	65
174	1159	38	3	0	0	2.0	2,250	65
175	171	39	1	0	0	2.0	1,714	40
175	512	94	2	0	0	2.0	1,895	50
175	513	23	2	0	0	2.0	1,895	30
176	251	50	1	1	0	2.0	1,714	40
177	42	115	1	1	0	2.0	1,714	40
177	582	53	1	1	0	2.0	1,714	40
178	177	33	1	0	0	2.0	1,714	30
179	182	142	1	0	0	2.0	1,714	40
180	61	152	2	0	0	2.0	1,895	55
180	183	52	1	1	0	2.0	1,714	40
180	439	22	1	0	0	2.0	1,714	35
181	330	30	1	0	0	2.0	1,714	40
181	616	35	1	1	1	2.0	1,714	40
181	964	22	2	1	0	2.0	1,714	40
182	77	83	1	0	0	2.0	1,714	40
183	180	52	1	1	0	2.0	1,714	40
183	582	17	1	0	0	2.0	1,714	40
183	583	25	1	0	0	2.0	1,714	40
184	1244	65	1	0	0	2.0	1,714	50
185	56	68	1	0	0	2.0	1,714	35
187	174	25	1	0	0	2.0	1,714	40
187	189	80	1	0	0	2.0	1,714	40
187	229	44	2	0	1	2.0	1,714	40
187	1159	29	1	0	0	2.0	1,714	40
188	225	13	1	0	0	2.0	1,714	35
188	236	109	1	1	0	2.0	1,895	30
188	469	54	1	0	0	2.0	1,714	40
189	98	60	1	0	0	2.0	1,714	40
189	187	80	1	0	1	2.0	1,895	40
189	379	21	1	0	0	2.0	1,714	40
190	768	17	1	0	0	2.0	1,895	30
190	786	24	1	0	0	2.0	1,714	35
191	225	16	1	0	0	2.0	1,714	35
192	136	24	1	0	0	2.0	1,714	35
192	172	31	1	0	0	2.0	1,714	40
192	978	101	1	0	0	2.0	1,895	30
193	53	45	1	1	0	2.0	1,895	50
193	62	55	1	0	0	2.0	1,895	60
193	67	146	1	0	0	2.0	1,895	60

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
195	63	38	1	0	0	2.0	1,714	40
196	64	41	1	0	0	2.0	1,714	60
196	65	114	1	0	0	2.0	1,714	40
196	68	112	1	1	0	2.0	1,714	40
197	72	136	1	0	0	2.0	1,714	40
198	68	131	1	1	0	2.0	1,895	50
199	349	88	1	0	0	2.0	1,714	40
201	407	11	1	0	0	2.0	1,895	30
201	432	36	2	0	0	2.0	1,714	50
203	252	81	1	0	0	2.0	1,714	40
204	284	22	2	0	0	2.0	1,895	50
205	134	109	1	0	0	2.0	1,895	35
205	135	104	1	0	0	2.0	1,714	50
205	610	128	1	0	0	2.0	1,333	40
208	212	143	1	0	0	2.0	1,333	30
208	609	15	1	0	0	2.0	1,333	35
212	99	25	1	0	0	2.0	1,333	35
213	214	36	3	0	0	2.0	2,250	65
213	215	22	1	0	0	2.0	1,714	40
213	1159	169	3	0	0	2.0	2,250	65
214	213	36	3	0	0	2.0	2,250	65
214	503	16	1	0	0	2.0	1,714	40
215	214	22	1	0	0	2.0	1,714	40
215	333	31	3	0	0	2.0	2,250	65
215	503	25	3	0	0	2.0	2,250	65
216	218	29	1	0	0	2.0	1,714	40
216	1166	42	2	0	0	2.0	1,714	40
217	218	44	3	0	0	2.0	2,250	65
217	1165	38	3	0	0	2.0	2,250	65
218	217	44	3	0	0	2.0	2,250	65
218	690	81	3	0	0	2.0	2,250	65
219	688	39	2	0	0	2.0	1,895	50
219	690	30	2	0	0	2.0	2,250	65
220	221	54	4	0	0	2.0	2,250	65
220	1165	182	3	0	0	2.0	2,250	65
221	220	54	4	0	0	2.0	2,250	65
221	277	70	3	0	0	2.0	2,250	65
222	69	33	3	0	0	2.0	2,250	65
222	277	81	3	0	0	2.0	2,250	65
223	339	85	3	0	0	2.0	2,250	65
223	413	59	4	0	0	2.0	2,250	65

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
224	204	15	2	0	0	2.0	1,895	50
224	1050	21	4	0	0	2.0	2,250	65
224	1158	80	2	0	0	2.0	2,250	65
225	284	34	2	0	0	2.0	1,895	50
225	469	56	2	0	0	2.0	1,895	50
226	237	71	1	0	0	2.0	1,714	40
226	469	49	2	0	0	2.0	1,895	50
226	790	79	2	0	0	2.0	1,895	50
227	228	45	1	0	0	2.0	1,714	50
227	229	88	1	1	0	2.0	1,714	50
228	227	45	1	0	0	2.0	1,714	50
228	274	92	1	0	0	2.0	1,714	40
229	187	44	1	0	1	2.0	1,895	40
229	227	88	1	0	0	2.0	1,714	50
229	237	50	1	0	0	2.0	1,714	50
229	291	125	1	0	0	2.0	1,895	40
230	231	36	1	1	0	2.0	1,895	40
230	291	74	1	0	0	2.0	1,895	40
230	417	26	1	0	0	2.0	1,714	40
231	230	36	1	1	0	2.0	1,895	40
231	232	21	1	0	0	2.0	1,714	40
232	417	30	3	0	0	2.0	2,250	65
232	694	51	3	0	0	2.0	2,250	65
233	721	111	1	0	0	2.0	1,714	40
233	846	176	1	0	0	2.0	1,714	40
234	236	79	1	0	0	2.0	1,714	40
234	289	45	1	0	0	2.0	1,714	50
234	430	25	1	0	0	2.0	1,714	30
235	236	48	1	0	0	2.0	1,714	40
235	345	76	1	0	0	2.0	1,714	40
236	188	109	1	0	0	2.0	1,714	40
236	234	79	1	0	0	2.0	1,714	40
236	235	48	1	0	0	2.0	1,714	40
237	226	71	1	0	0	2.0	1,714	35
237	229	50	1	0	1	2.0	1,714	40
237	289	127	1	0	0	2.0	1,714	50
238	1148	50	2	0	0	2.0	1,714	50
238	1149	68	2	0	0	2.0	1,895	60
239	1148	178	1	0	0	2.0	1,714	50
240	241	42	3	0	0	2.0	2,250	65
240	1147	157	3	0	0	2.0	2,250	65

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
241	240	42	3	0	0	2.0	2,250	65
241	1146	92	3	0	0	2.0	2,250	65
242	241	25	1	0	0	2.0	1,714	40
242	1137	27	2	1	0	2.0	1,895	55
243	245	70	3	0	0	2.0	2,250	65
243	1144	103	3	0	0	2.0	2,250	65
244	1113	35	2	0	0	2.0	2,250	65
244	1143	182	2	0	0	2.0	2,250	65
245	243	70	3	0	0	2.0	2,250	65
245	1111	91	3	0	0	2.0	2,250	65
247	713	22	1	0	0	2.0	1,714	40
247	715	51	1	0	1	2.0	1,714	45
248	244	27	1	0	0	2.0	1,714	40
248	462	36	1	0	0	2.0	1,714	40
249	149	63	1	0	0	2.0	1,714	40
249	1109	18	1	0	0	2.0	1,714	40
249	1117	136	1	0	0	2.0	1,714	40
250	226	25	1	0	0	2.0	1,714	35
251	438	72	2	0	0	2.0	1,895	50
251	442	18	1	0	0	2.0	1,714	40
252	1152	28	2	0	0	2.0	1,895	50
252	1156	113	1	0	0	2.0	1,714	40
253	245	49	1	0	0	2.0	1,714	40
253	1114	55	1	0	0	2.0	1,714	40
254	149	39	1	1	0	2.0	1,714	40
254	255	31	1	0	0	2.0	1,714	40
254	258	76	1	0	0	2.0	1,714	40
255	256	26	1	0	0	2.0	1,714	40
256	271	28	2	0	0	2.0	2,250	65
257	256	50	2	0	0	2.0	2,250	65
257	1109	74	2	0	0	2.0	2,250	65
258	254	76	1	1	0	2.0	1,714	40
258	693	53	1	0	0	2.0	1,714	40
259	260	22	1	0	0	2.0	1,895	40
259	693	15	2	0	0	2.0	1,895	40
259	1107	24	2	1	0	2.0	1,895	40
260	692	63	3	0	0	2.0	2,250	65
260	1085	38	3	0	0	2.0	2,250	65
262	500	21	2	0	0	2.0	2,250	65
262	501	16	1	0	0	2.0	1,714	40
263	1092	118	1	0	1	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
263	1236	83	1	0	0	2.0	1,714	40
264	1088	29	1	0	0	2.0	1,714	40
265	725	158	1	0	0	2.0	1,714	40
271	272	33	1	0	0	2.0	1,714	40
272	692	17	1	0	0	2.0	1,714	40
272	1107	85	1	0	1	2.0	1,714	40
273	309	33	1	0	0	2.0	1,714	45
273	329	99	1	0	0	2.0	1,714	40
273	713	90	1	0	0	2.0	1,714	40
274	228	92	1	0	0	2.0	1,714	50
274	456	73	2	0	0	2.0	1,895	40
275	424	62	1	0	0	2.0	1,714	30
275	499	28	2	0	0	2.0	1,895	50
275	744	20	1	0	0	2.0	1,714	30
276	499	18	1	0	0	2.0	1,714	25
276	744	34	2	0	0	2.0	1,714	40
276	748	46	2	0	0	2.0	1,714	40
277	221	70	3	0	0	2.0	2,250	65
277	222	81	3	0	0	2.0	2,250	65
278	153	71	2	0	0	2.0	1,895	50
278	279	63	2	0	0	2.0	1,895	50
278	415	18	1	0	0	2.0	1,714	30
279	278	63	2	0	0	2.0	1,895	50
279	420	25	1	0	0	2.0	1,895	50
282	738	45	1	0	0	2.0	1,714	50
283	1176	84	2	0	0	2.0	2,250	55
284	224	26	2	0	0	2.0	1,895	60
284	225	34	2	0	0	2.0	1,895	60
286	288	68	1	1	0	2.0	1,714	30
287	708	35	1	0	0	2.0	1,714	40
287	709	15	1	1	0	2.0	1,714	30
288	97	35	1	0	0	2.0	1,895	60
288	290	38	1	0	0	2.0	1,714	35
289	234	45	1	1	0	2.0	1,714	40
289	237	127	1	0	0	2.0	1,714	50
289	1158	29	1	0	0	2.0	1,714	40
290	107	63	1	0	0	2.0	1,714	40
290	288	38	1	0	0	2.0	1,714	30
291	229	125	1	1	0	2.0	1,714	50
291	230	74	1	0	1	2.0	1,895	40
292	406	66	1	0	0	2.0	1,714	35

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
292	1241	27	1	0	0	2.0	1,714	40
294	504	139	2	1	0	2.0	1,895	50
295	529	41	1	0	0	2.0	1,714	40
296	533	110	2	0	0	2.0	2,250	65
296	534	134	2	0	0	2.0	2,250	65
297	117	187	2	0	0	2.0	2,250	65
297	1007	188	2	0	0	2.0	2,250	65
298	299	83	1	0	0	2.0	1,714	50
300	680	180	1	0	0	2.0	1,714	60
301	300	130	1	0	0	2.0	1,714	60
302	301	118	1	0	0	2.0	1,714	50
302	303	70	1	0	0	2.0	1,714	50
302	313	72	1	0	0	2.0	1,895	45
303	302	70	1	0	0	2.0	1,714	40
303	305	123	1	0	0	2.0	1,714	50
304	366	15	1	0	0	2.0	1,714	40
305	303	123	1	0	0	2.0	1,714	50
305	306	105	1	0	0	2.0	1,714	50
306	305	105	1	0	0	2.0	1,714	50
306	307	84	1	0	0	2.0	1,895	50
307	306	84	1	0	0	2.0	1,714	50
307	308	96	1	0	0	2.0	1,714	50
307	324	44	1	0	0	2.0	1,714	45
308	307	96	1	0	0	2.0	1,895	50
308	310	163	1	0	0	2.0	1,714	50
309	273	33	1	0	0	2.0	1,714	45
309	416	36	2	0	0	2.0	1,714	45
310	308	163	1	0	0	2.0	1,714	50
310	311	168	1	0	0	2.0	1,714	30
311	310	168	1	0	0	2.0	1,714	50
311	510	48	1	0	0	2.0	1,714	30
311	751	76	1	0	0	2.0	1,714	35
312	314	73	1	0	0	2.0	1,895	45
312	315	49	1	0	0	2.0	1,895	30
312	316	111	1	0	0	2.0	1,895	55
312	1053	176	1	0	0	2.0	1,895	60
313	302	72	1	0	0	2.0	1,714	45
313	314	83	1	0	0	2.0	1,895	45
314	312	73	1	0	0	2.0	1,895	45
314	313	83	1	0	0	2.0	1,895	45
315	312	49	1	0	0	2.0	1,895	45

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
315	1072	168	1	0	0	2.0	1,895	45
316	312	111	1	1	0	2.0	1,895	60
316	317	111	1	0	0	2.0	1,895	55
317	316	111	1	0	0	2.0	1,895	55
317	318	157	1	0	0	2.0	1,895	50
318	317	157	1	0	0	2.0	1,895	55
318	319	90	1	0	0	2.0	1,895	55
319	318	90	1	0	0	2.0	1,895	50
319	320	135	1	0	0	2.0	1,895	55
320	319	135	1	0	0	2.0	1,895	55
320	324	156	1	0	0	2.0	1,714	45
321	320	88	1	0	0	2.0	1,895	55
322	321	157	1	0	0	2.0	1,895	55
323	542	97	1	0	0	2.0	1,714	45
324	307	44	1	0	0	2.0	1,895	40
324	320	156	1	0	0	2.0	1,714	45
325	542	87	1	0	0	2.0	1,714	45
327	435	56	1	0	0	2.0	1,714	40
328	331	170	1	0	0	2.0	1,714	40
329	273	99	1	0	1	2.0	1,714	45
329	731	89	1	0	0	2.0	1,714	40
330	964	31	1	0	1	2.0	1,714	30
330	997	131	3	0	0	2.0	2,250	65
330	998	56	3	0	0	2.0	2,250	65
331	368	99	1	0	0	2.0	1,714	40
332	334	104	1	0	0	2.0	1,895	35
333	215	31	3	0	0	2.0	2,250	65
333	1169	28	3	0	0	2.0	2,250	65
334	1072	53	1	0	0	2.0	1,895	35
335	347	35	2	0	0	2.0	1,895	45
335	379	160	2	0	0	2.0	1,895	50
335	1169	22	1	0	0	2.0	1,714	40
336	337	80	1	0	0	2.0	1,714	45
336	344	135	1	0	0	2.0	1,714	45
337	341	81	1	0	0	2.0	1,714	45
338	436	88	1	0	0	2.0	1,714	40
339	10	28	1	0	0	2.0	1,714	40
339	223	85	3	0	0	2.0	2,250	65
339	383	33	3	0	0	2.0	2,250	65
339	418	19	1	0	0	2.0	1,714	40
340	338	145	1	0	0	2.0	1,714	45

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
341	338	63	1	0	0	2.0	1,714	45
342	340	87	1	0	0	2.0	1,714	45
343	342	121	1	0	0	2.0	1,714	45
344	455	94	1	0	0	2.0	1,714	45
345	235	76	1	0	0	2.0	1,714	40
345	1129	75	1	0	0	2.0	1,714	40
346	348	178	1	0	0	2.0	1,714	45
347	333	22	1	0	0	2.0	1,714	40
347	335	35	2	0	0	2.0	1,895	45
348	199	88	1	0	0	2.0	1,714	45
349	668	117	1	0	0	2.0	1,714	45
350	346	108	1	0	0	2.0	1,714	40
351	352	84	2	0	0	2.0	2,250	65
351	735	85	2	0	0	2.0	2,250	65
352	351	84	2	0	0	2.0	2,250	65
352	355	132	2	0	0	2.0	2,250	65
354	355	111	2	0	0	2.0	2,250	65
354	1058	167	2	0	0	2.0	2,250	65
355	352	132	2	0	0	2.0	2,250	65
355	354	111	2	0	0	2.0	2,250	65
356	375	83	1	0	0	2.0	1,714	40
356	736	175	1	0	0	2.0	1,714	40
357	1216	35	3	0	0	2.0	2,250	65
358	122	157	2	0	0	2.0	2,250	65
358	1221	155	2	0	0	2.0	2,250	65
359	363	104	1	1	0	2.0	1,714	40
359	724	98	1	0	0	2.0	1,714	40
360	423	135	1	0	0	2.0	1,714	40
360	737	84	1	0	0	2.0	1,714	40
361	1188	32	1	0	0	2.0	1,714	35
362	423	70	1	0	0	2.0	1,714	40
362	1076	145	1	0	0	2.0	1,714	40
363	359	104	1	0	0	2.0	1,714	40
363	365	105	1	0	0	2.0	1,714	40
363	739	90	1	0	0	2.0	1,714	40
364	325	138	1	0	0	2.0	1,714	45
365	363	105	1	1	0	2.0	1,714	40
365	1076	86	1	0	0	2.0	1,714	40
366	753	126	2	0	0	2.0	2,250	65
366	754	23	2	0	0	2.0	2,250	65
367	69	37	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
368	318	93	1	0	0	2.0	1,714	40
369	368	181	1	0	0	2.0	1,714	40
370	78	104	1	1	0	2.0	1,714	40
370	591	103	1	0	0	2.0	1,714	40
370	1002	91	1	1	0	2.0	1,714	35
370	1005	53	1	1	0	2.0	1,714	35
371	954	84	1	0	0	2.0	1,714	35
372	873	36	2	0	0	2.0	2,250	50
372	1046	51	2	0	0	2.0	1,895	50
373	1098	37	1	0	0	2.0	1,714	40
373	1194	75	1	0	0	2.0	1,714	50
374	639	24	1	0	0	2.0	1,895	30
374	1183	44	3	0	0	2.0	2,250	65
374	1216	31	3	0	0	2.0	1,714	40
375	360	84	1	0	0	2.0	1,714	35
377	378	41	1	0	0	2.0	1,714	35
377	954	67	1	0	0	2.0	1,714	35
378	380	41	1	0	0	2.0	1,714	35
379	335	160	2	0	0	2.0	1,895	45
379	1161	27	2	0	0	2.0	1,895	50
380	221	50	1	0	0	2.0	1,714	40
381	389	29	1	0	0	2.0	1,714	40
381	513	21	1	0	0	2.0	1,895	30
382	1020	84	2	0	0	2.0	2,250	65
382	1022	186	2	0	0	2.0	2,250	65
383	10	19	1	0	0	2.0	1,714	40
383	339	33	3	0	0	2.0	2,250	65
383	418	24	1	0	0	2.0	1,714	40
383	598	116	3	0	0	2.0	2,250	65
385	386	97	1	0	0	2.0	1,714	40
385	404	157	2	0	0	2.0	1,895	40
387	398	146	1	0	0	2.0	1,714	40
387	474	77	1	0	0	2.0	1,714	50
388	473	37	2	0	0	2.0	1,385	40
389	171	21	1	0	0	2.0	1,714	40
391	659	75	1	0	0	2.0	1,714	45
392	387	38	1	0	0	2.0	1,714	40
393	388	24	2	0	0	2.0	1,714	40
393	1014	59	1	0	0	2.0	1,333	30
394	395	127	2	0	0	2.0	1,714	50
394	1023	126	1	0	0	2.0	1,895	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
394	1028	67	2	0	0	2.0	1,895	50
395	397	59	2	0	0	2.0	1,714	50
395	659	39	1	0	1	2.0	1,714	40
396	393	72	1	1	0	2.0	1,714	35
397	660	30	2	0	0	2.0	1,714	50
398	385	51	1	0	0	2.0	1,714	40
399	630	96	2	0	0	2.0	2,250	65
404	1029	40	3	0	0	2.0	1,895	40
405	638	33	1	0	0	2.0	1,714	50
405	1216	30	1	0	0	2.0	1,714	40
406	277	67	1	0	0	2.0	1,714	40
406	377	44	1	0	1	2.0	1,714	30
407	431	14	1	0	0	2.0	1,895	30
408	392	33	1	0	0	2.0	1,714	40
409	396	40	1	0	0	2.0	1,714	35
410	433	12	1	0	0	2.0	1,714	25
412	393	40	2	0	0	2.0	1,714	40
413	414	33	1	0	0	2.0	1,714	30
413	427	52	3	0	0	2.0	2,250	65
414	407	33	1	0	0	2.0	1,895	30
414	432	14	1	0	0	2.0	1,714	30
415	278	18	1	0	0	2.0	1,714	35
415	705	16	1	0	0	2.0	1,714	35
416	309	36	1	0	0	2.0	1,714	45
416	424	10	1	0	0	2.0	1,714	30
416	712	25	1	0	0	2.0	1,714	40
417	232	30	3	0	0	2.0	2,250	65
417	503	30	3	0	0	2.0	2,250	65
418	10	30	2	0	0	2.0	2,000	60
418	339	19	1	0	0	2.0	1,714	40
418	383	24	1	0	0	2.0	1,714	40
418	448	64	2	0	0	2.0	2,250	60
419	842	25	1	0	0	2.0	1,714	35
419	933	58	1	0	0	2.0	1,714	35
420	279	25	1	0	0	2.0	1,895	50
420	701	69	1	0	0	2.0	1,895	50
420	1078	26	1	0	0	2.0	1,714	30
421	322	67	1	0	0	2.0	1,895	50
421	908	90	1	0	0	2.0	1,714	40
422	637	143	1	0	0	2.0	1,714	35
423	360	135	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
423	362	70	1	0	0	2.0	1,714	40
424	275	62	1	1	0	2.0	1,714	30
424	416	10	1	0	1	2.0	1,895	30
425	813	24	2	0	0	2.0	1,895	30
425	1003	58	2	0	0	2.0	1,895	30
426	360	30	1	0	0	2.0	1,714	35
427	69	60	4	0	0	2.0	2,250	65
427	431	33	3	0	0	2.0	2,250	65
428	1083	32	1	1	0	2.0	1,895	30
428	1084	24	1	1	0	2.0	1,714	40
429	104	66	1	0	0	2.0	1,714	30
430	118	15	1	0	0	2.0	1,714	30
431	223	80	4	0	0	2.0	2,250	65
432	411	14	2	0	0	2.0	1,714	30
432	427	20	1	0	0	2.0	1,714	65
433	434	22	1	0	0	2.0	1,714	25
433	463	128	1	0	0	2.0	1,714	50
434	595	14	1	0	0	2.0	1,714	25
435	328	149	1	0	0	2.0	1,714	40
436	455	104	1	0	0	2.0	1,714	45
437	176	75	1	0	0	2.0	1,714	40
438	58	16	1	0	0	2.0	1,714	40
438	60	27	2	0	0	2.0	1,895	50
439	180	22	1	1	0	2.0	1,714	30
439	182	134	1	0	0	2.0	1,714	40
440	179	20	1	0	0	2.0	1,714	40
441	8	33	1	0	1	2.0	1,714	40
441	75	23	1	0	0	2.0	1,714	40
441	545	25	1	0	0	2.0	1,714	40
442	58	71	1	1	0	2.0	1,714	40
442	251	18	1	0	0	2.0	1,714	40
443	73	57	2	0	0	2.0	1,895	50
444	89	42	1	1	0	2.0	1,714	30
445	422	119	1	0	0	2.0	1,714	35
446	164	69	1	0	1	2.0	1,714	40
446	544	35	1	0	0	2.0	1,714	40
448	418	64	2	0	0	2.0	2,250	60
449	169	96	1	0	0	2.0	1,714	40
449	520	38	1	0	0	2.0	1,714	40
449	1001	41	1	0	0	2.0	1,714	40
449	1004	84	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
450	21	52	1	0	0	2.0	1,714	40
450	25	82	1	1	0	2.0	1,714	40
450	33	66	1	0	0	2.0	1,714	40
451	750	29	1	0	0	2.0	1,385	25
452	282	29	1	0	0	2.0	1,714	50
452	894	57	1	0	0	2.0	1,714	60
453	700	36	2	0	0	2.0	1,895	30
453	701	29	1	1	0	2.0	1,895	30
454	264	97	1	0	0	2.0	1,714	40
454	1094	154	1	0	0	2.0	1,714	50
455	346	26	1	0	0	2.0	1,714	40
456	274	73	2	0	0	2.0	1,714	40
456	505	52	2	0	0	2.0	1,895	40
457	336	53	1	0	0	2.0	1,714	30
457	731	80	1	1	0	2.0	1,714	40
458	700	13	1	0	0	2.0	1,714	35
459	625	99	1	0	0	2.0	1,714	35
460	918	96	1	0	0	2.0	1,714	35
462	248	36	1	0	0	2.0	1,714	40
462	1113	25	1	0	0	2.0	1,714	40
462	1116	26	1	0	1	2.0	1,714	40
463	464	98	1	0	0	2.0	1,714	40
464	765	57	1	0	0	2.0	1,714	40
465	466	96	1	0	0	2.0	1,714	40
466	916	43	1	0	0	2.0	1,714	40
467	915	70	1	0	0	2.0	1,714	40
468	731	35	2	0	0	2.0	1,714	40
468	732	64	2	1	0	2.0	1,714	50
469	188	54	1	0	0	2.0	1,714	40
469	225	56	2	0	0	2.0	1,895	50
469	226	49	2	0	0	2.0	1,895	50
471	892	62	3	0	0	2.0	2,250	65
471	897	148	3	0	0	2.0	2,250	65
472	547	109	1	0	0	2.0	1,714	35
473	643	180	1	0	1	2.0	1,714	30
474	388	121	1	1	0	2.0	1,714	40
478	756	23	1	0	0	2.0	1,714	40
480	492	128	1	0	0	2.0	1,714	40
481	876	16	1	0	0	2.0	1,895	50
481	880	14	1	0	0	2.0	1,714	40
484	636	76	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
484	665	39	1	0	0	2.0	1,714	40
484	1221	27	1	0	0	2.0	1,714	40
485	867	75	1	0	0	2.0	1,714	40
485	882	47	2	1	0	2.0	1,714	40
487	489	63	2	0	0	2.0	1,714	40
487	882	43	2	0	1	2.0	1,714	40
489	487	63	2	0	0	2.0	1,714	40
489	869	96	2	0	0	2.0	1,714	40
491	875	71	2	0	0	2.0	2,250	55
491	876	30	2	0	0	2.0	2,250	55
492	858	184	1	0	0	2.0	1,714	40
492	865	16	1	0	0	2.0	1,714	40
494	52	81	1	1	0	2.0	1,714	40
494	53	21	1	0	1	2.0	1,895	60
494	70	60	1	0	0	2.0	1,714	40
495	672	45	1	0	0	2.0	1,714	40
497	199	100	1	0	0	2.0	1,714	40
498	557	93	2	0	0	2.0	1,895	50
498	613	23	2	0	0	2.0	1,895	50
499	153	30	2	0	0	2.0	1,895	50
499	275	28	2	0	0	2.0	1,895	50
499	276	18	1	0	0	2.0	1,714	30
500	262	21	2	0	0	2.0	2,250	65
500	501	13	1	0	0	2.0	1,714	40
500	1168	125	2	0	0	2.0	2,250	65
501	502	42	3	0	0	2.0	2,250	65
501	1169	43	3	0	0	2.0	2,250	65
502	219	19	3	0	0	2.0	2,250	65
502	501	42	3	0	0	2.0	2,250	65
503	215	25	3	0	0	2.0	2,250	65
503	417	30	3	0	0	2.0	2,250	65
504	294	139	2	0	0	2.0	1,895	50
504	790	48	2	0	0	2.0	1,895	50
504	1162	42	2	0	0	2.0	1,895	40
505	456	52	2	0	0	2.0	1,895	40
505	507	26	2	0	0	2.0	1,895	40
506	410	170	1	0	0	2.0	1,714	40
507	505	26	2	0	0	2.0	1,895	40
508	511	15	2	0	0	2.0	1,714	30
508	644	18	2	0	0	2.0	1,895	50
509	148	64	1	0	1	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
509	510	13	2	0	0	2.0	1,714	30
510	311	48	1	1	0	2.0	1,714	30
510	508	16	2	0	0	2.0	1,714	30
511	509	13	2	0	0	2.0	1,714	40
511	645	23	2	0	0	2.0	1,895	50
512	175	94	2	0	0	2.0	2,000	50
512	645	75	2	0	0	2.0	1,895	50
513	175	23	2	0	0	2.0	2,000	50
513	514	44	2	0	0	2.0	2,000	65
514	133	86	2	0	0	2.0	2,000	65
514	513	44	2	0	0	2.0	1,895	55
514	845	25	1	0	0	2.0	1,714	35
515	910	20	2	0	0	2.0	1,714	35
516	711	40	2	0	0	2.0	1,895	30
516	731	66	2	0	0	2.0	1,714	40
517	518	76	1	0	0	2.0	1,895	60
518	624	101	1	0	0	2.0	1,895	60
519	478	30	1	0	0	2.0	1,714	40
519	522	18	1	0	0	2.0	1,714	40
520	449	38	1	0	0	2.0	1,714	40
520	521	66	1	0	0	2.0	1,714	40
521	2	71	1	0	0	2.0	1,714	55
521	33	62	1	0	0	2.0	1,714	40
521	520	66	1	0	0	2.0	1,895	40
521	1001	117	1	0	0	2.0	1,714	55
522	755	28	3	0	0	2.0	2,250	65
522	756	26	3	0	0	2.0	2,250	65
523	295	34	1	0	0	2.0	1,714	30
523	530	43	2	0	0	2.0	2,250	65
523	533	68	2	0	0	2.0	2,250	65
524	519	12	1	0	0	2.0	1,714	40
525	527	35	1	0	0	2.0	1,714	40
527	163	72	2	1	0	2.0	1,895	40
528	598	34	1	0	0	2.0	1,714	40
528	956	40	2	0	1	2.0	1,895	40
529	532	107	2	0	0	2.0	1,895	55
530	523	43	2	0	0	2.0	2,250	65
530	529	36	1	0	0	2.0	1,714	40
530	536	82	2	0	0	2.0	2,250	65
531	532	142	1	0	0	2.0	1,895	55
532	523	119	1	0	0	2.0	2,250	50

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
532	526	51	3	0	0	2.0	1,895	50
533	296	110	2	0	0	2.0	2,250	65
533	523	68	2	0	0	2.0	2,250	65
534	296	134	2	0	0	2.0	2,250	65
534	535	180	2	0	0	2.0	2,250	65
535	117	178	2	0	0	2.0	2,250	65
535	534	180	2	0	0	2.0	2,250	65
536	530	82	2	0	0	2.0	2,250	65
536	537	141	2	0	0	2.0	2,250	65
537	536	141	2	0	0	2.0	2,250	65
537	539	153	2	0	0	2.0	2,250	65
539	537	153	2	0	0	2.0	2,250	65
539	540	109	2	0	0	2.0	2,250	65
540	539	109	2	0	0	2.0	2,250	65
540	541	184	2	0	0	2.0	2,250	65
541	540	184	2	0	0	2.0	2,250	65
541	1022	100	2	0	0	2.0	2,250	65
542	628	52	1	0	0	2.0	1,714	45
543	323	116	1	0	0	2.0	1,714	55
544	446	35	1	0	0	2.0	1,714	40
544	545	53	1	0	0	2.0	1,714	40
545	42	89	1	1	0	2.0	1,714	40
545	441	25	1	1	0	2.0	1,714	40
545	544	53	1	0	0	2.0	1,714	40
546	543	107	1	0	0	2.0	1,714	45
546	547	75	1	0	0	2.0	1,714	35
547	364	99	1	0	0	2.0	1,714	45
548	616	41	1	1	1	2.0	1,895	40
549	573	58	2	0	0	2.0	1,895	55
549	574	36	2	0	0	2.0	1,895	55
550	621	138	1	0	0	2.0	1,895	60
551	550	103	1	0	0	2.0	1,895	60
552	551	81	1	0	0	2.0	1,895	60
554	552	146	1	0	0	2.0	1,895	60
555	556	172	2	0	0	2.0	1,895	50
555	644	42	2	0	0	2.0	1,895	50
556	555	172	2	0	0	2.0	1,895	45
556	584	28	2	0	0	2.0	1,895	50
557	498	93	2	0	0	2.0	1,895	40
557	584	65	2	0	0	2.0	1,895	50
558	559	27	2	0	0	2.0	1,895	55

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
558	613	40	2	0	0	2.0	1,895	50
558	617	13	1	0	0	2.0	1,714	30
559	558	27	2	0	0	2.0	1,895	50
559	560	73	2	0	0	2.0	1,895	55
560	559	73	2	0	0	2.0	1,895	55
560	567	103	2	0	0	2.0	1,895	55
561	615	77	1	0	0	2.0	1,714	40
564	569	160	1	0	0	2.0	1,895	30
565	554	148	1	0	0	2.0	1,895	60
566	564	135	1	0	0	2.0	1,714	40
567	560	103	2	0	0	2.0	1,895	55
567	572	100	2	0	0	2.0	1,895	55
569	570	49	1	0	0	2.0	1,714	40
570	571	118	1	0	0	2.0	1,714	40
571	656	108	1	0	0	2.0	1,714	40
572	567	100	2	0	0	2.0	1,895	55
572	573	100	2	0	0	2.0	1,895	55
573	549	58	2	0	0	2.0	1,895	55
573	572	100	2	0	0	2.0	1,895	55
574	549	36	2	0	0	2.0	1,895	55
574	648	31	1	0	0	2.0	1,714	25
574	1027	89	2	0	0	2.0	1,895	55
575	600	94	1	0	0	2.0	1,714	40
575	655	130	1	0	0	2.0	1,714	40
576	43	50	1	1	0	2.0	1,714	40
576	525	92	1	0	0	2.0	1,714	40
577	575	36	1	0	0	2.0	1,714	35
578	988	135	1	0	0	2.0	1,714	40
579	556	20	1	0	0	2.0	1,714	40
579	593	50	2	0	0	2.0	1,714	30
580	579	17	1	0	0	2.0	1,714	40
581	587	26	1	0	0	2.0	1,714	30
582	43	28	1	0	1	2.0	1,714	40
582	177	53	1	0	0	2.0	1,714	40
582	183	17	1	0	1	2.0	1,714	40
583	9	14	2	0	0	2.0	2,000	65
583	10	107	2	0	0	2.0	2,000	60
583	183	25	1	0	0	2.0	1,714	25
584	556	28	2	0	0	2.0	1,895	50
584	557	65	2	0	0	2.0	1,895	30
585	555	20	1	0	0	2.0	1,714	30

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
586	593	30	1	1	0	2.0	1,714	30
587	613	60	1	0	0	2.0	1,714	30
590	9	22	1	0	0	2.0	1,714	40
590	43	15	1	1	0	2.0	1,714	40
591	370	103	1	0	0	2.0	1,714	35
591	612	61	1	1	1	2.0	1,895	40
591	1243	97	1	1	1	2.0	1,895	40
593	561	40	1	0	0	2.0	1,714	40
593	579	50	1	0	0	2.0	1,714	40
594	595	147	1	0	0	2.0	1,714	50
595	410	19	1	0	0	2.0	1,714	25
596	472	136	1	0	0	2.0	1,714	45
597	596	146	1	0	0	2.0	1,714	55
598	383	116	3	0	0	2.0	1,895	65
598	528	34	1	0	0	2.0	1,714	30
598	641	29	3	0	0	2.0	2,250	65
598	994	36	1	0	0	2.0	1,714	40
599	546	139	1	0	0	2.0	1,714	40
600	596	58	1	0	0	2.0	1,714	35
600	599	133	1	0	0	2.0	1,714	40
601	1015	46	2	0	0	2.0	2,250	65
601	1016	135	2	0	0	2.0	2,250	65
602	606	47	2	0	0	2.0	1,714	55
602	1015	31	1	0	0	2.0	1,714	40
603	555	28	1	0	0	2.0	1,714	30
606	601	38	2	0	0	2.0	1,714	40
607	593	18	1	0	0	2.0	1,714	30
608	614	13	1	0	0	2.0	1,714	30
609	208	15	1	0	0	2.0	1,333	35
609	286	150	1	0	0	2.0	1,333	35
610	208	60	1	0	0	2.0	1,333	35
611	212	73	1	0	0	2.0	1,333	30
612	591	61	1	1	0	2.0	1,895	40
612	616	83	1	1	1	2.0	1,895	40
612	1005	100	1	0	0	2.0	1,714	40
613	498	23	2	0	0	2.0	1,895	40
613	558	40	2	0	0	2.0	1,895	50
614	561	42	1	0	0	2.0	1,714	40
615	498	56	1	0	0	2.0	1,714	50
616	181	35	1	0	0	2.0	1,714	40
616	548	41	1	0	0	2.0	1,895	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
616	612	83	1	1	0	2.0	1,895	40
617	618	7	1	0	0	2.0	1,714	25
618	565	24	1	0	0	2.0	1,895	60
618	566	54	1	0	0	2.0	2,118	40
621	623	48	1	0	0	2.0	1,714	40
623	531	176	1	0	0	2.0	1,895	60
624	623	95	1	0	0	2.0	1,895	40
625	323	44	1	0	0	2.0	1,714	35
626	1033	23	1	0	0	2.0	1,714	40
627	626	31	1	0	0	2.0	1,714	40
627	631	24	1	0	0	2.0	1,714	40
629	630	27	1	0	0	2.0	1,714	40
630	399	96	2	0	0	2.0	2,250	65
630	1016	89	2	0	0	2.0	2,250	65
631	1019	39	2	0	0	2.0	2,250	65
631	1033	34	2	0	0	2.0	2,250	65
632	484	27	1	0	0	2.0	1,714	40
632	1221	43	2	0	0	2.0	2,250	65
632	1222	81	2	0	0	2.0	2,250	65
633	683	84	3	0	0	2.0	2,250	65
633	1015	99	3	0	0	2.0	2,250	65
634	1051	124	2	0	0	2.0	2,250	65
634	1068	127	2	0	0	2.0	2,250	65
635	1067	177	2	0	0	2.0	2,250	65
635	1070	101	2	0	0	2.0	2,250	65
636	484	76	1	0	1	2.0	1,714	40
636	640	104	1	0	0	2.0	1,895	60
636	1220	124	1	0	0	2.0	1,714	50
637	1186	87	1	0	1	2.0	1,714	50
637	1193	138	1	1	0	2.0	1,714	50
638	1216	27	1	0	0	2.0	2,250	65
639	123	43	2	0	0	2.0	2,250	65
639	144	48	2	0	0	2.0	2,250	65
639	1183	42	2	0	0	2.0	1,895	50
640	124	112	1	0	0	2.0	1,895	60
640	636	104	1	0	0	2.0	1,714	50
641	598	29	3	0	0	2.0	2,250	65
641	995	50	3	0	0	2.0	2,250	65
642	627	56	1	0	0	2.0	1,714	40
643	390	89	2	0	0	2.0	1,714	40
643	642	26	1	0	0	2.0	1,714	30

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
644	508	18	2	0	0	2.0	1,895	30
644	555	42	2	0	0	2.0	1,895	30
644	645	43	1	0	0	2.0	1,714	40
645	511	23	2	0	0	2.0	1,895	30
645	512	75	2	0	0	2.0	1,895	50
647	597	68	1	0	0	2.0	1,714	55
647	649	33	1	0	0	2.0	1,714	45
648	647	66	1	0	0	2.0	1,714	40
649	80	90	1	0	0	2.0	1,714	40
649	1025	137	1	1	1	2.0	1,895	55
655	549	27	1	0	0	2.0	1,714	40
655	988	39	1	0	0	2.0	1,714	40
656	1028	15	1	0	0	2.0	1,714	40
657	684	37	2	1	0	2.0	1,895	40
657	1199	29	1	0	0	2.0	1,714	40
658	122	16	1	0	0	2.0	1,714	40
659	408	38	1	0	0	2.0	1,714	40
659	660	84	1	0	0	2.0	1,714	45
660	396	26	2	0	0	2.0	1,714	35
661	398	102	1	0	0	2.0	1,714	55
662	1051	49	2	0	0	2.0	2,250	65
662	1202	79	2	0	0	2.0	2,250	65
663	664	33	3	2	0	2.0	1,895	50
663	1051	31	1	0	0	2.0	1,714	40
663	1057	54	2	0	0	2.0	1,895	60
664	662	25	2	0	0	2.0	1,895	40
664	663	33	2	1	0	2.0	1,895	50
664	1203	60	3	0	0	2.0	1,895	60
665	484	39	1	0	0	2.0	1,714	40
665	632	34	1	0	0	2.0	1,714	40
666	122	19	2	0	0	2.0	1,714	40
666	658	24	2	0	0	2.0	1,714	50
668	1058	10	1	0	0	2.0	1,714	40
668	1059	182	1	0	0	2.0	1,714	45
669	670	49	2	0	0	2.0	2,250	55
669	1058	48	2	0	0	2.0	2,250	65
670	669	49	2	0	0	2.0	2,250	55
670	671	177	2	0	0	2.0	2,250	65
671	670	177	2	0	0	2.0	2,250	55
671	672	180	2	0	0	2.0	2,250	65
672	671	180	2	0	0	2.0	2,250	65

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
672	673	152	2	0	0	2.0	2,250	65
673	672	152	2	0	0	2.0	2,250	65
673	674	186	2	0	0	2.0	2,250	65
674	673	186	2	0	0	2.0	2,250	65
674	675	113	2	0	0	2.0	2,250	65
675	674	113	2	0	0	2.0	2,250	65
675	676	50	2	0	0	2.0	2,250	65
676	675	50	2	0	0	2.0	2,250	65
676	704	38	1	0	0	2.0	1,714	40
677	356	123	1	0	0	2.0	1,714	40
677	423	143	1	0	0	2.0	1,714	35
678	445	107	1	0	0	2.0	1,714	35
678	1096	103	1	0	0	2.0	1,714	50
679	835	45	1	0	0	2.0	1,714	40
679	1089	25	1	0	0	2.0	1,714	40
680	681	118	1	0	0	2.0	1,714	40
681	682	73	1	0	0	2.0	1,714	40
682	685	105	1	0	0	2.0	1,714	40
683	633	84	3	0	0	2.0	2,250	65
683	1199	38	2	0	0	2.0	2,250	65
684	683	27	1	0	0	2.0	1,714	40
685	657	22	2	0	1	2.0	1,895	40
686	7	84	2	0	0	2.0	1,895	50
686	1161	14	2	0	0	2.0	1,895	50
687	419	14	1	0	0	2.0	1,895	30
688	689	35	2	0	0	2.0	1,895	50
690	218	81	3	0	0	2.0	2,250	65
690	689	76	2	0	0	2.0	2,250	65
690	691	28	2	0	0	2.0	1,895	50
691	502	48	2	0	0	2.0	1,895	50
692	260	63	3	0	0	2.0	2,250	65
692	1108	39	3	0	0	2.0	2,250	65
693	259	15	2	0	1	2.0	1,895	40
693	1084	119	2	0	1	2.0	1,895	45
694	232	51	3	0	0	2.0	2,250	65
694	696	137	3	0	0	2.0	2,250	65
695	1244	82	2	0	0	2.0	1,714	50
696	694	137	3	0	0	2.0	2,250	65
696	1177	112	3	0	0	2.0	2,250	65
697	695	52	1	0	0	2.0	1,714	40
698	703	24	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
698	1177	65	3	0	0	2.0	2,250	65
698	1242	67	3	0	0	2.0	2,250	65
699	1242	39	1	0	0	2.0	1,714	40
700	453	36	2	0	0	2.0	1,895	30
700	940	72	2	0	0	2.0	2,250	60
701	420	69	1	0	0	2.0	1,895	50
701	453	29	2	0	0	2.0	1,895	30
701	741	15	2	0	0	2.0	1,895	40
702	1178	25	2	0	0	2.0	1,895	55
703	702	49	1	0	0	2.0	1,714	50
704	1069	137	2	0	0	2.0	2,250	65
704	1070	43	2	0	0	2.0	2,250	65
705	415	16	1	0	0	2.0	1,714	30
705	709	71	1	0	0	2.0	1,714	30
705	748	38	2	0	0	2.0	1,714	40
706	707	21	1	0	0	2.0	1,714	40
706	941	54	1	0	0	2.0	1,714	40
707	706	21	1	0	0	2.0	1,714	40
707	708	66	1	0	0	2.0	1,714	40
707	748	31	1	0	1	2.0	1,714	35
708	287	35	1	0	0	2.0	1,714	35
708	707	66	1	0	0	2.0	1,714	40
709	705	71	1	0	0	2.0	1,714	30
709	710	36	1	0	0	2.0	1,714	30
709	938	31	1	0	0	2.0	1,714	40
710	458	27	1	0	0	2.0	1,714	30
710	709	36	1	0	0	2.0	1,714	30
711	516	40	2	0	0	2.0	1,714	30
711	744	63	3	0	0	2.0	1,714	40
711	905	45	1	0	0	2.0	1,714	40
712	416	25	1	0	0	2.0	1,714	45
712	941	34	1	0	0	2.0	1,714	40
713	247	22	1	0	0	2.0	1,714	45
713	273	90	1	0	1	2.0	1,714	45
713	304	77	1	0	0	2.0	1,895	40
714	837	38	1	0	0	2.0	1,714	35
715	247	51	1	0	0	2.0	1,714	45
715	716	27	1	1	0	2.0	1,714	45
715	755	24	1	0	0	2.0	1,714	40
716	715	27	1	1	0	2.0	1,714	45
716	717	47	1	1	0	2.0	1,714	45

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
716	754	24	1	0	0	2.0	1,714	30
717	716	47	1	0	0	2.0	1,714	45
717	718	52	2	0	0	2.0	1,714	40
717	758	133	1	0	0	2.0	1,714	45
718	717	52	1	0	1	2.0	1,714	45
718	825	67	1	0	0	2.0	1,714	30
718	922	39	1	0	0	2.0	1,714	35
719	825	39	1	0	0	2.0	1,714	30
719	830	98	1	0	0	2.0	1,714	40
719	840	37	2	0	0	2.0	1,714	40
720	721	46	1	1	0	2.0	1,714	40
720	763	122	1	0	0	2.0	1,714	35
720	840	50	1	0	0	2.0	1,714	40
721	233	111	1	0	0	2.0	1,714	40
721	720	46	1	0	0	2.0	1,714	40
721	722	159	1	0	0	2.0	1,714	40
721	726	62	1	0	0	2.0	1,714	40
722	721	159	1	0	1	2.0	1,714	40
722	761	71	1	0	0	2.0	1,714	40
724	359	98	1	0	0	2.0	1,714	40
724	725	149	1	0	0	2.0	1,714	40
724	761	44	1	0	0	2.0	1,714	40
725	724	149	1	0	1	2.0	1,714	40
725	1082	152	1	0	0	2.0	1,714	50
725	1093	171	1	0	1	2.0	1,714	40
726	721	62	1	1	0	2.0	1,714	40
726	727	65	1	0	0	2.0	1,714	45
727	726	65	1	0	0	2.0	1,714	45
727	728	105	1	0	0	2.0	1,714	45
728	727	105	1	0	0	2.0	1,714	45
728	1084	90	2	1	0	2.0	1,895	45
729	113	112	1	0	0	2.0	1,714	35
729	766	11	1	0	0	2.0	1,714	25
731	329	89	1	0	0	2.0	1,895	30
731	468	35	2	0	0	2.0	1,714	40
731	516	66	2	0	0	2.0	1,714	30
732	350	64	1	0	0	2.0	1,895	40
732	468	64	2	0	0	2.0	1,714	50
732	733	96	2	0	0	2.0	1,895	50
733	732	96	2	0	1	2.0	1,714	50
733	759	22	1	0	0	2.0	1,714	45

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
733	1246	16	2	0	1	2.0	1,895	50
734	735	25	1	0	0	2.0	1,714	40
734	736	66	2	0	0	2.0	1,895	50
734	1246	30	2	1	0	2.0	1,895	50
735	351	85	2	0	0	2.0	2,250	65
735	757	34	2	0	0	2.0	2,250	65
736	734	66	2	1	0	2.0	1,895	50
736	737	84	2	1	0	2.0	1,895	50
737	360	84	1	0	0	2.0	1,714	40
737	736	84	2	0	0	2.0	1,895	50
737	739	116	2	0	0	2.0	1,714	40
737	920	144	1	0	0	2.0	1,714	40
738	878	44	2	0	0	2.0	2,250	55
738	879	83	2	0	0	2.0	2,250	65
739	363	90	1	0	0	2.0	1,714	40
739	737	116	2	1	0	2.0	1,895	50
740	322	47	1	0	0	2.0	1,714	30
741	105	15	2	0	0	2.0	1,714	25
741	701	15	2	0	0	2.0	1,895	45
742	681	91	1	0	0	2.0	1,714	35
743	336	75	1	0	0	2.0	1,714	45
743	905	65	1	0	0	2.0	1,714	40
744	275	20	1	0	0	2.0	1,714	25
744	276	34	2	0	0	2.0	1,714	40
744	711	63	2	1	0	2.0	1,714	40
746	906	53	1	0	0	2.0	1,714	40
746	1079	30	1	0	0	2.0	1,714	30
747	881	152	1	0	0	2.0	1,714	35
747	971	176	1	0	0	2.0	1,714	30
748	276	46	2	1	0	2.0	1,714	40
748	705	38	2	0	0	2.0	1,714	40
749	66	36	2	0	0	2.0	1,714	35
749	750	46	1	0	0	2.0	1,714	35
750	749	46	1	0	0	2.0	1,714	35
750	751	87	1	0	0	2.0	1,714	35
751	311	76	1	0	0	2.0	1,714	30
751	750	87	1	0	0	2.0	1,714	35
753	366	126	2	0	0	2.0	2,250	65
753	757	64	2	0	0	2.0	2,250	65
754	366	23	2	0	0	2.0	2,250	65
754	715	21	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
754	755	38	2	0	0	2.0	2,250	65
755	522	28	3	0	0	2.0	2,250	65
755	716	27	1	0	0	2.0	1,714	40
755	754	38	2	1	0	2.0	2,250	65
756	522	26	3	0	0	2.0	2,250	65
756	829	88	3	0	0	2.0	2,250	65
757	735	34	2	0	0	2.0	2,250	65
757	753	64	2	0	0	2.0	2,250	65
758	717	133	2	0	0	2.0	1,714	45
758	760	83	1	1	0	2.0	1,714	45
759	733	22	2	0	0	2.0	1,714	40
759	757	20	1	0	0	2.0	1,714	40
759	760	27	1	0	0	2.0	1,714	45
760	757	18	1	0	0	2.0	1,714	40
760	758	83	1	0	0	2.0	1,714	45
760	759	27	1	1	0	2.0	1,714	45
761	722	71	1	0	0	2.0	1,714	40
761	724	44	1	0	0	2.0	1,714	40
762	761	70	1	0	0	2.0	1,714	40
763	762	65	1	0	0	2.0	1,714	35
764	287	31	1	0	0	2.0	1,714	35
764	772	21	1	0	0	2.0	1,714	35
765	729	16	1	0	0	2.0	1,714	25
766	112	13	1	0	0	2.0	1,714	25
766	127	137	1	0	0	2.0	1,714	50
767	706	53	1	0	0	2.0	1,714	40
767	941	85	1	0	0	2.0	1,714	35
768	769	35	2	0	0	2.0	2,250	60
768	940	43	2	0	0	2.0	2,250	60
769	768	35	2	0	0	2.0	2,250	60
769	781	129	2	0	0	2.0	2,250	60
770	190	16	1	0	0	2.0	1,714	35
770	771	61	1	0	0	2.0	1,714	40
770	777	91	1	0	0	2.0	1,714	40
771	772	49	1	0	0	2.0	1,714	40
771	842	26	1	0	0	2.0	1,714	30
771	939	22	1	0	0	2.0	1,714	35
772	710	28	1	0	0	2.0	1,714	30
772	764	21	1	0	0	2.0	1,714	35
773	764	42	1	0	0	2.0	1,714	35
774	767	60	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
774	773	101	1	0	0	2.0	1,714	35
774	775	118	1	0	0	2.0	1,714	35
775	779	105	1	0	0	2.0	1,714	40
775	962	107	1	0	0	2.0	1,714	35
777	778	134	1	0	0	2.0	1,714	40
777	789	89	1	0	0	2.0	1,714	35
778	792	67	1	0	0	2.0	1,714	35
778	799	63	1	0	0	2.0	1,714	35
779	460	74	1	0	0	2.0	1,714	40
779	826	65	1	0	0	2.0	1,714	40
781	769	129	2	0	0	2.0	2,250	60
781	782	130	2	0	0	2.0	2,250	60
782	781	130	2	0	0	2.0	2,250	60
782	801	36	2	0	0	2.0	1,895	60
783	785	73	2	0	0	2.0	2,250	60
783	801	89	2	0	0	2.0	1,895	60
784	790	35	1	0	0	2.0	1,714	35
785	783	73	2	0	0	2.0	2,250	60
785	814	64	2	0	0	2.0	2,250	60
786	190	24	1	0	0	2.0	1,714	35
786	419	50	1	0	0	2.0	1,895	30
786	787	36	1	0	0	2.0	1,714	40
787	786	36	1	0	0	2.0	1,714	35
787	789	102	1	0	0	2.0	1,714	40
789	787	102	1	0	0	2.0	1,714	40
789	791	68	1	0	0	2.0	1,714	40
790	226	79	2	1	0	2.0	1,895	50
790	504	48	2	0	0	2.0	1,895	50
791	44	35	1	0	0	2.0	1,714	40
791	789	68	1	0	0	2.0	1,714	40
792	961	21	1	0	1	2.0	1,714	45
793	687	79	1	0	0	2.0	1,714	35
793	787	40	1	0	1	2.0	1,714	35
793	794	109	1	0	0	2.0	1,714	35
794	796	31	1	0	0	2.0	1,714	35
795	798	42	1	0	0	2.0	1,714	35
796	795	51	1	0	0	2.0	1,714	35
797	682	48	1	0	0	2.0	1,714	35
798	789	39	1	1	0	2.0	1,714	35
799	802	66	1	0	0	2.0	1,714	35
799	804	146	1	0	0	2.0	1,714	35

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
799	962	132	1	0	0	2.0	1,714	35
800	1201	46	1	0	0	2.0	1,714	40
801	782	36	2	0	0	2.0	2,250	60
801	783	89	2	0	0	2.0	2,250	60
802	810	77	1	0	0	2.0	1,895	45
802	961	30	1	1	0	2.0	1,714	40
804	806	88	1	0	0	2.0	1,714	40
805	594	168	1	0	0	2.0	1,714	50
805	845	21	2	0	0	2.0	1,714	35
806	807	62	1	0	0	2.0	1,895	50
806	947	65	1	0	0	2.0	1,714	55
807	808	102	1	0	0	2.0	1,895	45
807	971	67	1	0	0	2.0	1,714	30
808	809	83	1	0	1	2.0	1,895	40
809	425	24	2	0	0	2.0	1,714	45
809	813	17	1	0	0	2.0	1,714	40
810	812	86	1	0	0	2.0	1,714	45
811	118	40	2	0	0	2.0	2,250	50
811	870	23	1	0	0	2.0	1,714	40
811	977	77	2	0	0	2.0	2,250	60
812	813	53	1	0	0	2.0	1,714	45
812	944	27	1	0	0	2.0	1,714	40
813	425	24	2	0	0	2.0	1,714	45
813	1087	30	1	0	0	2.0	1,714	35
814	785	64	2	0	0	2.0	2,250	60
814	815	92	2	0	0	2.0	2,250	55
815	814	92	2	0	0	2.0	2,250	60
815	816	54	2	2	0	2.0	2,250	60
816	815	54	2	0	0	2.0	2,250	55
816	1046	21	2	0	0	2.0	1,895	50
816	1047	21	2	0	0	2.0	1,895	60
817	897	43	3	0	0	2.0	2,250	65
817	899	73	3	0	0	2.0	2,250	65
818	820	83	1	0	0	2.0	1,714	50
818	822	46	1	0	0	2.0	1,714	40
819	817	15	1	0	0	2.0	1,714	40
820	838	102	1	0	0	2.0	1,895	50
822	834	16	1	0	0	2.0	2,250	65
822	955	27	1	0	0	2.0	1,714	40
823	831	19	1	0	0	2.0	1,714	40
824	822	22	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
825	718	67	1	1	0	2.0	1,895	30
825	719	39	2	0	0	2.0	1,714	30
826	824	185	1	0	0	2.0	1,714	40
826	947	125	1	0	0	2.0	1,714	40
829	756	88	3	0	0	2.0	2,250	65
829	831	34	3	0	0	2.0	2,250	65
830	823	32	1	0	0	2.0	1,714	40
830	829	17	1	0	0	2.0	1,714	40
831	829	34	3	0	0	2.0	2,250	65
831	833	81	3	0	0	2.0	2,250	65
832	1223	110	1	0	0	2.0	1,895	35
833	831	81	3	0	0	2.0	2,250	65
833	834	36	3	0	0	2.0	2,250	65
834	833	36	3	0	0	2.0	2,250	65
834	836	139	3	0	0	2.0	2,250	65
835	1100	31	1	0	0	2.0	1,714	40
836	834	139	3	0	0	2.0	1,714	40
836	856	122	3	0	0	2.0	2,250	65
837	955	157	1	0	0	2.0	1,714	40
838	839	125	1	0	0	2.0	1,714	40
838	849	108	1	0	0	2.0	1,714	40
839	837	105	1	0	0	2.0	1,714	40
840	719	37	1	0	0	2.0	1,714	40
840	720	50	1	0	0	2.0	1,714	40
840	837	90	1	0	0	2.0	1,714	40
840	926	72	1	0	0	2.0	1,714	40
842	940	17	1	0	0	2.0	1,714	35
845	514	25	1	0	0	2.0	1,714	40
845	515	19	2	0	0	2.0	1,714	35
846	233	176	1	0	0	2.0	1,714	40
846	847	51	1	0	0	2.0	1,714	40
847	1084	177	1	1	1	2.0	1,714	40
849	850	98	1	0	0	2.0	1,714	40
849	979	46	1	0	0	2.0	1,714	40
850	846	74	1	0	0	2.0	1,714	40
854	856	19	1	0	0	2.0	1,714	40
854	857	119	1	0	0	2.0	1,714	40
854	859	18	1	0	0	2.0	1,714	45
856	836	122	3	0	0	2.0	2,250	65
856	865	95	3	0	0	2.0	2,250	65
857	854	119	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
857	858	36	1	0	0	2.0	1,714	40
858	857	36	1	0	0	2.0	1,714	40
858	862	33	1	0	0	2.0	1,714	40
859	854	18	1	0	0	2.0	1,714	45
859	881	148	1	0	0	2.0	1,714	50
862	858	33	1	0	0	2.0	1,714	40
862	895	180	1	0	0	2.0	1,714	50
862	979	108	1	0	0	2.0	1,714	40
863	248	147	1	0	0	2.0	1,714	40
864	863	139	1	0	0	2.0	1,714	40
864	895	58	1	0	0	2.0	1,714	40
864	1120	61	1	0	0	2.0	1,714	40
865	856	95	3	0	0	2.0	2,250	65
865	892	97	3	0	0	2.0	2,250	65
867	485	75	2	0	0	2.0	1,714	40
867	1047	19	2	0	0	2.0	1,895	60
869	31	184	2	1	0	2.0	1,714	40
869	489	96	2	0	0	2.0	1,714	40
870	1	21	2	0	0	2.0	2,250	65
870	1157	63	2	0	0	2.0	2,250	65
871	31	33	1	0	0	2.0	1,714	40
872	888	18	1	0	0	2.0	1,714	30
873	372	36	2	0	0	2.0	2,250	50
873	874	40	2	1	0	2.0	1,895	50
874	873	40	2	0	0	2.0	2,250	50
874	875	32	2	0	0	2.0	2,250	55
874	881	103	1	0	0	2.0	1,714	50
874	980	29	1	0	0	2.0	1,895	40
875	491	71	2	0	0	2.0	2,250	55
875	874	32	2	0	1	2.0	1,895	50
876	491	30	2	0	0	2.0	2,250	55
876	884	32	2	0	0	2.0	2,250	55
877	878	42	2	0	0	2.0	2,250	55
877	884	67	2	0	0	2.0	2,250	55
878	452	27	1	0	0	2.0	1,714	40
878	738	44	2	0	0	2.0	2,250	60
878	877	42	2	0	0	2.0	2,250	55
879	738	83	2	0	0	2.0	2,250	60
879	977	71	2	0	0	2.0	2,250	60
880	491	16	1	0	0	2.0	1,714	40
880	890	93	1	0	0	2.0	1,895	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
881	859	148	1	0	0	2.0	1,714	45
881	874	103	1	0	0	2.0	1,714	40
882	485	47	2	0	0	2.0	1,714	40
882	487	43	2	0	0	2.0	1,714	40
882	883	25	1	0	0	2.0	1,714	40
883	882	25	1	1	0	2.0	1,714	40
883	888	69	1	0	0	2.0	1,714	30
883	981	48	1	0	0	2.0	1,895	40
884	876	32	2	0	0	2.0	2,250	55
884	877	67	2	0	0	2.0	2,250	55
885	480	111	1	0	0	2.0	1,714	40
885	491	12	1	0	0	2.0	1,714	40
885	888	28	1	0	0	2.0	1,714	30
886	899	93	3	0	0	2.0	2,250	65
886	1052	65	3	0	0	2.0	1,895	65
888	481	17	1	0	0	2.0	1,714	40
888	883	69	1	0	0	2.0	1,714	40
889	819	40	1	0	0	2.0	1,714	35
889	1152	164	1	1	0	2.0	1,714	40
890	896	83	1	0	0	2.0	1,895	40
892	471	62	3	0	0	2.0	2,250	65
892	865	97	3	0	0	2.0	2,250	65
893	894	101	1	0	0	2.0	1,895	65
893	896	65	2	0	0	2.0	1,895	50
894	452	57	1	0	0	2.0	1,714	60
894	893	101	1	0	0	2.0	1,895	65
895	862	180	1	0	0	2.0	1,714	40
895	864	58	1	0	0	2.0	1,714	40
895	896	70	2	0	0	2.0	1,895	50
896	892	12	1	0	0	2.0	1,714	40
896	893	65	2	0	0	2.0	1,895	65
896	895	70	2	0	0	2.0	1,895	50
897	471	148	3	0	0	2.0	2,250	65
897	817	43	3	0	0	2.0	2,250	65
898	1223	170	1	0	0	2.0	1,895	35
899	817	73	3	0	0	2.0	2,250	65
899	886	93	3	0	0	2.0	2,250	65
900	893	95	1	0	0	2.0	1,714	35
900	901	86	1	0	0	2.0	1,714	40
901	902	68	1	0	0	2.0	1,714	40
902	136	141	1	0	0	2.0	1,714	35

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
905	711	45	2	0	0	2.0	1,714	40
905	743	65	1	0	0	2.0	1,714	40
906	743	132	1	0	0	2.0	1,714	40
906	746	53	1	0	0	2.0	1,714	40
908	327	134	1	0	0	2.0	1,714	40
909	898	156	1	0	0	2.0	1,895	35
909	1184	115	1	0	0	2.0	1,895	30
910	517	44	1	0	0	2.0	1,895	50
910	805	21	2	0	0	2.0	1,714	35
913	832	175	1	0	0	2.0	1,895	35
913	1065	115	1	0	0	2.0	1,895	35
914	321	25	1	0	0	2.0	1,714	35
915	468	21	1	0	0	2.0	1,714	35
916	732	16	1	0	0	2.0	1,714	40
917	913	153	1	0	0	2.0	1,895	35
918	247	58	1	0	0	2.0	1,714	35
919	736	80	1	0	1	2.0	1,714	40
919	921	42	1	0	0	2.0	1,895	30
920	737	144	1	0	0	2.0	1,714	40
920	919	51	1	0	0	2.0	1,714	40
920	924	104	1	0	0	2.0	1,714	40
921	758	37	1	0	0	2.0	1,714	35
922	919	122	1	0	0	2.0	1,714	40
922	924	41	1	0	0	2.0	1,714	35
924	763	85	1	0	0	2.0	1,714	35
924	920	104	1	0	0	2.0	1,714	40
924	922	41	1	0	0	2.0	1,714	35
924	926	54	1	0	0	2.0	1,714	40
925	1077	140	1	0	0	2.0	1,714	35
926	840	72	1	0	0	2.0	1,714	35
926	924	54	1	0	0	2.0	1,714	40
930	84	18	1	1	0	2.0	1,714	45
930	93	63	1	0	0	2.0	1,333	40
931	938	16	1	0	0	2.0	1,714	35
932	939	19	1	0	0	2.0	1,714	35
933	772	36	1	0	0	2.0	1,714	35
935	6	14	1	0	0	2.0	1,714	40
935	18	45	1	0	0	2.0	1,895	30
935	19	16	1	0	1	2.0	1,895	45
936	1078	38	1	0	0	2.0	1,714	30
938	709	31	2	0	0	2.0	1,714	30

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
938	1054	23	1	0	0	2.0	1,714	30
939	764	33	1	0	0	2.0	1,714	35
939	771	22	1	0	0	2.0	1,714	35
940	700	72	2	0	0	2.0	2,250	60
940	768	43	2	0	0	2.0	2,250	60
941	706	54	1	0	0	2.0	1,714	40
941	712	34	1	0	0	2.0	1,714	40
942	712	37	1	0	0	2.0	1,714	35
943	294	56	1	0	0	2.0	1,895	35
944	785	13	1	0	0	2.0	1,714	40
947	818	150	1	0	0	2.0	1,714	40
949	1175	99	3	0	0	2.0	2,250	65
949	1176	27	3	0	1	2.0	2,250	55
953	943	93	1	0	0	2.0	1,895	35
955	822	27	1	0	0	2.0	1,714	40
955	833	13	1	0	0	2.0	1,714	40
956	528	40	2	1	0	2.0	1,895	40
956	994	14	1	0	0	2.0	1,714	40
957	794	14	1	0	0	2.0	1,714	35
958	796	20	1	0	0	2.0	1,714	35
959	774	84	1	0	0	2.0	1,714	35
959	777	63	1	0	0	2.0	1,714	35
960	770	31	1	0	0	2.0	1,714	35
961	801	26	1	0	0	2.0	1,714	40
961	802	30	1	0	0	2.0	1,714	45
962	775	107	1	0	0	2.0	1,714	35
962	799	132	1	0	0	2.0	1,714	35
963	65	110	1	0	0	2.0	1,714	40
963	222	30	1	0	0	2.0	1,714	40
963	1241	33	1	0	0	2.0	1,714	40
964	24	39	2	0	0	2.0	1,714	40
964	181	22	2	1	0	2.0	1,714	40
964	998	30	1	0	0	2.0	1,714	40
966	992	69	1	0	0	2.0	1,714	40
968	447	40	1	0	0	2.0	1,714	50
968	995	52	3	0	0	2.0	2,250	65
968	996	125	3	0	0	2.0	2,250	65
969	447	57	1	0	0	2.0	1,714	50
971	859	176	1	0	0	2.0	1,714	40
972	1017	58	1	0	0	2.0	1,714	35
976	1014	35	1	0	0	2.0	1,333	30

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
977	811	77	2	0	0	2.0	2,250	50
977	879	71	2	0	0	2.0	2,250	65
978	192	101	1	0	0	2.0	1,714	40
978	977	16	1	0	0	2.0	1,714	40
978	1152	13	2	1	0	2.0	1,895	40
979	849	46	1	0	0	2.0	1,714	40
979	862	108	1	0	0	2.0	1,714	40
980	874	29	1	0	0	2.0	1,714	40
980	981	48	1	0	0	2.0	1,895	40
981	883	48	1	0	0	2.0	1,714	35
981	980	48	1	0	0	2.0	1,895	40
988	648	26	1	0	0	2.0	1,714	30
992	32	63	1	0	0	2.0	1,714	35
992	884	16	1	0	0	2.0	1,714	35
994	641	17	1	0	0	2.0	1,714	40
994	956	14	1	0	0	2.0	1,714	40
995	641	50	3	0	0	2.0	2,250	65
995	968	52	3	0	0	2.0	2,250	65
995	969	33	1	0	0	2.0	1,714	40
996	968	125	3	0	0	2.0	2,250	65
996	997	107	3	0	0	2.0	2,250	65
997	330	131	3	0	0	2.0	2,250	65
997	996	107	3	0	0	2.0	2,250	65
998	181	30	1	1	0	2.0	1,714	40
998	330	56	3	0	0	2.0	2,250	65
998	999	114	3	0	0	2.0	2,250	65
999	125	78	3	0	0	2.0	2,250	65
999	998	114	3	0	0	2.0	2,250	65
1000	35	157	1	0	0	2.0	1,714	40
1000	1001	93	1	0	0	2.0	1,714	55
1000	1004	119	1	0	0	2.0	1,714	40
1001	449	41	1	0	0	2.0	1,714	40
1001	521	117	1	0	0	2.0	1,714	55
1001	1000	93	1	0	0	2.0	1,714	55
1002	30	122	1	1	0	2.0	1,895	40
1002	157	127	1	1	0	2.0	1,714	35
1002	370	91	1	0	0	2.0	1,714	35
1002	1243	73	2	1	0	2.0	1,895	40
1003	425	58	2	0	0	2.0	1,714	45
1003	1017	39	1	0	0	2.0	1,714	35
1004	78	69	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1004	449	84	1	0	0	2.0	1,714	40
1004	1000	119	1	0	0	2.0	1,714	40
1004	1005	95	1	0	0	2.0	1,714	40
1005	24	74	1	0	0	2.0	1,714	40
1005	370	53	1	0	0	2.0	1,714	35
1005	612	100	1	0	0	2.0	1,714	40
1005	1004	95	1	0	0	2.0	1,714	40
1007	297	188	2	0	0	2.0	2,250	65
1007	1008	140	2	0	0	2.0	2,250	65
1008	1007	140	2	0	0	2.0	2,250	65
1008	1009	66	2	0	0	2.0	2,250	65
1009	125	162	2	0	0	2.0	2,250	65
1009	695	90	1	0	0	2.0	1,714	40
1009	1008	66	2	0	0	2.0	2,250	65
1014	602	44	2	0	1	2.0	1,333	30
1015	601	46	2	0	0	2.0	2,250	65
1015	633	99	3	0	0	2.0	2,250	65
1016	601	135	2	0	0	2.0	2,250	65
1016	630	89	2	0	0	2.0	2,250	65
1017	815	21	1	0	0	2.0	1,714	40
1018	1021	162	2	0	0	2.0	2,250	65
1018	1033	129	2	0	0	2.0	2,250	65
1019	631	39	2	0	0	2.0	2,250	65
1020	382	84	2	0	0	2.0	2,250	65
1020	1021	140	2	0	0	2.0	2,250	65
1021	1018	162	2	0	0	2.0	2,250	65
1021	1020	140	2	0	0	2.0	2,250	65
1022	382	186	2	0	0	2.0	2,250	65
1022	541	100	2	0	0	2.0	2,250	65
1023	394	126	1	0	0	2.0	1,714	40
1023	1024	39	1	0	0	2.0	1,895	45
1023	1025	39	1	0	0	2.0	1,714	45
1024	391	95	1	0	0	2.0	1,714	45
1025	387	173	1	1	0	2.0	1,714	50
1025	661	127	1	0	0	2.0	1,714	55
1025	1023	39	1	0	0	2.0	1,895	40
1025	1232	99	1	0	0	2.0	1,714	55
1027	574	89	2	0	0	2.0	1,895	55
1027	1028	66	2	0	0	2.0	1,895	50
1028	394	67	2	0	0	2.0	1,714	50
1028	1027	66	2	0	0	2.0	1,895	55

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1029	629	35	3	0	0	2.0	1,895	40
1029	630	23	1	0	0	2.0	1,714	40
1033	631	34	2	0	0	2.0	2,250	65
1033	1018	129	2	0	0	2.0	2,250	65
1046	372	51	2	0	0	2.0	1,895	50
1046	816	21	2	0	0	2.0	1,895	60
1047	816	21	2	0	0	2.0	1,895	55
1047	867	19	2	0	0	2.0	1,895	40
1047	1046	20	1	0	0	2.0	1,714	40
1050	224	21	3	0	0	2.0	2,250	60
1050	1052	57	3	0	0	2.0	1,895	65
1051	634	124	2	0	0	2.0	2,250	65
1051	662	49	2	0	0	2.0	2,250	65
1051	664	35	2	0	0	2.0	1,895	40
1052	1	37	1	0	0	2.0	1,714	40
1052	886	65	3	0	0	2.0	2,250	65
1052	1050	57	3	0	0	2.0	2,250	65
1053	312	176	1	1	0	2.0	1,895	60
1053	1055	184	1	0	0	2.0	1,895	60
1054	279	13	1	0	0	2.0	1,714	30
1054	938	23	1	0	0	2.0	1,714	40
1054	1079	23	1	0	0	2.0	1,714	30
1055	1053	184	1	0	0	2.0	1,895	60
1055	1057	170	1	0	0	2.0	1,895	60
1057	663	54	2	0	1	2.0	1,895	50
1057	1055	170	1	0	0	2.0	1,895	60
1058	354	167	2	0	0	2.0	2,250	65
1058	669	48	2	0	0	2.0	2,250	55
1059	1190	167	1	0	0	2.0	1,714	40
1064	1065	103	1	0	0	2.0	1,895	40
1064	1075	134	1	0	0	2.0	1,895	40
1065	1064	103	1	0	0	2.0	1,895	40
1065	1184	75	1	0	0	2.0	1,895	40
1067	635	177	2	0	0	2.0	2,250	65
1067	1208	175	2	0	0	2.0	2,250	65
1068	634	127	2	0	0	2.0	2,250	65
1068	1069	176	2	0	0	2.0	2,250	65
1069	704	137	2	0	0	2.0	2,250	65
1069	1068	176	2	0	0	2.0	2,250	65
1070	635	101	2	0	0	2.0	2,250	65
1070	675	38	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1070	676	33	1	0	0	2.0	1,714	40
1070	704	43	2	0	0	2.0	2,250	65
1072	315	168	1	0	0	2.0	1,895	45
1072	1073	120	1	0	0	2.0	1,895	45
1073	1072	120	1	0	0	2.0	1,895	45
1073	1074	143	1	0	0	2.0	1,895	45
1074	1073	143	1	0	0	2.0	1,895	45
1074	1075	119	1	0	0	2.0	1,895	45
1075	495	28	1	0	0	2.0	1,714	35
1075	1064	134	1	0	0	2.0	1,895	40
1075	1074	119	1	0	0	2.0	1,895	30
1076	362	145	1	0	0	2.0	1,714	40
1076	365	86	1	0	0	2.0	1,714	50
1076	1077	157	1	0	0	2.0	1,714	50
1077	1076	157	1	0	0	2.0	1,714	40
1077	1185	133	1	0	0	2.0	1,714	30
1078	740	52	1	0	0	21.0	1,895	30
1079	279	14	1	0	0	2.0	1,714	30
1079	746	30	1	0	0	2.0	1,714	40
1079	1054	23	1	0	0	2.0	1,714	30
1082	725	152	1	0	0	2.0	1,714	50
1082	1083	104	1	0	0	2.0	1,714	50
1083	428	32	1	0	0	2.0	1,714	40
1083	1082	104	1	0	0	2.0	1,714	50
1083	1099	129	1	0	0	2.0	1,714	40
1084	428	24	1	0	0	2.0	1,714	40
1084	693	119	2	0	0	2.0	1,895	40
1084	728	90	2	0	0	2.0	1,714	45
1085	260	38	3	0	0	2.0	2,250	65
1085	1091	90	3	0	0	2.0	2,250	65
1087	814	16	1	0	0	2.0	1,714	40
1088	1089	126	3	0	0	2.0	2,250	65
1088	1090	128	3	0	0	2.0	2,250	65
1089	1088	126	3	0	0	2.0	2,250	65
1089	1100	61	3	0	0	2.0	2,250	65
1090	1088	128	3	0	0	2.0	2,250	65
1090	1091	177	3	0	0	2.0	2,250	65
1091	1085	90	3	0	0	2.0	2,250	65
1091	1090	177	3	0	0	2.0	2,250	65
1092	263	118	1	0	0	2.0	1,714	40
1092	1093	83	1	0	1	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1092	1099	115	1	0	0	2.0	1,714	40
1093	454	38	1	0	0	2.0	1,714	40
1093	725	171	1	0	0	2.0	1,714	40
1093	1092	83	1	1	0	2.0	1,714	45
1094	678	40	1	0	0	2.0	1,714	40
1094	679	60	1	1	0	2.0	1,895	30
1096	1097	107	1	0	0	2.0	1,714	50
1097	1098	131	1	0	0	2.0	1,714	50
1097	1234	171	1	0	0	2.0	1,714	40
1098	373	37	1	0	0	2.0	1,714	40
1098	405	77	1	0	0	2.0	1,714	50
1099	1083	129	1	0	0	2.0	1,714	40
1099	1092	115	1	0	0	2.0	1,714	45
1100	1089	61	3	0	0	2.0	2,250	65
1100	1182	181	3	0	0	2.0	2,250	65
1107	259	24	2	1	0	2.0	1,895	40
1107	1085	27	1	0	0	2.0	1,714	40
1107	1237	72	2	0	0	2.0	1,895	40
1108	272	28	1	0	0	2.0	1,714	40
1108	692	39	3	0	0	2.0	2,250	65
1108	1110	109	3	0	0	2.0	2,250	65
1109	257	74	2	0	0	2.0	2,250	65
1109	1112	103	2	0	0	2.0	2,250	65
1110	1108	109	3	0	0	2.0	2,250	65
1110	1111	143	3	0	0	2.0	2,250	65
1111	245	91	3	0	0	2.0	2,250	65
1111	1110	143	3	0	0	2.0	2,250	65
1112	1109	103	2	0	0	2.0	2,250	65
1112	1113	150	2	0	0	2.0	2,250	65
1113	244	35	2	0	0	2.0	2,250	65
1113	1112	150	2	0	0	2.0	2,250	65
1114	243	49	1	0	0	2.0	1,714	40
1114	253	55	1	0	0	2.0	1,714	45
1114	1119	99	1	0	0	2.0	1,714	40
1116	462	26	1	0	0	2.0	1,714	40
1116	1117	129	1	0	0	2.0	1,714	40
1116	1118	65	1	1	0	2.0	1,714	35
1117	249	136	1	0	0	2.0	1,714	40
1117	1116	129	1	0	1	2.0	1,714	40
1118	1116	65	1	0	0	2.0	1,714	40
1118	1119	77	1	0	0	2.0	1,714	40

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1118	1124	61	1	0	0	2.0	1,714	35
1119	1114	99	1	0	0	2.0	1,714	40
1119	1118	77	1	0	1	2.0	1,714	35
1120	126	150	1	0	0	2.0	1,714	40
1120	864	61	1	0	0	2.0	1,714	40
1121	1126	97	2	0	0	2.0	2,250	65
1121	1143	176	2	0	0	2.0	2,250	65
1122	126	60	1	0	0	2.0	1,714	40
1122	1123	103	1	0	0	2.0	1,714	40
1122	1125	139	1	0	0	2.0	1,714	40
1122	1129	148	1	0	0	2.0	1,714	40
1123	1122	103	1	1	0	2.0	1,714	40
1123	1136	79	1	0	0	2.0	1,714	40
1124	1118	61	1	0	0	2.0	1,714	35
1124	1125	130	1	0	0	2.0	1,714	40
1124	1130	156	1	0	0	2.0	1,714	40
1125	1122	139	1	1	0	2.0	1,714	40
1125	1124	130	1	0	0	2.0	1,714	35
1126	137	107	2	0	0	2.0	2,250	65
1126	1121	97	2	0	0	2.0	2,250	65
1129	172	79	1	0	0	2.0	1,714	40
1129	345	75	1	0	0	2.0	1,714	40
1129	1122	148	1	0	0	2.0	1,714	40
1130	1124	156	1	0	0	2.0	1,714	35
1130	1131	142	1	0	0	2.0	1,714	45
1131	1130	142	1	0	0	2.0	1,714	40
1131	1132	91	1	0	0	2.0	1,714	35
1132	1131	91	1	0	0	2.0	1,714	45
1132	1133	144	1	0	1	2.0	1,714	40
1133	1132	144	1	0	0	2.0	1,714	40
1133	1134	107	2	0	0	2.0	1,714	50
1133	1137	56	2	0	0	2.0	1,895	55
1134	1133	107	2	1	1	2.0	1,895	55
1134	1135	108	1	0	0	2.0	1,714	50
1134	1148	22	1	0	0	2.0	1,714	50
1135	1134	108	1	1	0	2.0	1,714	50
1135	1136	97	1	0	0	2.0	1,714	50
1136	1123	79	1	0	0	2.0	1,714	40
1136	1135	97	1	0	0	2.0	1,714	50
1137	240	22	1	0	0	2.0	1,714	40
1137	242	27	2	1	0	2.0	1,895	55

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1137	1133	56	2	1	1	2.0	1,895	55
1143	244	182	2	0	0	2.0	2,250	65
1143	1121	176	2	0	0	2.0	2,250	65
1144	243	103	3	0	0	2.0	2,250	65
1144	1145	125	3	0	0	2.0	2,250	65
1145	1144	125	3	0	0	2.0	2,250	65
1145	1146	114	3	0	0	2.0	2,250	65
1146	241	92	3	0	0	2.0	2,250	65
1146	1145	114	3	0	0	2.0	2,250	65
1147	240	157	3	0	0	2.0	2,250	65
1147	1164	159	3	0	0	2.0	2,250	65
1148	238	50	2	0	0	2.0	1,895	60
1148	239	178	1	0	0	2.0	1,714	50
1148	1134	22	1	0	1	2.0	1,714	50
1149	238	68	2	0	0	2.0	1,895	60
1149	1150	70	2	0	0	2.0	1,895	60
1150	1149	70	2	0	0	2.0	1,895	60
1150	1162	119	2	0	0	2.0	1,895	60
1151	1	39	2	0	0	2.0	2,250	65
1151	140	30	1	0	0	2.0	1,714	30
1151	142	118	2	0	0	2.0	1,895	65
1152	252	28	2	0	0	2.0	1,714	50
1152	978	13	2	0	1	2.0	1,895	30
1152	1153	143	2	0	0	2.0	2,250	60
1153	11	87	2	0	0	2.0	2,250	60
1153	1152	143	2	0	0	2.0	2,250	60
1154	31	149	2	0	0	2.0	1,714	40
1154	79	64	1	0	0	2.0	1,714	35
1154	1155	54	1	0	0	2.0	1,714	40
1155	47	62	1	0	1	2.0	1,714	40
1155	1154	54	1	1	0	2.0	1,714	40
1155	1156	147	1	0	0	2.0	1,714	50
1156	252	113	1	0	0	2.0	1,714	50
1156	1155	147	1	0	0	2.0	1,714	40
1157	870	63	2	0	0	2.0	2,250	65
1157	1160	114	2	0	0	2.0	2,250	65
1158	174	113	3	0	0	2.0	2,250	65
1158	224	80	3	0	0	2.0	2,250	60
1159	174	38	3	0	0	2.0	2,250	65
1159	213	169	3	0	0	2.0	2,250	65
1160	1157	114	2	0	0	2.0	2,250	65

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1160	1168	110	2	0	0	2.0	2,250	65
1161	189	20	1	0	0	2.0	1,714	40
1161	379	27	2	0	0	2.0	1,895	50
1161	686	14	2	0	0	2.0	1,895	50
1162	504	42	2	0	0	2.0	1,895	50
1162	1150	119	2	0	0	2.0	1,895	60
1163	1164	89	3	0	0	2.0	2,250	65
1163	1175	124	3	0	0	2.0	2,250	65
1164	1147	159	3	0	0	2.0	2,250	65
1164	1163	89	3	0	0	2.0	2,250	65
1165	217	38	3	0	0	2.0	2,250	65
1165	220	182	4	0	0	2.0	2,250	65
1166	79	90	1	0	0	2.0	1,714	35
1166	216	42	2	1	0	2.0	1,714	40
1166	217	29	1	0	0	2.0	1,714	40
1168	500	125	2	0	0	2.0	2,250	65
1168	1160	110	2	0	0	2.0	2,250	65
1169	333	28	3	0	0	2.0	2,250	65
1169	501	43	3	0	0	2.0	2,250	65
1175	949	99	3	0	0	2.0	2,250	65
1175	1163	124	3	0	0	2.0	2,250	65
1176	283	84	2	0	0	2.0	2,250	65
1176	949	27	3	0	0	2.0	2,250	65
1176	1178	63	3	0	0	2.0	1,895	55
1177	696	112	3	0	0	2.0	2,250	65
1177	698	65	3	0	0	2.0	2,250	65
1178	698	41	2	0	0	2.0	1,895	40
1178	699	55	1	0	0	2.0	1,714	40
1178	1181	73	2	0	0	2.0	1,895	50
1181	949	28	2	0	0	2.0	1,895	40
1182	1100	181	3	0	0	2.0	2,250	65
1182	1183	171	3	0	0	2.0	2,250	65
1183	144	34	1	0	0	2.0	1,714	40
1183	374	44	3	0	0	2.0	2,250	65
1183	639	42	1	0	0	2.0	1,895	30
1183	1182	171	3	0	0	2.0	2,250	65
1184	1065	75	1	0	0	2.0	1,895	40
1184	1190	84	1	0	0	2.0	1,714	40
1185	1077	133	1	0	0	2.0	1,714	30
1185	1186	168	1	0	1	2.0	1,714	50
1186	637	87	1	0	0	2.0	1,714	50

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1186	1185	168	1	0	0	2.0	1,714	50
1186	1187	30	1	0	0	2.0	1,714	45
1187	1186	30	1	1	0	2.0	1,714	50
1187	1188	81	1	0	0	2.0	1,714	45
1187	1220	164	1	0	0	2.0	1,714	50
1188	1187	81	1	1	0	2.0	1,714	50
1188	1189	180	1	0	0	2.0	1,895	45
1189	1188	180	1	0	0	2.0	1,714	45
1189	1190	167	1	0	0	2.0	1,714	45
1190	1184	84	1	0	0	2.0	1,895	40
1190	1189	167	1	0	0	2.0	1,895	45
1193	637	138	1	0	0	2.0	1,714	50
1193	666	94	1	2	0	2.0	1,714	50
1193	1194	66	1	0	0	2.0	1,714	50
1194	373	75	1	0	0	2.0	1,714	40
1194	1193	66	1	0	1	2.0	1,714	50
1199	683	38	2	0	0	2.0	2,250	65
1199	684	29	2	0	0	2.0	1,714	35
1199	1200	171	2	0	0	2.0	2,250	65
1200	1199	171	2	0	0	2.0	2,250	65
1200	1201	126	2	0	0	2.0	2,250	65
1201	1200	126	2	0	0	2.0	2,250	65
1201	1202	57	2	0	0	2.0	2,250	65
1202	662	79	2	0	0	2.0	2,250	65
1202	1201	57	2	0	0	2.0	2,250	65
1203	664	60	3	0	1	2.0	1,895	50
1208	1067	175	2	0	0	2.0	2,250	65
1208	1209	136	2	0	0	2.0	2,250	65
1209	1208	136	2	0	0	2.0	2,250	65
1209	1222	115	2	0	0	2.0	2,250	65
1216	357	35	3	0	0	2.0	2,250	65
1216	374	31	3	0	0	2.0	2,250	65
1220	636	124	1	0	1	2.0	1,714	50
1220	1187	164	1	0	0	2.0	1,714	50
1221	358	155	2	0	0	2.0	2,250	65
1221	632	43	2	0	0	2.0	2,250	65
1221	665	29	1	0	0	2.0	1,714	40
1222	632	81	2	0	0	2.0	2,250	65
1222	1209	115	2	0	0	2.0	2,250	65
1223	1224	152	1	0	0	2.0	1,895	60
1223	1227	122	1	0	0	2.0	1,895	60

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
1224	124	170	1	0	0	2.0	1,895	60
1224	1223	152	1	0	0	2.0	1,895	60
1227	1223	122	1	0	0	2.0	1,895	60
1236	263	83	1	0	0	2.0	1,714	40
1237	1107	72	2	0	1	2.0	1,895	40
1241	292	27	1	0	0	2.0	1,714	35
1241	367	58	1	0	0	2.0	1,714	30
1241	371	54	1	0	0	2.0	1,714	35
1241	963	33	1	0	0	2.0	1,714	40
1242	698	67	3	0	0	2.0	2,250	65
1242	702	27	1	0	0	2.0	1,714	50
1243	163	136	1	1	0	2.0	1,895	40
1243	591	97	2	1	0	2.0	1,895	40
1243	1002	73	1	1	0	2.0	1,895	30
1246	733	16	2	1	0	2.0	1,895	50
1246	734	30	2	0	1	2.0	1,895	50
1246	735	20	1	0	0	2.0	1,714	40
1247	1220	52	1	0	0	2.0	1,714	40
8005	612	0	1	0	0	2.0	1,714	0
8026	26	0	1	0	0	2.0	1,714	0
8030	1019	0	2	0	0	2.0	2,250	0
8035	35	0	1	0	0	2.0	1,714	0
8078	591	0	1	0	0	2.0	1,714	0
8103	1003	0	2	0	0	2.0	1,895	0
8114	242	0	2	0	0	2.0	1,895	0
8121	239	0	1	0	0	2.0	1,714	0
8133	1133	0	2	0	0	2.0	1,714	0
8161	161	0	1	0	0	2.0	1,714	0
8163	163	0	1	0	0	2.0	1,895	0
8173	173	0	1	0	0	2.0	1,714	0
8178	178	0	1	0	0	2.0	1,714	0
8181	616	0	3	0	0	2.0	1,714	0
8186	185	0	1	0	0	2.0	1,714	0
8188	188	0	1	0	0	2.0	1,714	0
8191	191	0	1	0	0	2.0	1,895	0
8195	195	0	1	0	0	2.0	1,714	0
8196	196	0	1	0	0	2.0	1,714	0
8203	1203	0	1	0	0	2.0	1,895	0
8214	214	0	3	0	0	2.0	2,250	0
8216	216	0	2	0	0	2.0	1,714	0
8227	1227	0	1	0	0	2.0	1,895	0

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
8231	231	0	2	0	0	2.0	1,895	0
8233	144	0	2	0	0	2.0	2,250	0
8236	1236	0	1	0	0	2.0	1,714	0
8237	1237	0	2	0	0	2.0	1,895	0
8242	1242	0	3	0	0	2.0	2,250	0
8243	1243	0	3	0	0	2.0	1,895	0
8247	1247	0	1	0	0	2.0	1,714	0
8250	250	0	1	0	0	2.0	1,895	0
8261	258	0	1	0	0	2.0	1,714	0
8262	262	0	2	0	0	2.0	2,250	0
8265	265	0	1	0	0	2.0	1,714	0
8283	283	0	2	0	0	2.0	2,250	0
8292	292	0	1	0	0	2.0	1,714	0
8294	294	0	2	0	0	2.0	1,895	0
8332	332	0	1	0	0	2.0	1,895	0
8343	343	0	1	0	0	2.0	1,714	0
8347	347	0	2	0	0	2.0	1,895	0
8357	357	0	3	0	0	2.0	2,250	0
8361	361	0	1	0	0	2.0	1,714	0
8369	369	0	1	0	0	2.0	1,714	0
8399	399	0	2	0	0	2.0	2,250	0
8403	203	0	1	0	0	2.0	1,714	0
8409	409	0	1	0	0	2.0	1,714	0
8412	412	0	2	0	0	2.0	1,714	0
8415	415	0	1	0	0	2.0	1,714	0
8426	426	0	1	0	0	2.0	1,714	0
8429	429	0	1	0	0	2.0	1,714	0
8439	439	0	1	0	0	2.0	1,714	0
8444	444	0	1	0	0	2.0	1,714	0
8448	448	0	2	0	0	2.0	2,250	0
8451	451	0	1	0	0	2.0	1,895	0
8457	457	0	1	0	0	2.0	1,714	0
8459	459	0	1	0	0	2.0	1,714	0
8465	465	0	1	0	0	2.0	1,714	0
8467	467	0	1	0	0	2.0	1,714	0
8497	497	0	1	0	0	2.0	1,714	0
8506	506	0	1	0	0	2.0	1,714	0
8507	507	0	2	0	0	2.0	1,895	0
8524	524	0	1	0	0	2.0	1,714	0
8528	528	0	3	0	0	2.0	1,895	0
8548	548	0	1	0	0	2.0	1,895	0

Upstream Node Number	Downstream Node Number	Length (Miles*100)	Full Lanes	Left Turn Lanes	Right Turn Lanes	Start up Lost Time (Sec)	Saturation Flow Rate (Veh/Hr/La)	Free Flow Speed (MPH)
8576	576	0	1	0	0	2.0	1,714	0
8577	577	0	1	0	0	2.0	1,714	0
8578	578	0	1	0	0	2.0	1,714	0
8580	580	0	1	0	0	2.0	1,714	0
8581	581	0	1	0	0	2.0	1,714	0
8585	585	0	1	0	0	2.0	1,714	0
8586	586	0	1	0	0	2.0	1,714	0
8603	603	0	1	0	0	2.0	1,714	0
8607	607	0	1	0	0	2.0	1,714	0
8608	608	0	1	0	0	2.0	1,714	0
8665	665	0	2	0	0	2.0	1,714	0
8676	676	0	2	0	0	2.0	2,250	0
8677	677	0	1	0	0	2.0	1,714	0
8697	697	0	1	0	0	2.0	1,714	0
8714	714	0	1	0	0	2.0	1,714	0
8742	742	0	1	0	0	2.0	1,714	0
8747	747	0	1	0	0	2.0	1,714	0
8784	784	0	1	0	0	2.0	1,714	0
8793	793	0	1	0	0	2.0	1,714	0
8797	797	0	1	0	0	2.0	1,714	0
8800	800	0	1	0	0	2.0	1,714	0
8872	872	0	1	0	0	2.0	1,714	0
8885	885	0	1	0	0	2.0	1,714	0
8900	900	0	1	0	0	2.0	1,714	0
8909	909	0	1	0	0	2.0	1,895	0
8914	914	0	1	0	0	2.0	1,714	0
8917	917	0	1	0	0	2.0	1,895	0
8925	925	0	1	0	0	2.0	1,714	0
8931	931	0	1	0	0	2.0	1,714	0
8932	932	0	1	0	0	2.0	1,714	0
8936	936	0	1	0	0	2.0	1,714	0
8942	942	0	1	0	0	2.0	1,714	0
8953	953	0	1	0	0	2.0	1,895	0
8957	957	0	1	0	0	2.0	1,714	0
8958	958	0	1	0	0	2.0	1,714	0
8959	959	0	1	0	0	2.0	1,714	0
8960	960	0	1	0	0	2.0	1,714	0
8966	966	0	1	0	0	2.0	1,714	0
8972	972	0	1	0	0	2.0	1,714	0
8976	976	0	1	0	0	2.0	1,714	0
8988	988	0	1	0	0	2.0	1,714	0

APPENDIX L

ERPA Boundaries

APPENDIX L: ERPA BOUNDARIES

ERPA 1: The Village of Buchanan.

ERPA 2: City of Peekskill, including Blue Mountain Reservation North of Dickey Brook.

ERPA 3: West-central part of town of Cortlandt: The hamlet of Verplank, being defined as the Verplank Fire District South of the Village of Buchanan, bounded on the south by Kings Ferry Road and the Cortlandt Yacht Club.

ERPA 4: Central to south-west part of the Town of Cortlandt: The hamlet of Montrose and the Blue Mountain Reservation; south of the City of Peekskill, the Village of Buchanan and the Verplank Fire District, and including all of the Montrose Postal Area (10548) except the Verplank Fire District and the FDR VA Hospital.

ERPA 5: South-east Town of Cortlandt (including "Mount Airy"): South of a line from the Benchmark near the intersection of Croton Avenue and Baptist Church Road to a 450+ foot promontory on the west-north-west side of Salt Hill, to the headwaters of the Brook which rises in the eastern end of Pine Lake Park, to the line dividing the properties which are accessed from Colebaugh Pond Road and Reber Road from the properties which are accessed from Furnace Dock Road, then south-westerly along a line north-west of the properties which front upon the north-west portions of Woodybrook and the Brinton Brook Sanctuary: north of the incorporated Village of Croton-on-Hudson and the Croton River/New Croton Reservoir .

ERPA 6: The Village of Croton- on-Hudson.

ERPA 7: Camp Smith Military Reservation, and the adjacent portions of the Town of Cortlandt (to the west, south and southeast of Camp Smith) along the Hudson River and along Annsville Creek, south of the intersection of Doris Lee Road with U.S. Route 9 (New York-Albany Post Road), about 0.2 miles north, north-east of the juncture of Annesville Creek and Sprout Brook.

ERPA 8: Northeastern area in the Town of Cortlandt: bounded on the west by Camp Smith and the Annsville Creek (south of the intersection of Doris Lee Road and U.S. Route 9), and on the south by the City of Peekskill and Bear Mountain State Parkway (also U.S. Route 202-Route 35 to the east).

ERPA 9: East-central area in the Town of Cortlandt ("Toddville"): south of Bear Mountain State Parkway (also U.S. Route 202-Route 35 to the east), east of the City of Peekskill, and north of the west side of Dickey Brook of Matasak Road and of the Hendrick Hudson General School District and of the Benchmark near the intersection of Croton Avenue and Baptist Church Road.

ERPA 10: Northwestern area of the Town of Yorktown, west of the Taconic State Parkway, and north of U.S. Route 202-State Route 35.

ERPA 11: Northeastern area of the Town of Yorktown, east of the Taconic State Parkway and north of U.S. Route 202-State Route 35.

ERPA 12: Southwestern part of the Town of Yorktown, west of the Taconic State Parkway northbound, and south of U.S. Route 202 -State Route 35.

ERPA 13: Southeastern part of the Town of Yorktown, east of the Taconic State Parkway northbound, and south of U. S. Route 202 -State Route 35.

ERPA 14: Northwestern part of the Town of Somers, west of State Route 118 and State Route 118-U.S. Route 202, and north of U.S. Route 202-State Routes 35-118.

ERPA 15: Southwestern part of the Town of Somers south of State Route 35; west of (north to south) State Route 35, Wood Street, and Moseman Avenue; and north of State Route 100.

ERPA 16: Southwestern portion of the Town of Philipstown, except for the area of Continental Village included in ERPA 18, bounded on the north and east by (southeast to northwest) U.S. Route 9 (New York-Albany Post Road), Cat Rock Road (State Route 403), Lower Station Road, and a short line from Lower Station Road as it nears the river to the boat basin just south of the Village of Garrison.

ERPA 17: Central portion of the Town of Philipstown, bounded on the south and west by (east to west) Canopus Hollow Road, Old West Point Road, Capistrano Avenue, U.S. Route 9 (New York-Albany Post Road) northward, Cat Rock Road (State Route 403), Lower Station Road, and a short line from Lower Station Road as it nears the river to the boat basin just south of the Village of Garrison; on the north (west to east) by the Cold Spring eastern village line, Moffet Road northeastwardly, Lane Gate Road, U.S. Route 9 (New York-Albany Post Road), Old Albany Post Road, Indian Brook Road, and the southwest boundary of Clarence Fahnestock Memorial State Park.

ERPA 18: Southwestern portion of Putnam County, including Continental Village in the southeastern corner of the Town of Philipstown, bounded on the west by U.S. Route 9 (New York-Albany Post Road) and on the north by Capistrano Avenue, Old West Point Road, Old Albany Post Road, and Canopus Hollow Road; and the Village of Lake Peekskill in the southwestern comer of the Town of Putnam - Valley, bounded on the north by an east-west line through the unpopulated area north of the village from the town line to the north end of Howard Street, and on the east by Howard Street, Gilbert Lane, and Oscawana Lake Road.

ERPA 19: The central and southern part of the Town of Putnam Valley, except for the area of the Village of Lake Peekskill included in ERPA 18, bounded on the north (west to east) by the south boundary of Clarence Fahnestock Memorial State Park, Sunken Mine Road, Northshore Road, Lake Road (County Route 20), Tinker Hill Road, Peekskill Hollow Road, and Bryant Pond Road, and on the east by the Taconic State Parkway.

ERPA 20: Southeastern comer of the Town of Putnam Valley, bounded on the west by the Taconic State Parkway, and on the north by Bryant Pond Road and Lake Secor Road, and the southwestern corner of the Town of Carmel, bounded on the east by Austin Road, State Route 6N, Stillwater Road (including northern branch), and the Muscoot River.

ERPA 21: Western part of the Town of New Castle, bounded on the east (south to north) by Hardscrabble Road, Quaker Street (State Route 120), Millwood Road (State Route 133), and Seven Bridges Road (County Route 5).

ERPA 22: The incorporated Village of Ossining and the unincorporated area of the Town of Ossining.

ERPA 23: The Village of Cold Spring; the Village of Nelsonville except for the portion of Hudson Highlands State Park; and a small part of the Town of Philipstown, south of State Route 301 (Cold Spring-Carmel Road) and west of Moffet Road.

ERPA 24: U.S. Military Academy West Point Military Reservation.

ERPA 25: Northwestern part of the Town of Highlands north and west of the West Point Military Reservation; and the southern part of the Town of Cornwall, bounded on the east and north by U.S. Route 9W (not included in the EPZ), and on the northwest by (northeast to southwest) Angola Road (County Route 9), County Road 65, and State Highway 32.

ERPA 26: Town of Highlands east and south of West Point Military Reservation; and north of the Palisades Interstate Parkway-U.S. Route 6, and an east-west line connecting the Palisades Interstate Parkway-U.S. Route 6 to the West Point Military Reservation boundary, about 1 1/2 miles west of the Bear Mountain Bridge.

ERPA 27: Northeastern part of the Town of Woodbury, bounded on the east by (north to south) the West Point Military Reservation boundary, the Harriman State Park boundary, on the south by the Harrison State Park boundary and on the west by (south to north) the easterly boundary of the New York State Thruway in the Town of Woodbury.

ERPA 28: Southwestern part of the Town of Woodbury west of the Harriman State Park and south of the Village of Harriman; and northern part of the Town of Tuxedo,

bordered on the east and south by Harriman State Park, bordered on the west by the easterly boundary of the New York State Thruway and the easterly boundary of the Village of Harriman.

ERPA 29: Northeastern portion of the Town of Stony Point, south of Bear Mountain State Park, bounded on the south and west by (southeast to northwest) the southern boundary of Stony Point State Park, Park Road north, U.S. Route 9W-202 (Liberty Drive), Free Hill Road and Buckberg Road (County Route 78), the western edge of the Tomkins Lake Community (north of Mott Farm Road), and a short line connecting the road to the north and northwest of Tomkins Lake to the Bear Mountain State Park boundary where the road is closest to the boundary.

ERPA 30: Town of Stony Point east of the main body of Harriman State Park and south of Bear Mountain State Park, except for the northeastern portion constituting ERPA 29; and the industrial and marshy northeastern comer of the Town of Haverstraw to the east and north of the Villages of West Haverstraw and Haverstraw.

ERPA 31: Town of Haverstraw east of the Palisades Interstate Parkway, except for the northeastern corner included in ERPA 30, and the portion of High Tor State Park in the Town of Clarkstown.

ERPA 32: Northeastern part of the Town of Clarkstown, excepting High Tor State park, bounded on the south and west by (southeast to northwest) the south and west boundaries of Nyack Beach State Park, Hook Mountain State Park, and Rockland Lake State Park, Lake Road and Congers Road (County Route 92), the western edge of DeForest Lake, the small stream entering DeForest Lake just west of its north end, State Route 304 northeastward for about 0.1 mile, the north-northwest running road connecting State Route 304 with Long Clove Road, a short section of Long Clove Road, Scratchup Road, and County Route 101.

ERPA 33: Eastern-central part of the Town of Clarkstown, bounded on the north by Congers Road and Lake Road (County Route 92); on the east by the boundaries of Rockland Lake State Park and Hook Mountain State Park and U.S. Route 9W southward; on the south by (east to west) Christian Herald Road, Morris Road, Crusher Road, and the southern edge of DeForest Lake from the intersection of Crusher Road with Old Mill Road; and on the west by the western edge of DeForest Lake.

ERPA 34: Northwestern part of the Town of Clarkstown, excepting High Tor State Park, bounded on the east by the western boundary of ERPA 32, and on the south by (east to west) Congers Road, Goebel Road northward, State Route 304, Squadron Boulevard, Main Street northward, West Phillips Hill Road, Old Phillips Hill Road, Buena Vista Road northward, and Conklin Road; and the northeastern part of the Town of Ramapo, bounded on the west by the Palisades Interstate Parkway, and on the south by Conklin Road and a short section of State Route 45.

ERPA 35: Central part of the town of Clarkstown, bounded on the west by (west to east) Clarkstown Road, a short segment of the Palisades Interstate Parkway, on the south by Church Street, Germonds Road, Parrott Road (excluding facilities on the north side), McCarthway Way, a short segment of Strawtown Road, and Hillcrest Road, on the east by the western edge of DeForest Lake, on the north by (east to west) Congers Road, Goebel Road northward, State Route 304, Squadron Boulevard, Main Street northward, West Phillips Hill Road, Old Phillips Hill Road, Buena Vista Road northward, and Conklin Road, and an eastern portion of the Town of Ramapo, east of the Palisades Interstate Parkway and south of Conklin Road and a short section of State Route 45 connecting Conklin Road to the Palisades Interstate Parkway.

ERPA 36: The northeastern part of the Town of Ramapo, west of the Palisades Interstate Parkway and east of Harriman State Park, bounded on the south by (east to west) State Route 45, Pomona Road, Camp Hill Road northward, U.S. Route 202, State Route 306 (Monsey-Ladentown Road) northwestward, Calls Hollow Road northward, and Mountain Road; and the central part of the Town of Haverstraw east of Harriman State Park and west of the Palisades Interstate Parkway.

ERPA 37: Eastern part of the Town of Ramapo, west of Palisades Interstate Parkway and east of Harriman State Park, bounded on the north by (east to west) State Route 45, Pomona Road, Camp Hill Road northward, U.S. Route 202, State Route 306 (Monsey-Ladentown Road) northwestward, Calls Hollow Road northward, and Mountain Road; on the south by (east to west) Eckerson Road (County Route 107), Union Road, and Viola Road (County Route 106); and on the west by Spook Rock Road (U.S. Route 6) northward, U.S. Route 202 south to Sky Meadow Road, and a line formed by extending the east-west running section of Sky Meadow Road west to the Harriman State Park boundary.

ERPA 38: Eastern part of Bear Mountain State Park and the Jones Point and Dunderberg areas, south of Salisbury Meadow and Ring Meadow and east of U.S. Route 9W-202, and including the non-park areas east and south of Dunderberg Mountain, north of the main southern boundary of Bear Mountain State Park.

ERPA 39: The eastern part of the Harriman State Park and Bear Mountain State Park, bounded on the west and north by the Palisades Interstate Parkway northbound U.S. Route 6 to the Bear Mountain Bridge, and south of Salisbury Meadow and Ring Meadow, on the east by U.S. Route 9W-202 and the Park boundary, where the boundary is west of Route 9W-202.

ERPA 40: The central and western parts of Harriman State Park, bounded on the east by the Palisades Interstate Parkway northbound and a line connecting Palisades Interstate Parkway-U.S. Route 6 to the West Point Military Reservation boundary, about 1 1/2 miles west of the Bear Mountain Bridge; on the south by the Ramapo-Haverstraw Town Line and the Rockland-Orange County Line southwestward;

and on the west by the New York State Thruway (Interstate Route 87-287, not included in the EPZ) and the northwest-southeast running utility right-of-way crossing Smith Rock and Pound Mountain.

ERPA 41: The southern part of Harriman State Park, contained in the Town of Ramapo, bounded on the west and south by the utility right-of-way running northwest-southeast across Pound Mountain to a point near where Johnstown Road and Spring Brook cross the Park boundary, and running west-northwest-east-southeast from that point to Kakiat County Park, about 1 mile west of Wesley Chapel.

ERPA 42: Hudson River north of Hook Mountain and south of the northern tip of Croton Point.

ERPA 43: Hudson River north of the north tip of Croton Point and south of Stony Point.

ERPA 44: Hudson River north of Stony Point and south of Round Island.

ERPA 45: Hudson River north of Round Island and south of Con Hook.

ERPA 46: Hudson River north of Con Hook and south of Little Stony Point.

ERPA 47: The Franklin D. Roosevelt Veterans Administration Hospital in Montrose.

ERPA 48: Southwestern part of the unincorporated Town of Cortlandt: The hamlets of Crugers and Oscawana (including Amberlands Apartments) bounded on the north by Montrose and on the northeast by Washington Street, Furnace Dock Road and Mount Airy Road west to a point approximately 220 feet, one furlong, west of Reber Road and on the southeast by the Village of Croton-on-Hudson, Brinton Brook Sanctuary and the properties which front upon the northwest side of Woodybrook.

ERPA 49: Central part of the Town of Cortlandt ("Furnace Woods" -"Pleasantside"): east of the Blue Mountain Reservation, south of the east side of Dickey Brook, and of the Lakeland and Yorktown Central School Districts, north of a line from the Benchmark near the intersection of Croton Avenue and Baptist Church Road to 450+ foot promontory on the west-northwest side of Salt Hill, to the headwaters of the Brook which rises in the eastern end of Pine Lake Park, then to the line dividing the properties which are accessed from Colsbaugh Pond Road and Reber Road from the properties which are accessed from Furnace Dock Road; northeast of Washington Street -Furnace Dock Road -Mount Airy Road West.

ERPA 50: The extreme southeastern portion of the Town of Cortlandt, all of which lies south of Croton River/New Croton Reservoir.

ERPA 51: The incorporated Village of Briarcliff Manor and the unincorporated area of the Town of Mount Pleasant northwest of Washburn Road and south of Underhill and Chappaqua Roads.

APPENDIX M

Acknowledgements

APPENDIX M: ACKNOWLEDGEMENTS

We wish to express our appreciation to all the directors and staff members of the Orange, Putnam, Rockland, and Westchester County Emergency Management Offices, the various county planning offices, New York State Emergency Management Office (SEMO), and local and state law enforcement agencies, who provided valued guidance and contributed information contained in this report.

The following listing details the meetings and briefings conducted for this project:

Project Kick-off Meeting
- 4/24/02 (NYS/Counties)

Initial Project Overview/Data Collection Meetings
- 5/20/02 (with Orange)
- 5/21/02 (with Putnam)
- 5/22/02 (with Westchester)
- 5/23/02 (with Rockland)
- 7/29/02 (with State Agencies)
- 8/14/02 (with State Agencies)

Project Review/Data Collection Meetings
- 9/3/02 (NYS/Counties)
- 10/23/02 (with Westchester)
- 11/6/02 (with Rockland)
- 11/6/02 (with Orange)
- 11/7/02 (with Putnam)

Draft Document Review Meetings
- 1/30/03 (with NYS/Counties)
- 2/6/03 (with NYS/Rockland)

Project Results Overview Meeting
- 3/18/03 (with FEMA/NRC)

Final Document Review Meetings
- 4/4/03 (with Westchester)
- 4/15/03 (with Rockland)
- 4/16/03 (with Putnam)
- 4/23/03 (with Orange)

Traffic Management Plan Review Meetings
- 5/20/03 (with Putnam)
- 5/23/03 (with Rockland)
- 6/2/03 (with Orange)
- 6/5/03 (with Westchester)
- 6/18/03 (with Rockland)
- 6/19/03 (with Putnam)
- 11/6/03 (with Orange)
- 11/18/03 (with Westchester)

APPENDIX N

Individual ERPA Evacuation Time Estimates for All Evacuation Regions and Scenarios

APPENDIX N: INDIVIDUAL ERPA EVACUATION TIME ESTIMATES FOR ALL EVACUATION REGIONS AND SCENARIOS

This Appendix presents the individual ERPA ETE results for all 35 regions and all 14 scenarios.

Scenario 1: Summer, Midweek, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:25	4:15	3:15	3:35			4:15																
R02	4:50	5:20	4:10	4:50	3:00	5:15	5:20	5:05	5:10							5:20		5:10					
R03	7:20	7:20	6:10	7:20	4:45	7:20	7:20	6:50	7:00	7:20	7:20	6:50	7:20	7:20	7:20	7:20	7:20	7:20	7:20	7:20	6:40	7:20	7:20
R04	3:50	5:00	3:20	3:50			5:00	4:50	4:20							5:00		5:00					
R05	4:25	5:20	3:20	3:55			5:20	5:05	5:10							5:20		5:10					
R06	4:25	5:20	3:20	3:00			5:20	5:05	5:10							5:20		5:10					
R07	4:25	5:20	3:20	3:00			5:00	5:00	5:10														
R08	4:35	5:20	3:55	4:25	3:00		5:05	5:05	5:10														
R09	4:40	5:20	3:55	4:40	3:10	5:20	5:20		5:20														
R10	4:35	4:50	3:55	4:40	3:05	4:50	4:50																
R11	4:35	4:50	3:55	4:40	3:05	4:55	4:55																
R12	4:35	4:50	3:55	4:40		4:55	4:55																
R13	3:50	4:45	3:20	3:50			4:50																
R14	3:50	4:50	3:20	3:50			4:50																
R15	3:50	4:50	3:20	3:50			4:50																
R16	3:50	4:15	3:20	3:50			4:15																
R17	3:50	4:15	3:20	3:50			4:15																
R18	3:50	4:15	3:20	3:50			4:15									4:15							
R19	3:50	5:00	3:20	3:50			5:00	4:45								5:00							
R20	5:30	5:50	5:05	5:25	3:40	5:55	5:45	5:35	5:25							5:45	5:55	5:50	5:55				5:40
R21	5:45	6:30	4:45	5:30	3:35	6:00	6:15	5:50	6:00	6:30						6:15	6:30	6:10	6:30	6:30			6:00
R22	6:00	7:10	5:20	5:40	3:55	5:55	7:10	6:35	7:00	7:10	7:10	5:25	7:10	7:10		7:05	7:05	6:40	7:10	7:10			
R23	6:00	7:10	5:10	5:35	4:15	6:05	7:10	6:40	7:00	7:10	7:10	6:40	7:10	7:10	7:10	7:10		7:05	7:10	7:10			
R24	5:55	7:10	5:10	5:40	4:20	5:25	7:10	6:40	7:05	7:10	7:10	6:45	7:10	7:10	7:10	7:10		6:45		7:10	6:25		
R25	7:10	7:10	6:45	7:10	4:55	7:10	7:10	6:10	6:10		7:10	6:50	7:10	7:10	7:10	7:10		6:45			6:40	7:10	
R26	6:55	6:55	4:55	6:55	4:25	6:55	6:45	5:50	5:50			6:20	6:25			6:45		6:20			6:25	6:55	
R27	6:50	6:35	4:55	6:50	4:05	6:50	6:30	5:45	5:35			5:35				6:30		6:15			5:45	6:50	
R28	6:30	6:05	5:15	6:30	3:40	6:30	5:55	5:25	5:20							5:55		5:40				6:30	
R29	5:35	5:55	5:05	5:30	3:40	6:00	5:45	5:20	5:20							5:45		5:30					
R30	5:35	5:55	5:05	5:30	3:40	6:00	5:45	5:20	5:20							5:45		5:30					
R31	5:35	5:40	5:05	5:30	3:40	5:40	5:40	5:20	5:20							5:40		5:30					
R32	5:35	5:35	5:05	5:30	3:40	5:35	5:35	5:20	5:20							5:35		5:30					
R33	5:35	5:35	5:05	5:30	3:40	5:35	5:35	5:20	5:20							5:35		5:30					
R34	5:35	5:35	5:05	5:30	3:40	5:35	5:35	5:20	5:20							5:35		5:30					
R35	5:35	5:40	5:05	5:30	3:40	5:40	5:40	5:20	5:20							5:40	5:40	5:30					5:30

Scenario 1: Summer, Midweek, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:20	5:00							3:00	3:00	3:00						
R03	4:00	4:10	3:00	3:00	3:00	3:00	5:20	5:50	5:50	6:20	6:50	6:55	6:00	6:00	3:00	3:00	3:00	3:00	7:20	7:20	3:45	6:10	7:20
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			4:40	4:40	3:00		
R10						3:00									3:00	3:00			4:40	4:40	3:00		
R11						3:00	4:20	4:55							3:00	3:00			4:40	4:40	3:00		
R12						3:00	4:20	4:55							3:00	3:00			4:40	4:40			
R13						3:00	4:25	4:50							3:00	3:00							
R14						3:00	4:25	4:50							3:00	3:00	3:00						
R15						3:00	4:25	4:50							3:00	3:00	3:00						
R16						3:00	3:35								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:35								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	4:00	4:10	3:00			3:00	4:35	5:10							3:00	3:00	3:00		5:25	5:25	3:00		
R21	3:00		3:00			3:00	4:35	5:10							3:00	3:00	3:00		5:30	5:30	3:00		
R22	3:00		3:00			3:00	4:35	5:10							3:00	3:00	3:00		5:40	5:40	3:00		
R23	3:00		3:00			3:00	4:35	5:10							3:00	3:00	3:00		5:35	5:35	3:30		
R24	3:00		3:00			3:00	4:35	5:10							3:00	3:00	3:00		5:40	5:40	3:25	5:25	
R25	3:00		3:00			3:00	4:35	5:10							3:00	3:00	3:00		7:10	7:10	3:55	6:15	7:10
R26	3:00		3:00			3:00	4:35	5:10	4:25						3:00	3:00	3:00		6:55	6:55	3:35	5:35	6:55
R27	3:00		3:00			3:00	4:50	5:35	5:50	6:20	6:45	6:50			3:00	3:00	3:00		6:50	6:50	3:10	5:40	6:50
R28	3:00		3:00			3:00	5:20	5:50	5:50	6:20	6:30	6:30	6:00	6:00	3:00	3:00	3:00		6:30	6:30	3:00		6:30
R29	3:00		3:00			3:00	5:20	5:50	5:50	6:00	6:00	6:00	6:00	6:00	3:00	3:00	3:00	3:00	5:30	5:30	3:00		
R30	3:00		3:00			3:00	5:30	5:55			6:00	6:00	6:00	6:00	3:00	3:00	3:00	3:00	5:30	5:30	3:00		
R31	3:00		3:00		3:00	3:00	5:10	5:40			5:40		5:40	5:40	3:00	3:00	3:00	3:00	5:30	5:30	3:00		
R32	3:00		3:00	3:00	3:00	3:00	4:35	5:10							3:00	3:00	3:00	3:00	5:30	5:30	3:00		
R33	4:00	4:10	3:00	3:00	3:00	3:00	4:35	5:10							3:00	3:00	3:00		5:30	5:30	3:00		
R34	4:00	4:10	3:00	3:00	3:00	3:00	4:35	5:10							3:00	3:00	3:00		5:30	5:30	3:00		
R35	4:00	4:10	3:00	3:00		3:00	4:35	5:10							3:00	3:00	3:00		5:30	5:30	3:00		

Scenario 2: Summer, Midweek, Midday, Rain, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:45	4:40	3:25	3:50			4:40																
R02	5:15	5:45	4:40	5:15	3:20	5:35	5:45	5:25	5:25							5:45		5:35					
R03	8:10	8:10	7:40	8:10	5:55	8:10	8:10	7:45	7:55	8:10	8:10	8:05	8:10	8:10	8:10	8:10	8:10	8:10	8:10	8:10	7:55	8:10	8:10
R04	4:15	5:25	3:45	4:15			5:25	5:15	4:45							5:25		5:20					
R05	4:50	5:45	3:50	4:20			5:45	5:25	5:25							5:45		5:35					
R06	4:50	5:45	3:50	3:00			5:45	5:25	5:25							5:45		5:35					
R07	4:50	5:45	3:50	3:00			5:25	5:25	5:25														
R08	4:55	5:45	4:25	4:50	3:00		5:25	5:25	5:25														
R09	5:10	5:45	4:40	5:05	3:20	5:45	5:45		5:25														
R10	5:05	5:10	4:25	5:00	3:20	5:15	5:15																
R11	5:05	5:10	4:25	5:00	3:20	5:25	5:25																
R12	5:10	5:10	4:25	5:10		5:25	5:25																
R13	4:05	5:10	3:45	4:10			5:20																
R14	4:05	5:10	3:45	4:10			5:20																
R15	4:05	5:10	3:45	4:10			5:20																
R16	4:05	4:40	3:45	4:10			4:40																
R17	4:05	4:40	3:45	4:10			4:40																
R18	4:05	4:40	3:45	4:10			4:40									4:40							
R19	4:15	5:20	3:45	4:15			5:20	5:15								5:20							
R20	6:10	6:35	5:45	6:05	4:00	6:30	6:20	6:05	5:55							6:20	6:40	6:20	6:40				6:10
R21	6:20	7:10	5:55	6:15	3:50	6:30	7:10	6:25	6:45	7:10						7:10	7:10	6:45	7:10	7:10			6:35
R22	6:45	8:00	5:35	6:10	4:00	6:40	8:00	7:25	7:45	8:00	8:00	5:55	8:00	8:00		8:00	8:00	7:30	8:00	8:00			
R23	7:05	8:00	5:40	6:00	4:35	6:25	8:00	7:30	7:55	8:00	8:00	7:35	8:00	8:00	8:00	8:00		8:00	8:00	8:00			
R24	7:15	8:00	5:20	6:05	5:15	6:40	8:00	7:40	7:50	8:00	8:00	7:50	8:00	8:00	8:00	8:00		7:45		8:00	7:25		
R25	7:55	7:55	6:10	7:55	5:20	7:55	7:50	6:40	6:55		7:55	7:30	7:55	7:55	7:55	7:50		7:25			7:25	7:55	
R26	7:35	7:25	6:10	7:35	4:55	7:35	7:20	6:20	6:30			7:00	7:00			7:20		7:00			7:00	7:35	
R27	7:30	7:20	6:05	7:30	4:25	7:30	7:10	6:15	6:00			6:00				7:10		6:45			6:10	7:30	
R28	7:20	6:45	5:50	7:20	4:20	7:20	6:40	6:00	5:55							6:40		6:20				7:20	
R29	6:15	6:35	5:45	6:05	4:00	6:30	6:25	5:55	5:55							6:25		6:10					
R30	6:15	6:35	5:45	6:05	4:00	6:30	6:25	5:55	5:55							6:25		6:10					
R31	6:15	6:20	5:45	6:05	4:00	6:20	6:20	5:55	5:55							6:20		6:10					
R32	6:15	6:20	5:45	6:05	4:00	6:20	6:20	5:55	5:55							6:20		6:10					
R33	6:15	6:15	5:45	6:05	4:00	6:15	6:15	5:55	5:55							6:15		6:10					
R34	6:15	6:15	5:45	6:05	4:00	6:15	6:15	5:55	5:55							6:15		6:10					
R35	6:15	6:20	5:45	6:05	4:00	6:20	6:20	5:55	5:55							6:20	6:20	6:10					6:10

Scenario 2: Summer, Midweek, Midday, Rain, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:55	5:35							3:00	3:00	3:00						
R03	4:20	4:25	3:00	3:00	3:00	3:00	6:15	6:45	6:25	6:45	7:40	7:40	6:40	6:40	3:00	3:00	3:00	3:00	8:10	8:10	5:10	7:40	8:10
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:20	3:00		
R09						3:00									3:00	3:00			5:05	5:05	3:00		
R10						3:00									3:00	3:00			5:00	5:00	3:00		
R11						3:00	4:55	5:25							3:00	3:00			5:00	5:00	3:00		
R12						3:00	4:55	5:25							3:00	3:00			5:10	5:10			
R13						3:00	4:55	5:20							3:00	3:00							
R14						3:00	4:55	5:20							3:00	3:00	3:00						
R15						3:00	4:55	5:20							3:00	3:00	3:00						
R16						3:00	4:05								3:00	3:00	3:00						
R17	3:00		3:00			3:00	4:05								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	4:20	4:25	3:00			3:00	5:15	5:55							3:00	3:00	3:00		6:05	6:05	3:00		
R21	3:00		3:00			3:00	5:15	5:55							3:00	3:00	3:00		6:15	6:15	3:00		
R22	3:00		3:00			3:00	5:15	5:55							3:00	3:00	3:00		6:10	6:10	3:15		
R23	3:00		3:00			3:00	5:15	5:55							3:00	3:00	3:00		6:00	6:00	3:25		
R24	3:00		3:00			3:00	5:15	5:55							3:00	3:00	3:00		6:05	6:05	4:20	6:40	
R25	3:00		3:00			3:00	5:15	5:55							3:00	3:00	3:00		7:55	7:55	4:30	6:45	7:55
R26	3:00		3:00			3:00	5:15	5:55	4:55						3:00	3:00	3:00		7:35	7:35	4:15	6:15	7:35
R27	3:00		3:00			3:00	5:20	5:55	6:20	6:40	7:20	7:30			3:00	3:00	3:00		7:30	7:30	3:30	5:50	7:30
R28	3:00		3:00			3:00	6:15	6:45	6:25	6:45	7:20	7:20	6:40	6:40	3:00	3:00	3:00		7:20	7:20	3:10		7:20
R29	3:00		3:00			3:00	6:15	6:45	6:25	6:45	6:45	6:45	6:40	6:40	3:00	3:00	3:00	3:00	6:05	6:05	3:00		
R30	3:00		3:00			3:00	6:15	6:40			6:40	6:40	6:40	6:40	3:00	3:00	3:00	3:00	6:05	6:05	3:00		
R31	3:00		3:00		3:00	3:00	5:45	6:20			6:20		6:20	6:20	3:00	3:00	3:00	3:00	6:05	6:05	3:00		
R32	3:00		3:00	3:00	3:00	3:00	5:15	5:55							3:00	3:00	3:00	3:00	6:05	6:05	3:00		
R33	4:20	4:25	3:00	3:00	3:00	3:00	5:15	5:55							3:00	3:00	3:00		6:05	6:05	3:00		
R34	4:20	4:25	3:00	3:00	3:00	3:00	5:15	5:55							3:00	3:00	3:00		6:05	6:05	3:00		
R35	4:20	4:25	3:00	3:00		3:00	5:15	5:55							3:00	3:00	3:00		6:05	6:05	3:00		

Scenario 3: Summer, Weekend, Midday, Good Weather, 95th Percentile																						
ERPAS																						
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:00	3:35	3:00	3:00			3:35																
R02	3:55	4:40	3:10	4:00	3:00	4:45	4:45	4:30	4:15							4:45		4:35					
R03	6:35	6:35	5:35	6:35	4:00	6:35	6:10	5:50	5:50	6:35	6:35	6:35	6:35	6:35	6:35	6:10	6:20	6:05	6:35	6:35	6:35	6:35	6:00
R04	3:20	4:15	3:00	3:20			4:15	4:20	3:50							4:20		4:20					
R05	3:25	4:40	3:00	3:25			4:40	4:30	4:15							4:40		4:35					
R06	3:25	4:40	3:00	3:00			4:40	4:30	4:15							4:40		4:35					
R07	3:25	4:40	3:00	3:00			4:25	4:25	4:20														
R08	3:45	4:40	3:00	3:45	3:00		4:25	4:25	4:20														
R09	3:55	4:20	3:00	3:55	3:00	4:40	4:25		4:15														
R10	3:50	4:00	3:00	3:45	3:00	4:25	4:00																
R11	3:50	4:00	3:00	3:45	3:00	4:35	4:00																
R12	3:50	4:00	3:00	3:50		4:35	4:00																
R13	3:05	3:50	3:00	3:20			3:50																
R14	3:05	3:50	3:00	3:20			3:50																
R15	3:05	3:50	3:00	3:20			3:50																
R16	3:05	3:35	3:00	3:20			3:35																
R17	3:05	3:35	3:00	3:20			3:35																
R18	3:05	3:35	3:00	3:20			3:35									3:35							
R19	3:20	4:15	3:00	3:20			4:15	4:10								4:15							
R20	4:20	5:05	3:50	4:25	3:00	5:25	5:05	5:05	4:40							5:00	5:25	5:25	5:25				4:50
R21	4:25	5:40	4:05	4:25	3:00	5:55	5:20	5:20	5:20	5:55						5:20	5:55	5:35	5:55	5:55			5:15
R22	5:15	6:25	4:00	4:25	3:00	5:45	6:05	5:45	5:50	6:25	6:25	5:05	6:25	6:25		6:05	6:15	6:00	6:25	6:25			
R23	5:15	6:20	4:05	4:25	3:20	5:55	5:55	5:45	5:55	6:25	6:25	6:25	6:25	6:25	6:25	5:55		5:55	6:25	6:25			
R24	5:10	6:20	4:05	4:30	3:30	4:25	5:50	5:35	6:00	6:25	6:25	6:25	6:25	6:25	6:25	5:50		5:25		6:25	6:25		
R25	6:25	6:05	4:35	6:25	3:50	6:25	6:00	5:15	5:15		6:25	6:25	6:25	6:25	6:25	6:00		5:30			6:25	6:25	
R26	6:05	5:25	4:10	6:05	3:25	6:05	5:20	5:00	5:00			6:05	5:55			5:20		5:10			5:55	6:05	
R27	6:05	5:25	4:10	6:05	3:25	6:05	5:20	5:00	4:55			4:30				5:20		5:10			4:30	6:05	
R28	5:50	5:05	4:05	5:50	3:10	5:50	5:05	4:50	4:40							5:05		4:55				5:50	
R29	4:25	4:55	3:50	4:25	3:00	5:25	5:00	4:45	4:40							5:00		4:50					
R30	4:25	4:55	3:50	4:25	3:00	5:20	5:00	4:45	4:40							5:00		4:50					
R31	4:25	4:55	3:50	4:25	3:00	4:55	4:55	4:45	4:40							4:55		4:50					
R32	4:25	4:55	3:50	4:25	3:00	4:55	4:55	4:45	4:40							4:55		4:50					
R33	4:25	4:55	3:50	4:25	3:00	5:00	5:00	4:45	4:40							5:00		4:50					
R34	4:25	4:55	3:50	4:25	3:00	5:00	5:00	4:45	4:40							5:00		4:50					
R35	4:25	4:55	3:50	4:25	3:00	5:05	5:00	4:45	4:40							5:00	5:05	4:50					4:50

Scenario 3: Summer, Weekend, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:05	4:40							3:00	3:10	3:15						
R03	3:00	3:05	3:00	3:00	3:00	3:00	5:00	5:25	5:20	5:40	6:00	6:00	5:10	5:10	3:00	3:20	3:15	3:00	6:35	6:35	3:20	5:15	6:35
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			3:55	3:55	3:00		
R10						3:00									3:00	3:00			3:45	3:45	3:00		
R11						3:00	4:05	4:35							3:00	3:00			3:45	3:45	3:00		
R12						3:00	4:05	4:35							3:00	3:00			3:50	3:50			
R13						3:00	4:05	4:20							3:00	3:00							
R14						3:00	4:05	4:20							3:00	3:00	3:00						
R15						3:00	4:05	4:20							3:00	3:00	3:00						
R16						3:00	3:25								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:25								3:00	3:20	3:25						
R18	3:00		3:00			3:00									3:00	3:20	3:25						
R19	3:00		3:00			3:00									3:00	3:20	3:25						
R20	3:00	3:05	3:00			3:00	4:10	4:55							3:00	3:20	3:20		4:25	4:25	3:00		
R21	3:00		3:00			3:00	4:10	4:55							3:00	3:20	3:20		4:25	4:25	3:00		
R22	3:00		3:00			3:00	4:10	4:55							3:00	3:05	3:15		4:20	4:25	3:00		
R23	3:00		3:00			3:00	4:10	4:55							3:00	3:05	3:15		4:25	4:25	3:00		
R24	3:00		3:00			3:00	4:10	4:55							3:00	3:05	3:15		4:30	4:30	3:00	4:25	
R25	3:00		3:00			3:00	4:15	4:55							3:00	3:05	3:15		6:25	6:25	3:00	5:00	6:25
R26	3:00		3:00			3:00	4:10	4:55	4:10						3:00	3:05	3:15		6:05	6:05	3:00	4:50	6:05
R27	3:00		3:00			3:00	4:40	5:15	5:20	5:40	5:50	5:55			3:00	3:05	3:15		6:05	6:05	3:00	4:50	6:05
R28	3:00		3:00			3:00	5:00	5:25	5:20	5:40	5:50	5:50	5:10	5:10	3:00	3:05	3:15		5:50	5:50	3:00		5:50
R29	3:00		3:00			3:00	5:00	5:25	5:20	5:25	5:25	5:25	5:10	5:10	3:00	3:05	3:15	3:00	4:25	4:25	3:00		
R30	3:00		3:00			3:00	5:05	5:20			5:20	5:20	5:10	5:10	3:00	3:05	3:15	3:00	4:25	4:25	3:00		
R31	3:00		3:00		3:00	3:00	4:55	4:55			4:55		4:55	4:55	3:00	3:05	3:05	3:00	4:25	4:25	3:00		
R32	3:00		3:00	3:00	3:00	3:00	4:10	4:55							3:00	3:20	3:15	3:00	4:25	4:25	3:00		
R33	3:00	3:05	3:00	3:00	3:00	3:00	4:10	4:55							3:00	3:20	3:15		4:25	4:25	3:00		
R34	3:00	3:05	3:00	3:00	3:00	3:00	4:10	4:55							3:00	3:20	3:15		4:25	4:25	3:00		
R35	3:00	3:05	3:00	3:00		3:00	4:10	4:55							3:00	3:20	3:20		4:25	4:25	3:00		

Scenario 4: Summer, Weekend, Midday, Rain, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:10	3:50	3:00	3:20			3:50																
R02	4:25	5:10	4:10	4:30	3:00	5:15	5:10	4:55	4:35							5:10		5:00					
R03	7:15	7:10	5:40	7:15	4:30	7:15	6:50	6:25	6:30	7:15	7:15	7:15	7:15	7:15	7:15	6:50	6:55	6:40	7:15	7:15	7:15	7:15	6:45
R04	3:25	4:45	3:00	3:40			4:45	4:45	4:10							4:45		4:45					
R05	3:30	5:00	3:20	3:50			5:00	4:55	4:40							5:00		5:00					
R06	3:30	5:00	3:20	3:00			5:00	4:55	4:35							5:00		5:00					
R07	3:30	5:00	3:20	3:00			4:50	4:50	4:35														
R08	3:55	5:00	3:35	4:00	3:00		4:50	4:50	4:35														
R09	4:25	4:45	4:10	4:25	3:00	5:00	4:50		4:25														
R10	4:25	4:25	3:35	4:25	3:00	4:55	4:25																
R11	4:25	4:25	3:35	4:25	3:00	5:10	4:25																
R12	4:25	4:25	3:35	4:25		5:10	4:25																
R13	3:25	4:20	3:00	3:30			4:20																
R14	3:25	4:20	3:00	3:30			4:20																
R15	3:25	4:20	3:00	3:30			4:20																
R16	3:25	3:50	3:00	3:30			3:50																
R17	3:25	3:55	3:00	3:30			3:55																
R18	3:25	3:55	3:00	3:30			3:55									3:55							
R19	3:25	4:45	3:00	3:45			4:45	4:40								4:45							
R20	4:50	5:40	4:15	4:50	3:00	6:00	5:35	5:35	4:55							5:35	6:00	5:55	6:00				5:25
R21	5:00	6:15	4:20	5:00	3:00	6:25	5:55	5:55	5:50	6:30						5:50	6:25	6:05	6:30	6:30			5:40
R22	5:10	7:00	4:20	5:00	3:25	6:25	6:35	6:20	6:35	7:00	7:00	5:35	7:00	7:00		6:35	6:45	6:30	7:00	7:00			
R23	5:15	7:00	4:20	5:00	3:45	6:30	6:35	6:20	6:25	7:00	7:00	7:00	7:00	7:00	7:00	6:35		6:30	7:00	7:00			
R24	5:45	7:05	4:30	5:10	4:20	5:00	6:35	6:10	6:35	7:10	7:10	7:10	7:10	7:10	7:10	6:35		6:20		7:10	7:10		
R25	7:05	6:25	4:55	7:05	4:30	7:05	6:20	5:45	5:40		7:05	7:05	7:05	7:05	7:05	6:20		6:00			7:05	7:05	
R26	6:50	6:10	5:25	6:50	4:00	6:50	5:55	5:30	5:20			6:50	6:45			5:55		5:45			6:45	6:50	
R27	6:40	6:10	5:25	6:40	3:55	6:40	5:55	5:30	5:20			5:10				5:55		5:45			5:10	6:40	
R28	6:25	5:55	5:05	6:25	3:25	6:25	5:50	5:25	5:00							5:50		5:40				6:25	
R29	4:50	5:45	4:15	4:50	3:00	5:55	5:45	5:20	5:00							5:45		5:30					
R30	4:50	5:45	4:15	4:50	3:00	5:55	5:45	5:20	5:00							5:45		5:30					
R31	4:50	5:25	4:15	4:50	3:00	5:25	5:25	5:20	5:00							5:25		5:25					
R32	4:50	5:25	4:15	4:50	3:00	5:25	5:25	5:20	5:00							5:25		5:25					
R33	4:50	5:30	4:15	4:50	3:00	5:30	5:30	5:20	5:00							5:30		5:30					
R34	4:50	5:30	4:15	4:50	3:00	5:30	5:30	5:20	5:00							5:30		5:30					
R35	4:50	5:35	4:15	4:50	3:00	5:35	5:35	5:20	5:00							5:35	5:35	5:30					5:30

Scenario 4: Summer, Weekend, Midday, Rain, 95th Percentile																						
ERPAS																						
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:35	5:10							3:00	3:20	3:30						
R03	3:10	3:25	3:00	3:00	3:00	3:00	5:30	5:55	5:45	6:00	6:30	6:40	5:30	5:30	3:00	3:25	3:30	3:00	7:15	7:15	3:50	5:45	7:15
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			4:25	4:25	3:00		
R10						3:00									3:00	3:00			4:25	4:25	3:00		
R11						3:00	4:35	5:10							3:00	3:00			4:25	4:25	3:00		
R12						3:00	4:35	5:10							3:00	3:00			4:25	4:25			
R13						3:00	4:35	4:50							3:00	3:00							
R14						3:00	4:35	4:50							3:00	3:00	3:00						
R15						3:00	4:35	4:50							3:00	3:00	3:00						
R16						3:00	3:40								3:00	3:00	3:00						
R17	3:15		3:00			3:00	3:40								3:00	3:25	3:40						
R18	3:15		3:00			3:00									3:00	3:25	3:40						
R19	3:15		3:00			3:00									3:00	3:25	3:40						
R20	3:10	3:25	3:00			3:00	4:55	5:25							3:00	3:25	3:35		4:50	4:50	3:00		
R21	3:15		3:00			3:00	4:55	5:25							3:00	3:25	3:35		5:00	5:00	3:00		
R22	3:00		3:00			3:00	4:55	5:25							3:00	3:20	3:30		5:00	5:00	3:00		
R23	3:00		3:00			3:00	4:55	5:25							3:00	3:20	3:30		4:55	5:05	3:05		
R24	3:00		3:00			3:00	4:55	5:25							3:00	3:20	3:30		5:10	5:10	3:35	5:00	
R25	3:00		3:00			3:00	4:55	5:25							3:00	3:20	3:30		7:05	7:05	3:55	5:45	7:05
R26	3:00		3:00			3:00	4:55	5:25	4:30						3:00	3:20	3:30		6:50	6:50	3:20	5:20	6:50
R27	3:00		3:00			3:00	5:15	5:50	5:45	6:00	6:20	6:20			3:00	3:20	3:30		6:40	6:40	3:00	5:20	6:40
R28	3:00		3:00			3:00	5:30	5:55	5:45	6:00	6:25	6:25	5:30	5:30	3:00	3:20	3:30		6:25	6:25	3:00		6:25
R29	3:00		3:00			3:00	5:30	5:55	5:45	5:55	5:55	5:55	5:30	5:30	3:00	3:20	3:30	3:00	4:50	4:50	3:00		
R30	3:00		3:00			3:00	5:30	5:50			5:55	5:55	5:30	5:30	3:00	3:20	3:30	3:00	4:50	4:50	3:00		
R31	3:00		3:00		3:00	3:00	5:25	5:25			5:25		5:25	5:25	3:00	3:20	3:20	3:00	4:50	4:50	3:00		
R32	3:10		3:00	3:00	3:00	3:00	4:55	5:25							3:00	3:25	3:30	3:00	4:50	4:50	3:00		
R33	3:10	3:25	3:00	3:00	3:00	3:00	4:55	5:25							3:00	3:25	3:30		4:50	4:50	3:00		
R34	3:10	3:25	3:00	3:00	3:00	3:00	4:55	5:25							3:00	3:25	3:30		4:50	4:50	3:00		
R35	3:10	3:25	3:00	3:00		3:00	4:55	5:25							3:00	3:25	3:35		4:50	4:50	3:00		

Scenario 5: Summer, Midweek,Weekend, Evening, Good Weather, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:00	3:15	3:00	3:00			3:15																
R02	3:15	4:15	3:00	3:25	3:00	3:45	4:10	4:10	4:00							4:15		4:10					
R03	5:25	5:25	3:00	5:25	3:05	5:35	5:25	5:25	5:10	5:35	5:35	4:10	5:20	5:35	5:35	5:15	5:35	5:30	5:35	5:35	4:00	5:30	5:05
R04	3:00	3:55	3:00	3:00			3:30	4:00	3:30							4:00		4:00					
R05	3:00	4:15	3:00	3:10			4:10	4:10	4:00							4:15		4:10					
R06	3:00	4:15	3:00	3:00			4:10	4:10	4:00							4:15		4:10					
R07	3:00	4:15	3:00	3:00			4:15	4:15	3:55														
R08	3:05	4:15	3:00	3:05	3:00		4:15	4:15	3:55														
R09	3:05	4:15	3:00	3:10	3:00	4:15	4:15		4:15														
R10	3:05	3:25	3:00	3:05	3:00	3:30	3:25																
R11	3:05	3:25	3:00	3:05	3:00	3:45	3:25																
R12	3:05	3:25	3:00	3:10		3:45	3:25																
R13	3:00	3:25	3:00	3:00			3:25																
R14	3:00	3:25	3:00	3:00			3:25																
R15	3:00	3:25	3:00	3:00			3:25																
R16	3:00	3:20	3:00	3:00			3:20																
R17	3:00	3:20	3:00	3:00			3:20																
R18	3:00	3:15	3:00	3:00			3:15									3:15							
R19	3:00	3:55	3:00	3:00			3:30	4:00								4:05							
R20	3:25	4:25	3:00	3:30	3:00	4:10	4:20	4:50	4:00							4:35	4:55	4:55	4:55				4:15
R21	3:40	4:55	3:00	3:35	3:00	4:15	4:55	5:05	4:35	5:15						4:55	5:15	5:15	5:15	5:15			4:30
R22	3:40	5:20	3:00	3:40	3:00	4:15	5:20	5:20	5:05	5:35	5:35	3:30	5:25	5:35		5:10	5:35	5:25	5:35	5:35			
R23	3:40	5:25	3:00	3:40	3:00	4:15	5:25	5:25	5:10	5:35	5:35	3:50	5:20	5:35	5:35	5:15		5:30	5:35	5:35			
R24	3:40	5:25	3:00	3:40	3:00	3:30	5:15	5:10	5:15	5:30	5:30	4:00	5:25	5:30	5:30	5:15		5:05		5:30	3:50		
R25	5:20	4:55	3:00	5:20	3:05	5:20	4:55	4:40	4:05		5:20	4:05	5:05	5:20	5:20	4:55		4:45			4:00	5:20	
R26	4:55	4:35	3:00	4:55	3:05	4:55	4:35	4:35	3:45			3:45	3:40			4:45		4:35			3:40	4:55	
R27	5:00	4:35	3:00	5:00	3:00	5:00	4:35	4:35	3:25			3:15				4:45		4:35			3:15	5:00	
R28	4:55	4:25	3:00	4:55	3:00	4:55	4:20	4:25	4:00							4:35		4:25				4:55	
R29	3:25	4:25	3:00	3:30	3:00	4:15	4:20	4:25	4:00							4:35		4:25					
R30	3:25	4:25	3:00	3:30	3:00	4:15	4:20	4:25	4:00							4:35		4:25					
R31	3:25	4:20	3:00	3:30	3:00	4:15	4:20	4:20	4:00							4:20		4:20					
R32	3:25	4:20	3:00	3:30	3:00	4:15	4:20	4:20	4:00							4:20		4:20					
R33	3:25	4:25	3:00	3:30	3:00	4:15	4:20	4:25	4:00							4:25		4:25					
R34	3:25	4:25	3:00	3:30	3:00	4:15	4:20	4:25	4:00							4:25		4:25					
R35	3:25	4:25	3:00	3:30	3:00	4:15	4:20	4:25	4:00							4:30	4:30	4:30					4:15

Scenario 5: Summer, Midweek,Weekend, Evening, Good Weather, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	3:55	4:15							3:00	3:00	3:00						
R03	3:00	3:00	3:00	3:00	3:00	3:00	4:40	4:55	4:15	4:40	5:00	5:00	4:55	4:55	3:00	3:00	3:00	3:00	5:25	5:25	3:00	4:05	5:30
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			3:00	3:10	3:00		
R10						3:00									3:00	3:00			3:05	3:05	3:00		
R11						3:00	3:55	4:00							3:00	3:00			3:05	3:05	3:00		
R12						3:00	3:55	4:00							3:00	3:00			3:05	3:10			
R13						3:00	4:00	4:00							3:00	3:00							
R14						3:00	4:00	4:00							3:00	3:00	3:00						
R15						3:00	4:00	4:00							3:00	3:00	3:00						
R16						3:00	3:20								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:20								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	3:00	3:00	3:00			3:00	4:05	4:30							3:00	3:00	3:00		3:25	3:30	3:00		
R21	3:00		3:00			3:00	4:05	4:30							3:00	3:00	3:00		3:25	3:35	3:00		
R22	3:00		3:00			3:00	4:05	4:30							3:00	3:00	3:00		3:25	3:40	3:00		
R23	3:00		3:00			3:00	4:05	4:30							3:00	3:00	3:00		3:25	3:40	3:00		
R24	3:00		3:00			3:00	4:05	4:30							3:00	3:00	3:00		3:25	3:40	3:00	3:30	
R25	3:00		3:00			3:00	3:55	4:25							3:00	3:00	3:00		5:20	5:20	3:00	4:05	5:20
R26	3:00		3:00			3:00	4:05	4:25	3:25						3:00	3:00	3:00		4:55	4:55	3:00	3:45	4:55
R27	3:00		3:00			3:00	4:15	4:35	4:15	4:40	4:55	4:55			3:00	3:00	3:00		5:00	5:00	3:00	3:25	5:00
R28	3:00		3:00			3:00	4:40	4:55	4:15	4:40	4:55	4:55	4:55	4:55	3:00	3:00	3:00		4:55	4:55	3:00		4:55
R29	3:00		3:00			3:00	4:35	4:40	4:15	4:40	4:40	4:40	4:40	4:40	3:00	3:00	3:00	3:00	3:25	3:35	3:00		
R30	3:00		3:00			3:00	4:35	4:40			4:40	4:40	4:40	4:40	3:00	3:00	3:00	3:00	3:25	3:35	3:00		
R31	3:00		3:00		3:00	3:00	4:20	4:20			4:20		4:20	4:20	3:00	3:00	3:00	3:00	3:25	3:35	3:00		
R32	3:00		3:00	3:00	3:00	3:00	4:05	4:20							3:00	3:00	3:00	3:00	3:25	3:35	3:00		
R33	3:00	3:00	3:00	3:00	3:00	3:00	4:05	4:25							3:00	3:00	3:00		3:25	3:35	3:00		
R34	3:00	3:00	3:00	3:00	3:00	3:00	4:05	4:25							3:00	3:00	3:00		3:25	3:35	3:00		
R35	3:00	3:00	3:00	3:00		3:00	4:05	4:30							3:00	3:00	3:00		3:25	3:35	3:00		

Scenario 6: Winter, Midweek, Midday, Good Weather, 95th Percentile																							
	ERPAS																						
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:40	4:20	3:15	3:45			4:20																
R02	4:50	5:20	4:25	4:50	3:05	5:05	5:20	5:00	5:10							5:20		5:10					
R03	7:20	7:20	7:20	7:20	4:50	7:20	7:20	6:55	7:20	7:20	7:20	6:40	7:20	7:20	7:20	7:20	7:20	7:20	7:20	7:20	6:45	7:20	7:20
R04	3:55	5:00	3:30	4:00			5:00	4:50	4:25							5:00		4:55					
R05	4:40	5:20	3:30	4:00			5:20	5:00	5:10							5:20		5:10					
R06	4:40	5:20	3:25	3:00			5:20	5:00	5:10							5:20		5:10					
R07	4:40	5:20	3:25	3:00			5:05	5:05	5:10														
R08	4:40	5:20	4:20	4:25	3:00		5:05	5:05	5:10														
R09	4:50	5:20	4:25	4:45	3:05	5:20	5:20		5:20														
R10	4:45	4:50	4:15	4:40	3:10	4:50	4:50																
R11	4:45	4:50	4:15	4:40	3:10	4:55	4:55																
R12	4:45	4:50	4:15	4:40		4:55	4:55																
R13	3:50	4:45	3:20	3:50			4:50																
R14	3:50	4:50	3:20	3:50			4:50																
R15	3:50	4:50	3:20	3:50			4:50																
R16	3:50	4:20	3:20	3:50			4:20																
R17	3:50	4:20	3:20	3:50			4:20																
R18	3:50	4:20	3:20	3:50			4:20									4:20							
R19	3:55	5:00	3:30	4:00			5:00	4:45								5:00							
R20	5:25	6:00	5:05	5:25	3:40	5:45	6:00	5:35	5:30							6:00	6:00	6:00	6:00				5:45
R21	5:40	6:35	5:20	5:30	3:35	5:50	6:30	5:55	6:05	6:35						6:30	6:35	6:15	6:35	6:35			6:10
R22	6:00	7:20	5:20	5:40	4:00	5:50	7:05	6:40	7:10	7:20	7:20	5:35	7:20	7:20		7:05	7:05	6:35	7:20	7:20			
R23	7:10	7:15	5:20	5:40	4:15	5:50	7:15	6:55	7:15	7:15	7:15	6:25	7:15	7:15	7:15	7:15		7:15	7:15	7:15			
R24	7:10	7:15	5:20	5:40	4:25	5:50	7:15	7:00	7:10	7:15	7:15	6:35	7:15	7:15	7:15	7:15		7:15		7:15	6:20		
R25	7:10	7:10	6:55	7:10	4:25	7:10	7:10	6:10	6:25		7:10	6:35	7:10	7:10	7:10	7:10		6:45			6:35	7:10	
R26	6:50	6:50	6:25	6:50	4:20	6:50	6:40	6:00	6:10			6:10	6:15			6:40		6:25			6:15	6:50	
R27	6:50	6:45	6:25	6:50	4:05	6:50	6:35	5:55	5:35			5:35				6:35		6:20			5:50	6:50	
R28	6:35	6:15	5:15	6:35	3:40	6:35	6:05	5:30	5:25							6:05		5:50				6:35	
R29	5:25	6:05	5:05	5:25	3:40	5:45	5:55	5:25	5:25							5:55		5:40					
R30	5:25	6:00	5:05	5:25	3:40	5:45	5:55	5:25	5:25							5:55		5:40					
R31	5:25	5:45	5:05	5:25	3:40	5:45	5:45	5:25	5:25							5:45		5:40					
R32	5:25	5:40	5:05	5:25	3:40	5:40	5:40	5:25	5:25							5:40		5:40					
R33	5:25	5:35	5:05	5:25	3:40	5:35	5:35	5:25	5:25							5:35		5:35					
R34	5:25	5:35	5:05	5:25	3:40	5:35	5:35	5:25	5:25							5:35		5:35					
R35	5:25	5:40	5:05	5:25	3:40	5:40	5:40	5:25	5:25							5:40	5:40	5:40					5:40

Scenario 6: Winter, Midweek, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:10	5:00							3:00	3:00	3:00						
R03	4:10	4:15	3:00	3:00	3:00	3:00	5:15	5:55	5:50	6:25	6:45	6:45	6:05	6:05	3:00	3:00	3:00	3:00	7:20	7:20	3:40	6:10	7:20
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:05	3:00		
R09						3:00									3:00	3:00			4:45	4:45	3:00		
R10						3:00									3:00	3:00			4:40	4:40	3:00		
R11						3:00	4:10	4:55							3:00	3:00			4:40	4:40	3:00		
R12						3:00	4:10	4:55							3:00	3:00			4:45	4:45			
R13						3:00	4:10	4:50							3:00	3:00							
R14						3:00	4:10	4:50							3:00	3:00	3:00						
R15						3:00	4:10	4:50							3:00	3:00	3:00						
R16						3:00	3:35								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:35								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	4:10	4:15	3:00			3:00	4:30	5:15							3:00	3:00	3:00		5:25	5:25	3:00		
R21	3:00		3:00			3:00	4:30	5:15							3:00	3:00	3:00		5:30	5:30	3:00		
R22	3:00		3:00			3:00	4:30	5:15							3:00	3:00	3:00		5:40	5:40	3:00		
R23	3:00		3:00			3:00	4:30	5:15							3:00	3:00	3:00		5:40	5:40	3:10		
R24	3:00		3:00			3:00	4:30	5:15							3:00	3:00	3:00		5:40	5:40	3:15	5:55	
R25	3:00		3:00			3:00	4:25	5:20							3:00	3:00	3:00		7:10	7:10	3:25	6:05	7:10
R26	3:00		3:00			3:00	4:25	5:15	4:25						3:00	3:00	3:00		6:50	6:50	3:25	5:40	6:50
R27	3:00		3:00			3:00	4:40	5:30	5:50	6:20	6:40	6:50			3:00	3:00	3:00		6:50	6:50	3:00	5:30	6:50
R28	3:00		3:00			3:00	5:15	5:55	5:50	6:25	6:35	6:35	6:05	6:05	3:00	3:00	3:00		6:35	6:35	3:00		6:35
R29	3:00		3:00			3:00	5:10	5:50	5:50	6:05	6:05	6:05	6:05	6:05	3:00	3:00	3:00	3:00	5:25	5:25	3:00		
R30	3:00		3:00			3:00	5:15	5:55			6:00	6:00	6:00	6:00	3:00	3:00	3:00	3:00	5:25	5:25	3:00		
R31	3:00		3:00		3:00	3:00	5:05	5:45			5:45		5:45	5:45	3:00	3:00	3:00	3:00	5:25	5:25	3:00		
R32	3:00		3:00	3:00	3:00	3:00	4:30	5:15							3:00	3:00	3:00	3:00	5:25	5:25	3:00		
R33	4:10	4:15	3:00	3:00	3:00	3:00	4:30	5:15							3:00	3:00	3:00		5:25	5:25	3:00		
R34	4:10	4:15	3:00	3:00	3:00	3:00	4:30	5:15							3:00	3:00	3:00		5:25	5:25	3:00		
R35	4:10	4:15	3:00	3:00		3:00	4:30	5:15							3:00	3:00	3:00		5:25	5:25	3:00		

Scenario 7: Winter, Midweek, Midday, Rain, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:55	4:40	3:25	4:00			4:40																
R02	5:15	6:00	4:50	5:20	3:20	5:25	6:00	5:30	5:25							6:00		5:50					
R03	8:00	8:00	8:00	8:00	5:25	8:00	8:00	7:40	7:50	8:00	8:00	7:20	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00	7:15	8:00	8:00
R04	4:25	5:30	3:50	4:25			5:30	5:20	4:50							5:30		5:25					
R05	4:50	6:00	3:50	4:25			6:00	5:30	5:25							6:00		5:45					
R06	4:50	6:00	3:50	3:00			6:00	5:30	5:25							6:00		5:45					
R07	4:45	5:50	3:50	3:00			5:25	5:25	5:30														
R08	4:50	5:50	4:20	4:45	3:00		5:25	5:25	5:30														
R09	5:15	5:50	4:55	5:10	3:20	5:50	5:50		5:50														
R10	5:10	5:15	4:25	5:00	3:15	5:15	5:15																
R11	5:10	5:20	4:25	5:00	3:15	5:25	5:25																
R12	5:05	5:15	4:25	5:05		5:20	5:25																
R13	4:10	5:10	3:50	4:20			5:20																
R14	4:10	5:10	3:50	4:20			5:20																
R15	4:10	5:10	3:50	4:20			5:20																
R16	4:10	4:40	3:50	4:20			4:40																
R17	4:10	4:40	3:50	4:20			4:40																
R18	4:10	4:40	3:50	4:20			4:40									4:40							
R19	4:25	5:30	3:50	4:25			5:30	5:15								5:30							
R20	6:15	6:40	5:50	6:05	4:00	6:15	6:35	6:10	6:05							6:35	6:45	6:25	6:45				6:20
R21	6:10	7:15	5:50	6:05	4:05	6:10	7:10	6:25	6:45	7:15						7:10	7:15	6:50	7:15	7:15			6:35
R22	6:45	8:00	5:50	6:10	4:25	6:20	8:00	7:20	7:55	8:00	8:00	6:00	8:00	8:00		8:00	8:00	7:55	8:00	8:00			
R23	7:15	8:00	5:55	6:20	4:50	6:20	8:00	7:30	8:00	8:00	8:00	7:10	8:00	8:00	8:00	8:00		7:55	8:00	8:00			
R24	7:05	7:55	5:55	6:20	5:20	6:30	7:55	7:30	7:55	7:55	7:55	7:10	7:55	7:55	7:55	7:55		7:45		7:55	7:00		
R25	8:00	8:00	7:10	8:00	5:50	8:00	8:00	7:00	7:05		8:00	7:20	8:00	8:00	8:00	8:00		7:35			7:20	8:00	
R26	7:30	7:30	7:05	7:30	4:55	7:30	7:30	6:30	6:45			6:45	6:50			7:30		7:10			6:50	7:30	
R27	7:25	7:25	6:40	7:25	4:25	7:25	7:25	6:30	6:00			6:00				7:25		7:05			6:10	7:25	
R28	7:15	7:00	5:35	7:15	4:20	7:15	6:50	6:00	6:05							6:50		6:30				7:15	
R29	6:15	6:45	5:35	6:00	4:00	6:10	6:35	5:55	6:05							6:35		6:15					
R30	6:15	6:40	5:35	6:00	4:00	6:10	6:35	5:55	6:05							6:35		6:15					
R31	6:15	6:20	5:35	6:00	4:00	6:10	6:20	5:55	6:05							6:20		6:15					
R32	6:15	6:15	5:35	6:00	4:00	6:10	6:15	5:55	6:05							6:15		6:15					
R33	6:15	6:15	5:35	6:00	4:00	6:10	6:15	5:55	6:05							6:15		6:15					
R34	6:15	6:15	5:35	6:00	4:00	6:10	6:15	5:55	6:05							6:15		6:15					
R35	6:15	6:20	5:35	6:00	4:00	6:10	6:20	5:55	6:05							6:20	6:20	6:15					6:20

Scenario 7: Winter, Midweek, Midday, Rain, 95th Percentile																							
	ERPAS																						
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:50	5:35							3:00	3:00	3:00						
R03	4:25	4:30	3:00	3:00	3:00	3:00	5:50	6:25	6:20	6:40	7:25	7:30	6:40	6:40	3:00	3:00	3:00	3:00	8:00	8:00	4:40	6:45	8:00
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:15	3:00		
R09						3:00									3:00	3:00			5:10	5:10	3:00		
R10						3:00									3:00	3:00			5:00	5:00	3:00		
R11						3:00	4:50	5:25							3:00	3:00			5:00	5:00	3:00		
R12						3:00	4:50	5:25							3:00	3:00			5:05	5:05			
R13						3:00	4:50	5:20							3:00	3:00							
R14						3:00	4:50	5:20							3:00	3:00	3:00						
R15						3:00	4:50	5:20							3:00	3:00	3:00						
R16						3:00	3:50								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:50								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	4:30	4:30	3:00			3:00	5:00	5:55							3:00	3:00	3:00		6:05	6:05	3:00		
R21	3:00		3:00			3:00	5:00	5:55							3:00	3:00	3:00		6:05	6:05	3:05		
R22	3:00		3:00			3:00	5:00	5:55							3:00	3:00	3:00		6:10	6:10	3:45		
R23	3:00		3:00			3:00	5:00	5:55							3:00	3:00	3:00		6:20	6:20	3:35		
R24	3:00		3:00			3:00	5:00	5:55							3:00	3:00	3:00		6:20	6:20	4:15	6:50	
R25	3:00		3:00			3:00	5:00	5:55							3:00	3:00	3:00		8:00	8:00	5:10	7:15	8:00
R26	3:00		3:00			3:00	5:00	5:55	4:50						3:00	3:00	3:00		7:30	7:30	3:55	6:25	7:30
R27	3:00		3:00			3:00	5:10	6:05	6:15	6:40	7:10	7:20			3:00	3:00	3:00		7:25	7:25	3:35	5:50	7:25
R28	3:00		3:00			3:00	5:50	6:25	6:20	6:40	7:15	7:15	6:40	6:40	3:00	3:00	3:00		7:15	7:15	3:15		7:15
R29	3:00		3:00			3:00	5:50	6:20	6:20	6:40	6:45	6:45	6:40	6:40	3:00	3:00	3:00	3:00	6:00	6:00	3:00		
R30	3:00		3:00			3:00	5:50	6:25			6:40	6:40	6:40	6:40	3:00	3:00	3:00	3:00	6:00	6:00	3:00		
R31	3:00		3:00		3:00	3:00	5:40	6:20			6:20		6:20	6:20	3:00	3:00	3:00	3:00	6:00	6:00	3:00		
R32	3:00		3:00	3:00	3:00	3:00	5:00	5:55							3:00	3:00	3:00	3:00	6:00	6:00	3:00		
R33	4:25	4:30	3:00	3:00	3:00	3:00	5:00	5:55							3:00	3:00	3:00		6:00	6:00	3:00		
R34	4:25	4:30	3:00	3:00	3:00	3:00	5:00	5:55							3:00	3:00	3:00		6:00	6:00	3:00		
R35	4:25	4:30	3:00	3:00		3:00	5:00	5:55							3:00	3:00	3:00		6:00	6:00	3:00		

Scenario 8: Winter, Midweek, Midday, Snow, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	4:00	5:20	4:00	4:25			5:20																
R02	5:25	6:55	4:25	5:25	4:00	6:05	6:55	6:30	6:25							6:55		6:45					
R03	9:10	9:10	8:35	9:10	5:55	9:10	9:10	9:05	9:10	9:10	9:10	7:55	9:10	9:10	9:10	9:10	9:10	9:10	9:10	9:10	7:55	9:10	9:10
R04	4:30	6:25	4:00	4:45			6:25	6:10	5:35							6:25		6:25					
R05	5:15	6:55	4:00	4:45			6:50	6:30	6:25							6:50		6:40					
R06	5:15	6:55	4:00	4:00			6:50	6:30	6:25							6:50		6:40					
R07	5:15	6:55	4:00	4:00			6:25	6:25	6:25														
R08	5:10	6:55	4:25	5:05	4:00		6:25	6:25	6:25														
R09	5:15	6:55	4:25	5:25	4:00	6:00	6:55		6:55														
R10	5:15	5:55	4:15	5:15	4:00	5:55	5:55																
R11	5:15	5:55	4:15	5:15	4:00	6:00	5:55																
R12	5:15	5:55	4:15	5:15		6:00	5:55																
R13	4:20	5:50	4:00	4:30			5:50																
R14	4:20	5:50	4:00	4:30			5:50																
R15	4:20	5:50	4:00	4:30			5:50																
R16	4:20	5:30	4:00	4:30			5:30																
R17	4:20	5:30	4:00	4:30			5:30																
R18	4:20	5:30	4:00	4:30			5:30									5:30							
R19	4:30	6:30	4:00	4:45			6:30	6:05								6:30							
R20	6:45	7:35	6:15	6:40	4:25	7:00	7:25	7:05	6:55							7:25	7:35	7:25	7:35				7:10
R21	6:50	8:20	6:20	6:45	4:25	7:05	8:20	7:50	8:00	8:20						8:20	8:20	8:00	8:20	8:20			8:10
R22	8:15	9:10	6:20	6:45	4:35	7:10	9:10	8:45	9:10	9:10	9:10	7:05	9:10	9:10		9:10	9:10	9:10	9:10	9:10			
R23	8:35	9:10	6:20	6:40	5:00	6:55	9:10	9:05	9:10	9:10	9:10	7:30	9:10	9:10	9:10	9:10		9:10	9:10	9:10			
R24	8:30	9:05	6:20	6:45	5:25	6:45	9:05	8:40	9:05	9:05	9:05	7:35	9:05	9:05	9:05	9:05		9:05		9:05	7:05		
R25	8:55	8:55	6:35	8:55	6:20	8:55	8:55	7:50	7:55		8:55	7:55	8:55	8:55	8:55	8:55		8:40			7:55	8:55	
R26	8:25	8:25	7:30	8:25	5:40	8:25	8:20	7:20	7:20			7:20	7:35			8:20		8:00			7:35	8:25	
R27	8:20	8:20	7:30	8:20	5:10	8:20	8:20	7:25	6:55			6:55				8:20		8:00			7:00	8:20	
R28	8:10	7:45	6:15	8:10	4:50	8:10	7:30	6:55	6:55							7:30		7:15				8:10	
R29	6:50	7:30	6:15	6:40	4:25	7:00	7:20	6:50	6:55							7:20		7:00					
R30	6:50	7:30	6:15	6:40	4:25	7:00	7:20	6:50	6:55							7:20		7:00					
R31	6:50	7:10	6:15	6:40	4:25	7:00	7:10	6:50	6:55							7:10		7:00					
R32	6:50	7:00	6:15	6:40	4:25	7:00	7:00	6:50	6:55							7:00		7:00					
R33	6:50	7:00	6:15	6:40	4:25	7:00	7:00	6:50	6:55							7:00		7:00					
R34	6:50	7:00	6:15	6:40	4:25	7:00	7:00	6:50	6:55							7:00		7:00					
R35	6:50	7:05	6:15	6:40	4:25	7:00	7:05	6:50	6:55							7:05	7:05	7:00					7:05

Scenario 8: Winter, Midweek, Midday, Snow, 95th Percentile																							
	ERPAS																						
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						4:00									4:00	4:00							
R02	4:00		4:00			4:00	5:15	6:00							4:00	4:00	4:00						
R03	5:00	5:15	4:00	4:00	4:00	4:00	6:30	7:00	6:50	7:10	8:25	8:25	7:35	7:35	4:00	4:00	4:00	4:00	9:10	9:10	4:50	7:35	9:10
R04			4:00			4:00									4:00	4:00							
R05						4:00									4:00	4:00							
R06						4:00									4:00	4:00					4:00		
R07						4:00									4:00	4:00					4:00		
R08						4:00									4:00	4:00				4:00	4:00		
R09						4:00									4:00	4:00			5:20	5:25	4:00		
R10						4:00									4:00	4:00			5:15	5:15	4:00		
R11						4:00	5:15	6:00							4:00	4:00			5:15	5:15	4:00		
R12						4:00	5:15	6:00							4:00	4:00			5:15	5:20			
R13						4:00	5:20	6:00							4:00	4:00							
R14						4:00	5:20	6:00							4:00	4:00	4:00						
R15						4:00	5:20	6:00							4:00	4:00	4:00						
R16						4:00	4:35								4:00	4:00	4:00						
R17	4:00		4:00			4:00	4:35								4:00	4:00	4:00						
R18	4:00		4:00			4:00									4:00	4:00	4:00						
R19	4:00		4:00			4:00									4:00	4:00	4:00						
R20	5:00	5:15	4:00			4:00	5:30	6:15							4:00	4:00	4:00		6:40	6:40	4:00		
R21	4:00		4:00			4:00	5:30	6:15							4:00	4:00	4:00		6:45	6:45	4:00		
R22	4:00		4:00			4:00	5:30	6:15							4:00	4:00	4:00		6:45	6:45	4:00		
R23	4:00		4:00			4:00	5:30	6:15							4:00	4:00	4:00		6:40	6:40	4:15		
R24	4:00		4:00			4:00	5:30	6:15							4:00	4:00	4:00		6:45	6:45	4:15	6:45	
R25	4:00		4:00			4:00	5:40	6:20							4:00	4:00	4:00		8:55	8:55	5:15	7:45	8:55
R26	4:00		4:00			4:00	5:40	6:20	5:10						4:00	4:00	4:00		8:25	8:25	4:40	7:15	8:25
R27	4:00		4:00			4:00	6:00	6:45	6:50	7:10	8:05	8:15			4:00	4:00	4:00		8:20	8:20	4:00	6:50	8:20
R28	4:00		4:00			4:00	6:30	7:00	6:50	7:10	8:10	8:10	7:35	7:35	4:00	4:00	4:00		8:10	8:10	4:00		8:10
R29	4:00		4:00			4:00	6:30	7:05	6:50	7:10	7:30	7:30	7:30	7:30	4:00	4:00	4:00	4:00	6:40	6:40	4:00		
R30	4:00		4:00			4:00	6:25	6:55			7:30	7:30	7:30	7:30	4:00	4:00	4:00	4:00	6:40	6:40	4:00		
R31	4:00		4:00		4:00	4:00	6:15	6:55			7:10		7:10	7:10	4:00	4:00	4:00	4:00	6:40	6:40	4:00		
R32	4:00		4:00	4:00	4:00	4:00	5:30	6:15							4:00	4:00	4:00	4:00	6:40	6:40	4:00		
R33	5:00	5:15	4:00	4:00	4:00	4:00	5:30	6:15							4:00	4:00	4:00		6:40	6:40	4:00		
R34	5:00	5:15	4:00	4:00	4:00	4:00	5:30	6:15							4:00	4:00	4:00		6:40	6:40	4:00		
R35	5:00	5:15	4:00	4:00		4:00	5:30	6:15							4:00	4:00	4:00		6:40	6:40	4:00		

Scenario 9: Winter, Weekend, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:00	3:40	3:00	3:00			3:40																
R02	3:45	4:40	3:20	3:55	3:00	4:25	4:40	4:30	4:20							4:40		4:35					
R03	6:15	6:15	4:40	6:15	3:50	6:15	6:15	5:50	6:00	6:15	6:15	5:30	6:15	6:15	6:15	6:15	6:15	6:05	6:15	6:15	5:05	6:15	6:00
R04	3:00	4:20	3:00	3:20			4:20	4:20	3:55							4:25		4:20					
R05	3:10	4:40	3:00	3:25			4:40	4:30	4:20							4:40		4:35					
R06	3:10	4:40	3:00	3:00			4:40	4:30	4:20							4:40		4:35					
R07	3:10	4:40	3:00	3:00			4:25	4:25	4:20														
R08	3:25	4:40	3:15	3:30	3:00		4:25	4:25	4:20														
R09	3:50	4:20	3:00	3:40	3:00	4:20	4:20		4:10														
R10	3:45	4:00	3:05	3:35	3:00	4:05	4:00																
R11	3:45	4:00	3:05	3:35	3:00	4:20	4:00																
R12	3:45	4:00	3:05	3:40		4:20	4:00																
R13	3:00	3:55	3:00	3:15			3:55																
R14	3:00	3:55	3:00	3:15			3:55																
R15	3:00	3:55	3:00	3:15			3:55																
R16	3:00	3:40	3:00	3:15			3:40																
R17	3:00	3:40	3:00	3:15			3:40																
R18	3:00	3:40	3:00	3:15			3:40									3:40							
R19	3:00	4:20	3:00	3:20			4:20	4:15								4:20							
R20	4:20	5:10	3:50	4:20	3:00	4:50	5:10	5:10	4:45							5:10	5:30	5:25	5:30				4:55
R21	4:25	5:30	3:50	4:20	3:00	4:50	5:20	5:20	5:05	5:45						5:20	5:45	5:35	5:45	5:45			5:10
R22	4:25	6:15	3:50	4:25	3:00	4:50	5:50	5:45	5:55	6:15	6:15	5:15	6:15	6:15		5:50	6:05	5:50	6:15	6:15			
R23	4:25	6:15	3:50	4:25	3:20	4:55	6:00	5:45	6:00	6:15	6:15	5:25	6:15	6:15	6:15	6:00		5:55	6:15	6:15			
R24	4:40	6:10	3:50	4:35	3:25	4:20	5:55	5:30	5:50	6:10	6:10	5:20	6:10	6:10	6:10	5:55		5:35		6:10	4:40		
R25	6:05	5:40	4:10	6:05	3:55	6:05	5:30	5:10	5:00		6:05	5:30	6:05	6:05	6:05	5:30		5:15			5:05	6:05	
R26	5:45	5:30	4:10	5:45	3:25	5:45	5:25	5:00	4:55			5:05	4:45			5:25		5:15			4:45	5:45	
R27	5:45	5:30	4:10	5:45	3:10	5:45	5:25	5:05	4:55			4:05				5:25		5:15			4:05	5:45	
R28	5:35	5:15	4:10	5:35	3:05	5:35	5:15	4:55	4:40							5:15		5:05				5:35	
R29	4:20	5:05	3:50	4:20	3:00	4:50	5:05	4:50	4:40							5:05		4:55					
R30	4:20	5:05	3:50	4:20	3:00	4:50	5:05	4:50	4:40							5:05		4:55					
R31	4:20	4:50	3:50	4:20	3:00	4:50	4:50	4:50	4:40							4:50		4:50					
R32	4:20	4:50	3:50	4:20	3:00	4:50	4:50	4:50	4:40							4:50		4:50					
R33	4:20	4:55	3:50	4:20	3:00	4:50	4:55	4:50	4:40							4:55		4:55					
R34	4:20	4:55	3:50	4:20	3:00	4:50	4:55	4:50	4:40							4:55		4:55					
R35	4:20	5:00	3:50	4:20	3:00	4:50	5:00	4:50	4:40							5:00	5:00	4:55					4:50

Scenario 9: Winter, Weekend, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:05	4:40							3:00	3:00	3:00						
R03	3:00	3:05	3:00	3:00	3:00	3:00	5:00	5:20	4:50	5:15	5:50	5:50	5:00	5:00	3:00	3:00	3:00	3:00	6:15	6:15	3:00	5:00	6:15
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			3:40	3:40	3:00		
R10						3:00									3:00	3:00			3:35	3:35	3:00		
R11						3:00	4:05	4:25							3:00	3:00			3:35	3:35	3:00		
R12						3:00	4:05	4:25							3:00	3:00			3:40	3:40			
R13						3:00	4:05	4:25							3:00	3:00							
R14						3:00	4:05	4:25							3:00	3:00	3:00						
R15						3:00	4:05	4:25							3:00	3:00	3:00						
R16						3:00	3:25								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:25								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	3:00	3:05	3:00			3:00	4:10	4:50							3:00	3:00	3:00		4:20	4:20	3:00		
R21	3:00		3:00			3:00	4:10	4:50							3:00	3:00	3:00		4:20	4:20	3:00		
R22	3:00		3:00			3:00	4:10	4:50							3:00	3:00	3:00		4:20	4:25	3:00		
R23	3:00		3:00			3:00	4:10	4:50							3:00	3:00	3:00		4:25	4:25	3:00		
R24	3:00		3:00			3:00	4:10	4:50							3:00	3:00	3:00		4:25	4:40	3:00	4:20	
R25	3:00		3:00			3:00	4:10	4:50							3:00	3:00	3:00		6:05	6:05	3:00	5:00	6:05
R26	3:00		3:00			3:00	4:20	4:55	3:55						3:00	3:00	3:00		5:45	5:45	3:00	4:45	5:45
R27	3:00		3:00			3:00	4:25	5:05	4:50	5:15	5:30	5:30			3:00	3:00	3:00		5:45	5:45	3:00	4:20	5:45
R28	3:00		3:00			3:00	5:00	5:20	4:50	5:15	5:35	5:35	5:00	5:00	3:00	3:00	3:00		5:35	5:35	3:00		5:35
R29	3:00		3:00			3:00	4:55	5:10	4:50	5:10	5:10	5:10	5:00	5:00	3:00	3:00	3:00	3:00	4:20	4:20	3:00		
R30	3:00		3:00			3:00	4:55	5:05			5:05	5:05	5:00	5:00	3:00	3:00	3:00	3:00	4:20	4:20	3:00		
R31	3:00		3:00		3:00	3:00	4:45	4:50			4:50		4:50	4:50	3:00	3:00	3:00	3:00	4:20	4:20	3:00		
R32	3:00		3:00	3:00	3:00	3:00	4:10	4:50							3:00	3:00	3:00	3:00	4:20	4:20	3:00		
R33	3:00	3:05	3:00	3:00	3:00	3:00	4:10	4:50							3:00	3:00	3:00		4:20	4:20	3:00		
R34	3:00	3:05	3:00	3:00	3:00	3:00	4:10	4:50							3:00	3:00	3:00		4:20	4:20	3:00		
R35	3:00	3:05	3:00	3:00		3:00	4:10	4:50							3:00	3:00	3:00		4:20	4:20	3:00		

Scenario 10: Winter, Weekend, Midday, Rain, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:00	3:55	3:00	3:20			3:55																
R02	4:20	5:00	3:45	4:20	3:00	4:50	5:05	4:55	4:40							5:05		5:00					
R03	7:00	7:00	5:40	7:00	4:20	7:00	6:50	6:25	6:25	7:00	7:00	6:05	7:00	7:00	7:00	6:50	6:55	6:40	7:00	7:00	5:40	7:00	6:30
R04	3:20	4:50	3:00	3:30			4:50	4:50	4:10							4:50		4:50					
R05	3:55	5:00	3:00	3:35			5:05	4:55	4:40							5:05		4:55					
R06	3:55	5:00	3:00	3:00			5:05	4:55	4:40							5:05		4:55					
R07	3:55	5:05	3:00	3:00			4:50	4:50	4:40														
R08	4:10	5:05	3:25	3:50	3:00		4:50	4:50	4:40														
R09	4:00	5:05	3:40	4:10	3:00	5:05	5:05		4:25														
R10	3:55	4:20	3:40	4:00	3:00	4:25	4:20																
R11	3:55	4:20	3:40	4:00	3:00	4:40	4:20																
R12	3:55	4:20	3:40	4:00		4:40	4:20																
R13	3:20	4:15	3:00	3:25			4:15																
R14	3:20	4:15	3:00	3:25			4:15																
R15	3:20	4:15	3:00	3:25			4:15																
R16	3:20	3:55	3:00	3:25			3:55																
R17	3:20	3:55	3:00	3:25			3:55																
R18	3:20	3:55	3:00	3:25			3:55									3:55							
R19	3:20	4:50	3:00	3:30			4:50	4:40								4:50							
R20	4:50	5:30	4:15	4:40	3:00	5:00	5:30	5:30	5:05							5:30	5:50	5:50	5:50				5:15
R21	4:55	6:15	4:10	4:45	3:00	5:15	5:55	5:55	5:45	6:25						5:55	6:25	6:10	6:25	6:25			5:45
R22	5:30	7:00	4:10	4:45	3:15	5:20	6:35	6:20	6:25	7:00	7:00	5:45	7:00	7:00		6:35	6:45	6:30	7:00	7:00			
R23	5:30	6:55	4:10	4:45	3:35	5:15	6:25	6:20	6:30	6:55	6:55	5:50	6:55	6:55	6:55	6:25		6:25	6:55	6:55			
R24	5:35	6:50	4:10	5:05	3:55	4:45	6:40	6:10	6:20	6:50	6:50	5:50	6:50	6:50	6:50	6:40		6:15		6:50	5:05		
R25	6:45	6:40	4:45	6:45	4:30	6:45	6:25	5:40	5:40		6:45	6:10	6:45	6:45	6:45	6:25		6:05			5:40	6:45	
R26	6:20	6:05	5:50	6:20	4:00	6:20	5:55	5:25	5:15			5:30	5:20			5:55		5:45			5:20	6:20	
R27	6:20	6:05	5:50	6:20	3:40	6:20	5:55	5:30	5:15			4:55				5:55		5:45			4:55	6:20	
R28	6:00	5:35	4:55	6:00	3:20	6:00	5:35	5:15	5:00							5:35		5:25				6:00	
R29	4:50	5:25	4:15	4:40	3:00	5:00	5:25	5:10	5:00							5:25		5:15					
R30	4:50	5:25	4:15	4:40	3:00	5:00	5:25	5:10	5:00							5:25		5:15					
R31	4:50	5:15	4:15	4:40	3:00	5:00	5:15	5:10	5:00							5:15		5:15					
R32	4:50	5:15	4:15	4:40	3:00	5:00	5:15	5:10	5:00							5:15		5:15					
R33	4:50	5:20	4:15	4:40	3:00	5:00	5:20	5:10	5:00							5:20		5:15					
R34	4:50	5:20	4:15	4:40	3:00	5:00	5:20	5:10	5:00							5:20		5:15					
R35	4:50	5:25	4:15	4:40	3:00	5:00	5:25	5:10	5:00							5:25	5:25	5:15					5:15

Scenario 10: Winter, Weekend, Midday, Rain, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:20	5:05							3:00	3:00	3:00						
R03	3:10	3:25	3:00	3:00	3:00	3:00	5:10	5:40	5:15	5:35	6:15	6:15	5:25	5:25	3:00	3:00	3:00	3:00	7:00	7:00	3:30	5:45	7:00
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			4:10	4:10	3:00		
R10						3:00									3:00	3:00			4:00	4:00	3:00		
R11						3:00	4:20	4:45							3:00	3:00			4:00	4:00	3:00		
R12						3:00	4:20	4:45							3:00	3:00			4:00	4:00			
R13						3:00	4:25	4:45							3:00	3:00							
R14						3:00	4:25	4:45							3:00	3:00	3:00						
R15						3:00	4:25	4:45							3:00	3:00	3:00						
R16						3:00	3:35								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:35								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	3:10	3:25	3:00			3:00	4:40	5:20							3:00	3:00	3:00		4:40	4:40	3:00		
R21	3:00		3:00			3:00	4:40	5:20							3:00	3:00	3:00		4:40	4:45	3:00		
R22	3:00		3:00			3:00	4:40	5:20							3:00	3:00	3:00		4:40	4:45	3:00		
R23	3:00		3:00			3:00	4:40	5:20							3:00	3:00	3:00		4:45	4:45	3:00		
R24	3:00		3:00			3:00	4:40	5:20							3:00	3:00	3:00		5:05	5:05	3:00	4:45	
R25	3:00		3:00			3:00	4:40	5:20							3:00	3:00	3:00		6:45	6:45	3:35	5:45	6:45
R26	3:00		3:00			3:00	4:45	5:20	4:25						3:00	3:00	3:00		6:20	6:20	3:00	5:20	6:20
R27	3:00		3:00			3:00	5:00	5:40	5:15	5:35	6:05	6:05			3:00	3:00	3:00		6:20	6:20	3:00	5:15	6:20
R28	3:00		3:00			3:00	5:10	5:40	5:15	5:35	6:00	6:00	5:25	5:25	3:00	3:00	3:00		6:00	6:00	3:00		6:00
R29	3:00		3:00			3:00	5:25	5:40	5:15	5:35	5:40	5:40	5:30	5:30	3:00	3:00	3:00	3:00	4:40	4:40	3:00		
R30	3:00		3:00			3:00	5:25	5:35			5:35	5:35	5:30	5:30	3:00	3:00	3:00	3:00	4:40	4:40	3:00		
R31	3:00		3:00		3:00	3:00	5:15	5:15			5:15		5:15	5:15	3:00	3:00	3:00	3:00	4:40	4:40	3:00		
R32	3:00		3:00	3:00	3:00	3:00	4:40	5:15							3:00	3:00	3:00	3:00	4:40	4:40	3:00		
R33	3:10	3:25	3:00	3:00	3:00	3:00	4:40	5:20							3:00	3:00	3:00		4:40	4:40	3:00		
R34	3:10	3:25	3:00	3:00	3:00	3:00	4:40	5:20							3:00	3:00	3:00		4:40	4:40	3:00		
R35	3:10	3:25	3:00	3:00		3:00	4:40	5:20							3:00	3:00	3:00		4:40	4:40	3:00		

Scenario 11: Winter, Weekend, Midday, Snow, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	4:00	4:30	4:00	4:00			4:30																
R02	4:30	6:10	4:00	4:30	4:00	5:10	6:10	5:55	5:20							6:10		6:05					
R03	8:00	8:10	5:25	7:55	4:55	8:10	8:10	7:40	7:55	8:10	8:10	6:25	8:10	8:10	8:10	8:10	8:10	7:55	8:10	8:10	6:00	7:50	8:10
R04	4:00	5:40	4:00	4:05			5:40	5:35	4:50							5:40		5:40					
R05	4:00	6:10	4:00	4:15			6:10	5:50	5:20							6:10		6:05					
R06	4:00	6:10	4:00	4:00			6:10	5:50	5:20							6:10		6:05					
R07	4:00	6:05	4:00	4:00			5:45	5:45	5:20														
R08	4:25	6:05	4:00	4:20	4:00		5:50	5:50	5:20														
R09	4:20	6:05	4:00	4:25	4:00	4:55	6:05		5:20														
R10	4:15	5:00	4:00	4:25	4:00	5:00	5:00																
R11	4:15	5:15	4:00	4:25	4:00	5:00	5:20																
R12	4:15	5:15	4:00	4:25		5:00	5:20																
R13	4:00	5:15	4:00	4:00			5:15																
R14	4:00	5:15	4:00	4:00			5:15																
R15	4:00	5:15	4:00	4:00			5:15																
R16	4:00	4:40	4:00	4:00			4:40																
R17	4:00	4:40	4:00	4:00			4:40																
R18	4:00	4:40	4:00	4:00			4:40									4:40							
R19	4:00	5:40	4:00	4:05			5:40	5:30								5:40							
R20	5:25	6:40	4:45	5:25	4:00	5:55	6:35	6:30	6:00							6:35	6:55	6:50	6:55				6:20
R21	5:25	7:30	4:50	5:30	4:00	5:55	7:15	7:05	6:50	7:30						7:15	7:30	7:20	7:30	7:30			6:50
R22	5:45	8:10	4:50	5:30	4:00	5:55	8:05	7:40	7:50	8:10	8:10	6:40	8:10	8:10		8:05	8:05	7:45	8:10	8:10			
R23	5:45	8:10	4:50	5:30	4:00	5:55	8:10	7:45	7:55	8:10	8:10	6:10	8:10	8:10	8:10	8:10		7:50	8:10	8:10			
R24	5:50	8:00	4:50	5:30	4:25	5:25	7:45	7:20	7:35	8:00	8:00	6:05	8:00	8:00	8:00	7:45		7:20		8:00	5:15		
R25	7:45	7:45	6:05	7:40	5:00	7:45	7:45	6:50	6:25		7:45	6:25	7:45	7:45	7:45	7:45		7:20			5:55	7:45	
R26	7:10	7:00	6:05	7:10	4:40	7:10	6:55	6:25	5:55			5:55	5:40			6:55		6:40			5:40	7:10	
R27	7:10	7:00	6:05	7:10	4:20	7:10	6:55	6:25	6:00			5:10				6:55		6:40			5:10	7:10	
R28	6:55	6:30	5:35	6:55	4:05	6:55	6:30	6:10	5:55							6:30		6:15				6:55	
R29	5:25	6:20	4:45	5:25	4:00	5:55	6:20	6:10	5:55							6:20		6:10					
R30	5:25	6:20	4:45	5:25	4:00	5:55	6:20	6:10	5:55							6:20		6:10					
R31	5:25	6:10	4:45	5:25	4:00	5:55	6:10	6:10	5:55							6:10		6:10					
R32	5:25	6:10	4:45	5:25	4:00	5:55	6:10	6:10	5:55							6:10		6:10					
R33	5:25	6:10	4:45	5:25	4:00	5:55	6:10	6:10	5:55							6:10		6:10					
R34	5:25	6:10	4:45	5:25	4:00	5:55	6:10	6:10	5:55							6:10		6:10					
R35	5:25	6:15	4:45	5:25	4:00	5:55	6:15	6:10	5:55							6:15	6:15	6:10					6:10

Scenario 11: Winter, Weekend, Midday, Snow, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						4:00									4:00	4:00							
R02	4:00		4:00			4:00	5:05	5:40							4:00	4:00	4:00						
R03	4:00	4:00	4:00	4:00	4:00	4:00	6:10	6:35	5:50	6:10	6:50	6:50	6:20	6:20	4:00	4:00	4:00	4:00	7:55	7:55	4:00	6:20	7:50
R04			4:00			4:00									4:00	4:00							
R05						4:00									4:00	4:00							
R06						4:00									4:00	4:00					4:00		
R07						4:00									4:00	4:00					4:00		
R08						4:00									4:00	4:00				4:00	4:00		
R09						4:00									4:00	4:00			4:20	4:25	4:00		
R10						4:00									4:00	4:00			4:15	4:25	4:00		
R11						4:00	5:05	5:20							4:00	4:00			4:15	4:25	4:00		
R12						4:00	5:05	5:20							4:00	4:00			4:15	4:25			
R13						4:00	5:00	5:20							4:00	4:00							
R14						4:00	5:00	5:25							4:00	4:00	4:00						
R15						4:00	5:00	5:25							4:00	4:00	4:00						
R16						4:00	4:20								4:00	4:00	4:00						
R17	4:00		4:00			4:00	4:20								4:00	4:00	4:00						
R18	4:00		4:00			4:00									4:00	4:00	4:00						
R19	4:00		4:00			4:00									4:00	4:00	4:00						
R20	4:00	4:00	4:00			4:00	5:15	5:55							4:00	4:00	4:00		5:25	5:25	4:00		
R21	4:00		4:00			4:00	5:15	5:55							4:00	4:00	4:00		5:25	5:30	4:00		
R22	4:00		4:00			4:00	5:15	5:55							4:00	4:00	4:00		5:25	5:30	4:00		
R23	4:00		4:00			4:00	5:15	5:55							4:00	4:00	4:00		5:25	5:30	4:00		
R24	4:00		4:00			4:00	5:15	5:55							4:00	4:00	4:00		5:30	5:30	4:00	5:25	
R25	4:00		4:00			4:00	5:10	5:50							4:00	4:00	4:00		7:40	7:40	4:00	6:20	7:45
R26	4:00		4:00			4:00	5:15	5:55	4:45						4:00	4:00	4:00		7:10	7:10	4:00	5:55	7:10
R27	4:00		4:00			4:00	5:40	6:15	5:50	6:10	6:40	6:40			4:00	4:00	4:00		7:10	7:10	4:00	5:35	7:10
R28	4:00		4:00			4:00	6:10	6:35	5:50	6:10	6:50	6:50	6:20	6:20	4:00	4:00	4:00		6:55	6:55	4:00		6:55
R29	4:00		4:00			4:00	6:15	6:25	5:50	6:10	6:25	6:25	6:10	6:10	4:00	4:00	4:00	4:00	5:25	5:25	4:00		
R30	4:00		4:00			4:00	6:10	6:25			6:25	6:25	6:20	6:20	4:00	4:00	4:00	4:00	5:25	5:25	4:00		
R31	4:00		4:00		4:00	4:00	5:45	6:10			6:10		6:10	6:10	4:00	4:00	4:00	4:00	5:25	5:25	4:00		
R32	4:00		4:00	4:00	4:00	4:00	5:15	5:55							4:00	4:00	4:00	4:00	5:25	5:25	4:00		
R33	4:00	4:00	4:00	4:00	4:00	4:00	5:15	5:55							4:00	4:00	4:00		5:25	5:25	4:00		
R34	4:00	4:00	4:00	4:00	4:00	4:00	5:15	5:55							4:00	4:00	4:00		5:25	5:25	4:00		
R35	4:00	4:00	4:00	4:00		4:00	5:15	5:55							4:00	4:00	4:00		5:25	5:25	4:00		

Scenario 12: Winter, Midweek, Weekend, Evening, Good Weather, 95th Percentile																							
	ERPAS																						
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:00	3:15	3:00	3:00			3:15																
R02	3:20	4:15	3:00	3:25	3:00	3:30	4:10	4:10	3:55							4:15		4:10					
R03	5:20	5:25	3:00	5:15	3:05	5:30	5:20	5:20	5:10	5:40	5:40	3:45	5:25	5:40	5:40	5:15	5:35	5:30	5:40	5:40	3:45	5:15	5:00
R04	3:00	3:55	3:00	3:00			3:40	3:55	3:30							3:55		3:55					
R05	3:00	4:10	3:00	3:15			4:05	4:10	3:55							4:15		4:10					
R06	3:00	4:10	3:00	3:00			4:05	4:10	3:55							4:15		4:10					
R07	3:00	4:15	3:00	3:00			4:15	4:15	3:55														
R08	3:00	4:15	3:00	3:05	3:00		4:15	4:15	3:55														
R09	3:05	4:15	3:00	3:10	3:00	3:30	3:45		4:15														
R10	3:00	3:25	3:00	3:05	3:00	3:25	3:25																
R11	3:00	3:25	3:00	3:05	3:00	3:30	3:25																
R12	3:00	3:25	3:00	3:05		3:30	3:25																
R13	3:00	3:25	3:00	3:00			3:25																
R14	3:00	3:25	3:00	3:00			3:25																
R15	3:00	3:25	3:00	3:00			3:25																
R16	3:00	3:20	3:00	3:00			3:20																
R17	3:00	3:20	3:00	3:00			3:20																
R18	3:00	3:15	3:00	3:00			3:15									3:15							
R19	3:00	3:55	3:00	3:00			3:40	3:55								4:00							
R20	3:20	4:25	3:00	3:25	3:00	4:00	4:25	4:45	4:05							4:35	4:50	4:50	4:50				4:15
R21	3:30	4:55	3:00	3:25	3:00	4:00	4:50	5:00	4:35	5:15						4:50	5:15	5:15	5:15	5:15			4:35
R22	3:40	5:20	3:00	3:25	3:00	4:00	5:20	5:20	5:10	5:40	5:40	3:30	5:35	5:40		5:15	5:35	5:25	5:40	5:40			
R23	3:40	5:20	3:00	3:30	3:00	4:00	5:20	5:20	5:10	5:35	5:35	3:30	5:25	5:35	5:35	5:15		5:30	5:35	5:35			
R24	3:40	5:25	3:00	3:25	3:00	3:45	5:15	5:10	5:15	5:30	5:30	3:45	5:25	5:30	5:30	5:15		5:05		5:30	3:30		
R25	5:15	4:50	3:00	5:15	3:10	5:15	4:50	4:40	3:45		5:15	3:45	5:00	5:15	5:15	4:55		4:40			3:40	5:15	
R26	4:50	4:35	3:00	4:50	3:05	4:50	4:35	4:30	3:25			3:25	3:25			4:45		4:35			3:25	4:50	
R27	4:50	4:35	3:00	4:50	3:05	4:50	4:35	4:30	3:30			3:25				4:45		4:35			3:25	4:50	
R28	4:45	4:25	3:00	4:45	3:00	4:45	4:20	4:20	4:00							4:30		4:20				4:45	
R29	3:20	4:20	3:00	3:25	3:00	4:00	4:20	4:20	4:00							4:30		4:20					
R30	3:20	4:20	3:00	3:25	3:00	4:00	4:20	4:20	4:00							4:30		4:20					
R31	3:20	4:15	3:00	3:25	3:00	4:00	4:15	4:15	4:00							4:15		4:15					
R32	3:20	4:15	3:00	3:25	3:00	4:00	4:15	4:15	4:00							4:15		4:15					
R33	3:20	4:20	3:00	3:25	3:00	4:00	4:20	4:20	4:00							4:20		4:20					
R34	3:20	4:20	3:00	3:25	3:00	4:00	4:20	4:20	4:00							4:20		4:20					
R35	3:20	4:20	3:00	3:25	3:00	4:00	4:20	4:25	4:00							4:25	4:25	4:25					4:10

Scenario 12: Winter, Midweek, Weekend, Evening, Good Weather, 95th Percentile																							
	ERPAS																						
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	3:45	4:15							3:00	3:00	3:00						
R03	3:00	3:00	3:00	3:00	3:00	3:00	4:25	4:50	4:10	4:30	4:45	4:45	4:50	4:50	3:00	3:00	3:00	3:00	5:15	5:15	3:00	3:45	5:15
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			3:00	3:10	3:00		
R10						3:00									3:00	3:00			3:00	3:10	3:00		
R11						3:00	3:45	3:55							3:00	3:00			3:00	3:10	3:00		
R12						3:00	3:45	3:55							3:00	3:00			3:00	3:10			
R13						3:00	3:50	3:55							3:00	3:00							
R14						3:00	3:50	4:00							3:00	3:00	3:00						
R15						3:00	3:50	4:00							3:00	3:00	3:00						
R16						3:00	3:20								3:00	3:00	3:00						
R17	3:00		3:00			3:00	3:20								3:00	3:00	3:00						
R18	3:00		3:00			3:00									3:00	3:00	3:00						
R19	3:00		3:00			3:00									3:00	3:00	3:00						
R20	3:00	3:00	3:00			3:00	3:50	4:25							3:00	3:00	3:00		3:15	3:25	3:00		
R21	3:00		3:00			3:00	3:50	4:25							3:00	3:00	3:00		3:15	3:25	3:00		
R22	3:00		3:00			3:00	3:50	4:25							3:00	3:00	3:00		3:15	3:25	3:00		
R23	3:00		3:00			3:00	3:50	4:25							3:00	3:00	3:00		3:15	3:30	3:00		
R24	3:00		3:00			3:00	3:50	4:25							3:00	3:00	3:00		3:15	3:25	3:00	3:45	
R25	3:00		3:00			3:00	3:55	4:25							3:00	3:00	3:00		5:15	5:15	3:00	3:45	5:15
R26	3:00		3:00			3:00	3:55	4:25	3:30						3:00	3:00	3:00		4:50	4:50	3:00	3:25	4:50
R27	3:00		3:00			3:00	4:00	4:25	4:05	4:30	4:40	4:40			3:00	3:00	3:00		4:50	4:50	3:00	3:30	4:50
R28	3:00		3:00			3:00	4:25	4:45	4:10	4:30	4:45	4:45	4:45	4:45	3:00	3:00	3:00		4:45	4:45	3:00		4:45
R29	3:00		3:00			3:00	4:20	4:30	4:10	4:30	4:30	4:30	4:30	4:30	3:00	3:00	3:00	3:00	3:15	3:25	3:00		
R30	3:00		3:00			3:00	4:25	4:30			4:30	4:30	4:30	4:30	3:00	3:00	3:00	3:00	3:15	3:25	3:00		
R31	3:00		3:00		3:00	3:00	4:10	4:15			4:15		4:15	4:15	3:00	3:00	3:00	3:00	3:15	3:25	3:00		
R32	3:00		3:00	3:00	3:00	3:00	3:50	4:15							3:00	3:00	3:00	3:00	3:15	3:25	3:00		
R33	3:00	3:00	3:00	3:00	3:00	3:00	3:50	4:20							3:00	3:00	3:00		3:15	3:25	3:00		
R34	3:00	3:00	3:00	3:00	3:00	3:00	3:50	4:20							3:00	3:00	3:00		3:15	3:25	3:00		
R35	3:00	3:00	3:00	3:00		3:00	3:50	4:25							3:00	3:00	3:00		3:15	3:25	3:00		

Scenario 13: Autumn, Weekend, USMA Football, MIdday, Good Weather, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:00	3:40	3:00	3:00			3:40																
R02	3:20	4:25	3:00	3:30	3:00	4:30	4:15	4:25	3:45							4:40		4:40					
R03	6:15	5:45	3:00	6:15	3:25	6:15	4:35	5:50	5:15	6:15	6:15	5:25	6:10	6:15	6:15	6:00	6:15	6:15	6:15	6:15	4:55	6:10	4:40
R04	3:00	4:20	3:00	3:15			4:00	4:20	3:25							4:25		4:25					
R05	3:00	4:25	3:00	3:25			4:15	4:25	3:45							4:40		4:40					
R06	3:00	4:25	3:00	3:00			4:15	4:25	3:45							4:40		4:40					
R07	3:00	4:40	3:00	3:00			4:15	4:40	3:45														
R08	3:00	4:40	3:00	3:20	3:00		4:15	4:40	3:45														
R09	3:20	4:00	3:00	3:20	3:00	4:40	4:00		3:35														
R10	3:20	4:00	3:00	3:20	3:00	4:10	4:00																
R11	3:20	4:00	3:00	3:20	3:00	4:30	4:00																
R12	3:20	4:00	3:00	3:25		4:30	4:00																
R13	3:00	3:55	3:00	3:10			3:55																
R14	3:00	3:55	3:00	3:10			3:55																
R15	3:00	3:55	3:00	3:10			3:55																
R16	3:00	3:40	3:00	3:10			3:40																
R17	3:00	3:55	3:00	3:10			3:55																
R18	3:00	3:55	3:00	3:10			3:55									4:40							
R19	3:00	4:15	3:00	3:15			4:00	4:15								4:40							
R20	4:10	4:45	3:00	4:00	3:00	5:10	4:15	5:15	3:55							5:05	5:30	5:30	5:30				4:15
R21	4:10	5:10	3:00	4:05	3:00	5:10	4:25	5:25	4:50	5:45						5:15	5:45	5:45	5:45	5:45			4:25
R22	4:10	5:50	3:00	4:10	3:00	5:10	4:30	5:50	5:25	6:15	6:15	5:00	6:15	6:15		6:10	6:15	6:15	6:15	6:15			
R23	4:10	5:45	3:00	4:10	3:00	5:10	4:40	5:50	5:20	6:15	6:15	5:15	6:10	6:15	6:15	6:05		6:15	6:15	6:15			
R24	3:50	5:30	3:00	4:05	3:05	4:20	4:30	5:30	5:20	6:10	6:10	5:15	6:10	6:10	6:10	5:50		5:40		6:10	4:35		
R25	6:05	5:05	3:00	6:05	3:35	6:05	4:20	5:05	4:25		6:05	5:25	5:55	6:05	6:05	5:45		5:30			4:55	6:05	
R26	5:45	4:55	3:00	5:45	3:20	5:45	4:20	4:55	4:15			5:00	4:40			5:25		5:25			4:40	5:45	
R27	5:45	4:55	3:00	5:45	3:10	5:45	4:20	4:55	4:15			4:00				5:30		5:25			4:00	5:45	
R28	5:35	4:45	3:00	5:35	3:15	5:35	4:20	4:45	3:55							5:10		5:10				5:35	
R29	4:10	4:40	3:00	4:00	3:00	5:10	4:20	4:45	3:55							5:10		5:10					
R30	4:10	4:40	3:00	4:00	3:00	5:10	4:20	4:45	3:55							5:10		5:10					
R31	4:10	4:40	3:00	4:00	3:00	4:50	4:20	4:45	3:55							4:50		4:50					
R32	4:10	4:40	3:00	4:00	3:00	4:50	4:20	4:45	3:55							4:50		4:50					
R33	4:10	4:40	3:00	4:00	3:00	5:10	4:20	4:45	3:55							5:10		5:10					
R34	4:10	4:40	3:00	4:00	3:00	5:10	4:20	4:45	3:55							5:10		5:10					
R35	4:10	4:40	3:00	4:00	3:00	5:10	4:20	4:45	3:55							5:05	5:15	5:10					4:20

Scenario 13: Autumn, Weekend, USMA Football, MIdday, Good Weather, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:45		4:10			3:00	3:55	4:40							3:00	3:00	3:45						
R03	5:55	5:05	4:35	3:00	3:00	3:00	4:55	5:30	4:40	5:00	5:30	5:30	5:20	5:20	3:00	3:00	6:05	3:00	6:15	6:15	3:00	4:55	6:10
R04			4:15			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:00	3:00		
R09						3:00									3:00	3:00			3:20	3:20	3:00		
R10						3:00									3:00	3:00			3:20	3:20	3:00		
R11						3:00	3:55	4:35							3:00	3:00			3:20	3:20	3:00		
R12						3:00	3:55	4:35							3:00	3:00			3:25	3:25			
R13						3:00	3:55	4:35							3:00	3:00							
R14						3:00	3:55	4:35							3:00	3:00	3:00						
R15						3:00	3:55	4:35							3:00	3:00	3:00						
R16						3:00	3:30								3:00	3:00	3:00						
R17	4:40		4:35			3:00	3:30								3:00	3:00	4:40						
R18	4:40		4:35			3:00									3:00	3:00	4:40						
R19	4:40		4:40			3:00									3:00	3:00	4:40						
R20	5:30	5:05	4:35			3:00	4:15	5:00							3:00	3:00	5:30		4:00	4:00	3:00		
R21	5:45		4:35			3:00	4:15	5:00							3:00	3:00	5:45		4:05	4:05	3:00		
R22	4:10		4:15			3:00	4:15	5:00							3:00	3:00	4:10		4:10	4:10	3:00		
R23	4:10		4:15			3:00	4:15	5:00							3:00	3:00	4:10		4:10	4:10	3:00		
R24	4:10		4:15			3:00	4:15	5:00							3:00	3:00	4:10		3:55	4:05	3:00	4:20	
R25	4:10		4:15			3:00	4:25	5:05							3:00	3:00	4:10		6:05	6:05	3:00	4:55	6:05
R26	4:10		4:15			3:00	4:15	5:00	3:30						3:00	3:00	4:10		5:45	5:45	3:00	4:50	5:45
R27	4:10		4:15			3:00	4:20	5:10	4:40	5:00	5:35	5:35			3:00	3:00	4:10		5:45	5:45	3:00	4:20	5:45
R28	4:10		4:15			3:00	4:55	5:30	4:40	5:00	5:30	5:30	5:20	5:20	3:00	3:00	4:10		5:35	5:35	3:00		5:35
R29	4:10		4:15			3:00	4:45	5:10	4:40	5:00	5:10	5:10	5:10	5:10	3:00	3:00	4:10	3:00	4:00	4:00	3:00		
R30	4:10		4:15			3:00	4:50	5:10			5:10	5:10	5:10	5:10	3:00	3:00	4:10	3:00	4:00	4:00	3:00		
R31	4:05		4:20		3:00	3:00	4:50	4:50			4:50		4:50	4:50	3:00	3:00	4:05	3:00	4:00	4:00	3:00		
R32	4:50		4:35	3:00	3:00	3:00	4:15	4:50							3:00	3:00	4:50	3:00	4:00	4:00	3:00		
R33	5:10	5:05	4:35	3:00	3:00	3:00	4:15	5:00							3:00	3:00	5:10		4:00	4:00	3:00		
R34	5:10	5:05	4:35	3:00	3:00	3:00	4:15	5:00							3:00	3:00	5:10		4:00	4:00	3:00		
R35	5:15	5:05	4:35	3:00		3:00	4:15	5:00							3:00	3:00	5:15		4:00	4:00	3:00		

Scenario 14: Spring, Midweek, USMA Graduation, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:15	4:20	3:00	3:35			4:20																
R02	4:15	4:55	3:00	4:25	3:05	5:20	4:45	4:55	4:25							5:20		5:20					
R03	7:20	6:30	3:00	7:20	4:10	7:20	5:20	6:30	6:30	7:20	7:20	6:40	7:20	7:20	7:20	6:30	7:15	6:45	7:20	7:20	6:30	7:20	5:25
R04	3:20	4:50	3:00	3:50			4:40	4:50	3:55							5:00		5:00					
R05	3:20	4:55	3:00	3:50			4:40	4:55	4:25							5:20		5:20					
R06	3:20	4:55	3:00	3:00			4:40	4:55	4:25							5:20		5:20					
R07	3:20	5:20	3:00	3:00			4:40	5:20	4:25														
R08	3:50	5:20	3:00	3:55	3:00		5:20	5:20	4:25														
R09	4:15	4:40	3:00	4:20	3:05	5:20	4:40		4:10														
R10	4:15	4:30	3:00	4:15	3:05	4:50	4:30																
R11	4:15	4:30	3:00	4:15	3:05	4:55	4:30																
R12	4:15	4:30	3:00	4:15		4:55	4:30																
R13	3:20	4:25	3:00	3:40			4:25																
R14	3:20	4:25	3:00	3:40			4:25																
R15	3:20	4:25	3:00	3:40			4:25																
R16	3:20	4:20	3:00	3:40			4:20																
R17	3:20	4:40	3:00	3:40			4:40																
R18	3:20	4:20	3:00	3:40			4:20									4:25							
R19	3:20	4:45	3:00	3:50			4:40	4:45								5:00							
R20	5:20	5:25	3:10	5:10	3:35	6:00	5:00	5:30	4:50							5:30	6:00	6:00	6:00				5:00
R21	5:20	6:05	3:10	5:20	3:35	6:10	5:20	6:05	5:40	6:35						6:15	6:35	6:25	6:35	6:35			5:15
R22	5:25	6:20	3:10	5:20	3:30	6:15	5:20	6:20	6:15	7:15	7:20	5:15	6:55	7:20		6:30	7:10	6:35	7:20	7:20			
R23	5:20	6:25	3:10	5:20	3:35	6:25	5:25	6:25	6:20	7:15	7:15	6:25	7:00	7:15	7:15	6:35		6:35	7:15	7:15			
R24	5:35	6:15	3:10	5:25	4:10	5:45	5:20	6:15	6:15	7:10	7:15	6:50	7:15	7:15	7:15	6:45		6:35		7:15	6:30		
R25	7:10	5:35	3:10	7:10	4:10	7:10	5:05	5:30	5:35		7:10	6:40	6:40	7:10	6:40	5:55		6:10			6:30	7:10	
R26	6:50	5:20	3:10	6:50	4:05	6:50	5:00	5:20	5:15			6:10	6:10			6:00		6:05			6:10	6:50	
R27	6:50	5:20	3:10	6:50	4:05	6:50	5:00	5:20	5:10			5:35				5:50		6:05			5:45	6:50	
R28	6:35	5:15	3:10	6:35	3:40	6:35	4:55	5:15	4:50							5:35		5:55				6:35	
R29	5:20	5:15	3:10	5:10	3:35	6:05	4:55	5:15	4:50							5:35		5:55					
R30	5:20	5:15	3:10	5:10	3:35	6:00	4:55	5:15	4:50							5:35		5:55					
R31	5:20	5:15	3:10	5:10	3:35	5:45	4:55	5:15	4:50							5:35		5:45					
R32	5:20	5:15	3:10	5:10	3:35	5:40	4:55	5:15	4:50							5:35		5:40					
R33	5:20	5:15	3:10	5:10	3:35	5:35	4:55	5:15	4:50							5:35		5:35					
R34	5:20	5:15	3:10	5:10	3:35	5:35	4:55	5:15	4:50							5:35		5:35					
R35	5:20	5:15	3:10	5:10	3:35	5:40	4:55	5:15	4:50							5:35	5:40	5:40					5:00

Scenario 14: Spring, Midweek, USMA Graduation, Midday, Good Weather, 95th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:00		3:00			3:00	4:20	5:10							3:00	3:00	3:00						
R03	3:25	3:40	3:00	3:00	3:00	3:00	5:15	6:15	5:45	6:15	7:00	7:00	6:15	6:15	3:00	3:00	3:15	3:00	7:20	7:20	3:00	5:55	7:20
R04			3:00			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:00		
R07						3:00									3:00	3:00					3:00		
R08						3:00									3:00	3:00				3:05	3:00		
R09						3:00									3:00	3:00			4:20	4:20	3:00		
R10						3:00									3:00	3:00			4:15	4:15	3:00		
R11						3:00	4:20	4:55							3:00	3:00			4:15	4:15	3:00		
R12						3:00	4:20	4:55							3:00	3:00			4:15	4:15			
R13						3:00	4:15	4:50							3:00	3:00							
R14						3:00	4:15	4:50							3:00	3:00	3:00						
R15						3:00	4:15	4:50							3:00	3:00	3:00						
R16						3:00	3:40								3:00	3:00	3:00						
R17	3:30		3:00			3:00	3:40								3:00	3:00	3:40						
R18	3:30		3:00			3:00									3:00	3:00	3:40						
R19	3:30		3:00			3:00									3:00	3:00	3:40						
R20	3:30	3:40	3:00			3:00	4:35	5:25							3:00	3:00	3:35		5:10	5:10	3:00		
R21	3:30		3:00			3:00	4:35	5:25							3:00	3:00	3:35		5:20	5:20	3:00		
R22	3:00		3:00			3:00	4:35	5:25							3:00	3:00	3:00		5:20	5:20	3:00		
R23	3:00		3:00			3:00	4:35	5:25							3:00	3:00	3:00		5:20	5:20	3:00		
R24	3:00		3:00			3:00	4:35	5:25							3:00	3:00	3:00		5:25	5:25	3:00	5:45	
R25	3:00		3:00			3:00	4:30	5:20							3:00	3:00	3:00		7:10	7:10	3:00	5:50	7:10
R26	3:00		3:00			3:00	4:35	5:25	4:10						3:00	3:00	3:00		6:50	6:50	3:00	5:40	6:50
R27	3:00		3:00			3:00	4:55	5:30	5:40	6:15	6:50	6:50			3:00	3:00	3:00		6:50	6:50	3:00	5:45	6:50
R28	3:00		3:00			3:00	5:25	5:55	5:40	6:10	6:35	6:35	6:05	6:05	3:00	3:00	3:00		6:35	6:35	3:00		6:35
R29	3:00		3:00			3:00	5:25	6:05	5:40	6:05	6:05	6:05	6:05	6:05	3:00	3:00	3:00	3:00	5:10	5:10	3:00		
R30	3:00		3:00			3:00	5:20	6:00			6:00	6:00	6:00	6:00	3:00	3:00	3:00	3:00	5:10	5:10	3:00		
R31	3:00		3:00		3:00	3:00	5:20	5:45			5:45		5:45	5:45	3:00	3:00	3:00	3:00	5:10	5:10	3:00		
R32	3:30		3:00	3:00	3:00	3:00	4:35	5:25							3:00	3:00	3:35	3:00	5:10	5:10	3:00		
R33	3:30	3:40	3:00	3:00	3:00	3:00	4:35	5:25							3:00	3:00	3:35		5:10	5:10	3:00		
R34	3:30	3:40	3:00	3:00	3:00	3:00	4:35	5:25							3:00	3:00	3:35		5:10	5:10	3:00		
R35	3:30	3:40	3:00	3:00		3:00	4:35	5:25							3:00	3:00	3:35		5:10	5:10	3:00		

Scenario 1: Summer, Midweek, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
R01	3:55	4:55	3:50	4:50			4:55																
R02	5:00	6:00	4:30	5:55	4:00	4:00	6:00	5:55	5:55							6:00		6:00					
R03	8:30	9:10	6:50	9:00	5:25	9:00	9:20	9:00	7:30	9:15	9:15	8:45	9:15	9:20	9:25	9:20	9:25	9:10	9:15	9:10	8:40	9:00	9:25
R04	4:25	5:45	3:50	5:35			5:45	5:45	5:00							5:45		5:45					
R05	5:00	6:00	3:50	5:50			6:00	5:55	5:55							6:00		5:55					
R06	5:00	6:00	3:50	5:50			6:00	5:55	5:55							6:00		5:55					
R07	5:00	6:00	3:50	5:50			5:55	5:55	5:55														
R08	5:00	6:10	4:25	5:50	3:55		5:55	5:55	5:55														
R09	5:00	5:40	4:30	5:25	4:00	4:00	5:50		6:10														
R10	5:00	5:25	4:30	5:20	4:00	4:00	5:25																
R11	5:00	5:30	4:30	5:20	4:00	4:00	5:30																
R12	5:00	5:30	4:30	5:20		5:45	5:30																
R13	4:20	5:25	3:55	5:20			5:30																
R14	4:20	5:25	3:55	5:20			5:30																
R15	4:20	5:25	3:55	5:20			5:30																
R16	4:20	5:25	3:55	5:20			5:25																
R17	4:20	5:25	3:55	5:20			5:25																
R18	4:20	5:20	3:55	5:20			5:20									5:20							
R19	4:25	5:30	3:50	5:25			5:40	5:30								5:40							
R20	6:00	6:30	5:30	6:25	4:20	4:20	6:35	6:25	6:00							6:35	7:25	6:30	7:25				6:50
R21	6:00	7:15	5:00	7:00	4:15	4:15	7:20	7:00	6:50	7:50						7:20	7:30	7:15	8:00	8:00			7:25
R22	6:30	8:30	5:30	8:20	4:30	4:30	8:30	8:25	7:50	8:30	8:40	8:20	8:45	8:50		8:30	8:45	8:30	8:55	8:55			
R23	6:30	8:30	5:30	8:20	4:30	4:30	8:30	8:25	7:30	8:45	8:50	8:20	8:50	8:55	8:55	8:30		8:25	8:55	8:55			
R24	7:00	8:30	5:30	8:20	5:00	5:50	8:35	8:25	7:30	8:45	8:45	8:20	8:45	8:45	8:45	8:35		8:30		8:35	8:20		
R25	8:30	8:00	7:00	8:30	5:45	8:55	8:00	7:55	7:20		8:25	7:55	8:25	8:30	8:25	8:00		8:00			8:00	8:55	
R26	8:30	7:50	6:25	8:30	5:00	9:00	7:55	7:40	6:55			7:35	7:55			7:55		7:50			7:40	9:00	
R27	8:30	7:25	6:25	8:30	5:00	8:55	7:25	7:20	6:50			7:15				7:25		7:25			7:15	9:00	
R28	8:30	6:50	5:30	8:30	4:30	8:55	6:55	6:45	6:00							6:55		6:50				8:55	
R29	6:00	6:30	5:30	6:25	4:20	4:20	6:45	6:25	6:00							6:45		6:30					
R30	6:00	6:30	5:30	6:25	4:20	4:20	6:45	6:25	6:00							6:45		6:30					
R31	6:00	6:30	5:30	6:25	4:20	4:20	6:45	6:25	6:00							6:45		6:30					
R32	6:00	6:30	5:30	6:25	4:20	4:20	6:40	6:25	6:00							6:40		6:30					
R33	6:00	6:30	5:30	6:25	4:20	4:20	6:40	6:25	6:00							6:40		6:30					
R34	6:00	6:30	5:30	6:25	4:20	4:20	6:40	6:25	6:00							6:40		6:30					
R35	6:00	6:30	5:30	6:25	4:20	4:20	6:45	6:25	6:00							6:45	6:55	6:30					6:50

Scenario 1: Summer, Midweek, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:55									3:45	3:00							
R02	3:45		3:55			3:55	5:00	6:20							3:50	3:00	3:45						
R03	4:30	4:35	3:55	3:50	3:00	3:55	6:10	7:15	6:50	7:25	8:10	8:20	7:15	7:15	3:50	3:00	4:25	3:45	8:30	8:55	4:25	6:30	9:15
R04			3:55			3:55									3:30	3:00							
R05						3:55									3:30	3:00							
R06						3:55									3:30	3:00					3:55		
R07						3:55									3:30	3:00					3:55		
R08						3:55									3:30	3:00				4:00	3:55		
R09						3:55									3:30	3:00			5:00	5:25	3:55		
R10						3:55									3:30	3:00			5:00	5:20	3:55		
R11						3:55	5:00	6:20							3:50	3:00			5:00	5:20	3:55		
R12						3:55	5:00	6:20							3:50	3:00			5:00	5:20			
R13						3:55	5:00	6:20							3:50	3:00							
R14						3:55	5:00	6:20							3:50	3:00	3:30						
R15						3:55	5:00	6:20							3:50	3:00	3:30						
R16						3:55	4:00								3:50	3:00	3:30						
R17	4:25		3:55			3:55	4:00								3:50	3:00	4:25						
R18	4:25		3:55			3:55									3:30	3:00	4:25						
R19	4:25		3:55			3:55									3:30	3:00	4:25						
R20	4:30	4:35	3:55			3:55	5:00	6:30							3:50	3:00	4:25		6:00	6:20	3:55		
R21	4:25		3:55			3:55	5:00	6:30							3:50	3:00	4:25		6:00	6:55	3:55		
R22	3:40		3:55			3:55	5:00	6:30							3:50	3:00	3:40		6:00	8:15	3:55		
R23	3:40		3:55			3:55	5:00	6:30							3:50	3:00	3:40		6:00	8:10	4:00		
R24	3:40		3:55			3:55	5:00	6:30							3:50	3:00	3:40		6:00	8:10	4:00	5:50	
R25	3:40		3:55			3:55	5:00	6:40							3:50	3:00	3:40		8:30	8:30	4:30	6:30	9:25
R26	3:40		3:55			3:55	5:00	6:30	5:40						3:50	3:00	3:40		8:30	8:30	4:00	6:00	9:25
R27	3:40		3:55			3:55	5:30	7:15	6:50	7:20	7:55	8:00			3:50	3:00	3:40		8:30	8:30	4:00	6:00	9:20
R28	3:40		3:55			3:55	6:10	7:15	6:50	7:25	8:10	8:20	7:15	7:15	3:50	3:00	3:40		8:30	8:30	3:55		9:20
R29	3:40		3:55			3:55	6:10	7:15	6:50	7:25	8:10	8:10	7:15	7:15	3:50	3:00	3:40	3:45	6:00	6:20	3:55		
R30	3:40		3:55			3:55	6:05	7:40			7:55	8:00	7:35	7:35	3:50	3:00	3:40	3:45	6:00	6:20	3:55		
R31	3:35		3:55		3:00	3:55	5:55	7:10			7:15		7:10	7:10	3:50	3:00	3:35	3:45	6:00	6:20	3:55		
R32	4:25		3:55	3:50	3:00	3:55	5:00	6:30							3:50	3:00	4:25	3:35	6:00	6:20	3:55		
R33	4:30	4:35	3:55	3:50	3:00	3:55	5:00	6:30							3:50	3:00	4:25		6:00	6:20	3:55		
R34	4:30	4:35	3:55	3:50	3:00	3:55	5:00	6:30							3:50	3:00	4:25		6:00	6:20	3:55		
R35	4:30	4:35	3:55	3:50		3:55	5:00	6:30							3:50	3:00	4:25		6:00	6:20	3:55		

Scenario 2: Summer, Midweek, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	4:00	5:30	3:50	5:25			5:30																
R02	5:30	6:30	5:00	6:25	4:00	4:00	6:50	6:25	6:00							6:50		6:30					
R03	9:20	9:55	8:20	9:40	6:55	9:50	9:55	9:45	8:30	9:50	9:50	9:30	9:50	9:55	9:55	9:55	9:55	9:50	10:00	10:00	9:30	9:50	9:55
R04	4:30	6:05	4:00	6:00			6:20	6:00	5:25							6:20		6:15					
R05	5:20	6:30	4:00	6:20			6:30	6:25	6:00							6:45		6:30					
R06	5:20	6:30	4:00	6:20			6:30	6:25	6:00							6:45		6:30					
R07	5:20	6:40	4:00	6:25			6:25	6:25	6:00														
R08	5:00	6:40	4:30	6:20	3:55		6:25	6:25	6:00														
R09	5:30	6:20	5:00	6:10	4:00	4:00	6:40		6:00														
R10	5:30	5:45	4:55	5:45	4:00	4:00	5:45																
R11	5:30	5:55	4:55	5:45	4:00	4:00	6:00																
R12	5:30	5:55	4:55	5:45		6:25	6:00																
R13	4:30	5:50	4:00	5:35			5:55																
R14	4:30	5:50	4:00	5:35			5:55																
R15	4:30	5:50	4:00	5:35			5:55																
R16	4:30	5:40	4:00	5:35			5:40																
R17	4:30	5:40	4:00	5:35			5:40																
R18	4:30	5:40	4:00	5:35			5:40									5:40							
R19	4:30	6:20	4:00	6:10			6:20	6:20								6:20							
R20	6:30	7:15	6:00	7:05	4:55	4:55	7:25	7:05	6:30							7:25	8:00	7:20	8:10				7:25
R21	6:30	8:00	6:00	7:55	4:30	4:30	8:20	7:55	7:25	8:30						8:20	8:25	8:10	8:55	8:55			8:25
R22	7:30	9:30	6:00	9:25	4:30	4:30	9:50	9:25	8:25	9:40	9:40	9:15	9:40	9:45		9:50	9:55	9:35	9:55	9:55			
R23	7:30	9:25	6:00	9:20	5:00	5:00	9:30	9:20	8:30	9:30	9:30	9:10	9:30	9:40	9:50	9:30		9:25	9:55	9:55			
R24	7:30	9:25	6:00	9:20	5:30	7:00	9:30	9:20	8:30	9:30	9:30	9:15	9:30	9:40	9:40	9:30		9:25		9:30	9:20		
R25	9:00	8:55	7:25	9:05	6:00	9:55	8:55	8:50	8:20		9:20	8:55	9:20	9:25	9:25	8:55		8:55			8:55	9:55	
R26	9:00	8:20	6:55	9:00	5:45	9:50	8:25	8:15	7:25			8:25	8:30			8:25		8:20			8:25	9:50	
R27	9:00	8:00	6:40	9:20	5:25	9:55	8:15	7:55	7:25			7:55				8:15		8:00			7:55	9:55	
R28	9:00	7:30	6:25	9:20	5:00	9:55	7:40	7:25	6:30							7:40		7:30				9:55	
R29	6:30	7:25	6:00	7:15	4:55	4:55	7:25	7:20	6:30							7:25		7:25					
R30	6:30	7:25	6:00	7:15	4:55	4:55	7:25	7:20	6:30							7:25		7:25					
R31	6:30	7:25	6:00	7:15	4:55	4:55	7:25	7:20	6:30							7:25		7:25					
R32	6:30	7:25	6:00	7:15	4:55	4:55	7:25	7:20	6:30							7:25		7:25					
R33	6:30	7:25	6:00	7:15	4:55	4:55	7:25	7:20	6:30							7:25		7:25					
R34	6:30	7:25	6:00	7:15	4:55	4:55	7:25	7:20	6:30							7:25		7:25					
R35	6:30	7:25	6:00	7:15	4:55	4:55	7:25	7:20	6:30							7:25	7:45	7:25					7:30

Scenario 2: Summer, Midweek, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:55									3:45	3:00							
R02	3:45		3:55			3:55	5:30	7:10							3:50	3:00	3:45						
R03	5:00	5:00	3:55	3:50	3:00	3:55	7:10	8:30	7:25	7:30	8:55	8:55	8:25	8:25	3:50	3:00	4:45	3:45	9:25	9:30	5:30	8:00	10:30
R04			3:55			3:50									3:30	3:00							
R05						3:50									3:30	3:00							
R06						3:50									3:30	3:00					3:55		
R07						3:50									3:30	3:00					3:55		
R08						3:50									3:30	3:00				4:00	3:55		
R09						3:50									3:30	3:00			5:30	6:00	3:55		
R10						3:50									3:30	3:00			5:30	5:40	3:55		
R11						3:55	5:30	6:55							3:50	3:00			5:30	5:40	3:55		
R12						3:55	5:30	6:55							3:50	3:00			5:30	5:55			
R13						3:55	5:30	6:55							3:50	3:00							
R14						3:55	5:30	7:10							3:50	3:00	3:30						
R15						3:55	5:30	7:10							3:50	3:00	3:30						
R16						3:55	4:30								3:50	3:00	3:30						
R17	4:50		3:55			3:55	4:30								3:50	3:00	4:50						
R18	4:50		3:55			3:50									3:30	3:00	4:50						
R19	4:50		3:55			3:50									3:30	3:00	4:50						
R20	5:00	5:00	3:55			3:55	5:55	7:30							3:50	3:00	4:45		6:30	7:00	3:55		
R21	4:45		3:55			3:55	5:55	7:30							3:50	3:00	4:45		6:30	7:50	3:55		
R22	3:45		3:55			3:55	5:55	7:30							3:50	3:00	3:45		6:30	9:20	4:00		
R23	3:45		3:55			3:55	5:55	7:30							3:50	3:00	3:45		6:30	9:10	4:00		
R24	3:45		3:55			3:55	5:55	7:30							3:50	3:00	3:45		6:30	9:05	4:55	7:00	
R25	3:45		3:55			3:55	5:55	7:30							3:50	3:00	3:45		9:20	9:20	5:00	7:00	10:30
R26	3:45		3:55			3:55	5:55	7:30	6:25						3:50	3:00	3:45		9:00	9:10	4:55	6:30	10:30
R27	3:45		3:55			3:55	6:00	7:20	7:25	7:30	8:55	8:55			3:50	3:00	3:45		9:25	9:25	4:00	6:25	10:30
R28	3:45		3:55			3:55	7:10	8:30	7:25	7:30	8:55	8:55	8:25	8:25	3:50	3:00	3:45		9:25	9:25	4:00		10:25
R29	3:45		3:55			3:55	7:10	8:30	7:25	7:30	8:55	8:55	8:25	8:25	3:50	3:00	3:45	3:45	6:30	7:05	3:55		
R30	3:45		3:55			3:55	7:10	8:30			8:55	8:55	8:25	8:25	3:50	3:00	3:45	3:45	6:30	7:05	3:55		
R31	3:40		3:55		3:00	3:55	6:25	8:10			8:25		8:10	8:10	3:50	3:00	3:40	3:45	6:30	7:05	3:55		
R32	4:45		3:55	3:50	3:00	3:55	5:55	7:45							3:50	3:00	4:45	3:35	6:30	7:05	3:55		
R33	5:00	5:00	3:55	3:50	3:00	3:55	5:55	7:45							3:50	3:00	4:45		6:30	7:05	3:55		
R34	5:00	5:00	3:55	3:50	3:00	3:55	5:55	7:45							3:50	3:00	4:45		6:30	7:05	3:55		
R35	5:00	5:00	3:55	3:50		3:55	5:55	7:30							3:50	3:00	4:45		6:30	7:05	3:55		

Scenario 3: Summer, Weekend, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
R01	3:30	4:50	3:00	4:35			4:50																
R02	4:25	5:20	3:30	5:10	3:25	3:25	5:25	5:20	4:55							5:25		5:25					
R03	7:00	7:15	6:00	7:00	4:55	8:50	7:25	7:00	6:25	7:30	7:55	8:25	8:25	8:00	7:55	7:25	7:25	7:15	8:00	7:55	8:25	8:45	7:25
R04	3:30	5:10	3:00	4:55			4:50	5:10	4:25							5:10		5:10					
R05	4:00	5:20	3:00	5:10			5:20	5:20	4:55							5:25		5:25					
R06	4:00	5:20	3:00	5:10			5:20	5:20	4:55							5:25		5:25					
R07	4:00	5:20	3:00	5:10			5:15	5:20	4:55														
R08	4:00	5:20	3:30	5:10	3:20		5:15	5:20	4:55														
R09	4:00	5:55	3:30	4:55	3:25	3:25	5:55		4:55														
R10	4:00	4:35	3:30	5:55	3:25	3:25	4:35																
R11	4:00	4:35	3:30	4:40	3:25	3:25	4:35																
R12	4:00	4:35	3:30	4:40		5:55	4:35																
R13	3:30	4:30	3:00	4:40			4:30																
R14	3:30	4:30	3:00	4:40			4:30																
R15	3:30	4:30	3:00	4:40			4:30																
R16	3:30	4:30	3:00	4:50			4:30																
R17	3:30	4:30	3:00	4:50			4:30																
R18	3:30	4:30	3:00	4:40			4:30									4:50							
R19	3:30	4:55	3:00	4:55			4:55	4:55								4:55							
R20	4:30	5:30	4:00	5:25	3:30	3:30	5:35	5:55	5:00							5:40	6:45	6:25	6:45				5:50
R21	5:00	6:25	4:30	6:05	3:30	3:30	6:25	6:05	5:55	6:55						6:25	6:55	6:25	7:20	7:20			6:25
R22	5:30	7:00	4:30	6:50	3:30	3:30	7:00	6:55	6:30	7:30	7:50	7:05	7:30	7:50		7:00	7:15	6:55	7:50	7:50			
R23	5:30	7:00	4:30	6:45	3:55	3:55	6:55	6:50	6:50	7:30	7:50	7:50	7:50	7:50	7:50	6:55		6:55	7:50	7:50			
R24	5:30	7:00	4:30	6:45	4:00	4:30	6:55	6:50	6:30	7:25	7:55	7:55	7:55	7:55	7:55	6:55		6:55		7:30	7:55		
R25	7:00	6:55	5:00	7:00	4:25	8:50	6:55	6:45	5:50		7:25	8:20	8:20	7:30	7:30	6:55		6:55			8:20	8:45	
R26	7:00	6:00	4:30	7:00	4:25	8:50	6:00	5:55	5:30			7:50	7:50			6:00		6:00			7:50	8:45	
R27	7:00	6:00	4:30	7:15	4:25	8:20	6:00	5:55	5:30			6:10				6:00		6:00			6:10	8:20	
R28	7:00	5:30	4:30	7:00	4:00	8:20	5:45	5:30	5:00							5:45		5:30				8:20	
R29	5:00	5:30	4:00	5:25	3:30	3:30	5:30	5:25	5:00							5:30		5:30					
R30	5:00	5:30	4:00	5:25	3:30	3:30	5:30	5:25	5:00							5:30		5:30					
R31	5:00	5:30	4:00	5:25	3:30	3:30	5:30	5:25	5:00							5:30		5:30					
R32	5:00	5:30	4:00	5:25	3:30	3:30	5:30	5:25	5:00							5:30		5:30					
R33	5:00	5:30	4:00	5:25	3:30	3:30	5:30	5:25	5:00							5:30		5:30					
R34	5:00	5:30	4:00	5:25	3:30	3:30	5:30	5:25	5:00							5:30		5:30					
R35	5:00	5:30	4:00	5:25	3:30	3:30	5:30	5:25	5:00							5:30	6:40	5:30					5:40

Scenario 3: Summer, Weekend, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**47**	**48**	**49**	**50**	**51**
R01						3:00									3:00	3:00							
R02	3:30		3:35			3:00	4:30	5:55							3:00	3:30	3:55						
R03	3:30	3:45	3:35	3:00	3:00	3:00	5:30	7:10	6:00	6:25	7:00	7:00	7:10	7:10	3:00	3:30	4:00	3:15	7:00	7:00	4:00	5:30	8:45
R04			3:35			3:00									3:00	3:30							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:20		
R07						3:00									3:00	3:00					3:20		
R08						3:00									3:00	3:00				3:25	3:20		
R09						3:00									3:00	3:00			4:25	4:50	3:15		
R10						3:00									3:00	3:00			4:20	4:30	3:15		
R11						3:00	4:30	5:55							3:00	3:00			4:20	4:30	3:15		
R12						3:00	4:30	5:55							3:00	3:00			4:20	4:30			
R13						3:00	4:30	5:55							3:00	3:00							
R14						3:00	4:30	5:55							3:00	3:00	3:25						
R15						3:00	4:30	5:55							3:00	3:00	3:25						
R16						3:00	4:00								3:00	3:00	3:25						
R17	3:30		3:35			3:00	4:00								3:00	3:30	4:00						
R18	3:30		3:35			3:00									3:00	3:30	4:00						
R19	3:30		3:35			3:00									3:00	3:30	4:00						
R20	3:30	3:45	3:35			3:00	4:55	6:20							3:00	3:30	4:00		4:45	5:25	3:15		
R21	3:30		3:35			3:00	4:55	6:20							3:00	3:30	4:00		4:55	5:55	3:15		
R22	3:30		3:35			3:00	4:55	6:20							3:00	3:30	4:00		4:30	6:45	3:20		
R23	3:30		3:35			3:00	4:55	6:20							3:00	3:30	4:00		4:45	6:35	3:20		
R24	3:30		3:35			3:00	4:55	6:20							3:00	3:30	4:00		5:00	6:40	3:20	4:30	
R25	3:30		3:35			3:00	4:55	6:15							3:00	3:30	4:00		7:00	7:00	3:30	5:30	8:45
R26	3:30		3:35			3:00	4:55	6:20	5:20						3:00	3:30	4:00		7:00	7:00	3:25	5:00	8:45
R27	3:30		3:35			3:00	5:20	6:45	6:00	6:25	6:55	6:55			3:00	3:30	4:00		7:20	7:25	3:25	5:00	8:20
R28	3:30		3:35			3:00	5:30	7:10	6:00	6:25	7:00	7:00	7:10	7:10	3:00	3:30	4:00		7:00	7:00	3:20		8:20
R29	3:30		3:35			3:00	5:30	7:20	6:00	6:25	7:20	7:20	7:20	7:20	3:00	3:30	4:00	3:15	4:45	5:20	3:15		
R30	3:30		3:35			3:00	5:30	7:20			6:55	6:55	7:10	7:10	3:00	3:30	4:00	3:15	4:45	5:20	3:15		
R31	3:30		3:35		3:00	3:00	5:30	6:45			6:45		6:45	6:45	3:00	3:30	3:55	3:15	4:45	5:20	3:15		
R32	3:30		3:35	3:00	3:00	3:00	4:55	6:40							3:00	3:30	4:00	3:10	4:45	5:20	3:15		
R33	3:30	3:45	3:35	3:00	3:00	3:00	4:55	6:40							3:00	3:30	4:00		4:45	5:20	3:15		
R34	3:30	3:45	3:35	3:00	3:00	3:00	4:55	6:40							3:00	3:30	4:00		4:45	5:20	3:15		
R35	3:30	3:45	3:35	3:00		3:00	4:55	6:20							3:00	3:30	4:00		4:45	5:20	3:15		

Scenario 4: Summer, Weekend, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:30	5:25	3:10	5:05			5:25																
R02	4:55	5:40	4:30	5:35	3:20	3:20	5:50	5:45	5:10							5:55		5:50					
R03	8:00	7:55	6:00	8:00	5:25	9:50	7:55	7:40	7:15	8:25	8:30	9:20	9:20	8:30	8:40	7:55	7:55	7:50	9:00	8:55	9:20	9:25	7:55
R04	3:55	5:30	3:25	5:25			5:30	5:30	4:45							5:35		5:30					
R05	4:00	5:35	3:30	5:30			5:35	5:40	5:10							5:50		5:50					
R06	4:00	5:35	3:30	5:30			5:35	5:40	5:10							5:50		5:50					
R07	4:00	5:30	3:30	5:25			5:30	5:50	5:20														
R08	4:15	5:30	4:00	5:30	3:20		5:30	5:50	5:20														
R09	4:55	6:40	4:30	5:20	3:25	3:25	6:40		5:00														
R10	6:40	6:40	4:00	6:40	3:25	3:25	6:40																
R11	5:00	5:00	4:00	5:00	3:25	3:25	5:00																
R12	5:00	5:00	4:00	5:00		6:40	5:00																
R13	3:30	5:00	3:25	5:00			5:00																
R14	3:30	5:00	3:25	5:00			5:00																
R15	3:30	5:00	3:25	5:00			5:00																
R16	3:30	5:10	3:25	5:10			5:10																
R17	3:30	5:10	3:25	5:10			5:10																
R18	3:30	5:00	3:25	5:00			5:00									5:10							
R19	3:55	5:30	3:25	5:25			5:30	5:30								5:30							
R20	5:00	6:25	4:30	6:10	3:30	3:30	6:25	6:25	5:30							6:25	7:25	6:55	7:30				6:25
R21	5:30	6:55	4:30	6:45	3:40	3:40	6:55	6:50	6:25	7:55						6:55	7:25	6:55	8:15	8:10			7:00
R22	5:45	7:50	4:30	7:40	4:00	4:00	7:55	7:45	7:20	8:25	8:30	7:50	8:25	8:30		7:55	7:55	7:50	8:45	8:35			
R23	5:45	7:30	4:30	7:25	4:00	4:00	7:45	7:25	7:10	8:25	8:30	8:45	8:45	8:30	8:30	7:45		7:30	8:45	8:45			
R24	6:25	7:55	5:00	7:40	4:35	5:30	7:55	7:45	7:00	8:10	8:30	9:00	9:00	8:30	8:35	7:55		7:55		8:25	9:00		
R25	7:55	7:00	5:55	7:55	5:25	9:30	7:20	7:00	6:25		8:10	9:20	9:20	8:25	8:25	7:20		7:10			9:20	9:30	
R26	7:55	6:55	6:00	7:55	4:55	9:30	6:55	6:45	6:00			8:45	8:40			6:55		6:55			8:50	9:30	
R27	7:30	6:50	6:00	7:45	4:55	9:25	6:55	6:45	6:00			6:55				6:55		6:55			6:55	9:25	
R28	7:30	6:30	5:30	7:30	4:00	9:25	6:45	6:25	5:30							6:45		6:30				9:25	
R29	5:00	6:25	4:30	6:15	3:30	3:30	6:30	6:20	5:30							6:30		6:25					
R30	5:00	6:25	4:30	6:15	3:30	3:30	6:30	6:20	5:30							6:30		6:25					
R31	5:00	6:25	4:30	6:15	3:30	3:30	6:30	6:20	5:30							6:30		6:25					
R32	5:00	6:25	4:30	6:15	3:30	3:30	6:30	6:20	5:30							6:30		6:25					
R33	5:00	6:25	4:30	6:15	3:30	3:30	6:30	6:20	5:30							6:30		6:25					
R34	5:00	6:25	4:30	6:15	3:30	3:30	6:30	6:20	5:30							6:30		6:25					
R35	5:00	6:25	4:30	6:15	3:30	3:30	6:25	6:20	5:30							6:25	7:10	6:25					6:30

Scenario 4: Summer, Weekend, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:30		3:30			3:00	5:00	6:45							3:00	3:30	4:00						
R03	3:55	4:00	3:30	3:00	3:00	3:00	6:15	7:15	6:30	6:50	7:30	7:55	7:15	7:15	3:00	3:55	4:25	3:10	8:00	8:00	4:25	6:00	9:25
R04			3:30			3:00									3:00	3:30							
R05						3:00									3:00	3:30							
R06						3:00									3:00	3:30					3:25		
R07						3:00									3:00	3:30					3:25		
R08						3:00									3:00	3:30				3:25	3:20		
R09						3:00									3:00	3:30			5:00	5:10	3:25		
R10						3:00									3:00	3:30			6:40	6:40	3:25		
R11						3:00	5:00	6:40							3:00	3:30			5:00	5:00	3:25		
R12						3:00	5:00	6:30							3:00	3:30			5:00	5:00			
R13						3:00	5:00	6:40							3:00	3:30							
R14						3:00	5:00	6:45							3:00	3:30	3:30						
R15						3:00	5:00	6:45							3:00	3:30	3:30						
R16						3:00	4:05								3:00	3:30	3:30						
R17	3:55		3:30			3:00	4:05								3:00	3:55	4:25						
R18	3:55		3:30			3:00									3:00	3:55	4:25						
R19	3:55		3:30			3:00									3:00	3:55	4:25						
R20	3:55	4:00	3:30			3:00	5:30	6:55							3:00	3:55	4:25		5:00	6:00	3:25		
R21	3:55		3:30			3:00	5:30	6:55							3:00	3:55	4:25		5:30	6:40	3:25		
R22	3:35		3:30			3:00	5:30	6:55							3:00	3:30	4:15		5:30	7:30	3:25		
R23	3:35		3:30			3:00	5:30	6:55							3:00	3:30	4:15		5:25	7:20	3:30		
R24	3:35		3:30			3:00	5:30	6:55							3:00	3:30	4:15		5:30	7:30	4:00	5:30	
R25	3:35		3:30			3:00	5:30	6:55							3:00	3:30	4:15		7:55	7:55	4:30	6:00	9:30
R26	3:35		3:30			3:00	5:30	6:55	5:50						3:00	3:30	4:15		7:55	7:55	3:55	5:30	9:30
R27	3:35		3:30			3:00	5:55	7:20	6:25	6:50	7:25	7:25			3:00	3:30	4:15		7:55	7:55	3:30	5:30	9:25
R28	3:35		3:30			3:00	6:15	7:15	6:30	6:50	7:30	7:55	7:15	7:15	3:00	3:30	4:15		7:30	7:40	3:25		9:25
R29	3:35		3:30			3:00	6:15	7:15	6:30	6:50	7:25	7:40	7:15	7:15	3:00	3:30	4:15	3:10	5:00	6:10	3:25		
R30	3:35		3:30			3:00	6:20	7:10			7:25	7:40	7:15	7:15	3:00	3:30	4:15	3:10	5:00	6:10	3:25		
R31	3:35		3:30		3:00	3:00	6:20	7:20			7:20		7:20	7:20	3:00	3:30	4:10	3:10	5:00	6:10	3:25		
R32	3:55		3:30	3:00	3:00	3:00	5:30	7:10							3:00	3:55	4:25	3:15	5:00	6:10	3:25		
R33	3:55	4:00	3:30	3:00	3:00	3:00	5:30	7:10							3:00	3:55	4:25		5:00	6:10	3:25		
R34	3:55	4:00	3:30	3:00	3:00	3:00	5:30	7:10							3:00	3:55	4:25		5:00	6:10	3:25		
R35	3:55	4:00	3:30	3:00		3:00	5:30	7:10							3:00	3:55	4:25		5:00	6:10	3:25		

Scenario 5: Summer, Midweek,Weekend, Evening, Good Weather, 100th Percentile																							
ERPAS																							
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
R01	3:30	4:45	3:00	4:45			4:45																
R02	3:40	5:15	3:00	5:00	3:25	3:25	4:55	5:20	4:30							5:25		5:20					
R03	5:55	6:00	3:00	5:55	3:55	6:40	6:00	6:00	5:55	6:30	7:15	6:05	6:25	7:15	6:30	6:00	6:25	6:25	7:15	7:00	6:00	6:35	6:00
R04	3:40	4:50	3:00	4:50			4:45	4:50	4:00							4:50		4:50					
R05	3:40	5:15	3:00	5:00			5:00	5:15	4:30							5:15		5:15					
R06	3:40	5:15	3:00	5:00			5:00	5:15	4:30							5:15		5:15					
R07	3:40	5:10	3:00	5:00			5:00	5:10	4:30														
R08	3:30	5:10	3:00	5:00	3:30		5:00	5:10	4:30														
R09	3:30	5:10	3:00	5:10	3:25	3:25	5:10		5:10														
R10	3:30	4:25	3:00	4:25	3:25	3:25	4:25																
R11	3:30	4:25	3:00	4:25	3:25	3:25	4:25																
R12	3:30	4:25	3:00	4:25		4:25	4:25																
R13	3:40	4:25	3:00	4:25			4:25																
R14	3:40	4:25	3:00	4:25			4:25																
R15	3:40	4:25	3:00	4:25			4:25																
R16	3:40	4:25	3:00	4:25			4:25																
R17	3:40	4:25	3:00	4:25			4:25																
R18	3:40	4:25	3:00	4:25			4:25									4:25							
R19	3:40	4:45	3:00	4:45			4:45	4:45								4:45							
R20	3:35	5:15	3:00	5:05	3:25	3:25	5:00	5:55	4:30							5:25	6:25	6:00	6:25				5:20
R21	4:00	5:30	3:00	5:25	3:25	3:25	5:30	5:55	5:00	6:00						5:30	6:25	6:25	6:45	6:30			5:35
R22	4:00	5:55	3:00	5:40	3:25	3:25	5:55	6:00	5:30	6:30	7:00	6:05	6:25	7:15		5:55	6:25	6:25	7:10	7:00			
R23	4:00	6:00	3:00	5:50	3:25	3:25	6:00	6:00	5:55	6:30	7:10	6:05	6:25	7:15	6:25	6:00		6:25	7:15	7:00			
R24	4:00	6:00	3:00	5:50	3:25	4:00	6:00	5:55	5:55	6:30	6:55	6:05	6:25	7:05	6:30	6:00		5:55		6:55	6:05		
R25	5:55	5:30	3:00	5:55	3:55	6:30	5:30	5:25	5:00		6:50	5:35	5:55	6:55	6:00	5:30		5:30			5:35	6:30	
R26	5:55	5:25	3:00	5:55	3:30	6:15	5:10	5:25	4:50			5:15	5:30			5:25		5:25			5:15	6:15	
R27	5:55	5:25	3:00	5:55	3:30	6:15	5:10	5:25	4:50			5:20				5:25		5:25			5:20	6:15	
R28	5:55	5:20	3:00	5:55	3:25	6:15	5:00	5:20	4:30							5:25		5:25				6:15	
R29	3:35	5:20	3:00	5:10	3:25	3:25	5:00	5:20	4:30							5:25		5:25					
R30	3:35	5:20	3:00	5:10	3:25	3:25	5:00	5:20	4:30							5:25		5:25					
R31	3:35	5:20	3:00	5:10	3:25	3:25	5:00	5:20	4:30							5:25		5:25					
R32	3:35	5:20	3:00	5:10	3:25	3:25	5:00	5:20	4:30							5:25		5:25					
R33	3:35	5:20	3:00	5:10	3:25	3:25	5:00	5:20	4:30							5:25		5:25					
R34	3:35	5:20	3:00	5:10	3:25	3:25	5:00	5:20	4:30							5:25		5:25					
R35	3:35	5:20	3:00	5:10	3:25	3:25	5:00	5:20	4:30							5:25	5:50	5:25					5:25

Scenario 5: Summer, Midweek,Weekend, Evening, Good Weather, 100th Percentile																							
ERPAS																							
Region	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**47**	**48**	**49**	**50**	**51**
R01						3:00									3:00	3:00							
R02	3:00		3:30			3:00	4:30	5:25							3:00	3:00	3:00						
R03	3:30	3:45	3:30	3:00	3:00	3:00	5:20	6:20	4:55	5:25	5:55	5:55	6:25	6:25	3:00	3:00	3:00	3:15	6:00	6:00	3:30	4:30	6:35
R04			3:35			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:30		
R07						3:00									3:00	3:00					3:30		
R08						3:00									3:00	3:00				3:30	3:30		
R09						3:00									3:00	3:00			3:30	4:20	3:25		
R10						3:00									3:00	3:00			3:30	4:15	3:25		
R11						3:00	4:30	5:25							3:00	3:00			3:30	4:15	3:25		
R12						3:00	4:30	5:25							3:00	3:00			3:30	4:15			
R13						3:00	4:30	5:25							3:00	3:00							
R14						3:00	4:30	5:25							3:00	3:00	3:00						
R15						3:00	4:30	5:25							3:00	3:00	3:00						
R16						3:00	3:55								3:00	3:00	3:00						
R17	3:00		3:30			3:00	3:55								3:00	3:00	3:00						
R18	3:00		3:30			3:00									3:00	3:00	3:00						
R19	3:00		3:30			3:00									3:00	3:00	3:00						
R20	3:30	3:45	3:30			3:00	4:45	5:50							3:00	3:00	3:00		3:55	4:55	3:25		
R21	3:00		3:30			3:00	4:45	5:50							3:00	3:00	3:00		3:55	5:15	3:25		
R22	3:00		3:35			3:00	4:45	5:50							3:00	3:00	3:00		3:55	5:30	3:30		
R23	3:00		3:35			3:00	4:45	5:50							3:00	3:00	3:00		3:55	5:40	3:30		
R24	3:00		3:35			3:00	4:45	5:50							3:00	3:00	3:00		3:55	5:40	3:30	4:00	
R25	3:00		3:35			3:00	4:45	5:45							3:00	3:00	3:00		6:00	6:00	3:30	4:30	6:30
R26	3:00		3:35			3:00	4:30	5:45	4:25						3:00	3:00	3:00		6:00	6:00	3:30	4:00	6:15
R27	3:00		3:35			3:00	4:55	5:50	4:55	5:25	5:50	5:55			3:00	3:00	3:00		5:55	5:55	3:30	4:00	6:15
R28	3:00		3:35			3:00	5:20	6:15	4:55	5:25	5:55	5:55	6:15	6:15	3:00	3:00	3:00		5:55	5:55	3:25		6:15
R29	3:00		3:35			3:00	5:00	6:25	4:55	5:25	5:55	5:55	6:25	6:25	3:00	3:00	3:00	3:15	3:55	4:55	3:25		
R30	3:00		3:35			3:00	5:10	6:25			5:55	5:55	6:25	6:25	3:00	3:00	3:00	3:15	3:55	4:55	3:25		
R31	3:00		3:35		3:00	3:00	5:00	6:20			6:20		6:20	6:20	3:00	3:00	3:00	3:15	3:55	4:55	3:25		
R32	3:00		3:30	3:00	3:00	3:00	4:45	5:50							3:00	3:00	3:00	3:15	3:55	4:55	3:25		
R33	3:30	3:45	3:30	3:00	3:00	3:00	4:45	5:50							3:00	3:00	3:00		3:55	4:55	3:25		
R34	3:30	3:45	3:30	3:00	3:00	3:00	4:45	5:50							3:00	3:00	3:00		3:55	4:55	3:25		
R35	3:30	3:45	3:30	3:00		3:00	4:45	5:50							3:00	3:00	3:00		3:55	4:55	3:25		

Scenario 6: Winter, Midweek, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	4:00	5:15	3:50	5:05			5:15																
R02	5:00	6:00	4:30	5:55	4:00	4:00	6:05	5:55	5:55							6:10		6:00					
R03	8:30	8:55	8:00	8:45	5:30	8:55	8:55	8:50	8:00	8:55	8:55	8:30	8:55	9:00	9:00	8:55	9:00	8:55	9:00	8:55	8:25	8:55	9:00
R04	4:30	5:30	4:00	5:25			5:45	5:30	5:00							5:45		5:30					
R05	5:00	6:10	4:00	5:50			6:10	5:55	5:55							6:10		6:10					
R06	5:00	6:10	3:50	5:50			6:10	5:55	5:55							6:10		6:10					
R07	5:00	6:10	3:50	5:50			5:55	5:55	5:55														
R08	5:00	6:10	4:30	5:50	3:55		5:55	5:55	5:55														
R09	5:00	5:50	4:30	5:30	4:00	4:00	6:10		6:10														
R10	5:00	5:20	4:30	5:20	4:00	4:00	5:20																
R11	5:00	5:30	4:30	5:20	4:00	4:00	5:30																
R12	5:00	5:30	4:30	5:20		5:30	5:30																
R13	4:00	5:25	3:50	5:15			5:30																
R14	4:00	5:25	3:50	5:15			5:30																
R15	4:00	5:25	3:50	5:15			5:30																
R16	4:00	5:10	3:50	5:10			5:10																
R17	4:00	5:10	3:50	5:10			5:10																
R18	4:00	5:10	3:50	5:10			5:10									5:10							
R19	4:30	5:30	4:00	5:30			5:40	5:30								5:40							
R20	6:00	6:55	5:30	6:50	4:25	4:25	7:00	6:55	6:00							7:00	7:30	6:55	7:30				7:10
R21	6:00	7:30	5:30	7:25	4:00	4:00	7:50	7:25	6:55	7:55						7:50	7:55	7:35	8:10	8:00			7:55
R22	6:30	8:40	5:30	8:30	4:30	4:30	8:55	8:30	7:55	8:50	8:55	8:35	8:55	8:55		8:55	8:55	8:45	8:55	8:55			
R23	7:30	8:55	5:30	8:40	4:30	4:30	8:55	8:45	8:00	8:55	8:55	8:30	8:55	8:55	8:55	8:55		8:55	8:55	8:55			
R24	7:30	8:30	5:30	8:25	5:30	6:25	8:50	8:30	7:55	8:50	8:50	8:30	8:50	8:50	8:50	8:50		8:40		8:50	8:25		
R25	8:30	8:00	7:25	8:30	5:25	8:55	8:15	7:55	7:25		8:25	7:55	8:25	8:30	8:30	8:15		8:00			7:50	8:55	
R26	8:30	7:45	6:55	8:30	5:00	8:55	7:50	7:30	7:00			7:25	7:55			7:50		7:40			7:25	8:55	
R27	8:30	7:30	6:55	8:30	4:55	8:55	7:35	7:25	6:55			7:20				7:35		7:30			7:20	8:55	
R28	8:30	7:00	5:50	8:30	4:30	8:50	7:00	6:55	6:00							7:00		6:55				8:50	
R29	6:00	6:55	5:30	6:40	4:25	4:25	6:55	6:45	6:00							6:55		6:50					
R30	6:00	6:55	5:30	6:40	4:25	4:25	6:55	6:45	6:00							6:55		6:50					
R31	6:00	6:55	5:30	6:40	4:25	4:25	6:55	6:45	6:00							6:55		6:50					
R32	6:00	6:45	5:30	6:40	4:25	4:25	6:45	6:45	6:00							6:45		6:45					
R33	6:00	6:45	5:30	6:40	4:25	4:25	6:45	6:45	6:00							6:45		6:45					
R34	6:00	6:45	5:30	6:40	4:25	4:25	6:45	6:45	6:00							6:45		6:45					
R35	6:00	6:55	5:30	6:40	4:25	4:25	6:55	6:45	6:00							6:55	6:55	6:50					6:55

Scenario 6: Winter, Midweek, Midday, Good Weather, 100th Percentile																							
	ERPAS																						
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:55									3:45	3:00							
R02	3:45		3:55			3:55	4:35	6:20							3:55	3:00	3:45						
R03	4:55	4:55	3:55	3:50	3:00	3:55	5:55	7:35	6:55	7:25	7:55	7:55	7:30	7:30	3:55	3:00	4:40	3:45	8:30	8:45	4:25	6:30	9:30
R04			3:55			3:55									3:45	3:00							
R05						3:55									3:45	3:00							
R06						3:55									3:45	3:00					3:55		
R07						3:55									3:45	3:00					3:55		
R08						3:55									3:45	3:00				4:00	3:55		
R09						3:55									3:45	3:00			5:10	5:30	3:55		
R10						3:55									3:45	3:00			5:00	5:20	3:55		
R11						3:55	4:35	6:20							3:55	3:00			5:00	5:25	3:55		
R12						3:55	4:35	6:20							3:55	3:00			5:00	5:20			
R13						3:55	4:35	6:20							3:55	3:00							
R14						3:55	4:35	6:20							3:55	3:00	3:35						
R15						3:55	4:35	6:20							3:55	3:00	3:35						
R16						3:55	4:00								3:55	3:00	3:35						
R17	4:40		3:55			3:55	4:00								3:55	3:00	4:40						
R18	4:40		3:55			3:55									3:45	3:00	4:40						
R19	4:40		3:55			3:55									3:45	3:00	4:40						
R20	4:55	4:55	3:55			3:55	5:00	6:30							3:55	3:00	4:40		6:00	6:40	3:55		
R21	4:40		3:55			3:55	5:00	6:30							3:55	3:00	4:40		6:00	7:15	3:55		
R22	3:45		3:55			3:55	5:00	6:30							3:55	3:00	3:45		6:00	8:20	3:55		
R23	3:45		3:55			3:55	5:00	6:30							3:55	3:00	3:45		6:00	8:30	3:55		
R24	3:45		3:55			3:55	5:00	6:30							3:55	3:00	3:45		6:00	8:20	3:55	6:25	
R25	3:45		3:55			3:55	5:00	6:50							3:55	3:00	3:45		8:30	8:45	4:00	6:30	9:25
R26	3:45		3:55			3:55	5:00	6:30	5:50						3:55	3:00	3:45		8:30	8:30	4:00	6:00	9:25
R27	3:45		3:55			3:55	5:25	6:55	6:55	7:20	7:55	8:00			3:55	3:00	3:45		8:30	8:30	4:00	6:00	9:25
R28	3:45		3:55			3:55	5:55	7:35	6:55	7:25	7:55	7:55	7:30	7:30	3:55	3:00	3:45		8:30	8:30	4:00		9:25
R29	3:45		3:55			3:55	5:55	7:30	6:55	7:25	8:10	8:10	7:25	7:25	3:55	3:00	3:45	3:45	6:00	6:30	3:55		
R30	3:45		3:55			3:55	5:55	7:35			7:55	8:00	7:35	7:35	3:55	3:00	3:45	3:45	6:00	6:30	3:55		
R31	3:45		3:55		3:00	3:55	5:55	7:20			7:20		7:20	7:20	3:55	3:00	3:45	3:45	6:00	6:30	3:55		
R32	4:40		3:55	3:50	3:00	3:55	5:00	6:30							3:55	3:00	4:40	3:40	6:00	6:30	3:55		
R33	4:55	4:55	3:55	3:50	3:00	3:55	5:00	6:30							3:55	3:00	4:40		6:00	6:30	3:55		
R34	4:55	4:55	3:55	3:50	3:00	3:55	5:00	6:30							3:55	3:00	4:40		6:00	6:30	3:55		
R35	4:55	4:55	3:55	3:50		3:55	5:00	6:30							3:55	3:00	4:40		6:00	6:30	3:55		

Scenario 7: Winter, Midweek, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
R01	4:25	5:15	3:55	5:15			5:15																
R02	5:30	7:00	5:00	6:50	4:00	4:00	7:00	6:55	6:00							7:00		7:00					
R03	9:00	9:55	8:30	9:40	6:00	9:30	9:55	9:45	8:30	9:55	9:55	9:25	9:55	9:55	10:00	9:55	9:55	9:55	10:00	9:55	9:20	9:30	9:55
R04	5:00	6:25	4:10	6:15			6:25	6:25	5:30							6:25		6:25					
R05	5:20	7:00	4:10	6:50			7:00	6:55	6:00							7:00		6:55					
R06	5:00	7:00	4:00	6:50			7:00	6:55	6:00							7:00		6:55					
R07	5:00	6:45	4:00	6:25			6:45	6:45	6:10														
R08	5:00	6:45	4:30	6:25	3:55		6:45	6:45	6:10														
R09	5:30	6:20	5:00	6:05	4:05	4:05	6:45		6:05														
R10	5:30	5:55	4:55	5:55	4:00	4:00	5:55																
R11	5:30	6:00	4:55	5:55	4:00	4:00	6:00																
R12	5:30	6:00	4:55	5:50		5:55	6:00																
R13	4:30	5:55	4:00	5:45			6:00																
R14	4:30	5:55	4:00	5:45			6:00																
R15	4:30	5:55	4:00	5:45			6:00																
R16	4:30	5:45	4:00	5:45			5:45																
R17	4:30	5:45	4:00	5:45			5:45																
R18	4:30	5:45	4:00	5:45			5:45									5:45							
R19	5:00	6:35	4:10	6:10			6:35	6:20								6:35							
R20	6:30	7:30	6:00	7:20	4:30	4:30	7:30	7:25	6:50							7:30	8:15	7:25	8:15				7:45
R21	6:30	8:00	6:00	8:00	4:55	4:55	8:20	8:00	7:25	8:30						8:20	8:25	8:10	8:55	8:55			8:25
R22	7:55	9:35	6:00	9:30	5:25	5:25	9:50	9:30	8:30	9:45	9:45	9:15	9:45	9:50		9:50	9:55	9:45	9:55	9:55			
R23	7:55	9:25	6:00	9:20	5:25	5:25	9:30	9:20	8:55	9:30	9:40	9:15	9:40	9:50	9:55	9:30		9:25	9:55	9:55			
R24	8:00	9:25	6:00	9:15	6:25	7:00	9:25	9:20	8:30	9:25	9:30	9:05	9:30	9:40	9:40	9:25		9:25		9:30	9:00		
R25	9:00	9:00	7:55	9:10	6:45	9:30	9:00	8:55	8:15		9:15	8:35	9:15	9:20	9:25	9:00		8:55			8:35	9:30	
R26	9:00	8:30	7:30	9:00	5:55	9:30	8:30	8:25	7:30			8:15	8:50			8:35		8:30			8:15	9:30	
R27	9:00	8:25	7:25	9:00	5:20	9:30	8:25	8:20	7:25			8:05				8:25		8:25			8:05	9:30	
R28	9:00	7:50	6:00	9:00	5:25	9:30	7:55	7:40	6:40							7:55		7:50				9:30	
R29	6:30	7:30	6:00	7:25	4:30	4:30	7:45	7:25	6:40							7:45		7:35					
R30	6:30	7:30	6:00	7:25	4:30	4:30	7:45	7:25	6:40							7:45		7:35					
R31	6:30	7:30	6:00	7:25	4:30	4:30	7:45	7:25	6:40							7:45		7:35					
R32	6:30	7:30	6:00	7:25	4:30	4:30	7:40	7:25	6:40							7:40		7:35					
R33	6:30	7:30	6:00	7:25	4:30	4:30	7:40	7:25	6:40							7:40		7:35					
R34	6:30	7:30	6:00	7:25	4:30	4:30	7:40	7:25	6:40							7:40		7:35					
R35	6:30	7:30	6:00	7:25	4:30	4:30	7:40	7:25	6:40							7:40	7:40	7:35					7:40

Scenario 7: Winter, Midweek, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:55									3:45	3:00							
R02	3:50		4:00			3:55	5:30	6:55							3:55	3:00	3:50						
R03	5:00	5:00	4:00	3:50	3:00	3:55	6:50	7:55	7:25	7:30	8:50	8:55	7:55	7:55	3:55	3:00	4:55	3:45	9:20	9:30	5:00	7:00	10:55
R04			4:00			3:55									3:45	3:00							
R05						3:55									3:45	3:00							
R06						3:55									3:45	3:00					3:55		
R07						3:55									3:45	3:00					3:55		
R08						3:55									3:45	3:00				4:00	3:55		
R09						3:55									3:45	3:00			5:30	6:00	3:55		
R10						3:55									3:45	3:00			5:30	5:50	3:55		
R11						3:55	5:30	6:55							3:55	3:00			5:30	5:50	3:55		
R12						3:55	5:30	6:55							3:55	3:00			5:30	5:50			
R13						3:55	5:30	6:55							3:55	3:00							
R14						3:55	5:30	6:55							3:55	3:00	3:40						
R15						3:55	5:30	6:55							3:55	3:00	3:40						
R16						3:55	4:25								3:55	3:00	3:40						
R17	5:00		4:00			3:55	4:25								3:55	3:00	5:00						
R18	5:00		4:00			3:55									3:45	3:00	5:00						
R19	5:00		4:00			3:55									3:45	3:00	5:00						
R20	5:00	5:00	4:00			3:55	5:45	7:25							3:55	3:00	4:55		6:30	7:15	3:55		
R21	4:55		4:00			3:55	5:45	7:25							3:55	3:00	4:55		6:30	7:55	3:55		
R22	3:50		4:00			3:55	5:45	7:25							3:55	3:00	3:50		6:30	9:25	4:15		
R23	3:50		4:00			3:55	5:45	7:25							3:55	3:00	3:50		6:30	9:10	4:25		
R24	3:50		4:00			3:55	5:45	7:25							3:55	3:00	3:50		7:00	9:05	4:55	7:00	
R25	3:50		4:00			3:55	5:45	7:25							3:55	3:00	3:50		9:20	9:25	5:30	7:30	10:55
R26	3:50		4:00			3:55	5:45	7:25	6:25						3:55	3:00	3:50		9:00	9:00	4:30	7:00	10:55
R27	3:50		4:00			3:55	5:50	7:30	7:25	7:30	8:25	8:35			3:55	3:00	3:50		9:00	9:00	4:00	6:00	10:55
R28	3:50		4:00			3:55	6:50	7:55	7:25	7:30	8:50	8:55	7:55	7:55	3:55	3:00	3:50		9:00	9:00	4:00		10:30
R29	3:50		4:00			3:55	6:30	7:50	7:25	7:30	8:55	8:55	7:50	7:50	3:55	3:00	3:50	3:45	6:30	7:20	3:55		
R30	3:50		4:00			3:55	6:50	7:55			8:45	8:45	7:55	7:55	3:55	3:00	3:50	3:45	6:30	7:20	3:55		
R31	3:45		4:00		3:00	3:55	6:25	7:55			7:55		7:55	7:55	3:55	3:00	3:45	3:45	6:30	7:20	3:55		
R32	4:55		4:00	3:50	3:00	3:55	5:45	7:25							3:55	3:00	4:55	3:50	6:30	7:20	3:55		
R33	5:00	5:00	4:00	3:50	3:00	3:55	5:45	7:25							3:55	3:00	4:55		6:30	7:20	3:55		
R34	5:00	5:00	4:00	3:50	3:00	3:55	5:45	7:25							3:55	3:00	4:55		6:30	7:20	3:55		
R35	5:00	5:00	4:00	3:50		3:55	5:45	7:25							3:55	3:00	4:55		6:30	7:20	3:55		

Scenario 8: Winter, Midweek, Midday, Snow, 100th Percentile																							
	ERPAS																						
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	4:55	6:20	4:55	6:50			6:20																
R02	6:00	7:45	5:00	7:35	5:05	5:05	8:00	7:35	7:20							8:00		7:50					
R03	10:00	11:20	9:25	11:00	6:55	10:35	11:25	11:00	9:55	11:20	11:20	10:50	11:20	11:25	11:25	11:25	11:25	11:15	11:25	11:20	10:45	10:35	11:25
R04	5:25	7:25	4:55	7:15			7:30	7:20	6:00							7:30		7:25					
R05	5:30	7:30	4:55	7:25			8:00	7:30	7:20							8:00		7:40					
R06	5:30	7:30	4:55	7:25			8:00	7:30	7:20							8:00		7:40					
R07	5:30	8:00	4:55	7:20			7:25	7:25	7:20														
R08	5:30	8:00	4:55	7:20	4:55		7:25	7:25	7:20														
R09	5:30	7:15	5:00	6:55	5:10	5:10	7:15		8:00														
R10	5:30	6:45	4:55	6:35	5:05	5:05	6:45																
R11	5:30	6:45	4:55	6:35	5:05	5:05	6:45																
R12	5:30	6:45	4:55	6:35		6:50	6:45																
R13	4:55	6:30	4:55	6:30			6:30																
R14	4:55	6:30	4:55	6:30			6:30																
R15	4:55	6:30	4:55	6:30			6:30																
R16	4:55	6:45	4:55	6:45			6:45																
R17	4:55	6:45	4:55	6:45			6:45																
R18	4:55	6:30	4:55	6:30			6:30									6:45							
R19	5:25	7:30	4:55	7:10			7:30	7:15								7:30							
R20	7:00	8:30	6:30	8:25	5:05	5:05	8:45	8:25	7:35							8:45	9:25	8:30	9:25				8:50
R21	7:25	9:30	6:30	9:20	5:10	5:10	9:30	9:25	8:50	9:50						9:30	9:50	9:25	10:20	10:20			9:50
R22	9:00	11:15	6:30	10:55	5:10	5:10	11:15	11:00	10:00	11:15	11:15	10:55	11:15	11:15		11:15	11:15	11:15	11:15	11:10			
R23	9:00	11:00	6:30	10:50	5:30	5:30	11:15	10:55	9:55	11:10	11:15	10:50	11:15	11:15	11:15	11:15		11:00	11:15	11:15			
R24	9:25	10:55	6:30	10:45	6:15	7:00	11:00	10:50	9:55	10:55	11:00	10:35	11:00	11:00	11:00	11:00		10:55		11:00	10:30		
R25	10:00	10:00	8:25	10:00	7:00	10:25	10:10	9:55	9:00		10:25	9:40	10:25	10:30	10:25	10:10		10:00			9:35	10:30	
R26	10:00	9:25	8:00	10:00	6:30	10:30	9:30	9:20	8:30			9:10	9:45			9:30		9:25			9:10	10:30	
R27	10:00	9:25	8:00	10:00	6:00	10:40	9:30	9:20	8:30			9:15				9:30		9:25			9:15	10:40	
R28	10:00	8:30	7:10	10:00	5:30	10:45	8:40	8:25	7:30							8:40		8:30				10:45	
R29	7:00	8:25	6:30	8:10	5:05	5:05	8:25	8:20	7:30							8:25		8:25					
R30	7:00	8:25	6:30	8:10	5:05	5:05	8:25	8:20	7:30							8:25		8:25					
R31	7:00	8:25	6:30	8:10	5:05	5:05	8:25	8:20	7:30							8:25		8:25					
R32	7:00	8:30	6:30	8:10	5:05	5:05	8:30	8:20	7:30							8:30		8:30					
R33	7:00	8:30	6:30	8:10	5:05	5:05	8:30	8:20	7:30							8:30		8:30					
R34	7:00	8:30	6:30	8:10	5:05	5:05	8:30	8:20	7:30							8:30		8:30					
R35	7:00	8:25	6:30	8:10	5:05	5:05	8:25	8:20	7:30							8:25	8:30	8:25					8:30

Scenario 8: Winter, Midweek, Midday, Snow, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						4:55									4:45	4:00							
R02	5:00		5:00			4:55	5:55	7:40							4:55	4:00	5:00						
R03	5:30	5:55	5:00	4:55	4:00	4:55	7:20	9:05	7:50	8:15	9:55	9:55	9:00	9:00	4:55	4:00	5:30	4:50	10:00	10:55	5:30	8:00	12:00
R04			5:00			4:55									4:45	4:00							
R05						4:55									4:45	4:00							
R06						4:55									4:45	4:00					4:55		
R07						4:55									4:45	4:00					4:55		
R08						4:55									4:45	4:00				5:10	4:55		
R09						4:55									4:45	4:00			5:55	6:50	4:55		
R10						4:55									4:45	4:00			5:30	6:25	4:55		
R11						4:55	5:55	7:45							4:55	4:00			5:30	6:25	4:55		
R12						4:55	5:55	7:45							4:55	4:00			5:30	6:30			
R13						4:55	6:00	7:40							4:55	4:00							
R14						4:55	6:00	7:40							4:55	4:00	4:50						
R15						4:55	6:00	7:40							4:55	4:00	4:50						
R16						4:55	5:20								4:55	4:00	4:50						
R17	5:30		5:00			4:55	5:20								4:55	4:00	5:30						
R18	5:30		5:00			4:55									4:45	4:00	5:30						
R19	5:30		5:00			4:55									4:45	4:00	5:30						
R20	5:30	5:55	5:00			4:55	6:20	8:00							4:55	4:00	5:30		7:00	8:20	4:55		
R21	5:30		5:00			4:55	6:20	8:00							4:55	4:00	5:30		7:00	9:15	4:55		
R22	5:00		5:00			4:55	6:20	8:00							4:55	4:00	5:00		7:00	10:50	4:55		
R23	5:00		5:00			4:55	6:20	8:00							4:55	4:00	5:00		7:00	10:45	5:00		
R24	5:00		5:00			4:55	6:20	8:00							4:55	4:00	5:00		7:00	10:35	5:00	7:00	
R25	5:00		5:00			4:55	6:25	8:00							4:55	4:00	5:00		10:00	10:00	5:55	8:00	12:00
R26	5:00		5:00			4:55	6:25	8:00	6:30						4:55	4:00	5:00		10:00	10:00	5:10	7:30	12:00
R27	5:00		5:00			4:55	6:55	8:25	7:50	8:15	9:45	9:50			4:55	4:00	5:00		10:00	10:00	5:00	7:20	11:55
R28	5:00		5:00			4:55	7:20	9:05	7:50	8:15	9:55	9:55	9:00	9:00	4:55	4:00	5:00		10:00	10:05	5:00		11:55
R29	5:00		5:00			4:55	7:25	9:05	7:50	8:15	9:50	9:50	9:00	9:00	4:55	4:00	5:00	4:50	7:00	8:05	4:55		
R30	5:00		5:00			4:55	7:25	8:50			9:50	9:50	8:50	8:50	4:55	4:00	5:00	4:50	7:00	8:05	4:55		
R31	5:00		5:00		4:00	4:55	7:20	8:50			8:50		8:50	8:50	4:55	4:00	5:00	4:50	7:00	8:05	4:55		
R32	5:30		5:00	4:55	4:00	4:55	6:20	8:00							4:55	4:00	5:30	4:30	7:00	8:05	4:55		
R33	5:30	5:55	5:00	4:55	4:00	4:55	6:20	8:00							4:55	4:00	5:30		7:00	8:05	4:55		
R34	5:30	5:55	5:00	4:55	4:00	4:55	6:20	8:00							4:55	4:00	5:30		7:00	8:05	4:55		
R35	5:30	5:55	5:00	4:55		4:55	6:20	8:00							4:55	4:00	5:30		7:00	8:05	4:55		

Scenario 9: Winter, Weekend, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
R01	3:30	4:55	3:00	4:55			4:55																
R02	4:00	5:20	3:30	5:10	3:25	3:25	5:20	5:20	5:00							5:25		5:25					
R03	7:00	7:20	5:00	7:10	4:30	7:25	7:25	7:10	6:30	7:30	7:55	7:10	7:45	7:55	7:55	7:25	7:25	7:20	7:55	7:55	7:05	7:25	7:25
R04	3:30	5:15	3:00	5:00			5:00	5:15	4:30							5:15		5:15					
R05	3:45	5:20	3:00	5:10			5:15	5:20	5:00							5:25		5:25					
R06	3:45	5:20	3:00	5:10			5:15	5:20	4:55							5:25		5:25					
R07	3:45	5:20	3:00	5:05			5:20	5:20	4:55														
R08	4:00	5:20	3:30	5:10	3:25		5:20	5:20	5:00														
R09	4:00	5:20	3:20	4:50	3:25	3:25	5:20		4:45														
R10	4:00	4:30	3:30	4:40	3:25	3:25	4:30																
R11	4:00	4:30	3:30	4:35	3:25	3:25	4:30																
R12	4:00	4:30	3:30	4:35		4:55	4:30																
R13	3:30	4:30	3:00	4:35			4:30																
R14	3:30	4:30	3:00	4:35			4:30																
R15	3:30	4:30	3:00	4:35			4:30																
R16	3:30	4:30	3:00	4:45			4:30																
R17	3:30	4:30	3:00	4:45			4:30																
R18	3:30	4:30	3:00	4:35			4:30									4:45							
R19	3:30	5:15	3:00	5:00			4:55	5:15								5:15							
R20	4:30	5:45	4:00	5:30	3:30	3:30	5:55	5:55	5:00							5:55	6:55	6:20	6:55				5:55
R21	4:55	6:00	4:00	5:50	3:25	3:25	6:00	6:00	5:50	6:55						6:00	6:55	6:25	7:10	7:00			6:15
R22	5:00	7:00	4:00	6:45	3:30	3:30	6:55	6:45	6:55	7:30	7:55	7:10	7:30	7:55		6:55	7:00	6:55	7:55	7:55			
R23	5:00	7:00	4:00	6:50	3:55	3:55	7:00	6:55	6:30	7:30	7:50	7:05	7:30	7:50	7:50	7:00		6:55	7:50	7:50			
R24	5:00	7:00	4:00	6:50	4:00	4:30	6:55	6:50	6:30	7:30	7:30	7:00	7:30	7:45	7:45	6:55		6:55		7:30	6:55		
R25	7:00	6:25	4:30	7:00	4:30	7:30	6:25	6:15	5:30		7:25	6:50	7:20	7:30	7:25	6:25		6:25			6:25	7:30	
R26	7:00	6:00	4:30	7:00	4:10	7:20	6:20	6:00	5:30			6:20	6:30			6:20		6:15			6:00	7:20	
R27	7:00	6:00	4:30	7:00	4:00	7:05	6:20	6:00	5:30			6:10				6:20		6:05			6:10	7:05	
R28	7:00	5:55	4:30	7:00	4:00	7:05	5:55	5:50	5:20							5:55		5:55				7:05	
R29	4:30	5:30	4:00	5:30	3:30	3:30	5:50	5:30	5:20							5:50		5:30					
R30	4:30	5:30	4:00	5:30	3:30	3:30	5:50	5:30	5:20							5:50		5:30					
R31	4:30	5:30	4:00	5:30	3:30	3:30	5:50	5:30	5:20							5:50		5:30					
R32	4:30	5:30	4:00	5:30	3:30	3:30	5:50	5:30	5:20							5:50		5:30					
R33	4:30	5:30	4:00	5:30	3:30	3:30	5:50	5:30	5:20							5:50		5:30					
R34	4:30	5:30	4:00	5:30	3:30	3:30	5:50	5:30	5:20							5:50		5:30					
R35	4:30	5:30	4:00	5:30	3:30	3:30	5:45	5:30	5:20							5:45	6:20	5:30					5:55

Scenario 9: Winter, Weekend, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:05		3:35			3:00	4:45	5:55							3:00	3:00	3:05						
R03	3:30	3:40	3:30	3:00	3:00	3:00	5:35	6:40	5:30	5:55	6:55	6:55	6:45	6:45	3:00	3:00	3:20	3:40	7:00	7:00	3:35	5:30	7:25
R04			3:40			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:30		
R07						3:00									3:00	3:00					3:30		
R08						3:00									3:00	3:00				3:30	3:25		
R09						3:00									3:00	3:00			4:00	4:45	3:25		
R10						3:00									3:00	3:00			4:00	4:25	3:25		
R11						3:00	4:45	5:55							3:00	3:00			4:00	4:25	3:25		
R12						3:00	4:45	5:55							3:00	3:00			4:00	4:30			
R13						3:00	4:45	5:55							3:00	3:00							
R14						3:00	4:45	5:55							3:00	3:00	3:00						
R15						3:00	4:45	5:55							3:00	3:00	3:00						
R16						3:00	4:00								3:00	3:00	3:00						
R17	3:25		3:30			3:00	4:00								3:00	3:00	3:25						
R18	3:25		3:30			3:00									3:00	3:00	3:25						
R19	3:25		3:30			3:00									3:00	3:00	3:25						
R20	3:30	3:40	3:30			3:00	4:45	6:10							3:00	3:00	3:25		4:30	5:30	3:30		
R21	3:25		3:30			3:00	4:45	6:10							3:00	3:00	3:25		4:30	5:45	3:25		
R22	3:00		3:35			3:00	4:45	6:10							3:00	3:00	3:00		4:45	6:35	3:30		
R23	3:00		3:35			3:00	4:45	6:10							3:00	3:00	3:00		4:55	6:40	3:30		
R24	3:00		3:35			3:00	4:45	6:10							3:00	3:00	3:00		5:00	6:35	3:25	4:30	
R25	3:00		3:35			3:00	4:50	6:00							3:00	3:00	3:00		7:00	7:00	3:35	5:30	7:30
R26	3:00		3:35			3:00	4:55	6:05	5:15						3:00	3:00	3:00		7:00	7:00	3:35	5:00	7:20
R27	3:00		3:35			3:00	5:00	6:20	5:30	5:55	6:25	6:30			3:00	3:00	3:00		7:00	7:00	3:35	4:30	7:05
R28	3:00		3:35			3:00	5:35	6:40	5:30	5:55	6:55	6:55	6:45	6:45	3:00	3:00	3:00		7:00	7:00	3:35		7:05
R29	3:00		3:35			3:00	5:30	6:35	5:30	5:55	6:50	6:50	6:40	6:40	3:00	3:00	3:00	3:40	4:30	5:25	3:30		
R30	3:00		3:35			3:00	5:30	6:45			6:45	6:45	6:45	6:45	3:00	3:00	3:00	3:40	4:30	5:25	3:30		
R31	3:00		3:35		3:00	3:00	5:25	6:45			6:45		6:45	6:45	3:00	3:00	3:00	3:40	4:30	5:25	3:30		
R32	3:20		3:30	3:00	3:00	3:00	4:45	6:10							3:00	3:00	3:20	3:40	4:30	5:25	3:30		
R33	3:30	3:40	3:30	3:00	3:00	3:00	4:45	6:10							3:00	3:00	3:20		4:30	5:25	3:30		
R34	3:30	3:40	3:30	3:00	3:00	3:00	4:45	6:10							3:00	3:00	3:20		4:30	5:25	3:30		
R35	3:30	3:40	3:30	3:00		3:00	4:45	6:10							3:00	3:00	3:25		4:30	5:25	3:30		

Scenario 10: Winter, Weekend, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:30	5:30	3:00	5:30			5:30																
R02	4:30	5:45	4:00	5:30	3:30	3:30	5:30	5:45	5:25							5:55		5:50					
R03	7:30	8:00	6:00	7:55	5:20	8:15	8:15	7:55	7:25	8:25	8:25	7:55	8:25	8:30	8:30	8:15	8:25	8:00	8:50	8:50	7:50	8:15	8:25
R04	3:30	5:30	3:00	5:25			5:30	5:30	4:55							5:30		5:30					
R05	4:30	5:45	3:00	5:30			5:30	5:45	5:25							5:45		5:45					
R06	4:30	5:45	3:00	5:30			5:30	5:45	5:25							5:45		5:45					
R07	4:30	5:40	3:00	5:25			5:40	5:40	5:25														
R08	4:30	5:45	3:30	5:25	3:30		5:45	5:45	5:25														
R09	4:30	5:45	4:00	5:45	3:30	3:30	5:45		5:00														
R10	4:30	5:25	4:00	5:25	3:30	3:30	5:25																
R11	4:30	5:10	4:00	5:10	3:30	3:30	5:10																
R12	4:30	5:10	4:00	5:10		5:25	5:10																
R13	3:30	5:10	3:00	5:10			5:10																
R14	3:30	5:10	3:00	5:10			5:10																
R15	3:30	5:10	3:00	5:10			5:10																
R16	3:30	5:30	3:00	5:30			5:30																
R17	3:30	5:30	3:00	5:30			5:30																
R18	3:30	5:00	3:00	5:10			5:00									5:30							
R19	3:30	5:30	3:00	5:25			5:30	5:30								5:30							
R20	5:00	6:00	4:30	5:55	3:40	3:40	6:00	6:25	5:30							6:10	7:25	6:55	7:25				6:20
R21	5:30	7:00	4:30	6:45	3:30	3:30	6:55	6:50	6:25	7:30						6:55	7:25	6:55	8:05	8:00			7:00
R22	6:00	7:50	4:30	7:40	3:30	3:30	7:55	7:40	7:25	8:25	8:25	7:50	8:25	8:30		7:55	7:55	7:50	8:45	8:45			
R23	6:00	7:40	4:30	7:25	4:20	4:20	7:50	7:25	7:00	8:25	8:25	7:50	8:25	8:30	8:30	7:50		7:40	8:45	8:45			
R24	6:00	7:30	4:30	7:25	4:30	5:00	7:45	7:25	7:25	8:00	8:20	7:40	8:20	8:20	8:20	7:45		7:30		8:20	7:40		
R25	7:30	7:25	5:55	7:30	5:25	8:05	7:25	7:20	6:20		8:00	7:25	8:00	8:05	8:05	7:25		7:25			7:15	8:05	
R26	7:30	6:50	6:00	7:30	4:55	7:55	6:55	6:35	5:55			6:50	7:25			6:55		6:50			6:35	7:55	
R27	7:30	6:50	6:00	7:30	4:30	7:55	6:55	6:40	5:55			6:40				6:55		6:50			6:40	7:55	
R28	7:20	6:20	5:25	7:25	4:00	7:35	6:25	6:05	5:30							6:25		6:20				7:35	
R29	5:00	6:00	4:30	5:55	3:50	3:50	6:00	5:55	5:30							6:00		6:00					
R30	5:00	6:00	4:30	5:55	3:50	3:50	6:00	5:55	5:30							6:00		6:00					
R31	5:00	6:00	4:30	5:55	3:50	3:50	6:00	5:55	5:30							6:00		6:00					
R32	5:00	6:00	4:30	5:55	3:50	3:50	6:00	5:55	5:30							6:00		6:00					
R33	5:00	6:00	4:30	5:55	3:50	3:50	6:00	5:55	5:30							6:00		6:00					
R34	5:00	6:00	4:30	5:55	3:50	3:50	6:00	5:55	5:30							6:00		6:00					
R35	5:00	6:00	4:30	5:55	3:50	3:50	6:00	5:55	5:30							6:00	6:55	6:00					6:10

Scenario 10: Winter, Weekend, Midday, Rain, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:10		3:35			3:00	5:00	6:25							3:00	3:00	3:10						
R03	3:45	4:00	3:40	3:00	3:00	3:00	5:55	7:00	5:55	6:25	7:15	7:25	7:00	7:00	3:00	3:00	3:30	3:40	7:30	7:55	4:00	6:00	8:15
R04			3:40			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:25		
R07						3:00									3:00	3:00					3:25		
R08						3:00									3:00	3:00				3:30	3:30		
R09						3:00									3:00	3:00			4:30	5:10	3:30		
R10						3:00									3:00	3:00			4:30	5:00	3:30		
R11						3:00	5:00	6:20							3:00	3:00			4:30	5:00	3:30		
R12						3:00	5:00	6:20							3:00	3:00			4:30	5:00			
R13						3:00	5:00	6:20							3:00	3:00							
R14						3:00	5:00	6:25							3:00	3:00	3:00						
R15						3:00	5:00	6:25							3:00	3:00	3:00						
R16						3:00	4:15								3:00	3:00	3:00						
R17	3:40		3:40			3:00	4:15								3:00	3:00	3:40						
R18	3:40		3:40			3:00									3:00	3:00	3:40						
R19	3:40		3:40			3:00									3:00	3:00	3:40						
R20	3:45	4:00	3:40			3:00	5:20	6:45							3:00	3:00	3:35		5:00	5:50	3:30		
R21	3:35		3:40			3:00	5:20	6:45							3:00	3:00	3:35		5:00	6:35	3:30		
R22	3:05		3:30			3:00	5:20	6:45							3:00	3:00	3:05		5:00	7:30	3:30		
R23	3:05		3:30			3:00	5:20	6:45							3:00	3:00	3:05		5:00	7:15	3:25		
R24	3:05		3:30			3:00	5:20	6:45							3:00	3:00	3:05		5:30	7:20	3:30	5:00	
R25	3:05		3:30			3:00	5:20	6:45							3:00	3:00	3:05		7:30	7:30	4:00	6:00	8:05
R26	3:05		3:30			3:00	5:25	6:40	5:50						3:00	3:00	3:05		7:30	7:30	3:30	5:30	7:55
R27	3:05		3:30			3:00	5:30	7:15	5:55	6:25	7:15	7:20			3:00	3:00	3:05		7:30	7:35	3:35	5:30	7:55
R28	3:05		3:30			3:00	5:55	7:00	5:55	6:25	7:15	7:25	7:00	7:00	3:00	3:00	3:05		7:25	7:25	3:35		7:35
R29	3:05		3:30			3:00	6:20	7:15	5:55	6:25	7:20	7:20	7:20	7:20	3:00	3:00	3:05	3:40	5:00	5:50	3:30		
R30	3:05		3:30			3:00	6:05	7:10			7:20	7:20	7:15	7:15	3:00	3:00	3:05	3:40	5:00	5:50	3:30		
R31	3:05		3:30		3:00	3:00	5:55	7:00			7:00		7:00	7:00	3:00	3:00	3:05	3:40	5:00	5:50	3:30		
R32	3:30		3:40	3:00	3:00	3:00	5:20	6:40							3:00	3:00	3:30	3:40	5:00	5:50	3:30		
R33	3:45	4:00	3:40	3:00	3:00	3:00	5:20	6:40							3:00	3:00	3:30		5:00	5:50	3:30		
R34	3:45	4:00	3:40	3:00	3:00	3:00	5:20	6:40							3:00	3:00	3:30		5:00	5:50	3:30		
R35	3:45	4:00	3:40	3:00		3:00	5:20	6:45							3:00	3:00	3:35		5:00	5:50	3:30		

Scenario 11: Winter, Weekend, Midday, Snow, 100th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	4:25	5:35	4:00	5:55			5:35																
R02	5:00	7:00	4:00	6:50	4:25	4:25	7:00	6:55	6:00							7:00		6:55					
R03	8:30	9:25	5:55	9:20	5:55	9:05	9:30	9:20	8:50	9:50	9:55	9:15	9:50	9:55	9:55	9:30	9:45	9:25	10:10	10:00	9:10	9:05	9:45
R04	4:30	6:25	4:00	6:20			6:25	6:25	5:55							6:35		6:30					
R05	4:55	7:10	4:00	6:50			7:10	6:55	6:00							7:10		6:55					
R06	4:55	7:10	4:00	6:50			7:10	6:55	6:00							7:10		6:55					
R07	4:55	7:05	4:00	6:45			7:05	7:05	6:00														
R08	5:00	7:10	4:00	6:50	4:25		7:10	7:10	6:00														
R09	4:30	7:10	4:00	6:15	4:25	4:25	7:10		6:00														
R10	4:30	5:55	4:00	5:55	4:25	4:25	5:55																
R11	4:30	6:00	4:00	5:55	4:25	4:25	6:00																
R12	4:30	6:00	4:00	5:55		5:50	6:00																
R13	4:30	5:55	4:00	5:55			5:55																
R14	4:30	5:55	4:00	5:55			5:55																
R15	4:30	5:55	4:00	5:55			5:55																
R16	4:30	5:55	4:00	5:55			5:55																
R17	4:30	5:55	4:00	5:55			5:55																
R18	4:30	5:50	4:00	5:50			5:50									5:50							
R19	4:30	6:25	4:00	6:20			6:25	6:25								6:35							
R20	5:55	7:25	5:00	7:15	4:25	4:25	7:25	7:25	6:30							7:25	8:25	7:55	8:40				7:30
R21	5:55	8:20	5:10	8:10	4:30	4:30	8:25	8:05	7:55	8:55						8:25	8:30	8:20	9:20	9:20			8:25
R22	6:25	9:00	5:10	8:55	4:30	4:30	9:10	8:55	8:30	9:40	9:55	9:15	9:55	9:55		9:10	9:20	9:00	10:05	10:00			
R23	6:55	9:20	5:10	9:05	4:30	4:30	9:25	9:05	8:45	9:50	9:50	9:15	9:50	9:55	9:55	9:25		9:15	10:05	10:00			
R24	6:55	9:20	5:00	9:00	5:00	5:55	9:20	9:00	8:25	9:30	9:50	9:15	9:50	9:50	9:50	9:20		9:15		9:50	9:15		
R25	8:00	8:50	6:30	8:35	5:55	9:00	8:55	8:40	7:55		9:25	8:40	9:25	9:30	9:30	8:55		8:50			8:40	9:00	
R26	8:00	7:55	6:30	8:00	5:25	8:45	7:55	7:40	7:00			7:55	8:25			7:55		7:50			7:55	8:45	
R27	8:00	7:50	6:30	8:00	5:00	8:45	7:55	7:40	7:00			7:50				7:55		7:50			7:50	8:45	
R28	8:00	7:00	6:00	8:15	4:30	8:45	7:20	7:00	6:30							7:20		7:00				8:45	
R29	5:55	7:00	5:00	6:50	4:25	4:25	7:00	6:55	6:30							7:00		7:00					
R30	5:55	7:00	5:00	6:50	4:25	4:25	7:00	6:55	6:30							7:00		7:00					
R31	5:55	7:00	5:00	6:50	4:25	4:25	7:00	6:55	6:30							7:00		7:00					
R32	5:55	7:00	5:00	6:50	4:25	4:25	7:00	6:55	6:30							7:00		7:00					
R33	5:55	7:00	5:00	6:50	4:25	4:25	7:00	6:55	6:30							7:00		7:00					
R34	5:55	7:00	5:00	6:50	4:25	4:25	7:00	6:55	6:30							7:00		7:00					
R35	5:55	7:00	5:00	6:50	4:25	4:25	7:00	6:55	6:30							7:00	7:55	7:00					7:15

Scenario 11: Winter, Weekend, Midday, Snow, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						4:00									4:00	4:00							
R02	4:20		4:30			4:00	5:45	7:20							4:00	4:00	4:20						
R03	4:30	4:30	4:30	4:10	4:00	4:00	6:55	8:30	6:30	6:55	8:00	8:00	8:30	8:30	4:00	4:00	4:25	4:00	8:30	9:15	4:30	6:30	9:15
R04			4:30			4:00									4:00	4:00							
R05						4:00									4:00	4:00							
R06						4:00									4:00	4:00					4:25		
R07						4:00									4:00	4:00					4:25		
R08						4:00									4:00	4:00				4:25	4:25		
R09						4:00									4:00	4:00			4:45	6:00	4:25		
R10						4:00									4:00	4:00			4:30	5:45	4:25		
R11						4:00	5:45	7:20							4:00	4:00			4:30	5:45	4:25		
R12						4:00	5:45	7:20							4:00	4:00			4:30	5:50			
R13						4:00	5:50	7:15							4:00	4:00							
R14						4:00	5:50	7:15							4:00	4:00	4:05						
R15						4:00	5:50	7:15							4:00	4:00	4:05						
R16						4:00	4:55								4:00	4:00	4:05						
R17	4:25		4:30			4:00	4:55								4:00	4:00	4:25						
R18	4:25		4:30			4:00									4:00	4:00	4:25						
R19	4:25		4:30			4:00									4:00	4:00	4:25						
R20	4:30	4:30	4:30			4:00	6:00	7:45							4:00	4:00	4:25		5:55	7:05	4:25		
R21	4:25		4:30			4:00	6:00	7:45							4:00	4:00	4:25		6:00	8:00	4:25		
R22	4:20		4:30			4:00	6:00	7:45							4:00	4:00	4:20		6:00	8:45	4:25		
R23	4:20		4:30			4:00	6:00	7:45							4:00	4:00	4:20		6:00	8:55	4:25		
R24	4:20		4:30			4:00	6:00	7:45							4:00	4:00	4:20		6:00	8:50	4:25	5:55	
R25	4:20		4:30			4:00	6:00	7:30							4:00	4:00	4:20		8:20	8:30	4:30	6:30	9:00
R26	4:20		4:30			4:00	6:20	7:40	6:05						4:00	4:00	4:20		8:00	8:15	4:25	6:15	8:45
R27	4:20		4:30			4:00	6:25	8:15	6:30	6:55	7:55	7:55			4:00	4:00	4:20		8:00	8:15	4:25	6:00	8:45
R28	4:20		4:30			4:00	6:55	8:30	6:30	6:55	8:00	8:00	8:30	8:30	4:00	4:00	4:20		8:20	8:25	4:30		8:45
R29	4:20		4:30			4:00	7:00	7:55	6:30	6:55	8:00	8:15	7:55	7:55	4:00	4:00	4:20	4:00	5:55	6:45	4:25		
R30	4:20		4:30			4:00	6:55	8:15			8:00	8:00	8:15	8:15	4:00	4:00	4:20	4:00	5:55	6:45	4:25		
R31	4:20		4:30		4:00	4:00	6:30	8:25			8:25		8:25	8:25	4:00	4:00	4:20	4:00	5:55	6:45	4:25		
R32	4:25		4:30	4:00	4:00	4:00	6:00	7:55							4:00	4:00	4:25	4:00	5:55	6:45	4:25		
R33	4:30	4:30	4:30	4:10	4:00	4:00	6:00	7:55							4:00	4:00	4:25		5:55	6:45	4:25		
R34	4:30	4:30	4:30	4:10	4:00	4:00	6:00	7:55							4:00	4:00	4:25		5:55	6:45	4:25		
R35	4:30	4:30	4:30	4:10		4:00	6:00	7:45							4:00	4:00	4:25		5:55	6:45	4:25		

Scenario 12: Winter, Midweek, Weekend, Evening, Good Weather, 100th Percentile																							
ERPAS																							
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
R01	3:30	4:30	3:00	4:30			4:30																
R02	3:30	5:15	3:00	5:00	3:25	3:25	4:55	5:20	4:30							5:25		5:20					
R03	5:30	6:00	3:00	5:50	3:30	6:00	6:00	6:00	5:50	6:35	6:55	6:10	6:25	7:10	6:30	5:55	6:25	6:25	7:10	7:00	6:05	6:10	5:55
R04	3:40	4:45	3:00	4:45			4:45	4:45	4:00							4:45		4:45					
R05	3:30	5:15	3:00	5:00			5:00	5:15	4:30							5:15		5:15					
R06	3:30	5:15	3:00	5:00			5:00	5:15	4:30							5:15		5:15					
R07	3:30	5:15	3:00	5:00			5:00	5:15	4:30														
R08	3:40	5:15	3:00	5:00	3:25		5:00	5:15	4:30														
R09	3:30	5:15	3:00	4:30	3:25	3:25	4:25		5:15														
R10	3:30	4:25	3:00	4:25	3:25	3:25	4:25																
R11	3:30	4:25	3:00	4:25	3:25	3:25	4:25																
R12	3:30	4:25	3:00	4:25		4:15	4:25																
R13	3:40	4:25	3:00	4:25			4:25																
R14	3:40	4:25	3:00	4:25			4:25																
R15	3:40	4:25	3:00	4:25			4:25																
R16	3:40	4:25	3:00	4:25			4:25																
R17	3:40	4:25	3:00	4:25			4:25																
R18	3:40	4:25	3:00	4:25			4:25									4:25							
R19	3:40	4:45	3:00	4:45			4:45	4:45								4:45							
R20	3:50	5:25	3:00	5:15	3:25	3:25	5:10	5:55	4:30							5:25	6:25	6:00	6:25				5:25
R21	4:00	5:30	3:00	5:20	3:25	3:25	5:25	5:55	5:00	6:00						5:30	6:25	6:25	6:40	6:30			5:30
R22	4:00	5:55	3:00	5:35	3:25	3:25	5:55	5:55	5:55	6:45	6:55	6:10	6:25	7:10		5:55	6:25	6:25	7:10	7:00			
R23	4:00	6:00	3:00	5:45	3:25	3:25	6:00	6:00	5:45	6:30	6:55	6:10	6:25	7:05	6:30	5:55		6:25	7:05	7:00			
R24	4:00	6:00	3:00	5:50	3:25	4:00	5:55	5:50	5:55	6:30	6:55	6:15	6:25	7:00	6:30	5:55		5:55		7:00	6:10		
R25	5:30	5:30	3:00	5:30	3:30	6:00	5:30	5:25	5:00		6:45	5:30	5:55	6:50	6:00	5:30		5:30			5:30	6:10	
R26	5:30	5:20	3:00	5:30	3:30	6:00	5:10	5:25	4:50			5:05	5:25			5:25		5:25			5:05	6:00	
R27	5:30	5:20	3:00	5:30	3:30	6:00	5:10	5:25	4:50			5:10				5:25		5:25			5:10	6:00	
R28	5:30	5:20	3:00	5:30	3:30	6:00	5:10	5:20	4:30							5:25		5:25				6:00	
R29	3:50	5:20	3:00	5:05	3:25	3:25	5:10	5:20	4:30							5:25		5:25					
R30	3:50	5:20	3:00	5:05	3:25	3:25	5:10	5:20	4:30							5:25		5:25					
R31	3:50	5:20	3:00	5:05	3:25	3:25	5:10	5:20	4:30							5:25		5:25					
R32	3:50	5:20	3:00	5:05	3:25	3:25	5:10	5:20	4:30							5:25		5:25					
R33	3:50	5:20	3:00	5:05	3:25	3:25	5:10	5:20	4:30							5:25		5:25					
R34	3:50	5:20	3:00	5:05	3:25	3:25	5:10	5:20	4:30							5:25		5:25					
R35	3:50	5:20	3:00	5:05	3:25	3:25	5:10	5:20	4:30							5:25	5:50	5:25					5:20

Scenario 12: Winter, Midweek, Weekend, Evening, Good Weather, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	3:05		3:30			3:00	4:25	5:25							3:00	3:00	3:05						
R03	3:30	3:40	3:30	3:00	3:00	3:00	5:00	6:20	4:30	5:25	5:40	5:40	6:20	6:20	3:00	3:00	3:05	3:30	5:30	5:55	3:25	4:00	6:20
R04			3:35			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:25		
R07						3:00									3:00	3:00					3:25		
R08						3:00									3:00	3:00				3:30	3:25		
R09						3:00									3:00	3:00			3:30	4:20	3:25		
R10						3:00									3:00	3:00			3:30	4:15	3:25		
R11						3:00	4:25	5:25							3:00	3:00			3:30	4:15	3:25		
R12						3:00	4:25	5:25							3:00	3:00			3:30	4:15			
R13						3:00	4:30	5:25							3:00	3:00							
R14						3:00	4:30	5:25							3:00	3:00	3:00						
R15						3:00	4:30	5:25							3:00	3:00	3:00						
R16						3:00	3:55								3:00	3:00	3:00						
R17	3:10		3:30			3:00	3:55								3:00	3:00	3:10						
R18	3:10		3:30			3:00									3:00	3:00	3:10						
R19	3:10		3:30			3:00									3:00	3:00	3:10						
R20	3:30	3:40	3:30			3:00	4:30	5:40							3:00	3:00	3:10		3:30	5:00	3:25		
R21	3:10		3:30			3:00	4:30	5:40							3:00	3:00	3:10		3:30	5:10	3:25		
R22	3:05		3:30			3:00	4:30	5:40							3:00	3:00	3:05		3:30	5:30	3:25		
R23	3:05		3:30			3:00	4:30	5:40							3:00	3:00	3:05		3:30	5:35	3:25		
R24	3:05		3:30			3:00	4:30	5:40							3:00	3:00	3:05		3:30	5:40	3:25	4:00	
R25	3:05		3:30			3:00	4:30	5:40							3:00	3:00	3:05		5:30	5:55	3:25	4:00	6:10
R26	3:05		3:30			3:00	4:30	5:40	4:25						3:00	3:00	3:05		5:30	5:45	3:25	4:00	6:00
R27	3:05		3:30			3:00	4:30	5:45	4:30	5:20	5:25	5:25			3:00	3:00	3:05		5:30	5:45	3:25	4:00	6:00
R28	3:05		3:30			3:00	5:00	6:00	4:30	5:25	5:40	5:40	6:00	6:00	3:00	3:00	3:05		5:30	5:30	3:25		6:00
R29	3:05		3:30			3:00	4:55	6:05	4:30	5:25	5:30	5:30	6:15	6:15	3:00	3:00	3:05	3:30	3:30	4:55	3:25		
R30	3:05		3:30			3:00	5:00	6:15			5:30	5:30	6:15	6:15	3:00	3:00	3:05	3:30	3:30	4:55	3:25		
R31	3:05		3:30		3:00	3:00	4:45	6:00			6:00		6:15	6:15	3:00	3:00	3:05	3:30	3:30	4:55	3:25		
R32	3:05		3:30	3:00	3:00	3:00	4:30	5:40							3:00	3:00	3:05	3:30	3:30	4:55	3:25		
R33	3:30	3:40	3:30	3:00	3:00	3:00	4:30	5:40							3:00	3:00	3:05		3:30	4:55	3:25		
R34	3:30	3:40	3:30	3:00	3:00	3:00	4:30	5:40							3:00	3:00	3:05		3:30	4:55	3:25		
R35	3:30	3:40	3:30	3:00		3:00	4:30	5:40							3:00	3:00	3:10		3:30	4:55	3:25		

Scenario 13: Autumn, Weekend, USMA Football, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:30	5:30	3:00	5:30			5:30																
R02	3:30	6:00	3:00	5:50	3:30	3:30	5:40	6:00	4:25							6:20		6:15					
R03	6:30	7:25	3:00	7:15	4:25	7:55	7:05	7:25	6:00	7:25	8:30	6:50	7:15	8:45	7:30	7:30	7:40	7:30	7:30	7:30	6:15	7:50	7:30
R04	3:30	5:50	3:00	5:30			5:25	5:50	4:00							5:55		5:55					
R05	3:30	5:55	3:00	5:50			5:40	5:55	4:25							5:55		5:55					
R06	3:30	5:55	3:00	5:50			5:40	5:55	4:25							5:55		5:55					
R07	3:30	5:55	3:00	5:50			5:40	5:55	4:25														
R08	3:30	6:00	3:00	5:45	3:25		5:40	6:00	4:25														
R09	3:30	5:35	3:00	6:00	3:30	3:30	5:35		4:00														
R10	3:30	5:30	3:00	5:30	3:30	3:30	5:30																
R11	3:30	5:20	3:00	5:20	3:30	3:30	5:20																
R12	3:30	5:20	3:00	5:20		5:30	5:20																
R13	3:30	5:20	3:00	5:20			5:20																
R14	3:30	5:20	3:00	5:20			5:20																
R15	3:30	5:20	3:00	5:20			5:20																
R16	3:30	5:30	3:00	5:30			5:30																
R17	3:30	5:20	3:00	5:20			5:20																
R18	3:30	5:20	3:00	5:20			5:20									5:50							
R19	3:30	5:50	3:00	5:30			5:25	5:50								6:30							
R20	4:30	6:20	3:00	6:05	3:25	3:25	5:50	6:20	4:30							6:25	6:50	6:30	6:50				6:20
R21	4:30	6:30	3:00	6:20	3:30	3:30	6:05	6:30	5:30	6:30						6:45	6:55	6:35	7:00	6:55			6:40
R22	4:30	7:30	3:00	7:20	3:30	3:30	7:10	7:30	6:00	7:30	8:35	6:55	7:30	8:45		7:45	7:50	7:40	7:30	7:30			
R23	4:30	7:25	3:00	7:15	3:30	3:30	7:10	7:25	6:00	7:25	8:35	6:40	7:20	8:45	7:30	7:30		7:30	7:30	7:30			
R24	4:25	7:10	3:00	6:55	4:00	4:30	6:45	7:10	6:00	7:05	8:40	6:45	7:00	8:45	7:25	7:20		7:20		7:00	6:00		
R25	6:30	6:55	3:00	6:50	4:25	7:55	6:30	6:55	5:00		8:00	6:25	6:55	8:15	7:00	7:05		7:00			6:20	7:50	
R26	6:30	6:50	3:00	6:30	4:25	7:50	6:20	6:50	4:45			6:00	6:35			6:55		6:55			5:50	7:45	
R27	6:30	6:50	3:00	6:50	4:00	7:50	6:25	6:50	4:50			5:30				6:55		6:55			5:30	7:50	
R28	6:30	6:20	3:00	6:30	4:00	7:50	5:55	6:20	4:30							6:25		6:25				7:50	
R29	4:30	6:20	3:00	6:00	3:25	3:25	5:55	6:20	4:30							6:25		6:25					
R30	4:30	6:20	3:00	6:00	3:25	3:25	5:55	6:20	4:30							6:25		6:25					
R31	4:30	6:20	3:00	6:00	3:25	3:25	5:55	6:20	4:30							6:25		6:25					
R32	4:30	6:20	3:00	6:00	3:25	3:25	5:55	6:20	4:30							6:25		6:25					
R33	4:30	6:20	3:00	6:00	3:25	3:25	5:55	6:20	4:30							6:25		6:25					
R34	4:30	6:20	3:00	6:00	3:25	3:25	5:55	6:20	4:30							6:25		6:25					
R35	4:30	6:20	3:00	6:00	3:25	3:25	5:55	6:20	4:30							6:25	6:50	6:25					6:20

Scenario 13: Autumn, Weekend, USMA Football, Midday, Good Weather, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:00									3:00	3:00							
R02	4:50		4:35			3:00	4:30	6:30							3:00	3:00	4:50						
R03	6:55	5:45	5:00	3:00	3:00	3:00	5:30	7:15	5:25	5:55	6:30	6:30	7:10	7:10	3:00	3:00	7:00	3:40	6:50	7:00	3:35	5:00	7:50
R04			4:35			3:00									3:00	3:00							
R05						3:00									3:00	3:00							
R06						3:00									3:00	3:00					3:30		
R07						3:00									3:00	3:00					3:30		
R08						3:00									3:00	3:00				3:30	3:25		
R09						3:00									3:00	3:00			3:50	5:30	3:25		
R10						3:00									3:00	3:00			3:45	5:15	3:25		
R11						3:00	4:30	6:30							3:00	3:00			3:45	5:15	3:25		
R12						3:00	4:30	6:30							3:00	3:00			3:45	5:15			
R13						3:00	4:30	6:30							3:00	3:00							
R14						3:00	4:30	6:30							3:00	3:00	3:30						
R15						3:00	4:30	6:30							3:00	3:00	3:30						
R16						3:00	4:00								3:00	3:00	3:30						
R17	6:30		5:00			3:00	4:00								3:00	3:00	6:30						
R18	6:30		5:00			3:00									3:00	3:00	6:30						
R19	6:30		5:00			3:00									3:00	3:00	6:30						
R20	6:50	5:45	5:00			3:00	4:55	6:45							3:00	3:00	6:50		4:30	5:50	3:25		
R21	6:55		5:00			3:00	4:55	6:45							3:00	3:00	7:00		4:30	6:05	3:30		
R22	4:55		4:55			3:00	4:55	6:45							3:00	3:00	4:55		4:30	7:00	3:30		
R23	4:55		4:55			3:00	4:55	6:45							3:00	3:00	4:55		4:30	6:55	3:30		
R24	4:55		4:55			3:00	4:55	6:45							3:00	3:00	4:55		4:25	6:35	3:30	4:30	
R25	4:55		4:55			3:00	5:00	6:45							3:00	3:00	4:55		6:40	6:55	3:35	5:25	7:50
R26	4:55		4:55			3:00	4:55	6:35	4:30						3:00	3:00	4:55		6:30	6:30	3:35	5:00	7:45
R27	4:55		4:55			3:00	5:00	6:45	5:25	5:55	6:40	6:40			3:00	3:00	4:55		6:50	6:55	3:35	4:30	7:50
R28	4:55		4:55			3:00	5:30	7:15	5:25	5:55	6:30	6:30	7:10	7:10	3:00	3:00	4:55		6:30	6:35	3:35		7:50
R29	4:55		4:55			3:00	5:25	6:45	5:25	5:55	6:45	6:45	6:45	6:45	3:00	3:00	4:55	3:40	4:30	5:45	3:25		
R30	4:55		4:55			3:00	5:30	6:45			6:45	6:45	6:45	6:45	3:00	3:00	4:55	3:40	4:30	5:45	3:25		
R31	4:55		4:55		3:00	3:00	5:30	7:30			7:30		7:30	7:30	3:00	3:00	4:55	3:40	4:30	5:45	3:25		
R32	6:50		5:00	3:00	3:00	3:00	4:55	6:45							3:00	3:00	6:50	3:40	4:30	5:45	3:25		
R33	6:50	5:45	5:00	3:00	3:00	3:00	4:55	6:45							3:00	3:00	6:50		4:30	5:45	3:25		
R34	6:50	5:45	5:00	3:00	3:00	3:00	4:55	6:45							3:00	3:00	6:50		4:30	5:45	3:25		
R35	6:50	5:45	5:00	3:00		3:00	4:55	6:45							3:00	3:00	6:50		4:30	5:45	3:25		

Scenario 14: Spring, Midweek, USMA Graduation, MIdday, Good Weather, 100th Percentile																							
ERPAS																							
Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R01	3:50	5:15	3:50	5:15			5:15																
R02	4:30	6:20	3:55	6:15	4:00	4:00	6:05	6:20	5:00							6:20		6:20					
R03	8:30	8:25	3:50	8:30	5:25	9:30	7:55	8:25	7:00	8:20	9:30	7:55	8:10	9:30	8:25	8:30	8:30	8:25	8:30	8:30	7:55	9:30	8:25
R04	3:50	5:45	3:50	5:45			5:45	5:45	4:50							5:45		5:45					
R05	3:50	6:10	3:50	6:10			6:05	6:10	5:00							6:10		6:10					
R06	3:50	6:10	3:50	6:10			6:05	6:10	5:00							6:10		6:10					
R07	3:50	6:10	3:50	6:10			6:10	6:10	5:00														
R08	4:25	6:10	3:55	6:10	3:55		6:10	6:10	5:00														
R09	4:30	6:10	3:55	6:10	4:00	4:00	6:10		4:40														
R10	4:30	5:20	3:55	5:20	4:00	4:00	5:20																
R11	4:30	5:25	3:55	5:30	4:00	4:00	5:25																
R12	4:30	5:25	3:55	5:30		6:20	5:25																
R13	3:50	5:25	3:50	5:30			5:25																
R14	3:50	5:25	3:50	5:30			5:25																
R15	3:50	5:25	3:50	5:30			5:25																
R16	3:50	5:10	3:50	5:10			5:10																
R17	3:50	5:10	3:50	5:10			5:10																
R18	3:50	5:10	3:50	5:10			5:10									5:10							
R19	3:50	5:40	3:50	5:40			5:40	5:40								5:40							
R20	5:30	7:00	3:50	6:45	4:00	4:00	6:35	7:00	5:25							7:15	7:30	7:05	7:20				7:05
R21	5:30	7:50	3:50	7:30	4:00	4:00	7:20	7:50	6:30	7:45						7:55	8:10	7:55	8:10	7:55			7:50
R22	5:55	8:10	3:50	7:50	4:15	4:15	7:35	8:10	7:00	8:05	9:15	7:20	8:00	9:15		8:20	8:20	8:20	8:25	8:25			
R23	5:30	8:10	3:50	7:50	4:00	4:00	7:35	8:10	7:00	8:05	9:15	7:25	8:00	9:15	8:05	8:20		8:20	8:30	8:25			
R24	6:00	8:20	3:50	8:05	4:55	6:00	7:55	8:20	7:00	8:20	9:20	8:10	8:10	9:20	8:20	8:25		8:25		8:10	8:15		
R25	8:00	7:25	3:50	8:10	5:00	9:25	6:55	7:25	6:10		9:25	7:55	7:55	9:25	7:30	7:30		7:25			7:55	9:25	
R26	8:00	7:25	3:50	8:00	4:55	9:25	6:55	7:25	6:20			7:25	7:25			7:30		7:25			7:25	9:25	
R27	8:30	7:20	3:50	8:30	5:20	9:25	7:00	7:20	5:55			6:30				7:25		7:25			6:30	9:25	
R28	8:25	7:10	3:50	8:25	4:30	9:25	6:45	7:10	5:25							7:20		7:20				9:25	
R29	5:30	7:10	3:50	6:50	4:00	4:00	6:45	7:10	5:25							7:20		7:20					
R30	5:30	7:10	3:50	6:50	4:00	4:00	6:45	7:10	5:25							7:20		7:20					
R31	5:30	7:10	3:50	6:50	4:00	4:00	6:45	7:10	5:25							7:20		7:20					
R32	5:30	6:45	3:50	6:45	4:00	4:00	6:45	6:45	5:25							6:45		6:45					
R33	5:30	6:45	3:50	6:45	4:00	4:00	6:45	6:45	5:25							6:45		6:45					
R34	5:30	6:45	3:50	6:45	4:00	4:00	6:45	6:45	5:25							6:45		6:45					
R35	5:30	6:55	3:50	6:50	4:00	4:00	6:45	6:55	5:25							6:55	6:55	6:55					6:55

Scenario 14: Spring, Midweek, USMA Graduation, MIdday, Good Weather, 100th Percentile																							
ERPAS																							
Region	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	47	48	49	50	51
R01						3:55									3:45	3:00							
R02	3:45		3:55			3:55	5:00	6:20							3:50	3:00	3:45						
R03	4:00	4:00	3:55	3:50	3:00	3:55	5:55	8:30	6:55	7:20	8:15	8:15	8:30	8:30	3:55	3:00	4:00	3:45	8:30	8:30	4:00	6:25	9:30
R04			3:55			3:55									3:30	3:00							
R05						3:55									3:30	3:00							
R06						3:55									3:30	3:00					3:55		
R07						3:55									3:30	3:00					3:55		
R08						3:55									3:30	3:00				4:00	3:55		
R09						3:55									3:30	3:00			4:30	5:45	3:55		
R10						3:55									3:30	3:00			4:30	5:20	3:55		
R11						3:55	5:00	6:20							3:50	3:00			4:30	5:20	3:55		
R12						3:55	5:00	6:20							3:50	3:00			4:30	5:20			
R13						3:55	4:55	6:20							3:50	3:00							
R14						3:55	4:55	6:20							3:50	3:00	3:30						
R15						3:55	4:55	6:20							3:50	3:00	3:30						
R16						3:55	4:00								3:50	3:00	3:30						
R17	4:00		3:55			3:55	4:00								3:50	3:00	4:15						
R18	4:00		3:55			3:55									3:30	3:00	4:15						
R19	4:00		3:55			3:55									3:30	3:00	4:15						
R20	4:00	4:00	3:55			3:55	5:00	7:20							3:50	3:00	4:15		5:50	6:30	3:55		
R21	4:00		3:55			3:55	5:00	7:20							3:50	3:00	4:15		5:50	7:20	3:55		
R22	3:40		3:55			3:55	5:00	7:20							3:50	3:00	3:40		6:00	7:30	3:55		
R23	3:40		3:55			3:55	5:00	7:20							3:50	3:00	3:40		5:50	7:30	3:55		
R24	3:40		3:55			3:55	5:00	7:20							3:50	3:00	3:40		6:00	7:45	3:55	6:00	
R25	3:40		3:55			3:55	5:00	7:15							3:50	3:00	3:40		8:20	8:25	3:55	6:00	9:25
R26	3:40		3:55			3:55	5:00	7:20	5:10						3:50	3:00	3:40		8:00	8:15	3:55	6:00	9:25
R27	3:40		3:55			3:55	5:30	7:20	6:50	7:15	8:00	8:25			3:50	3:00	3:40		8:30	8:30	3:55	6:00	9:25
R28	3:40		3:55			3:55	6:00	7:50	6:50	7:00	8:05	8:20	7:45	7:45	3:50	3:00	3:40		8:25	8:25	3:55		9:25
R29	3:40		3:55			3:55	6:00	8:10	6:50	7:00	8:00	8:00	8:10	8:10	3:50	3:00	3:40	3:45	5:50	6:40	3:55		
R30	3:40		3:55			3:55	6:00	8:00			8:00	8:00	8:00	8:00	3:50	3:00	3:40	3:45	5:50	6:40	3:55		
R31	3:35		3:55		3:00	3:55	6:00	7:20			7:20		7:20	7:20	3:50	3:00	3:35	3:45	5:50	6:40	3:55		
R32	4:00		3:55	3:50	3:00	3:55	5:00	6:45							3:50	3:00	4:10	3:35	5:50	6:40	3:55		
R33	4:00	4:00	3:55	3:50	3:00	3:55	5:00	6:45							3:50	3:00	4:10		5:50	6:40	3:55		
R34	4:00	4:00	3:55	3:50	3:00	3:55	5:00	6:45							3:50	3:00	4:10		5:50	6:40	3:55		
R35	4:00	4:00	3:55	3:50		3:55	5:00	6:55							3:50	3:00	4:15		5:50	6:40	3:55		