APPENDIX J

Representative Inputs to and Outputs from the DYNEV II System

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

This appendix presents data input to and output from the DYNEV II System. Table J-1 provides the volume and queues for the ten highest volume signalized intersections in the study area. All signal lengths are 75 seconds. Refer to Table K-2 and the figures in Appendix K for a map showing the geographic location of each intersection.

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

Table J-3 provides network–wide statistics (average travel time, average speed and number of vehicles) for an evacuation of the entire EPZ (Region R03) for each scenario. As expected, the special event (Scenario 13) exhibits the slowest average speed and longest average travel time as there are approximately 50% more evacuating vehicles than in other scenarios.

Table J-4 provides statistics (average speed and travel time) for the major evacuation routes through the EPZ – US 123 and US 76 – for an evacuation of the entire EPZ (Region R03) under Scenario 1 conditions. As discussed in Section 7.3 and shown in Figures 7-3 through 7-10, US-123/US 76 WB is congested for most of the evacuation. As such, the average speeds are comparably slower (and travel times longer) than other evacuation routes.

Table J-5 provides the number of vehicles discharged and the cumulative percent of total vehicles discharged for each link exiting the analysis network, for an evacuation of the entire EPZ (Region R03) under Scenario 1 conditions. Refer to Table K-1 and the figures in Appendix K for a map showing the geographic location of each link.

Figure J-1 through Figure J-14 plot the trip generation time versus the ETE for each of the 14 Scenarios considered. The distance between the trip generation and ETE curves is the travel time. Plots of trip generation versus ETE are indicative of the level of traffic congestion during evacuation. For low population density sites, the curves are close together, indicating short travel times and minimal traffic congestion. For higher population density sites, the curves are farther apart indicating longer travel times and the presence of traffic congestion. As seen in Figure J-1 through Figure J-14, the curves are spatially separated as a result of the traffic congestion in the EPZ, which was discussed in detail in Section 7.3. The maximum travel time is about 1 hour, 30 minutes on average for midday good weather scenarios, 4 hours for the special event, and 2 hours, 30 minutes for the roadway impact.

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

Node	Location	Intersection Control	Approach (Up Node)	Total Volume (Veh)	Max. Turn Queue (Veh)
33	US-123 & US-76	Actuated	32	11,034	2
			34	3,589	105
			193	1,399	31
			TOTAL	16,022	-
32	US-123 & SR 133	Actuated	528	6,202	793
			33	3,861	291
			748	2,288	120
			375	3,562	113
			TOTAL	15,913	-
19	US-76 & Hitec Rd	Actuated	18	3,355	6
			20	12,044	381
			509	0	0
			510	0	0
			TOTAL	15,399	-
20	US-76 & Wells Hwy	Actuated	19	3,362	189
			21	11,865	375
			512	170	1
			511	0	0
			TOTAL	15,397	-
22	US-76 & SR 130	Actuated	21	3,384	372
			639	8,339	306
			176	841	112
			305	2,583	156
			TOTAL	15,147	-
21	US-76 & SR S-37-50	Actuated	20	3,378	376
			22	11,760	287
			513	0	0
			514	0	0
			TOTAL	15,138	-
10	US-76 & SR 24	Actuated	11	10,889	84
			507	61	0
			9	3,246	0
			TOTAL	14,196	-

Node	Location	Intersection Control	Approach (Up Node)	Total Volume (Veh)	Max. Turn Queue (Veh)
30	US-76 & Old Clemson Hwy	Actuated	29	7,081	0
			638	6,013	1,213
			527	0	0
			526	30	0
			TOTAL	13,124	-
26	US-76 & SR 130	Actuated	796	3,899	166
			27	6,268	1,210
			797	2,202	853
			173	563	23
			TOTAL	12,932	-
29	US-76 & SR S-37-56	Actuated	30	6,037	805
			28	6,791	0
			525	0	0
			TOTAL	12,828	-

Table J-2. Sample Simulation Model Input

Link Number	Vehicles Entering Network on this Link	Directional Preference	Destination Nodes	Destination Capacity
6	27	SW	8003	1,698
187	75	E	8097	1,740
			8501	1,698
279	25	SW	8243	1,698
			8720	1,698
			8217	1,698
367	37	S	8720	1,698
			8217	1,698
443	90	NW	8271	1,698
			8165	1,698
			8003	1,698
541	187	SE	8202	3,810
			8097	1,740
			8501	1,698
626	77	N	8271	1,698
			8054	1,698
705	16	S	8243	1,698
			8003	1,698
			8217	1,698
809	647	S	8202	3,810
			8097	1,740
			8217	1,698
909	730	S	8053	4,500
			8202	3,810
			8097	1,740

Table J-3. Selected Model Outputs for the Evacuation of the Entire EPZ (Region R03)

Scenario	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Network-Wide Average Travel Time (Min/Veh-Mi)	4.2	4.9	3.9	4.4	3.5	4.2	4.8	4.7	3.7	4.2	4.0	3.5	5.3	4.9
Network-Wide Average Speed (mph)	14.4	12.2	15.5	13.6	17.4	14.2	12.6	12.5	16.1	14.2	15.1	17.4	11.3	12.4
Total Vehicles Exiting Network	77,741	77,755	68,660	68,747	61,500	77,198	77,210	76,707	67,268	67,324	66,502	61,500	94,774	78,468

Table J-4. Average Speed (mph) and Travel Time (min) for Major Evacuation Routes (Region R03, Scenario 1)

Elapsed Time (hours)													
		1		2		3		4		5		6	
Route	Length (miles)	Speed (mph)	Travel Time (min)	Speed	Travel Time	Speed	Travel Time	Speed	Travel Time	Speed	Travel Time	Speed	Travel Time
US 123 WB	17.7	6.8	156.2	2.5	419	2.9	364.3	7.5	141.3	45.4	23.3	54.3	19.5
US 123 EB	17.7	19.4	54.7	11.7	90.6	33.6	31.5	48.5	21.8	53.0	20.0	53.9	19.7
US 76 WB	12.9	5.1	152.1	1.9	414.2	2.2	359.8	5.7	136.7	41.1	18.9	51.5	15.0
US 76 EB	12.9	16.9	45.9	10.9	71.1	38.0	20.4	44.3	17.5	49.6	15.6	50.9	15.2

Table J-5. Simulation Model Outputs at Network Exit Links for Region R03, Scenario 1

Network Exit Link	Elapsed Time (hours)					
	1	2	3	4	5	6
	Cumulative Vehicles Discharged by the Indicated Time					
	Cumulative Percent of Vehicles Discharged by the Indicated Time					
4	1,160	2,576	3,855	4,876	5,769	6,240
	9.59	8.05	7.64	7.36	7.68	8.04
117	2,943	7,077	11,226	15,333	17,207	17,220
	24.33	22.12	22.26	23.16	22.92	22.2
120	476	1,252	2,102	2,620	2,648	2,648
	3.93	3.91	4.17	3.96	3.53	3.41
121	383	1,051	1,891	2,476	2,505	2,506
	3.16	3.28	3.75	3.74	3.34	3.23
246	17	90	117	123	124	124
	0.14	0.28	0.23	0.19	0.16	0.16
250	168	546	701	715	719	719
	1.39	1.71	1.39	1.08	0.96	0.93
252	238	746	959	977	982	982
	1.97	2.33	1.9	1.48	1.31	1.27
292	946	2,214	3,435	4,646	5,677	6,145
	7.82	6.92	6.81	7.02	7.56	7.92
345	2,053	4,807	7,623	9,808	11,038	11,043
	16.97	15.02	15.12	14.81	14.7	14.23
363	1,007	2,592	4,084	5,456	6,495	7,507
	8.33	8.1	8.1	8.24	8.65	9.68
391	1,095	2,793	4,491	6,189	7,357	7,809
	9.06	8.73	8.91	9.35	9.8	10.07
463	8	49	64	67	67	67
	0.06	0.15	0.13	0.1	0.09	0.09
503	12	99	130	138	139	139
	0.1	0.31	0.26	0.21	0.19	0.18
529	4	63	89	95	97	97
	0.03	0.2	0.18	0.14	0.13	0.12
683	101	379	691	766	772	772
	0.83	1.18	1.37	1.16	1.03	0.99
840	330	1,371	1,824	1,880	1,893	1,893
	2.73	4.29	3.62	2.84	2.52	2.44
946	386	1,906	3,149	4,428	5,444	5,514
	3.19	5.96	6.24	6.69	7.25	7.11

Network Exit Link	Elapsed Time (hours)					
	1	2	3	4	5	6
	Cumulative Vehicles Discharged by the Indicated Time					
	Cumulative Percent of Vehicles Discharged by the Indicated Time					
972	403	1,354	2,227	3,119	3,322	3,322
	3.33	4.23	4.41	4.71	4.42	4.28
973	367	1,032	1,774	2,498	2,830	2,837
	3.04	3.22	3.52	3.77	3.77	3.66

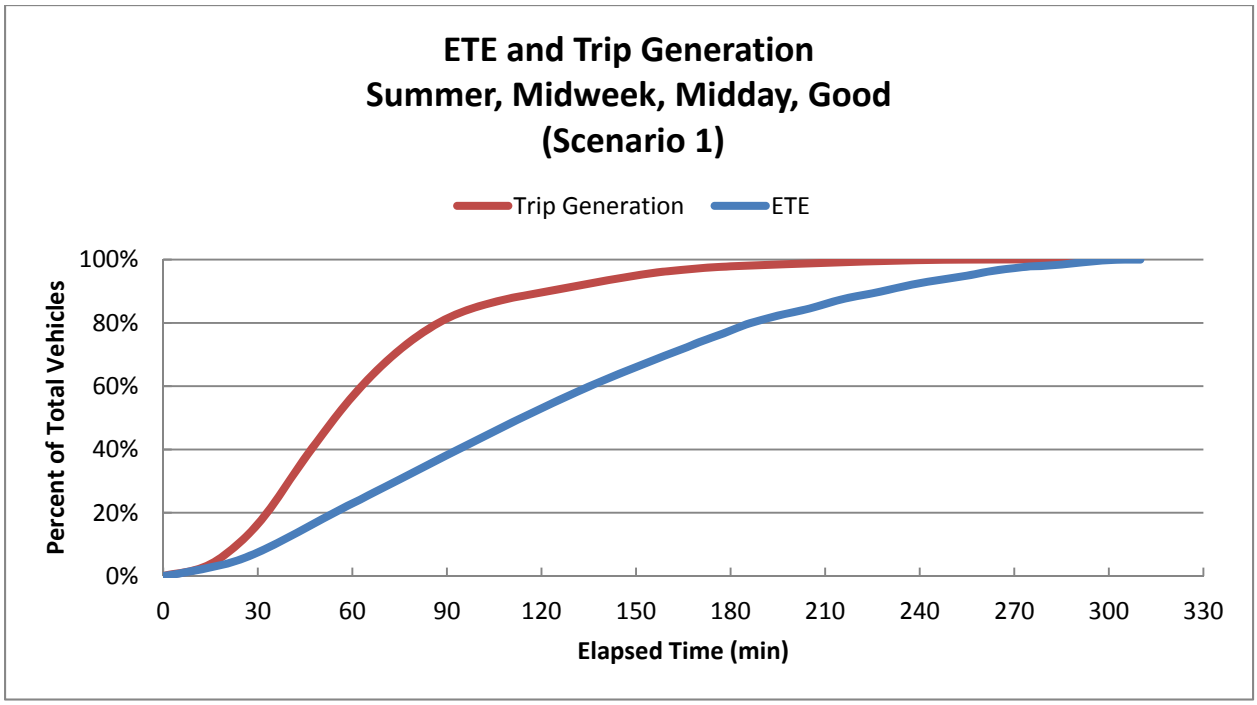

Figure J-1. ETE and Trip Generation: Summer, Midweek, Midday, Good Weather (Scenario 1)

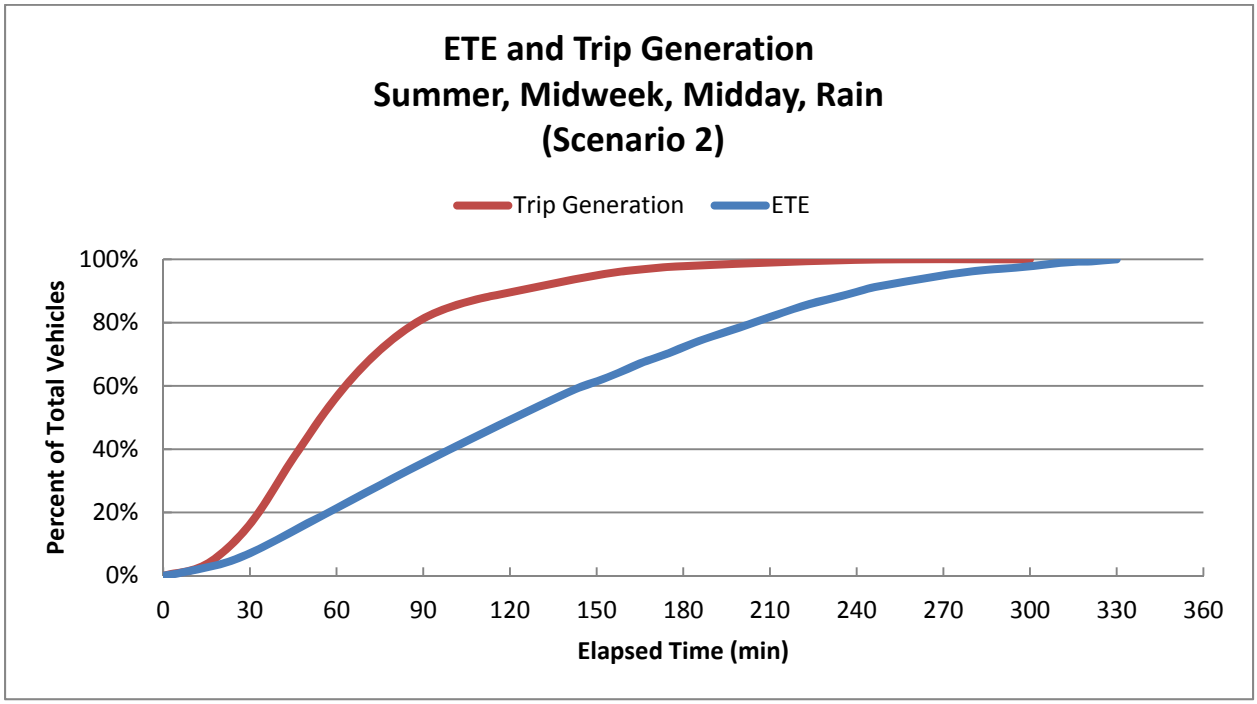

Figure J-2. ETE and Trip Generation: Summer, Midweek, Midday, Rain (Scenario 2)

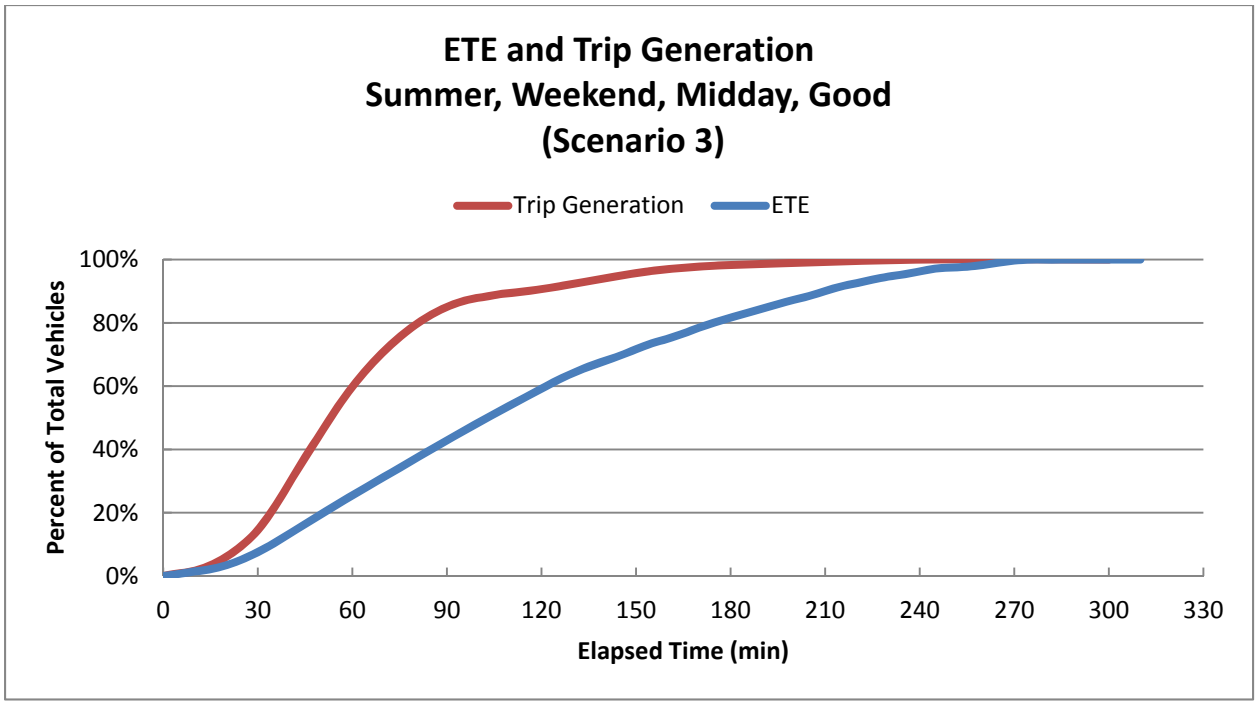

Figure J-3. ETE and Trip Generation: Summer, Weekend, Midday, Good Weather (Scenario 3)

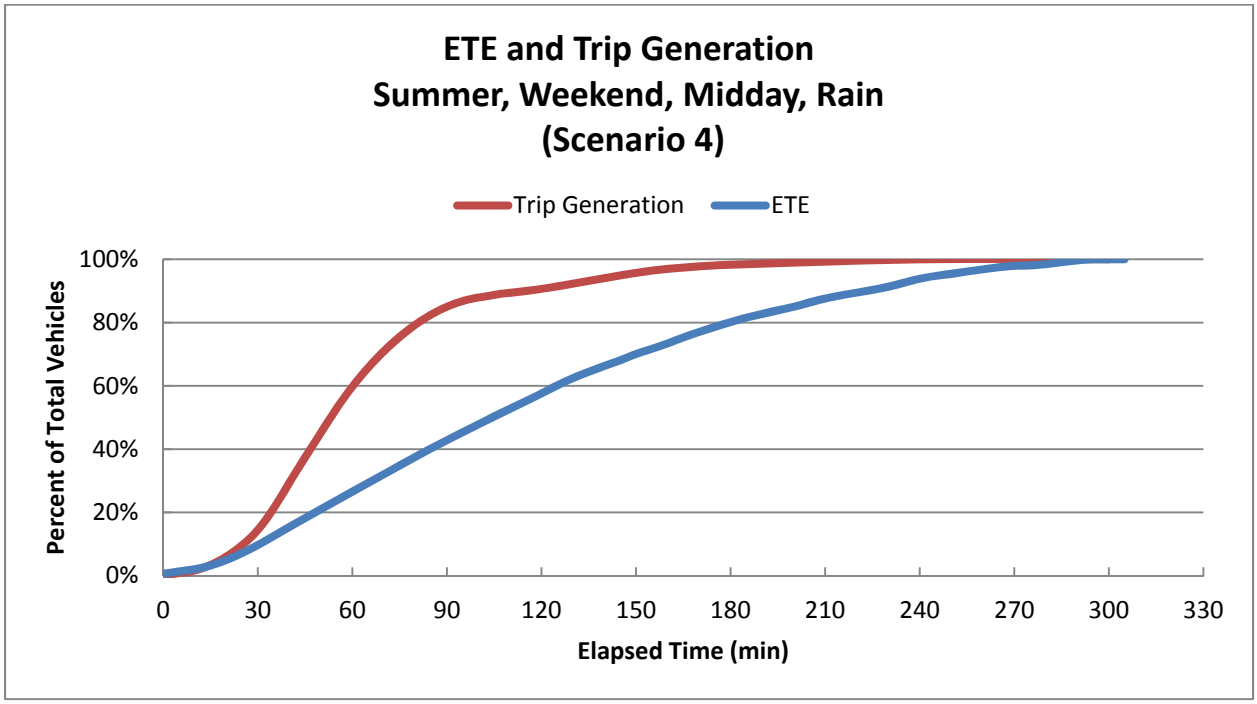

Figure J-4. ETE and Trip Generation: Summer, Weekend, Midday, Rain (Scenario 4)

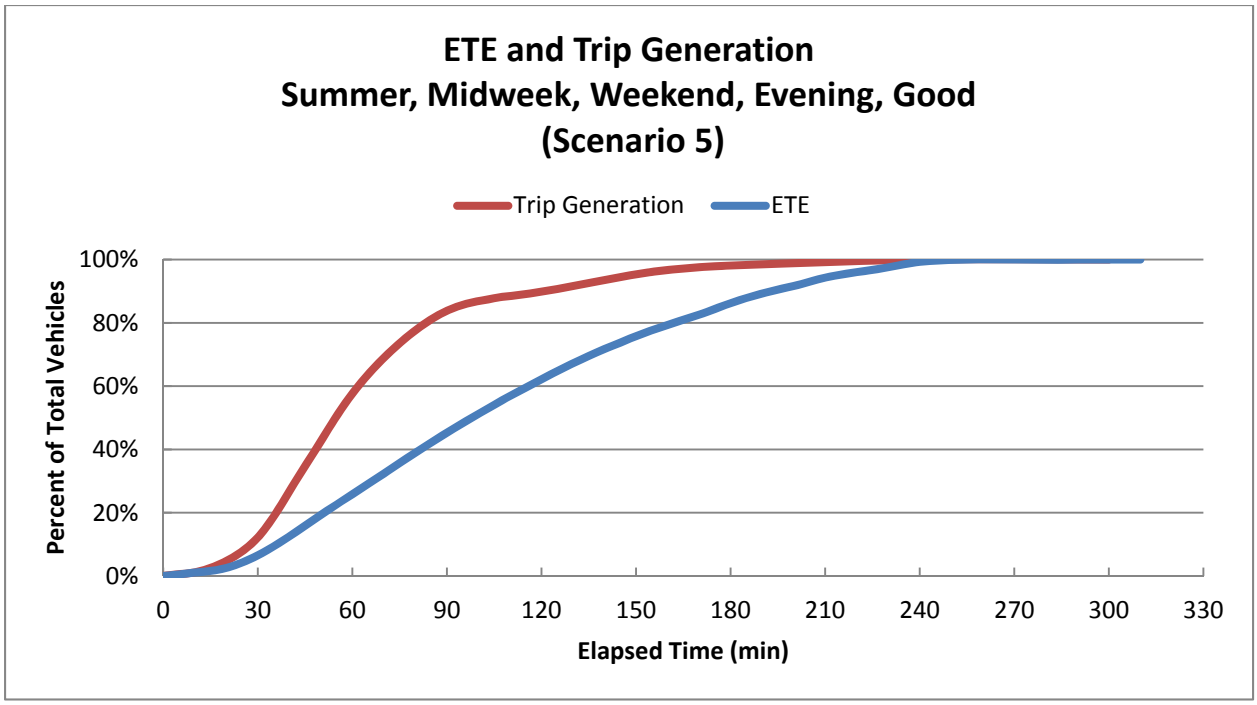

Figure J-5. ETE and Trip Generation: Summer, Midweek, Weekend, Evening, Good Weather (Scenario 5)

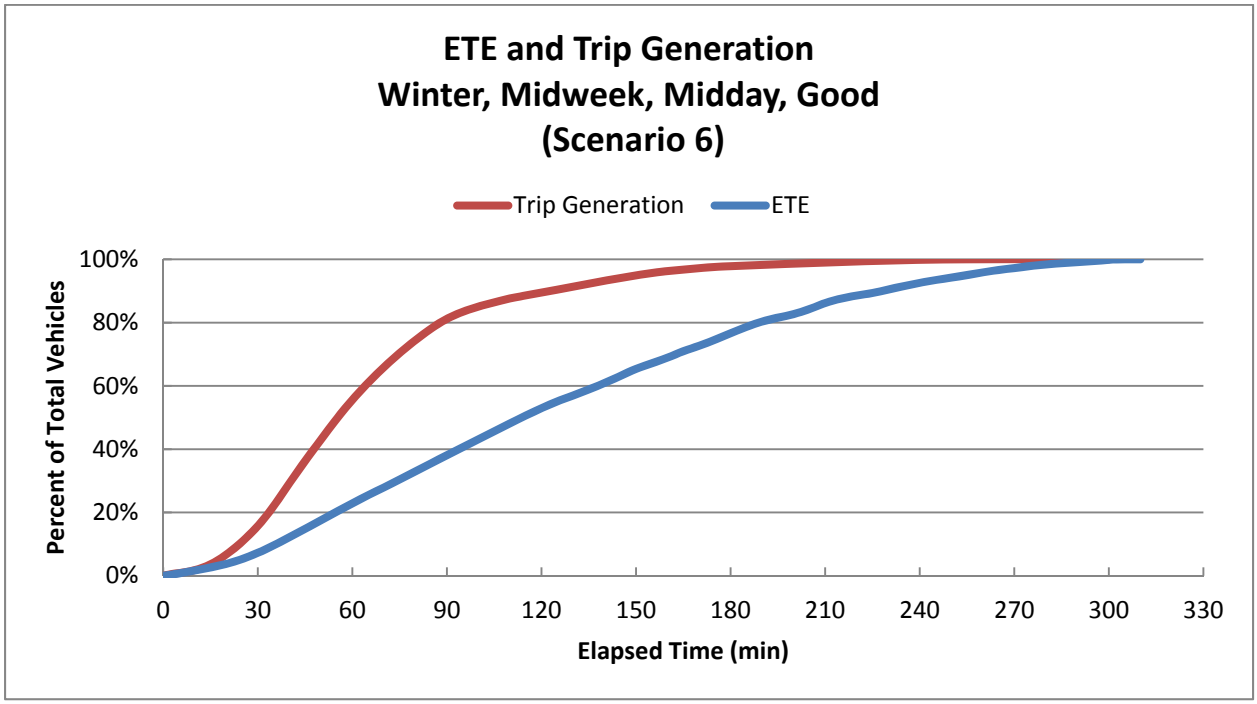

Figure J-6. ETE and Trip Generation: Winter, Midweek, Midday, Good Weather (Scenario 6)

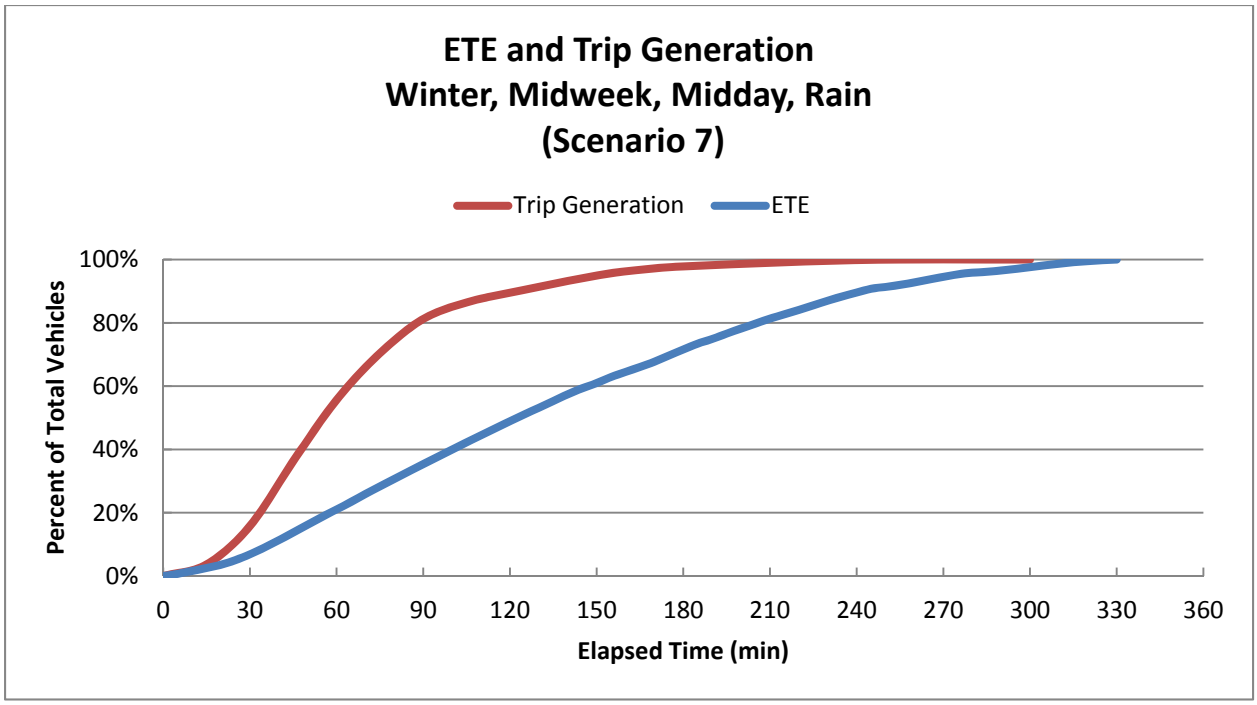

Figure J-7. ETE and Trip Generation: Winter, Midweek, Midday, Rain (Scenario 7)

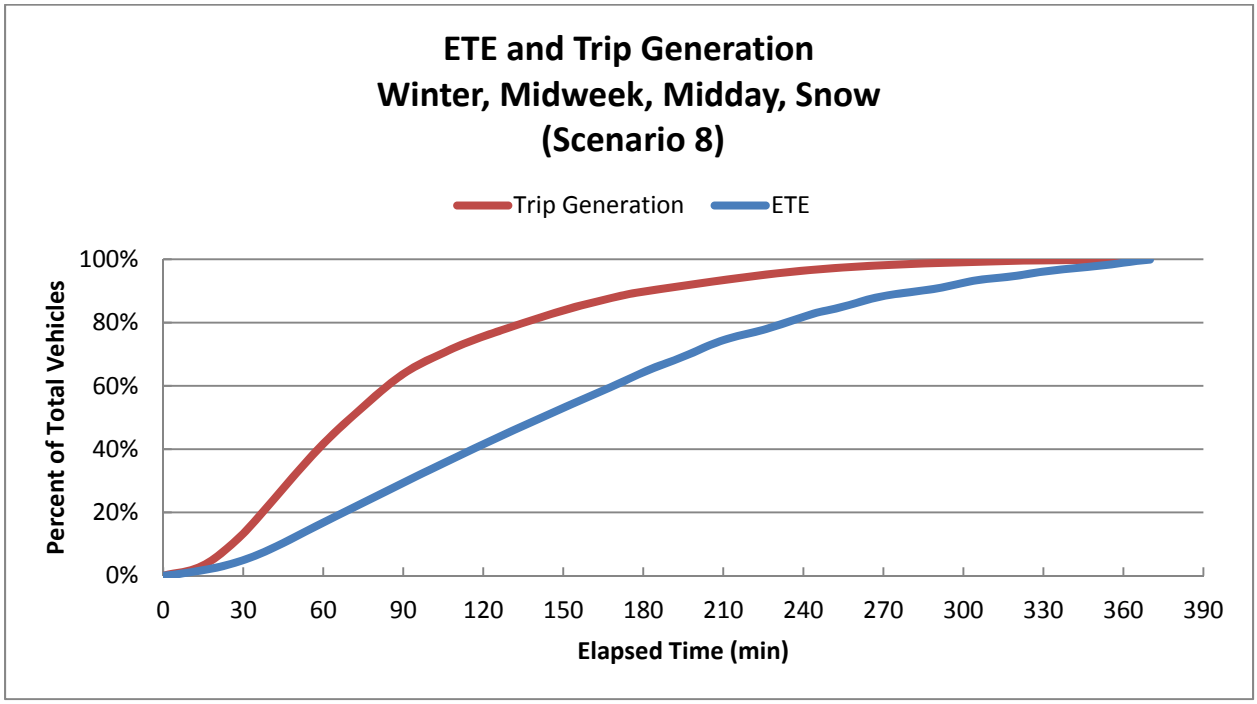

Figure J-8. ETE and Trip Generation: Winter, Midweek, Midday, Snow (Scenario 8)

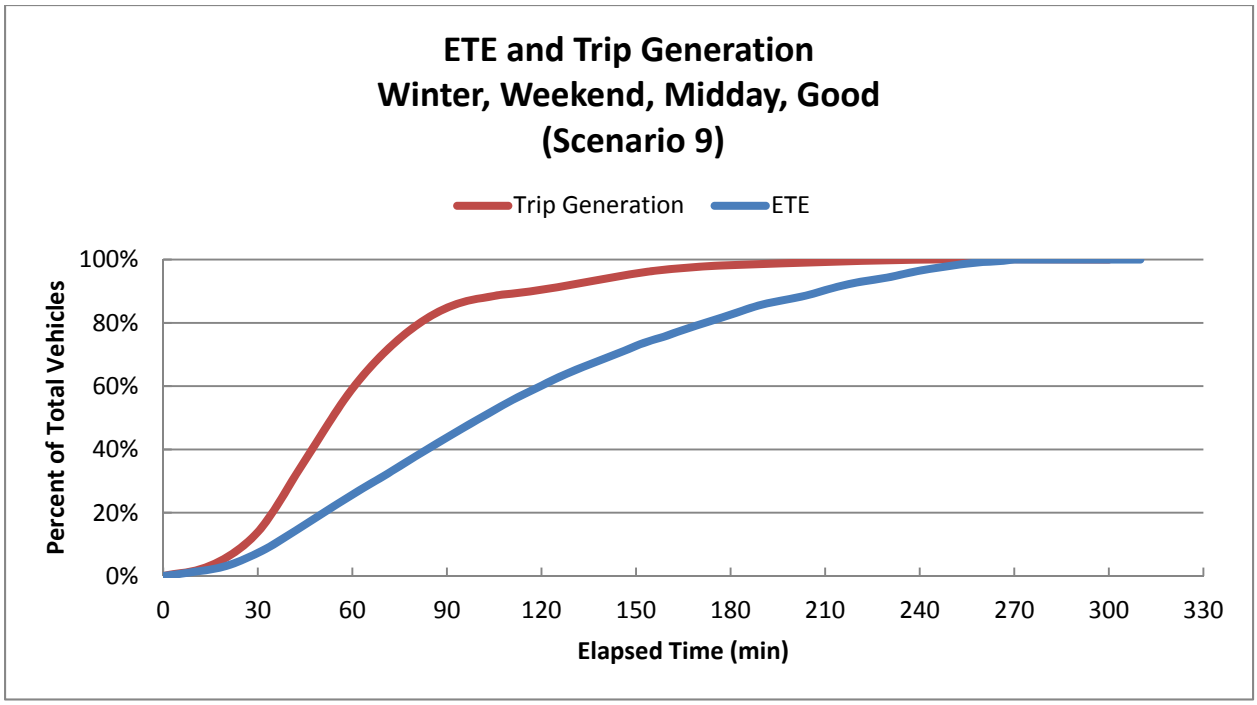

Figure J-9. ETE and Trip Generation: Winter, Weekend, Midday, Good Weather (Scenario 9)

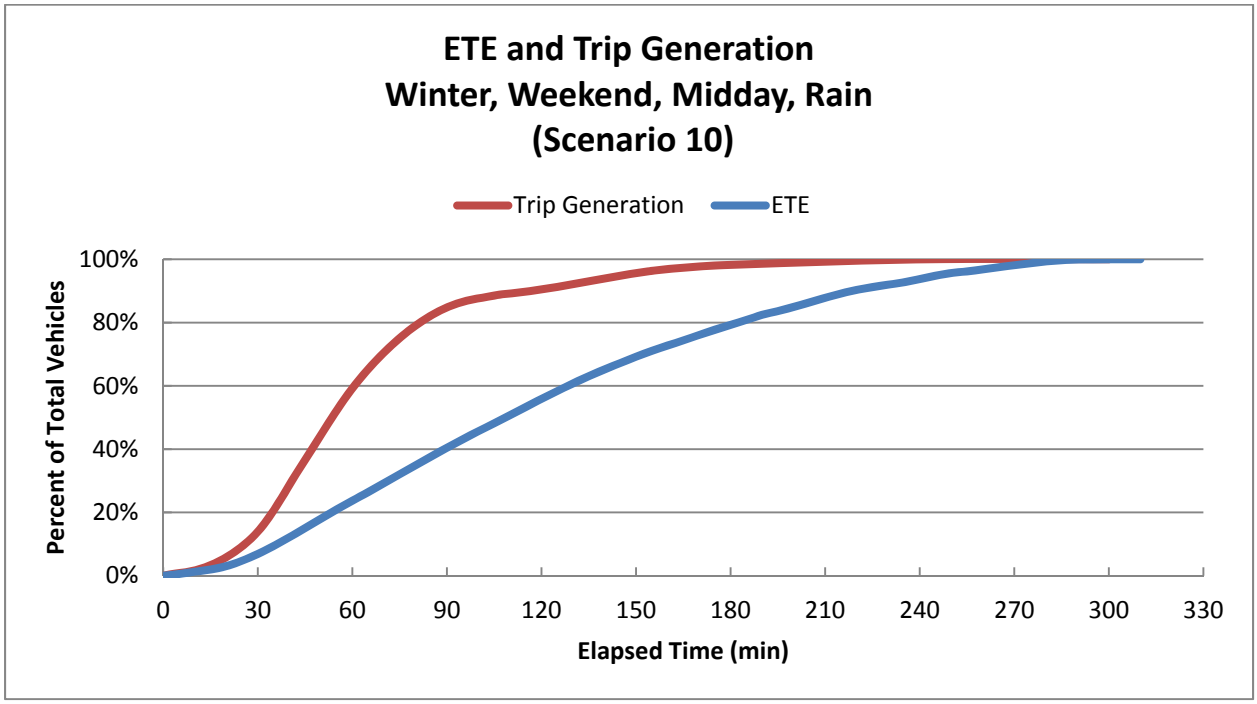

Figure J-10. ETE and Trip Generation: Winter, Weekend, Midday, Rain (Scenario 10)

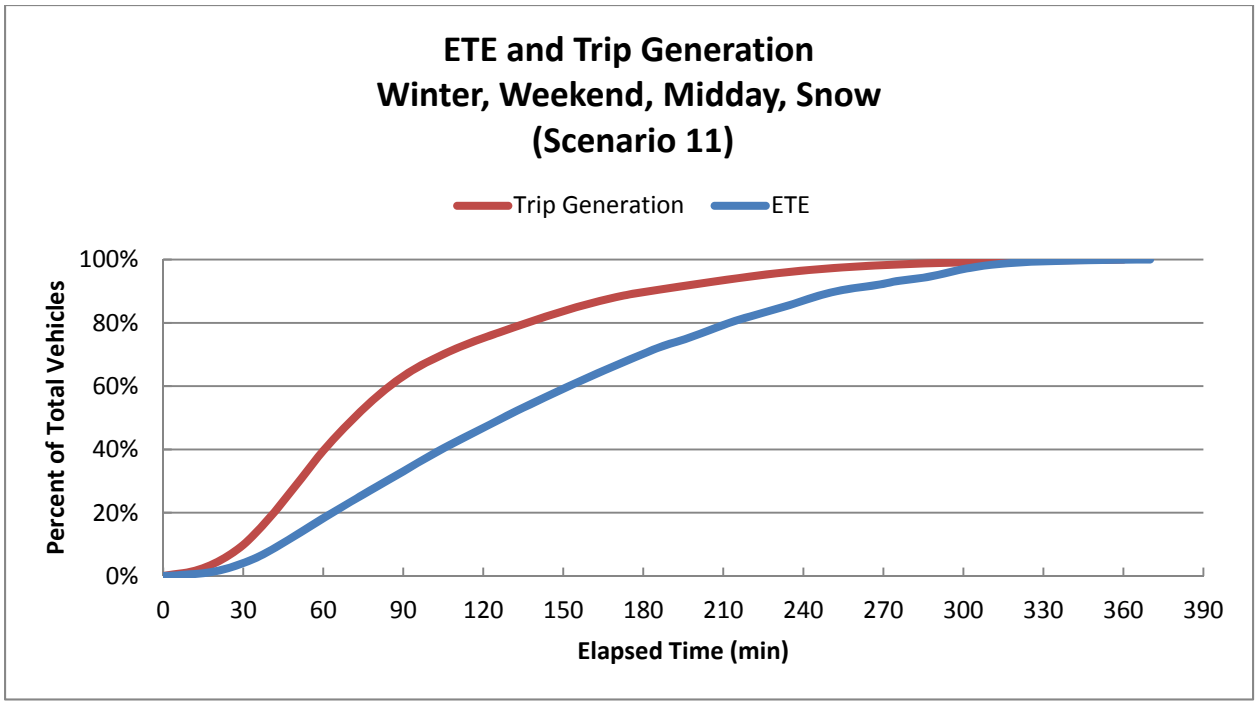

Figure J-11. ETE and Trip Generation: Winter, Weekend, Midday, Snow (Scenario 11)

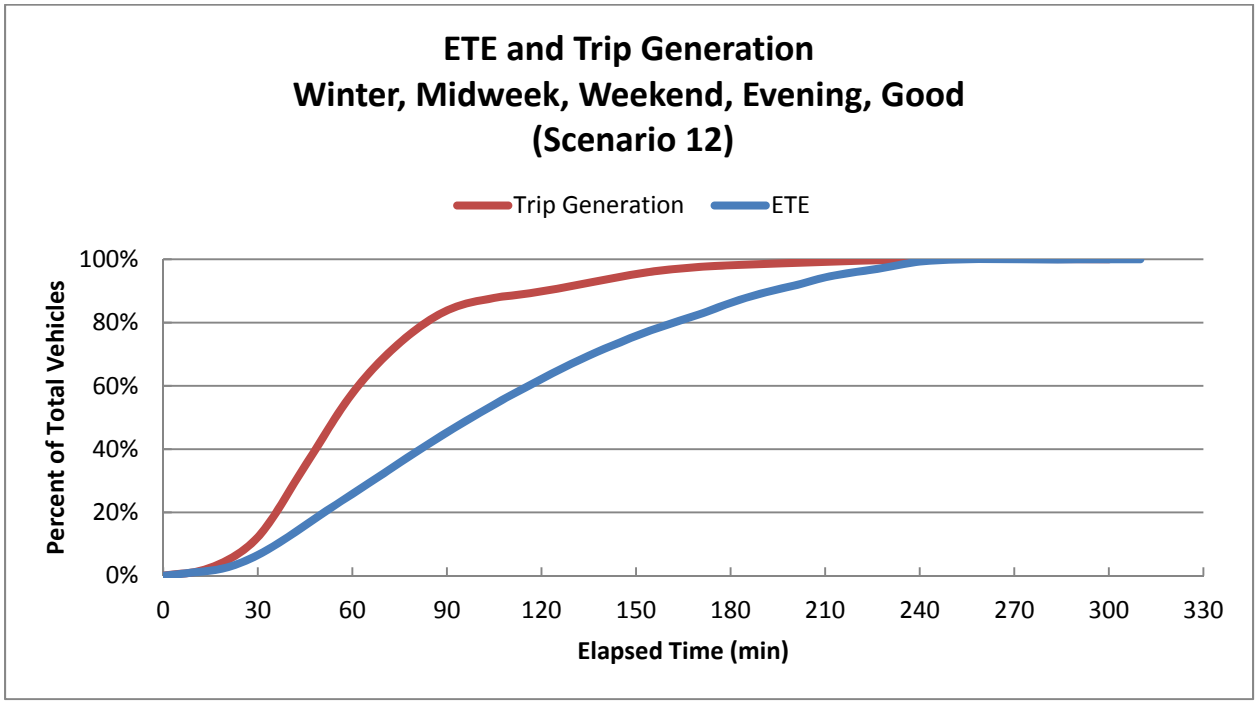

Figure J-12. ETE and Trip Generation: Winter, Midweek, Weekend, Evening, Good Weather (Scenario 12)

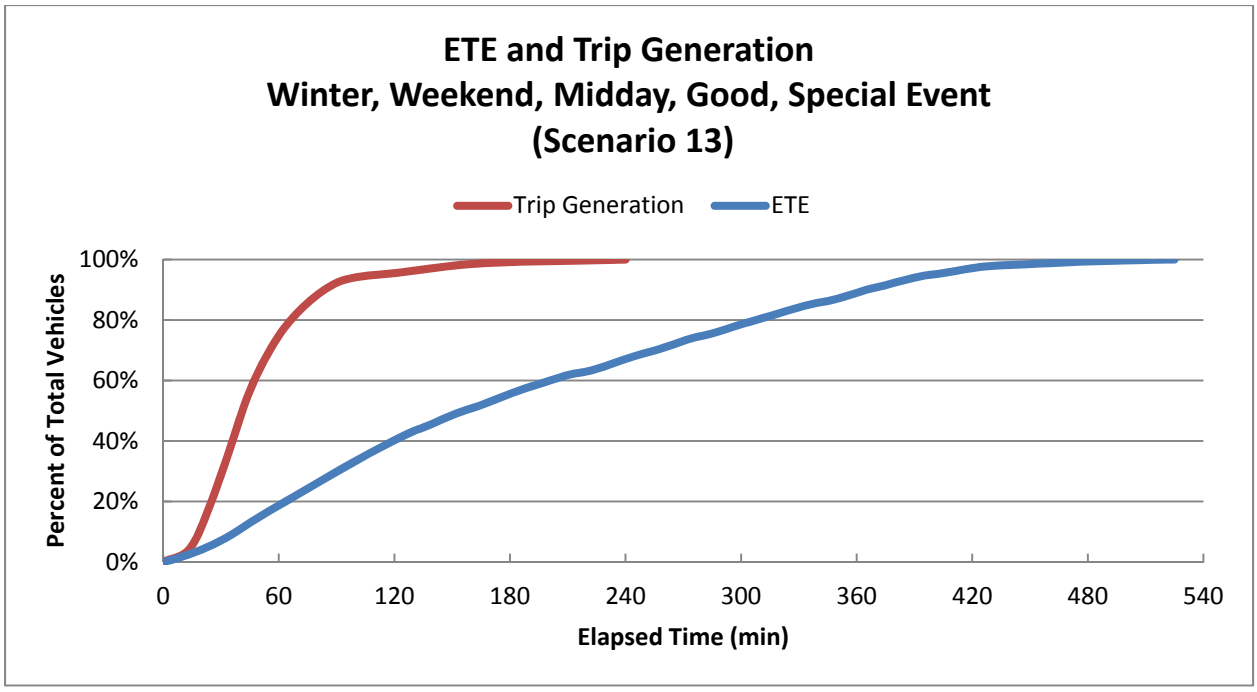

Figure J-13. ETE and Trip Generation: Summer, Weekend, Evening, Good Weather, Special Event (Scenario 13)

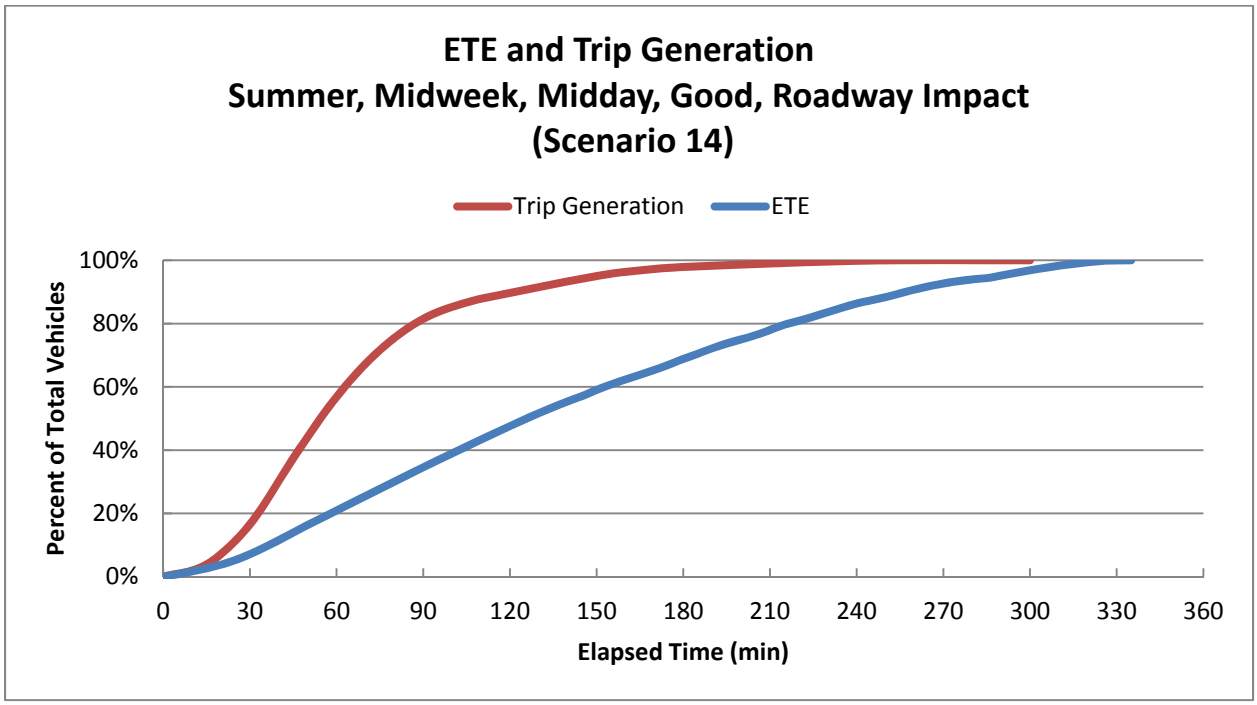

Figure J-14. ETE and Trip Generation: Summer, Midweek, Midday, Good Weather, Roadway Impact (Scenario 14)

APPENDIX K

Evacuation Roadway Network

K. EVACUATION ROADWAY NETWORK

As discussed in Section 1.3, a link-node analysis network was constructed to model the roadway network within the study area. Figure K-1 provides an overview of the link-node analysis network. The figure has been divided up into 40 more detailed figures (Figure K-2 through Figure K-41) which show each of the links and nodes in the network.

The analysis network was calibrated using the observations made during the field survey conducted in September 2011. Table K-1 lists the characteristics of each roadway section modeled in the ETE analysis. Each link is identified by its road name and the upstream and downstream node numbers. The geographic location of each link can be observed by referencing the grid map number provided in Table K-1. The roadway type identified in Table K-1 is generally based on the following criteria:

- Freeway: limited access highway, 2 or more lanes in each direction, high free flow speeds
- Freeway ramp: ramp on to or off of a limited access highway
- Major arterial: 3 or more lanes in each direction
- Minor arterial: 2 or more lanes in each direction
- Collector: single lane in each direction
- Local roadways: single lane in each direction, local roads with low free flow speeds

The term, "No. of Lanes" in Table K-1 identifies the number of lanes that extend throughout the length of the link. Many links have additional lanes on the immediate approach to an intersection (turn pockets); these have been recorded and entered into the input stream for the DYNEV II System.

As discussed in Section 1.3, lane width and shoulder width were not physically measured during the road survey. Rather, estimates of these measures were based on visual observations and recorded images.

Table K-2 identifies each node in the network that is controlled and the type of control (stop sign, yield sign, pre-timed signal, actuated signal, traffic control point) at that node. Uncontrolled nodes are not included in Table K-2. The location of each node can be observed by referencing the grid map number provided.

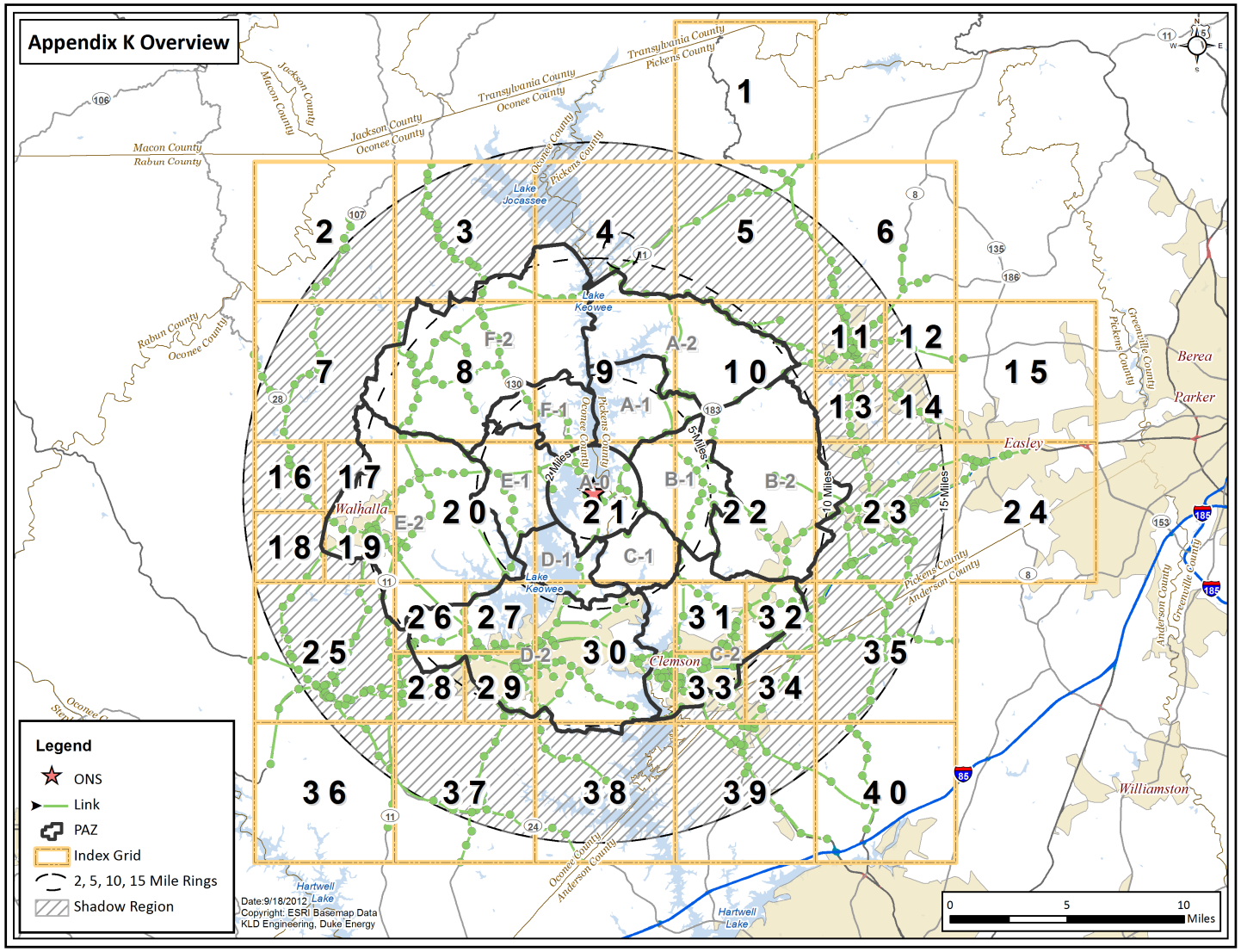

Figure K-1. Link-Node Analysis Network

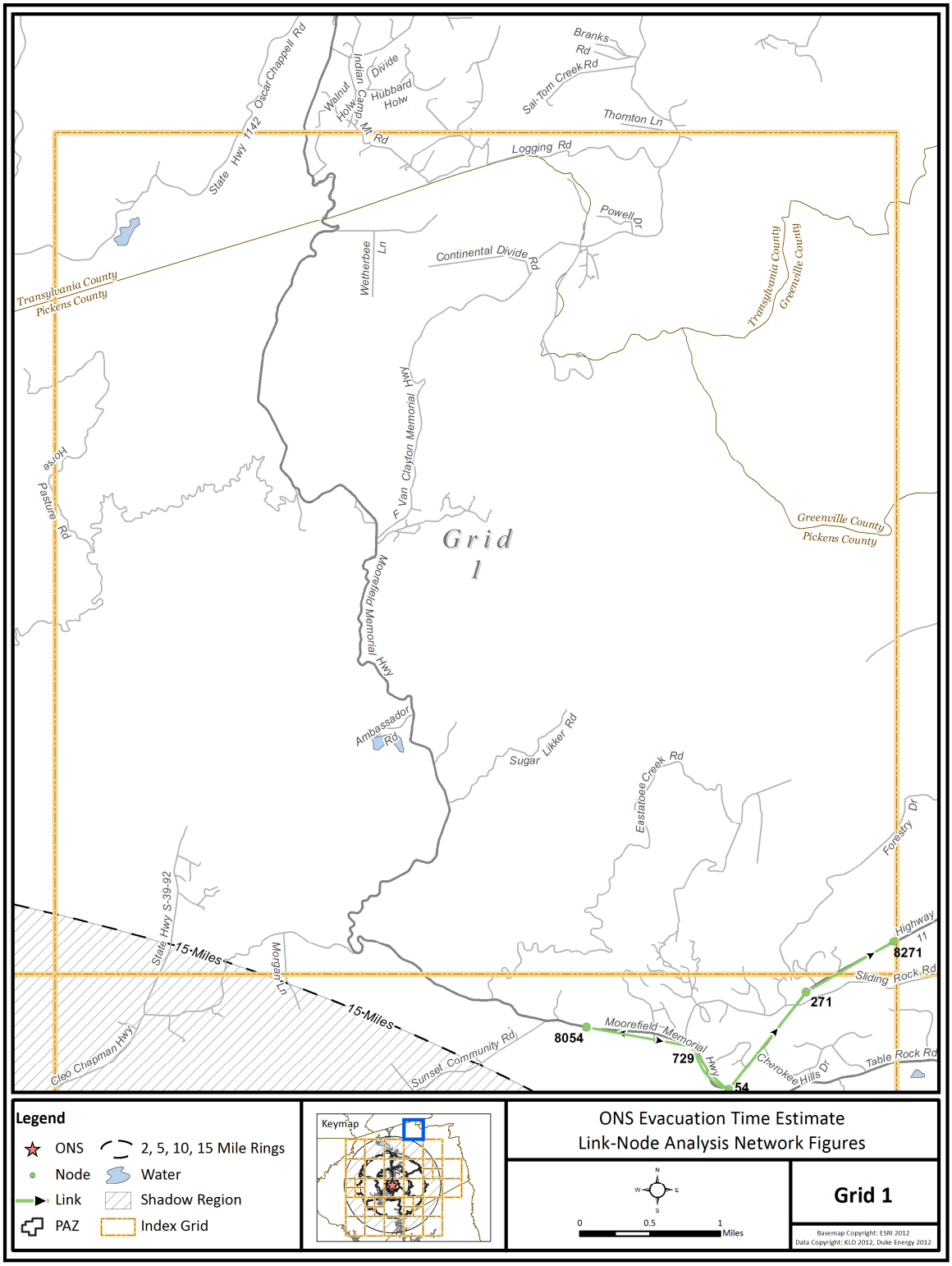

Figure K-2. Link-Node Analysis Network – Grid 1

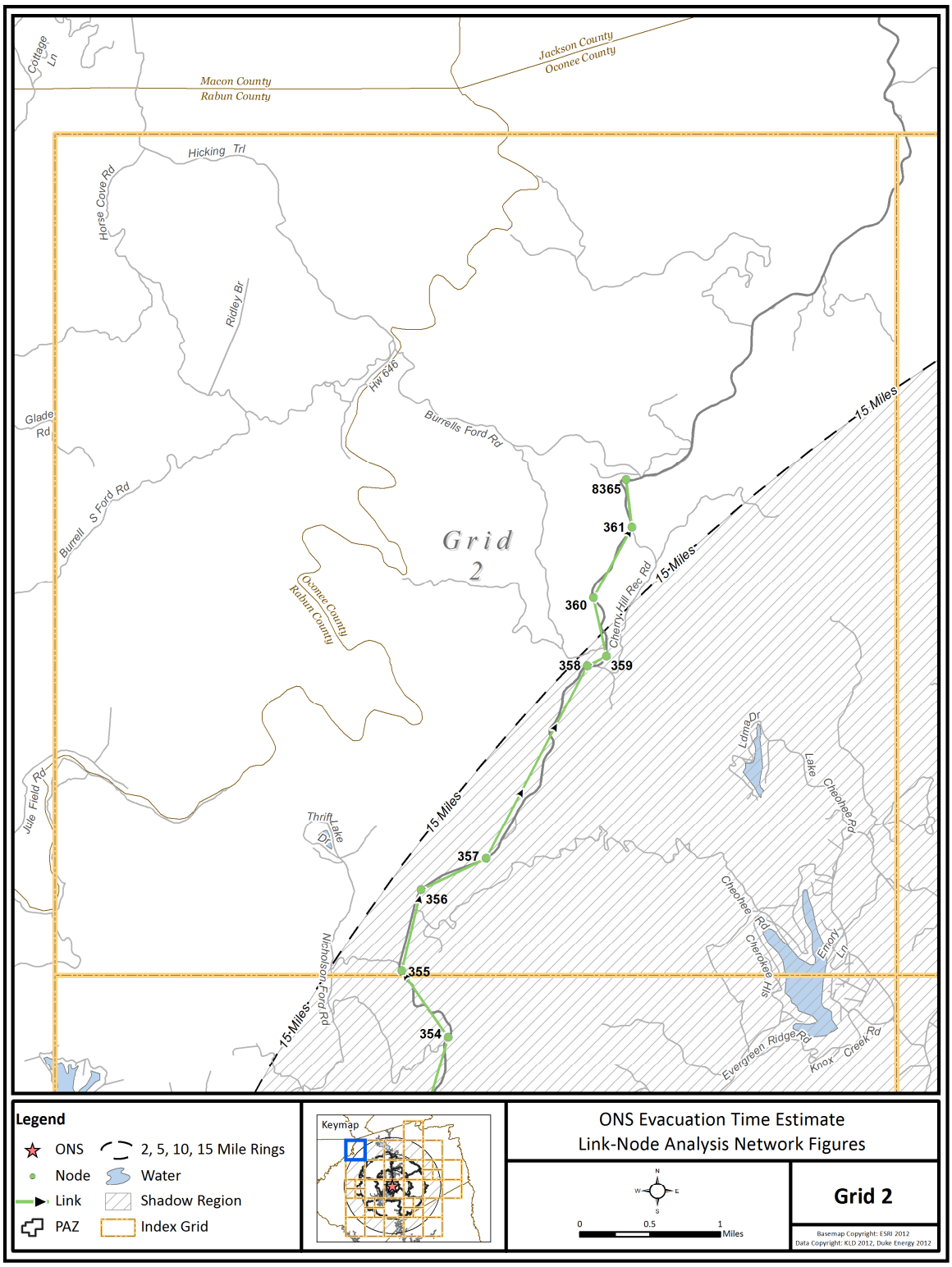

Figure K-3. Link-Node Analysis Network – Grid 2

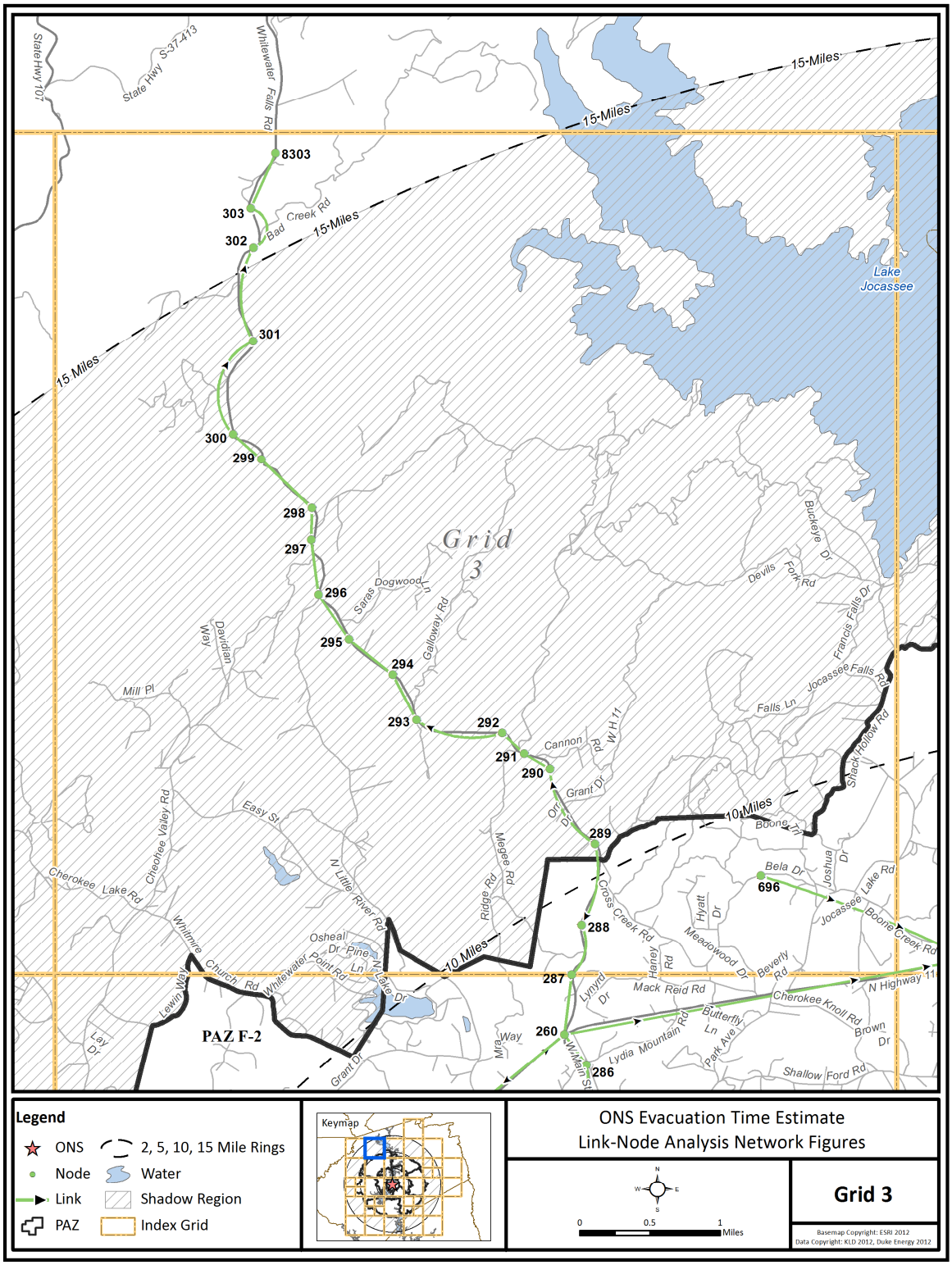

Figure K-4. Link-Node Analysis Network – Grid 3

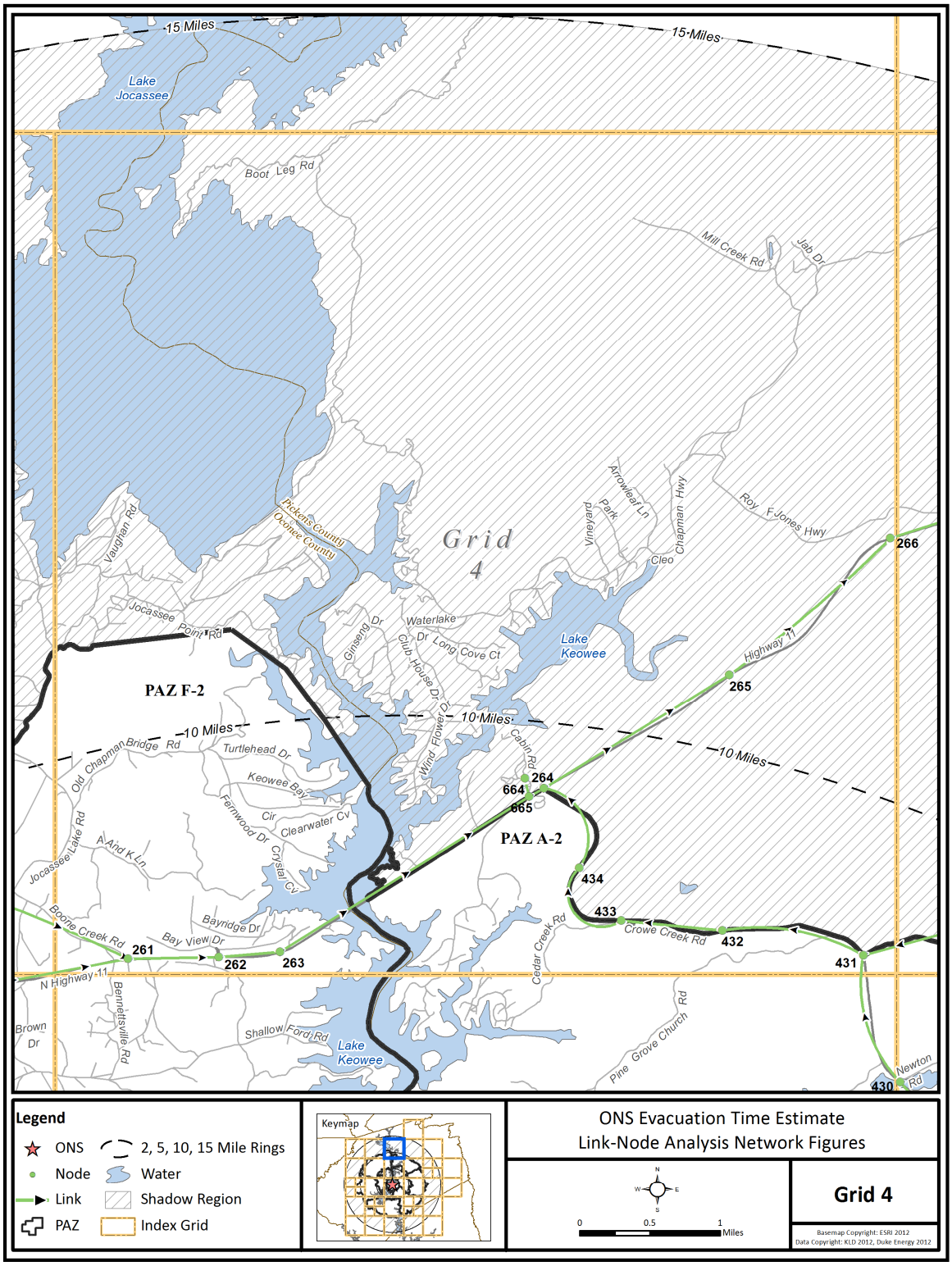

Figure K-5. Link-Node Analysis Network – Grid 4

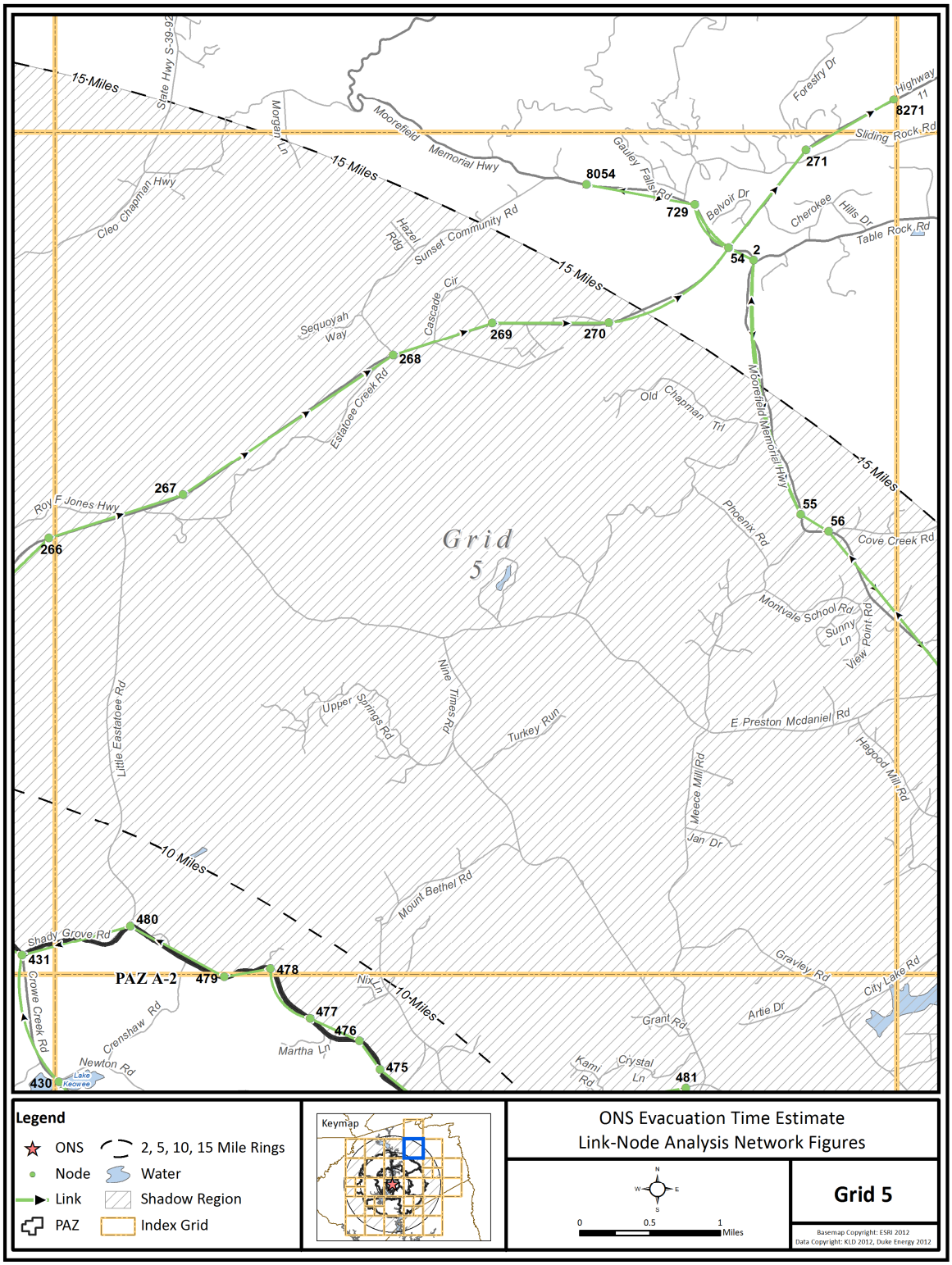

Figure K-6. Link-Node Analysis Network – Grid 5

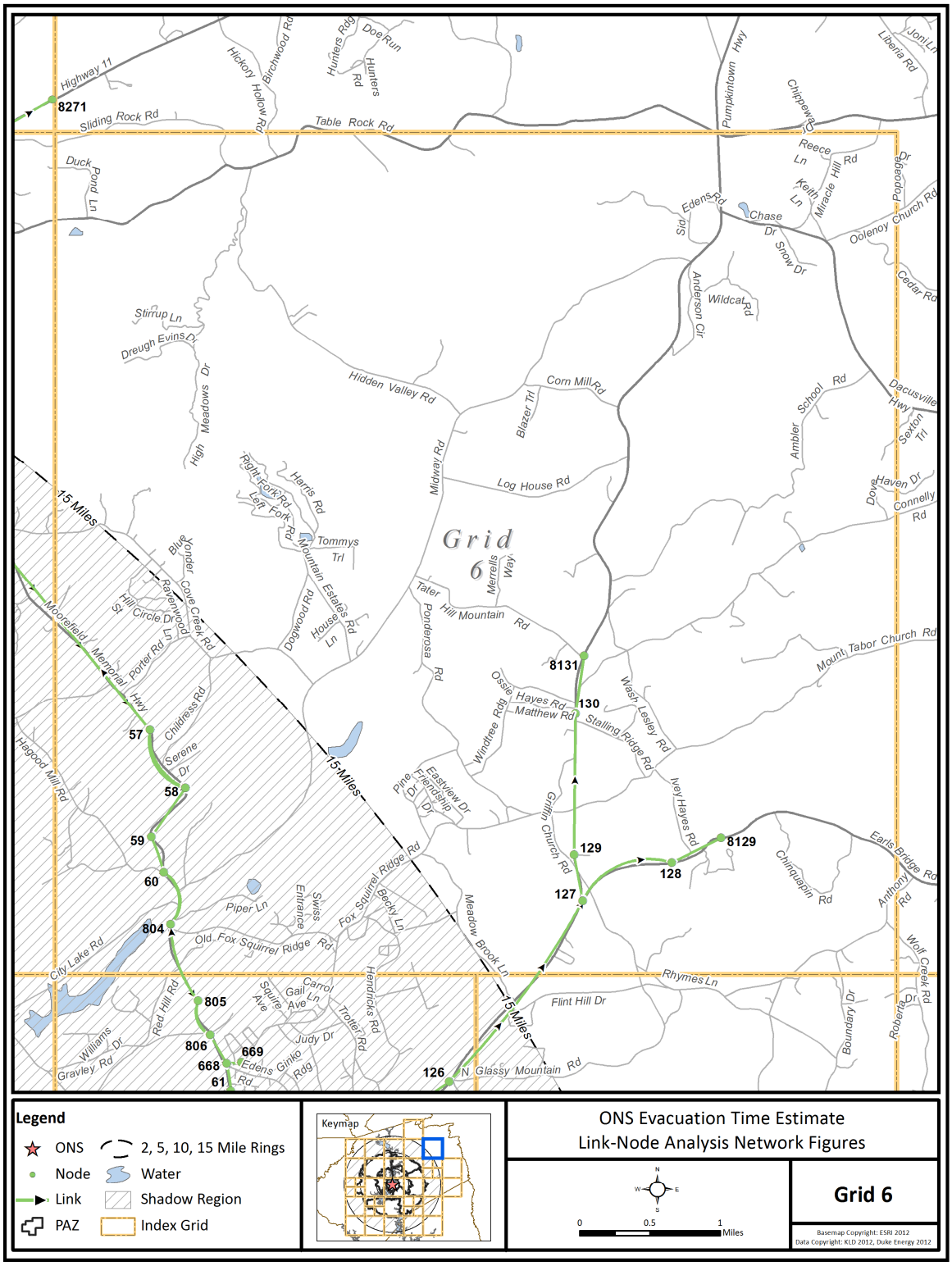

Figure K-7. Link-Node Analysis Network – Grid 6

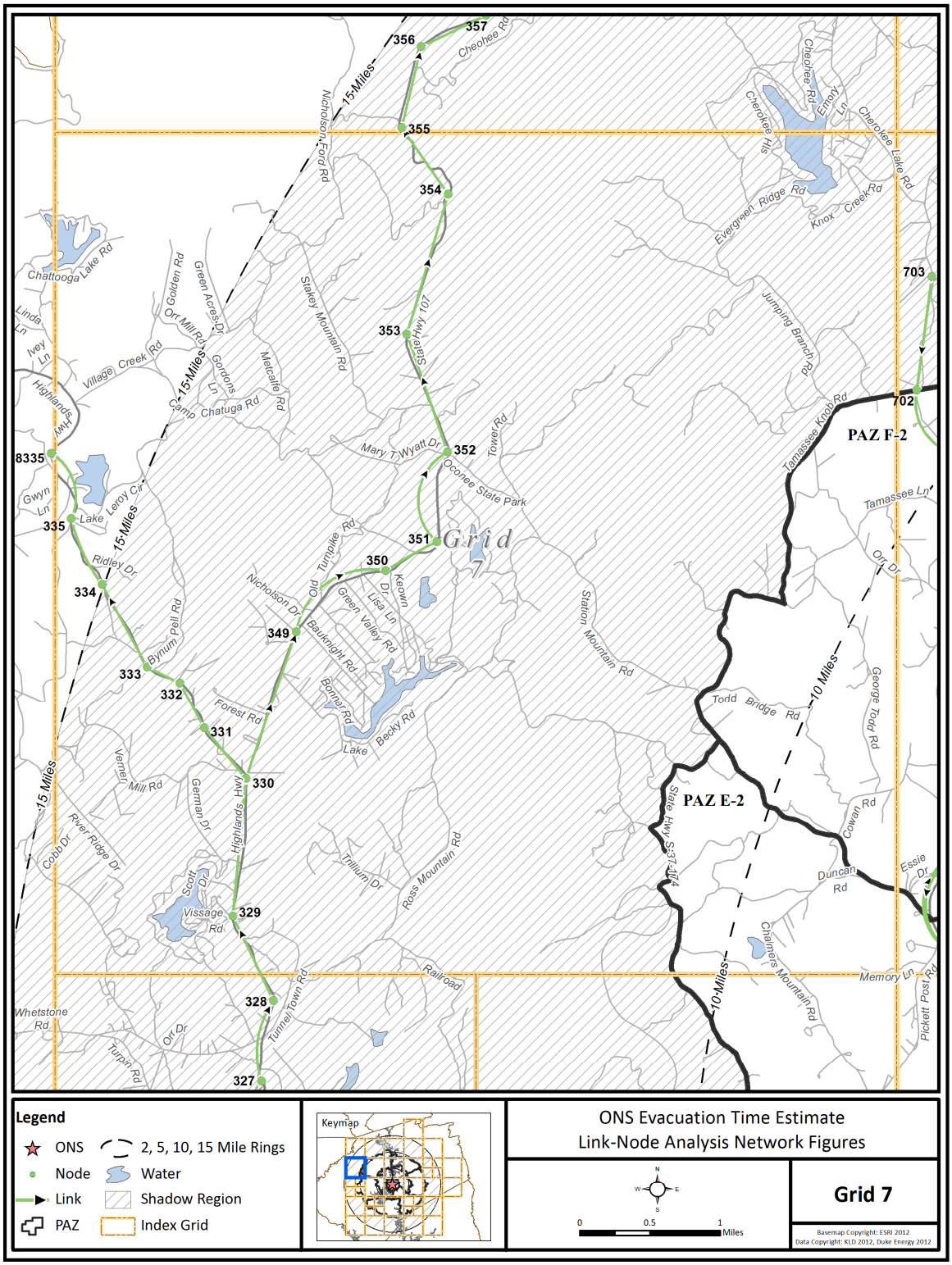

Figure K-8. Link-Node Analysis Network – Grid 7

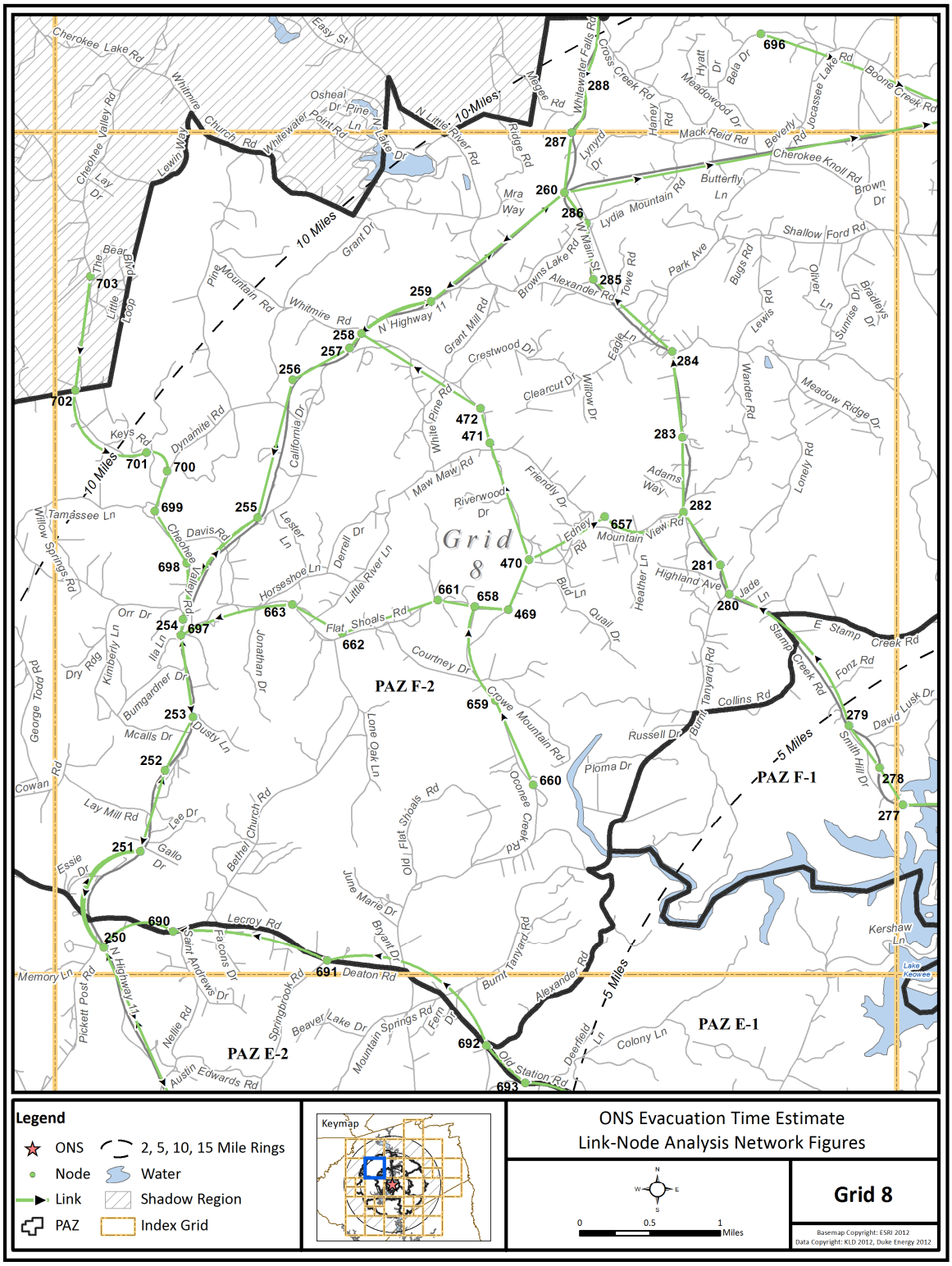

Figure K-9. Link-Node Analysis Network – Grid 8

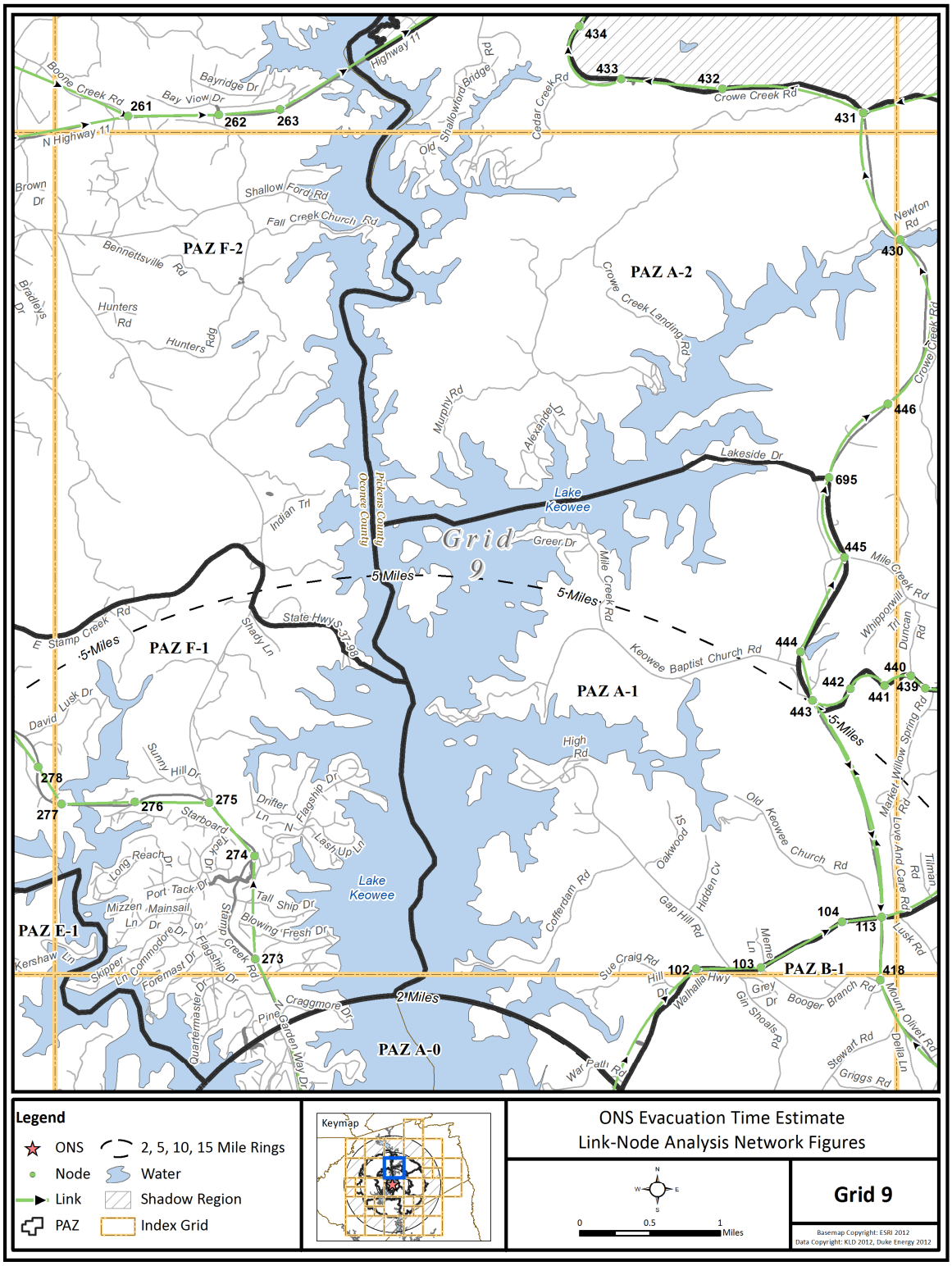

Figure K-10. Link-Node Analysis Network – Grid 9

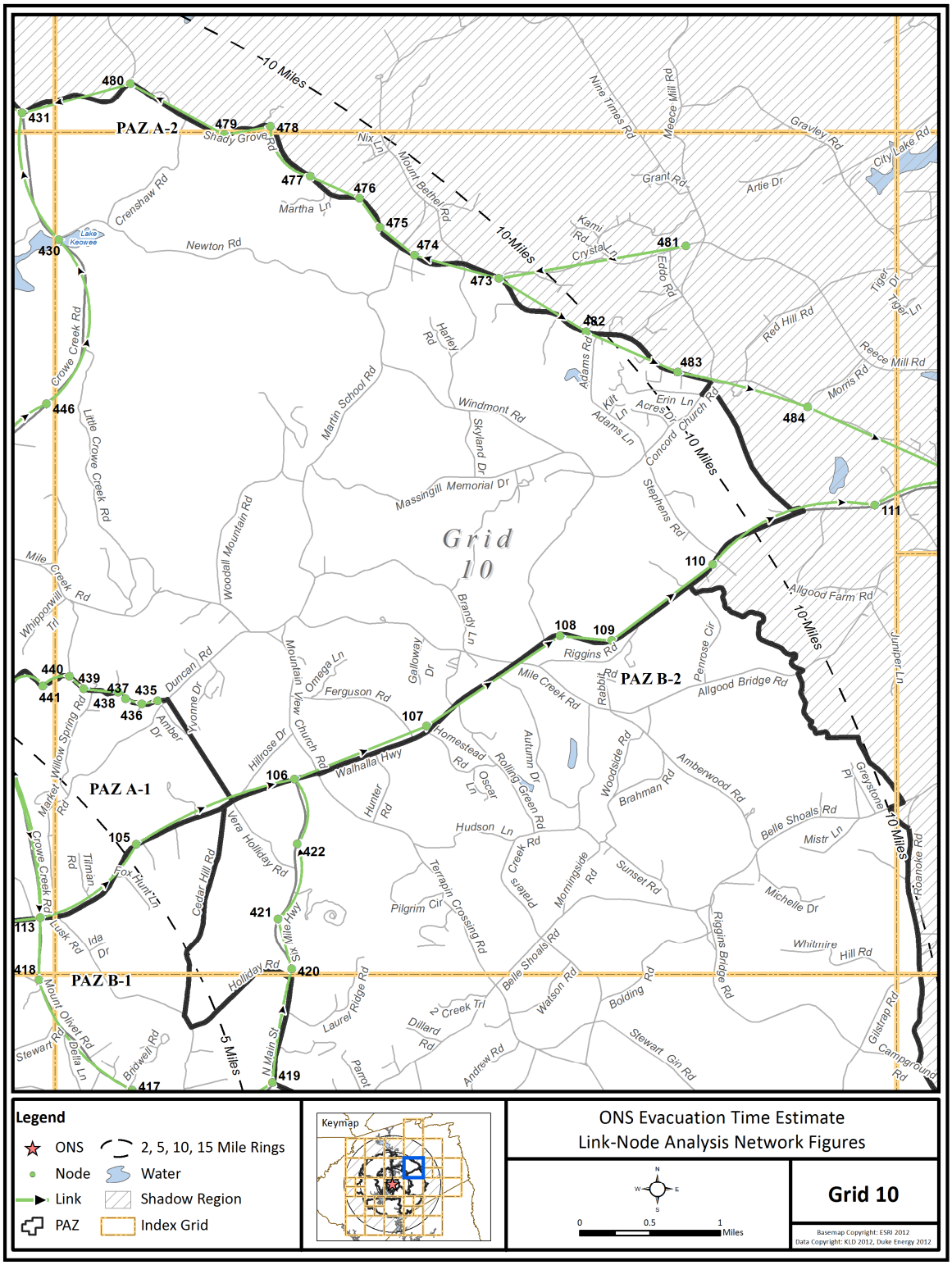

Figure K-11. Link-Node Analysis Network – Grid 10

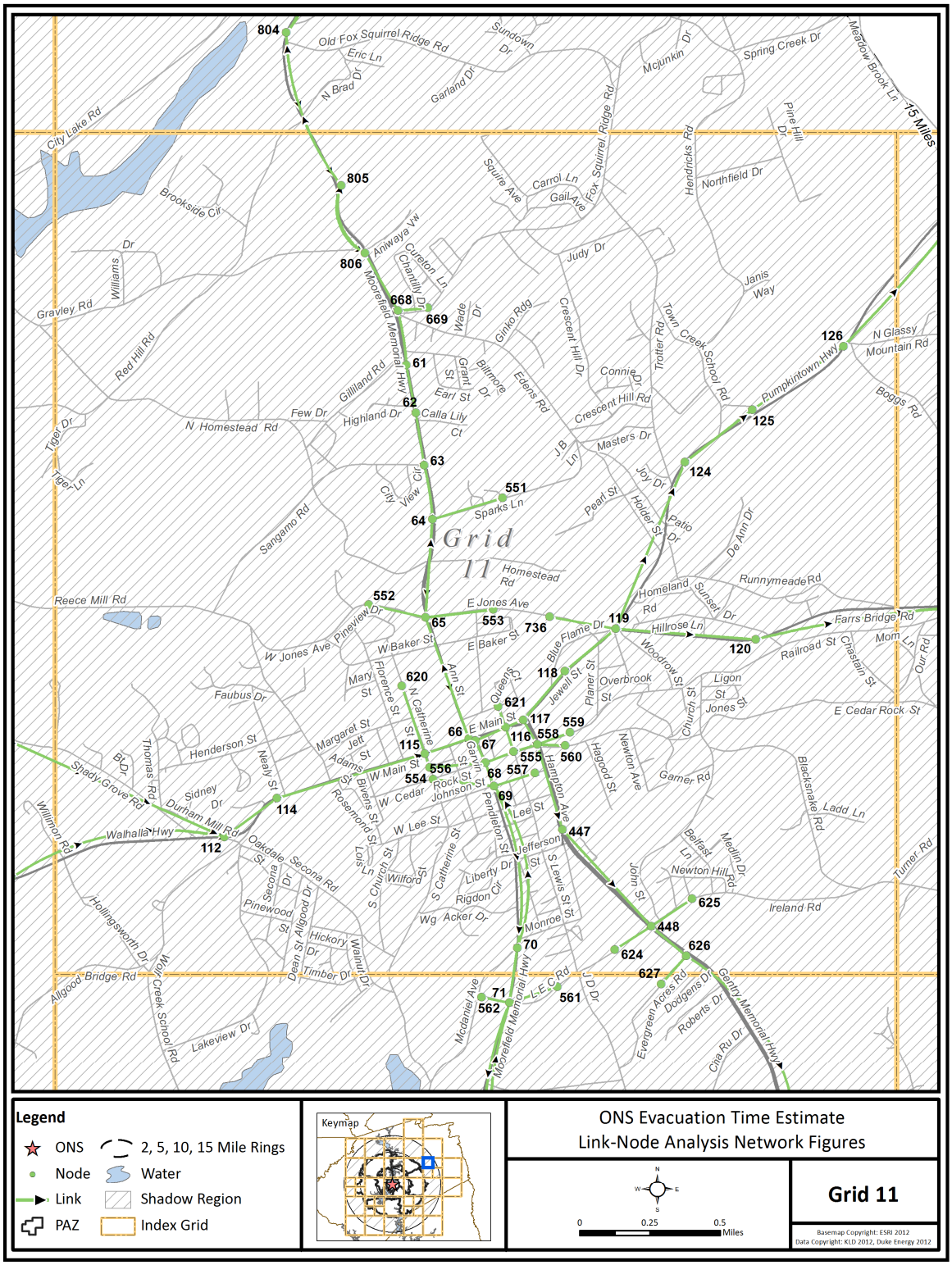

Figure K-12. Link-Node Analysis Network – Grid 11

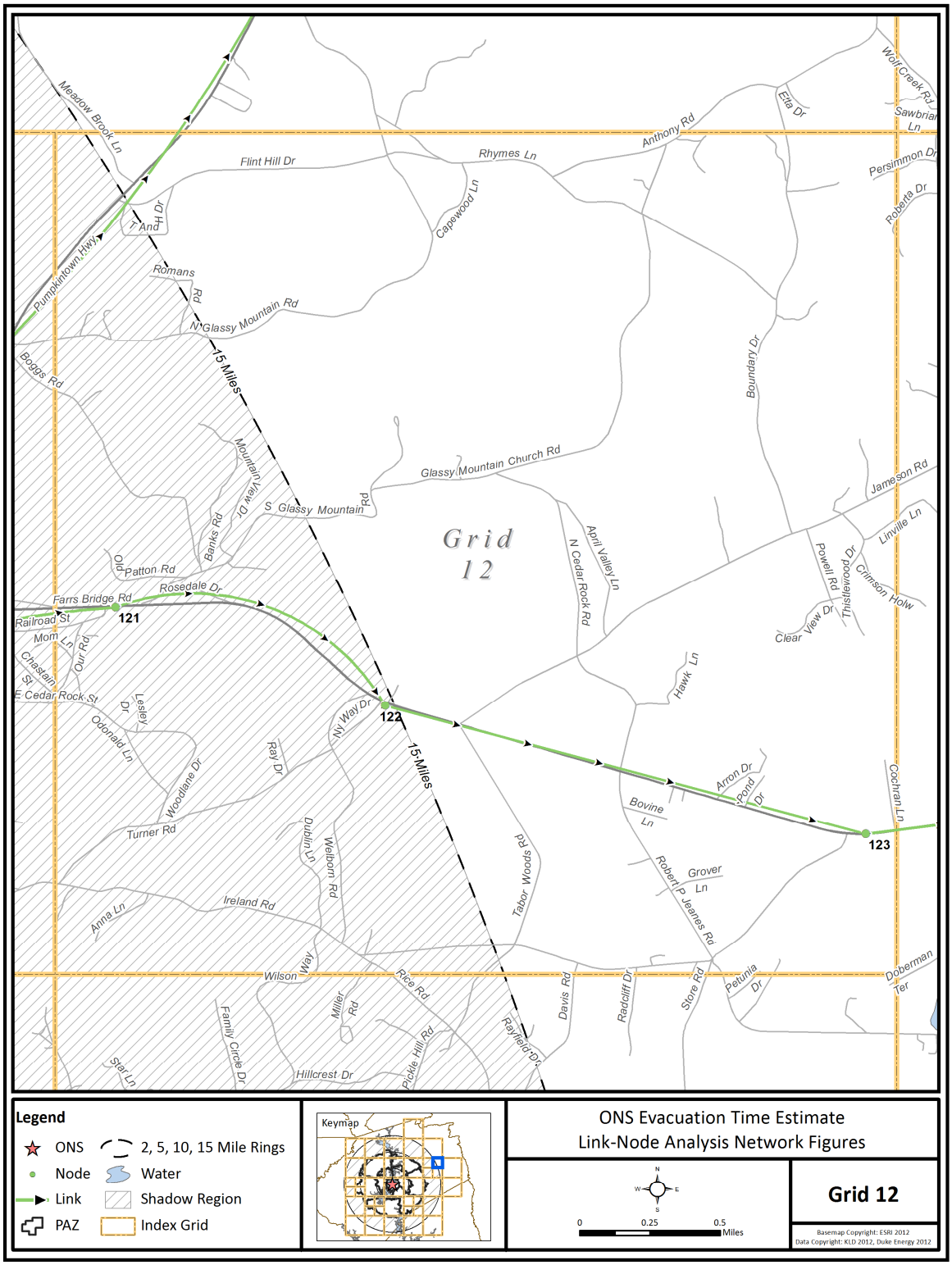

Figure K-13. Link-Node Analysis Network – Grid 12

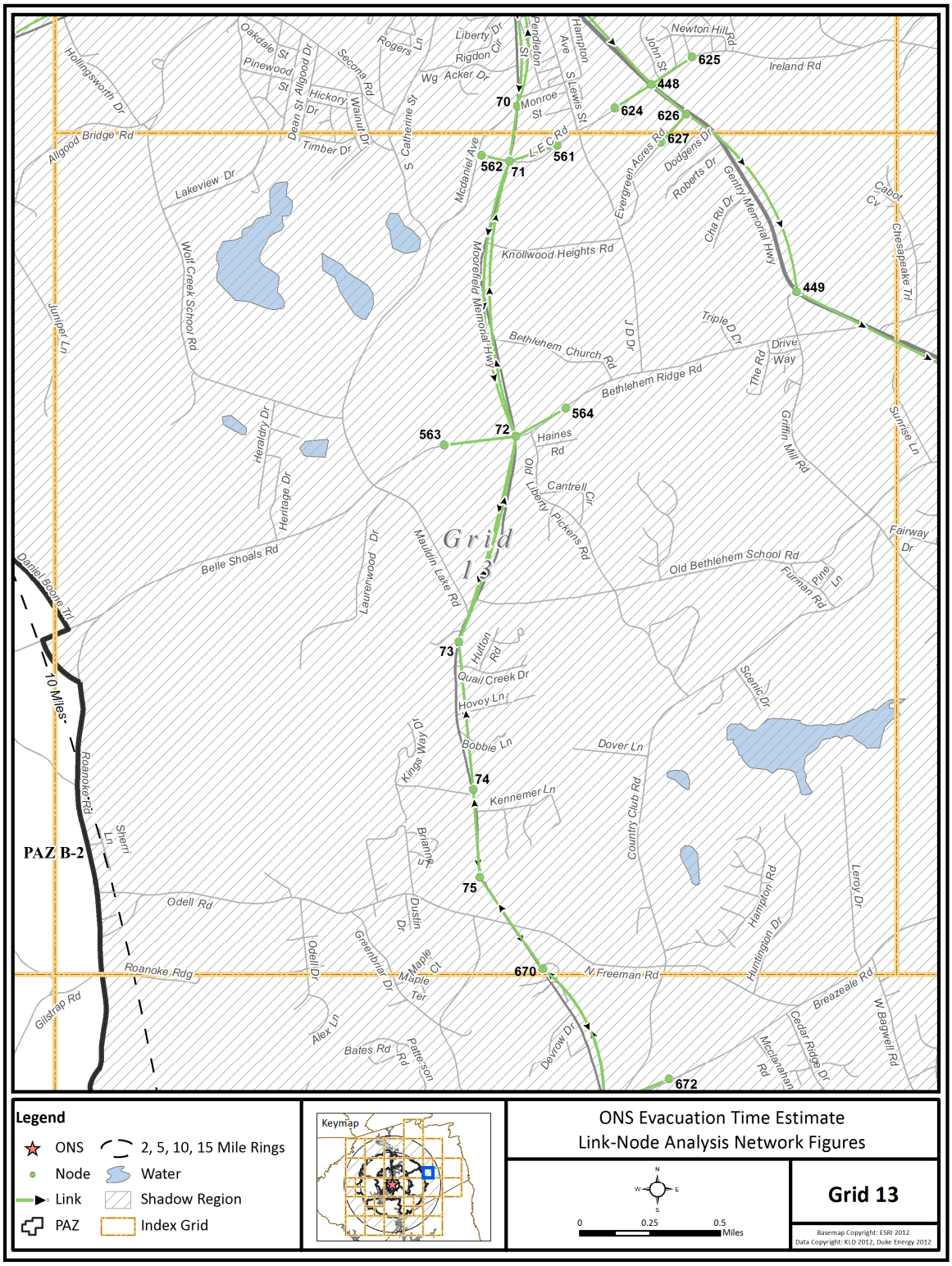

Figure K-14. Link-Node Analysis Network – Grid 13

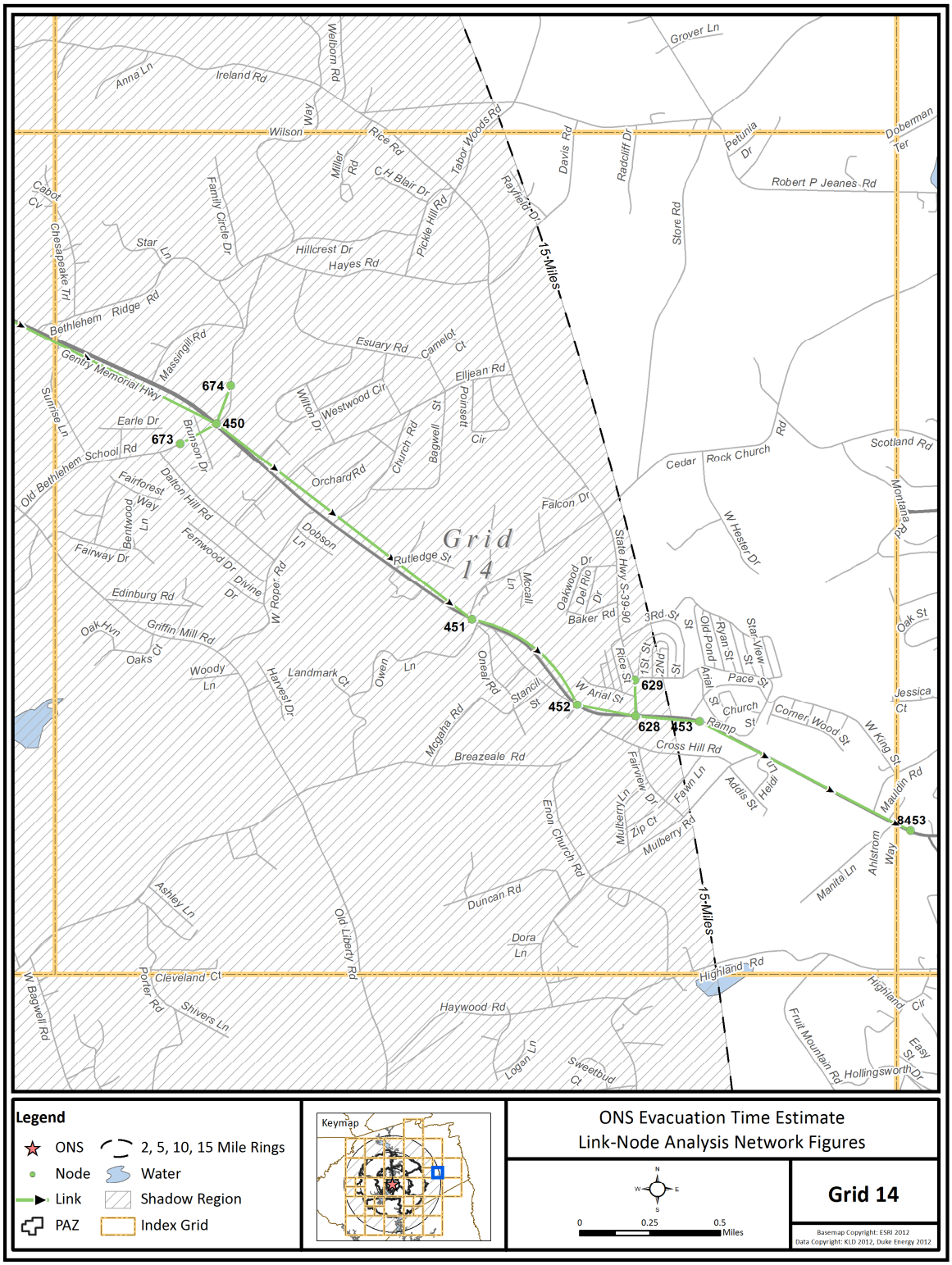

Figure K-15. Link-Node Analysis Network – Grid 14

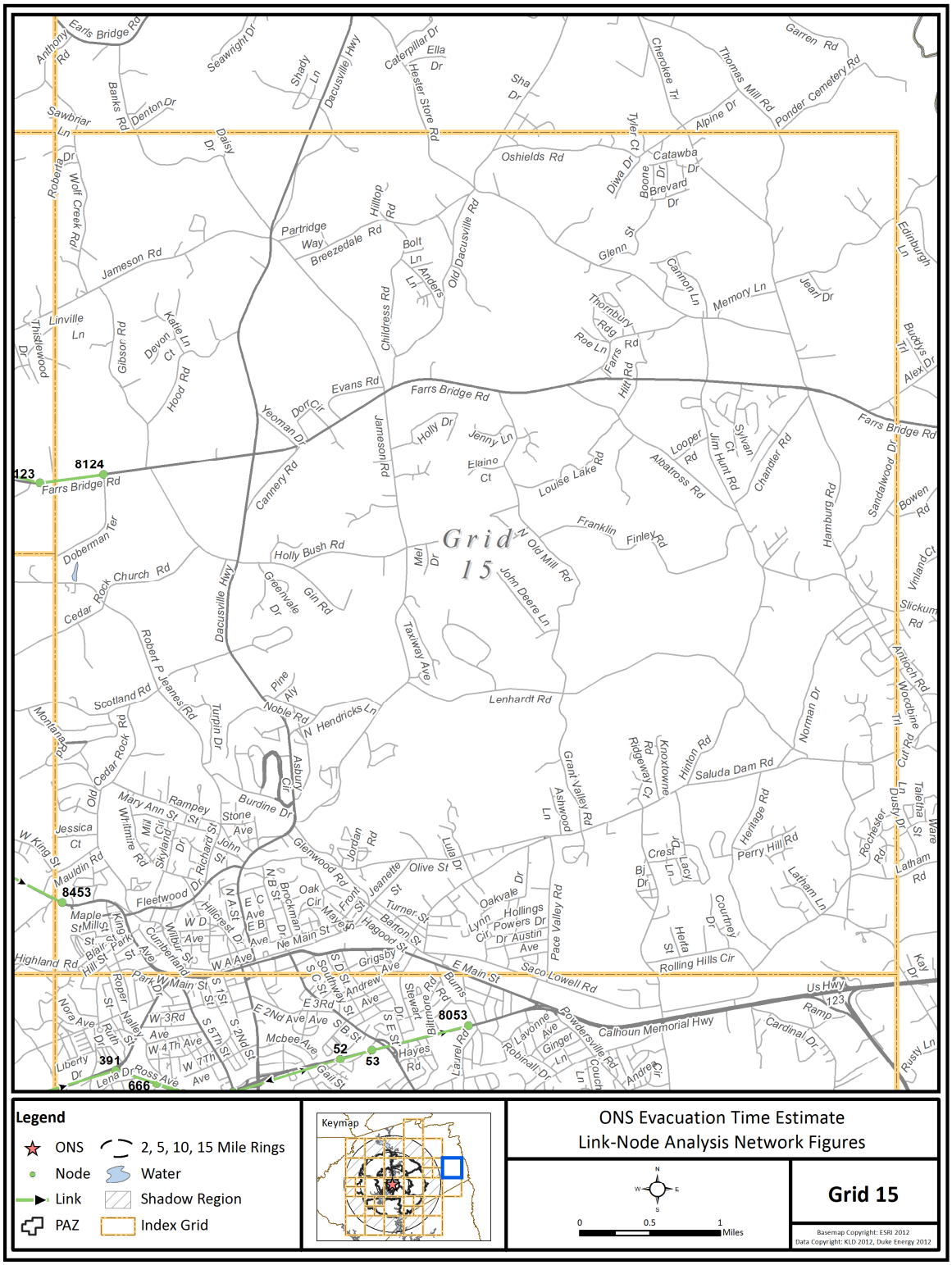

Figure K-16. Link-Node Analysis Network – Grid 15

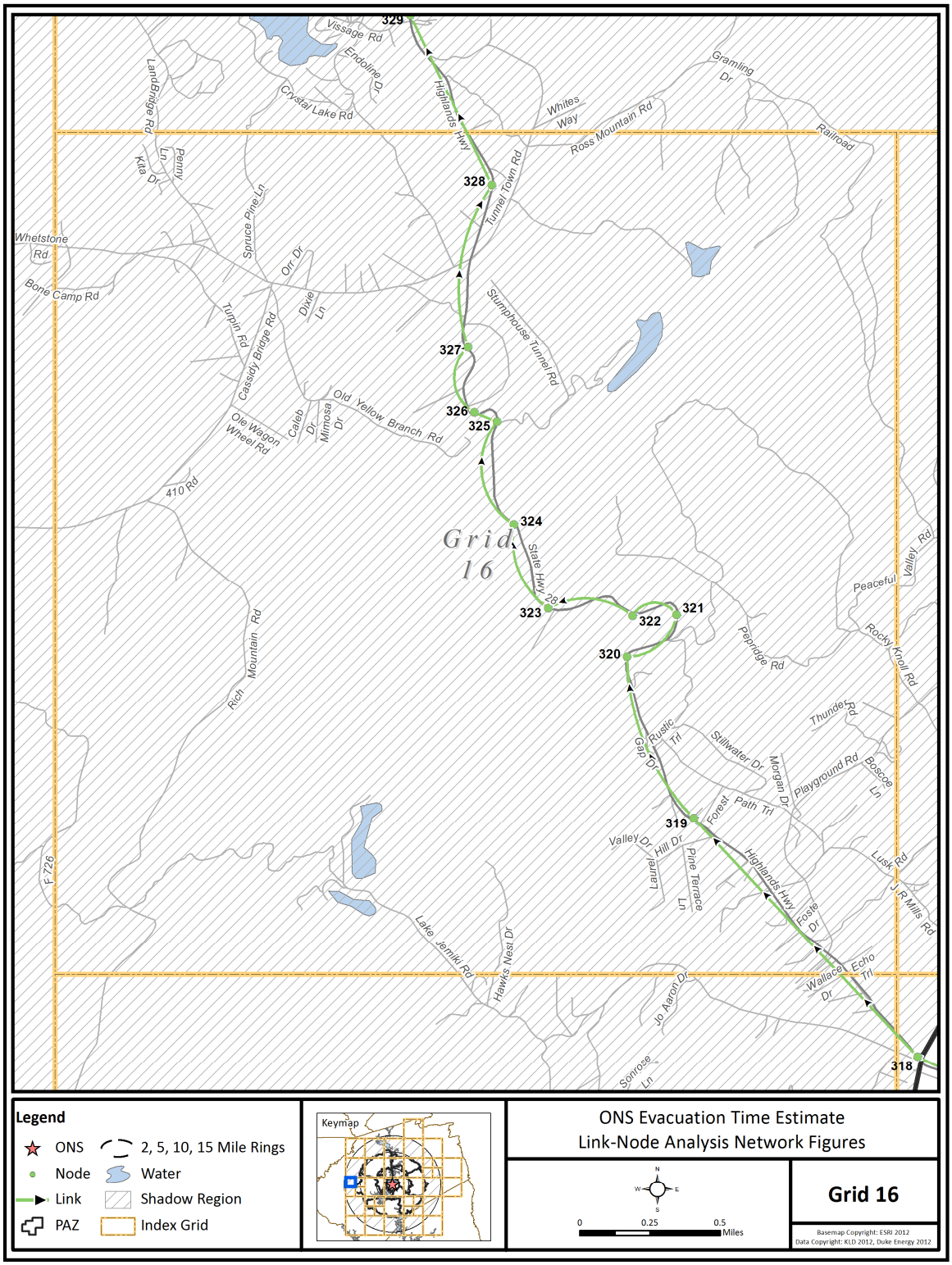

Figure K-17. Link-Node Analysis Network – Grid 16

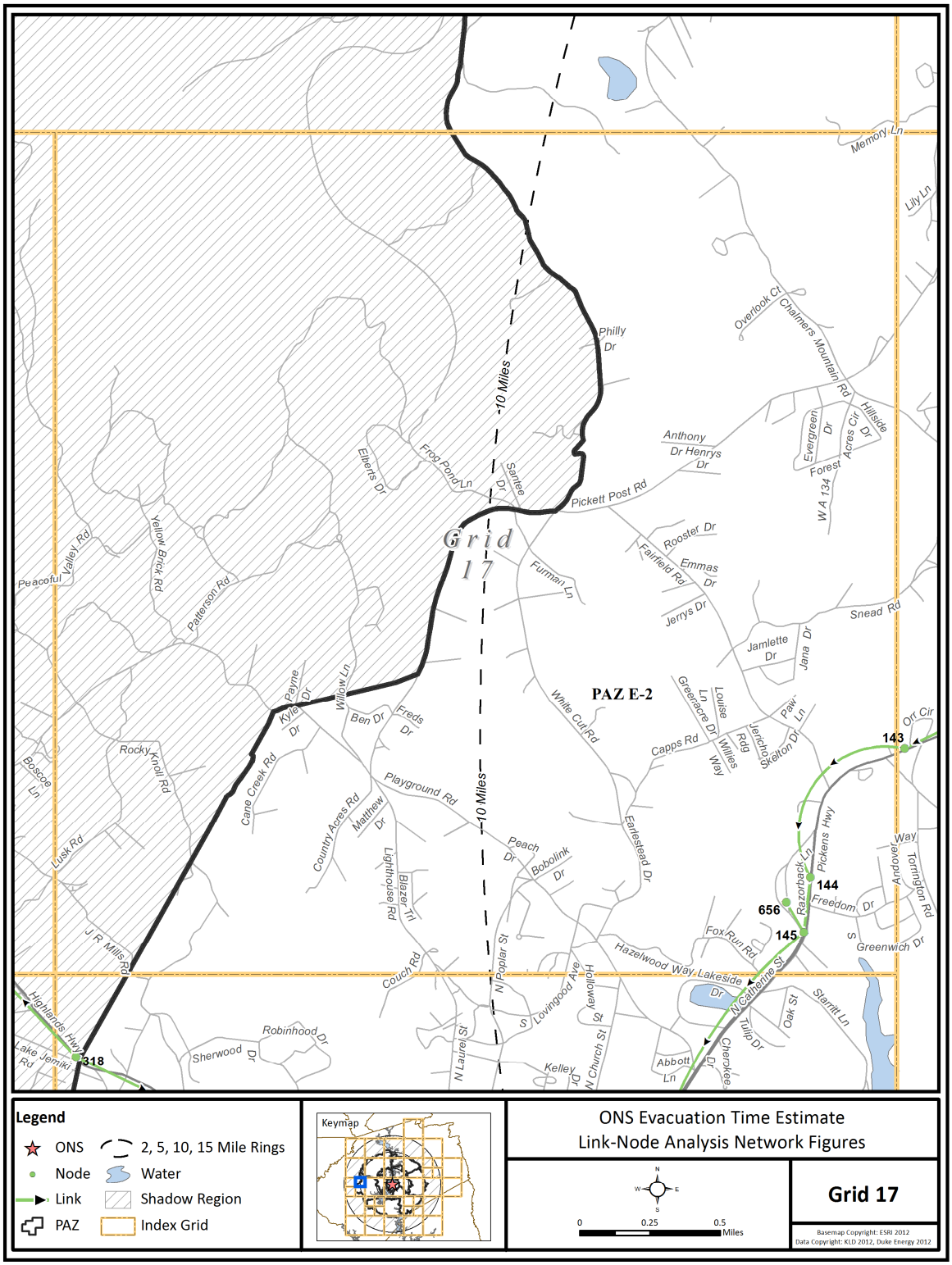

Figure K-18. Link-Node Analysis Network – Grid 17

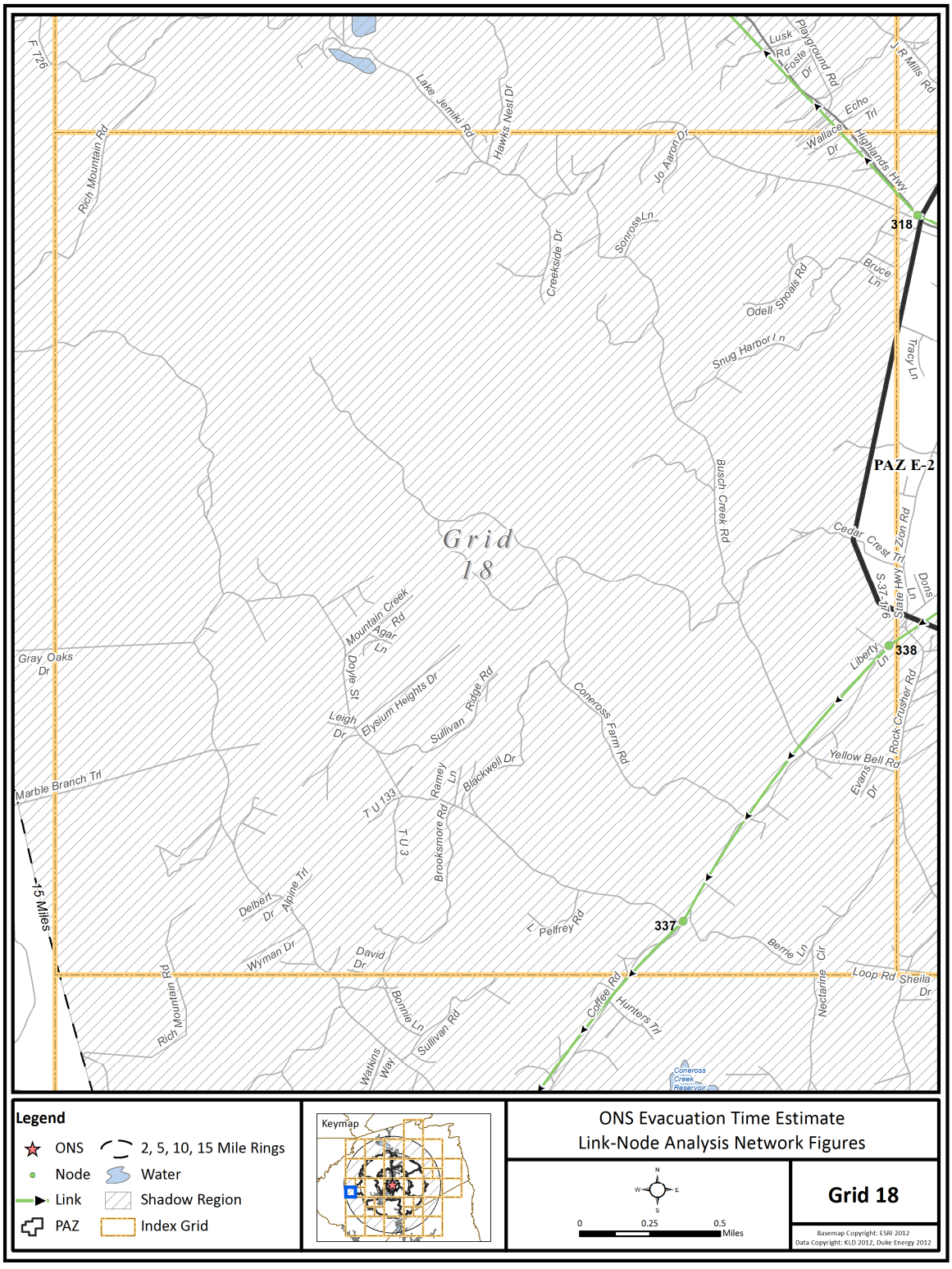

Figure K-19. Link-Node Analysis Network – Grid 18

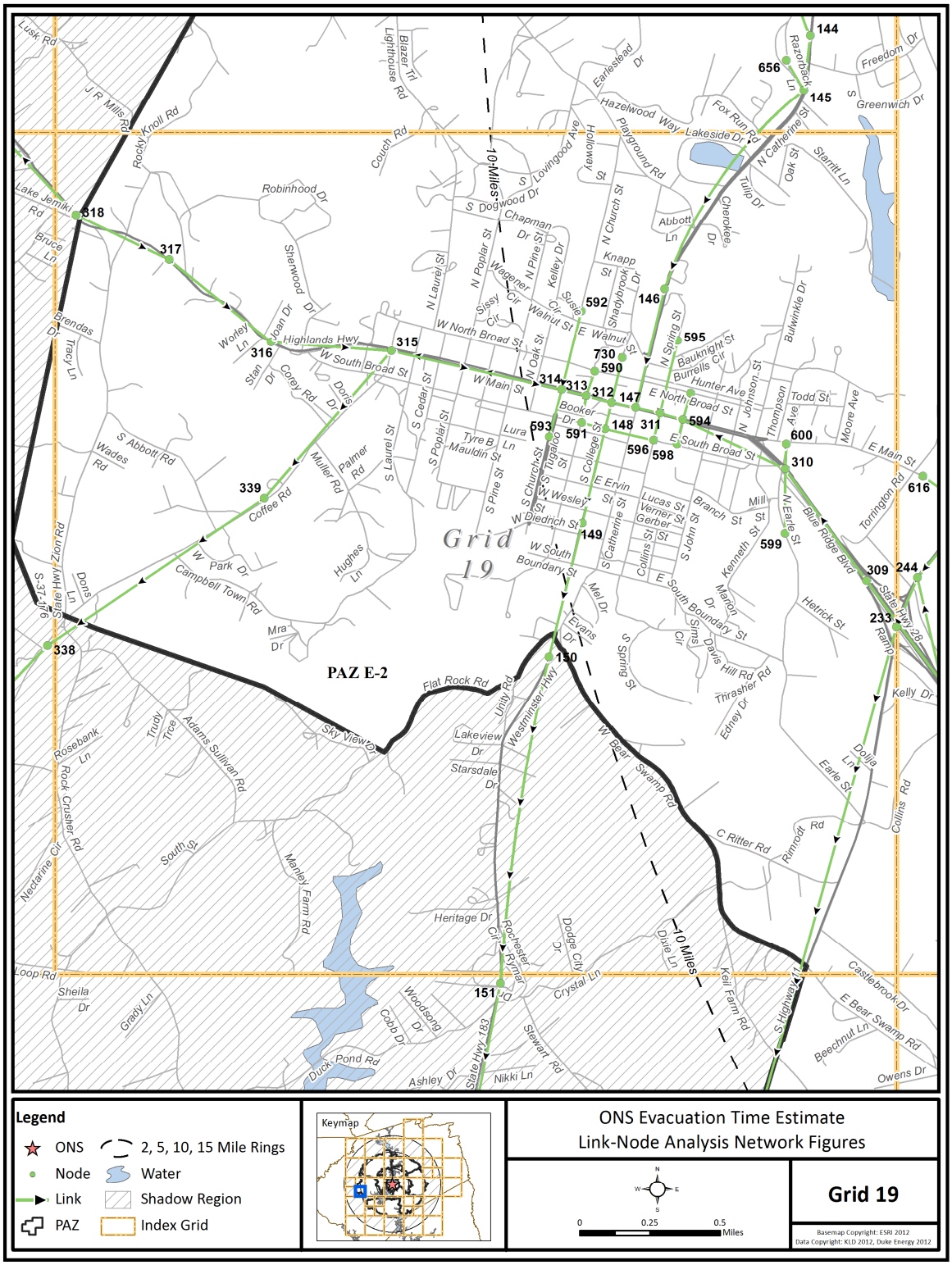

Figure K-20. Link-Node Analysis Network – Grid 19

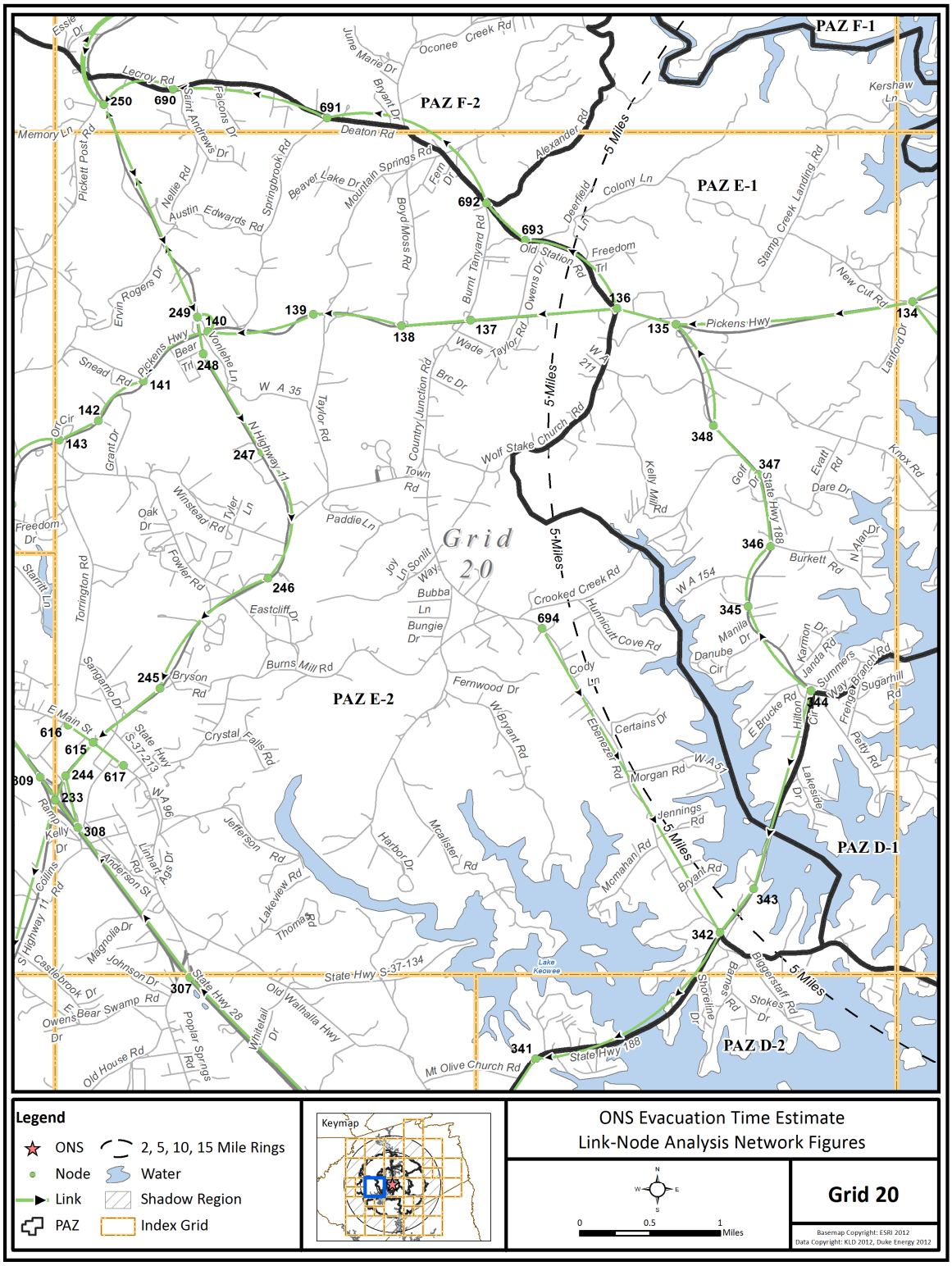

Figure K-21. Link-Node Analysis Network – Grid 20

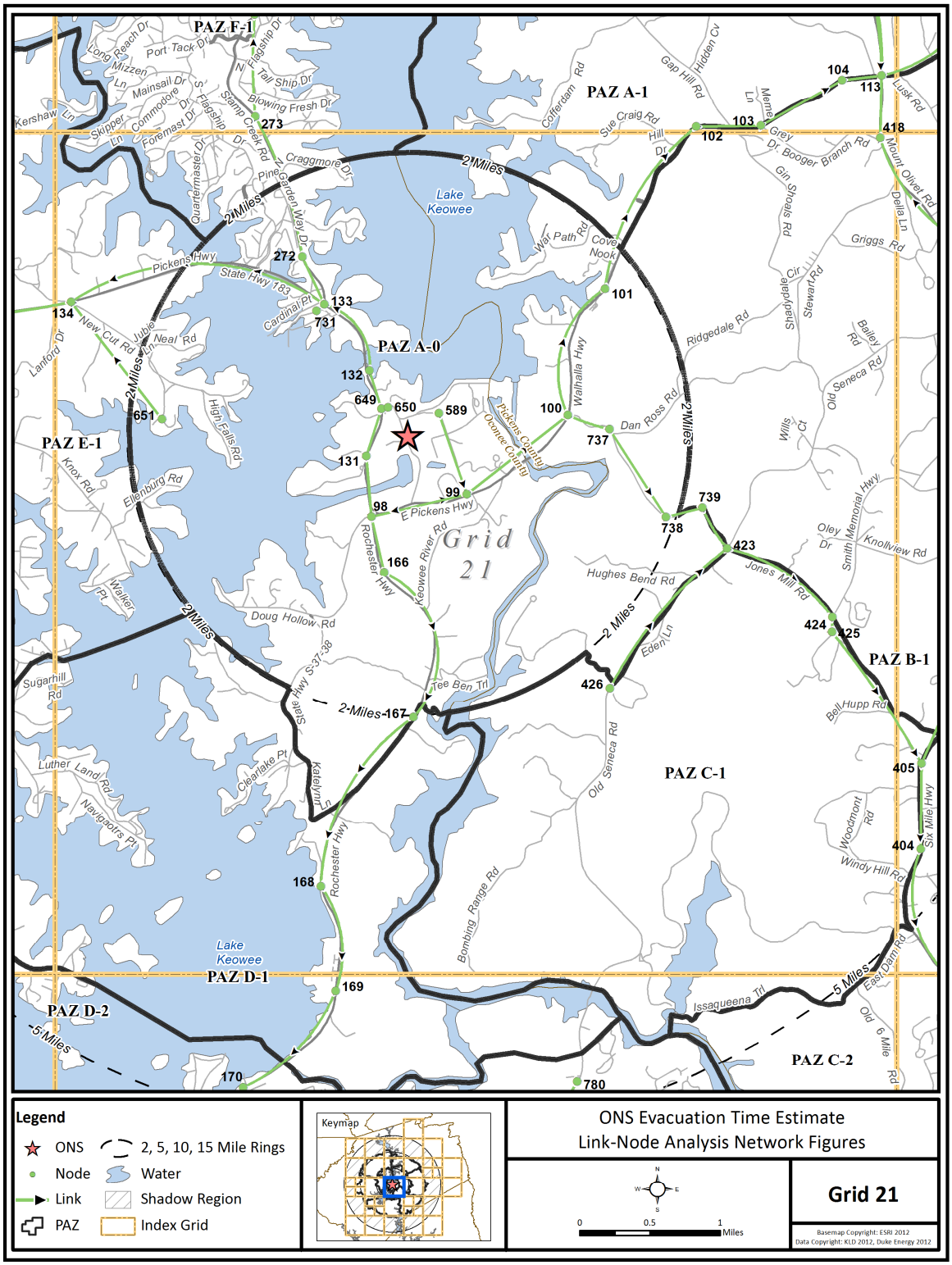

Figure K-22. Link-Node Analysis Network – Grid 21

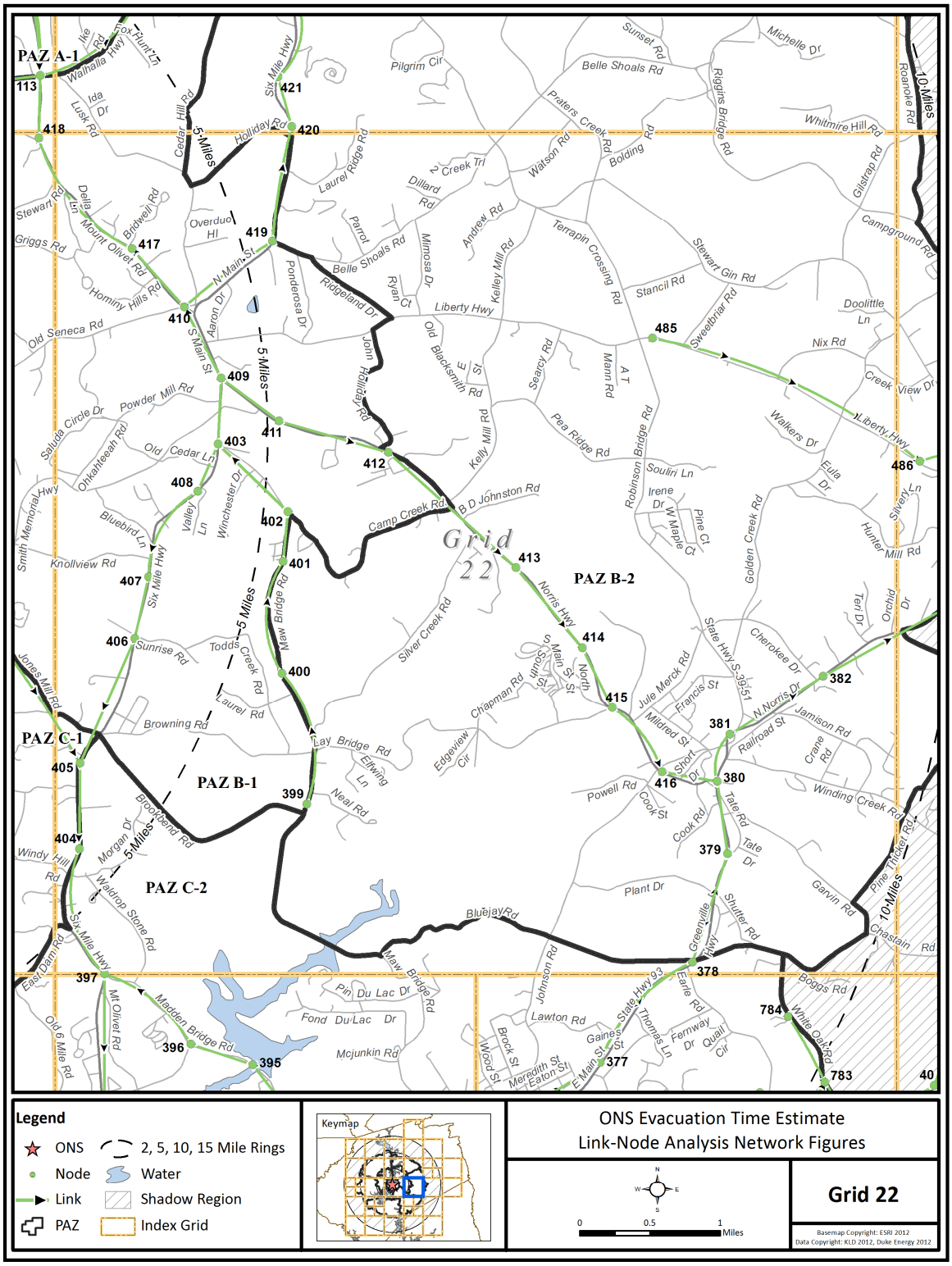

Figure K-23. Link-Node Analysis Network – Grid 22

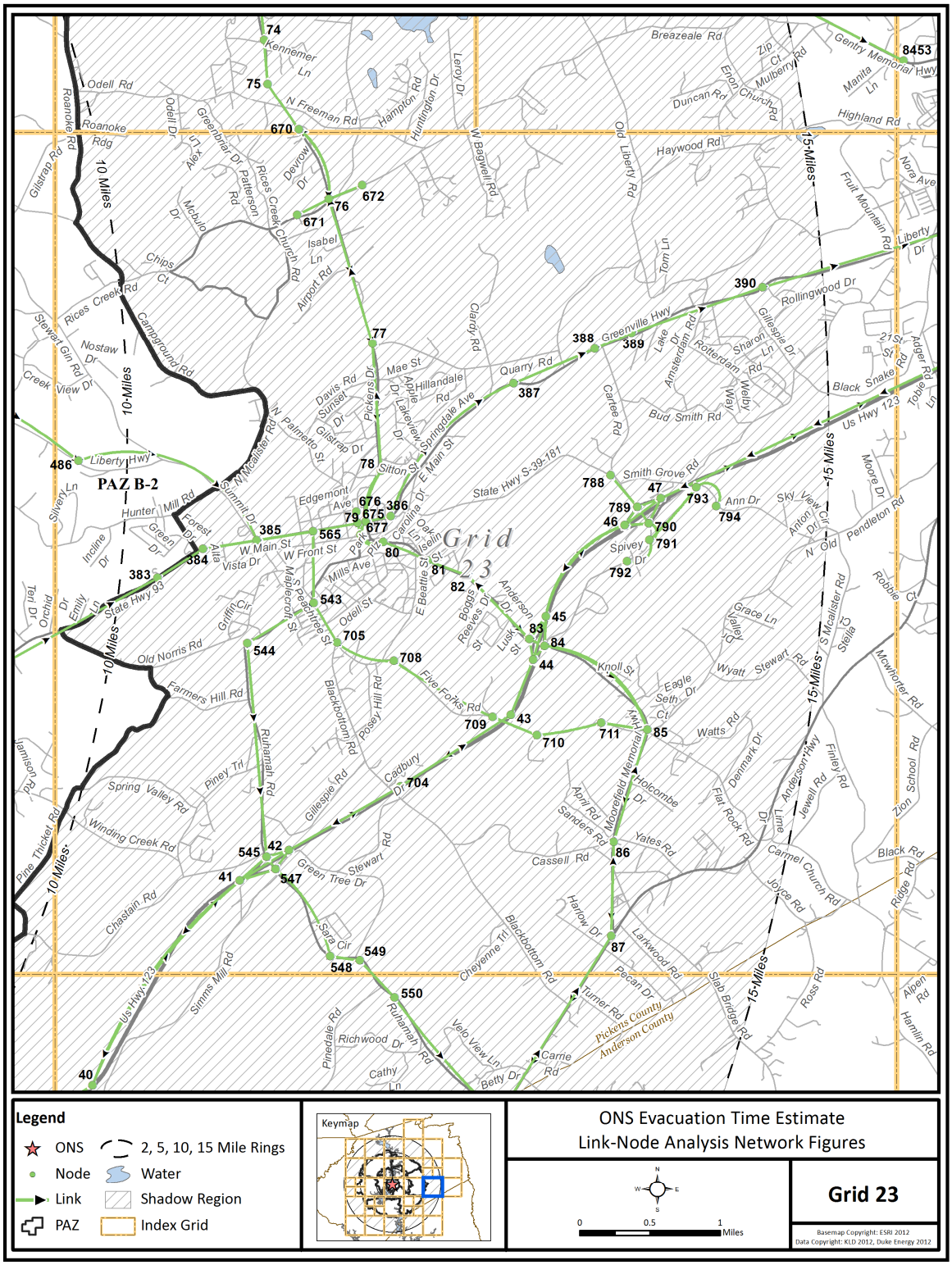

Figure K-24. Link-Node Analysis Network – Grid 23

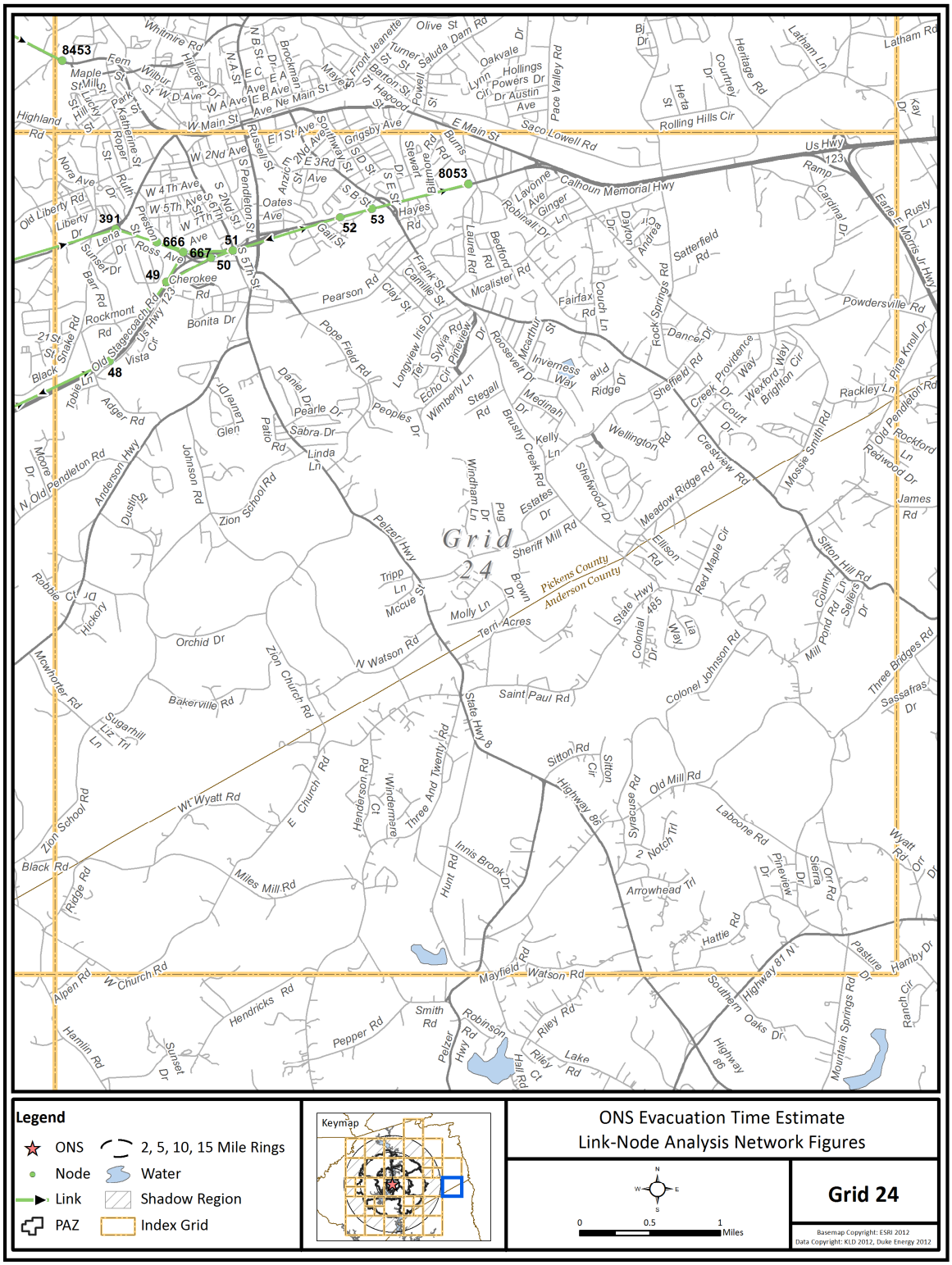

Figure K-25. Link-Node Analysis Network – Grid 24

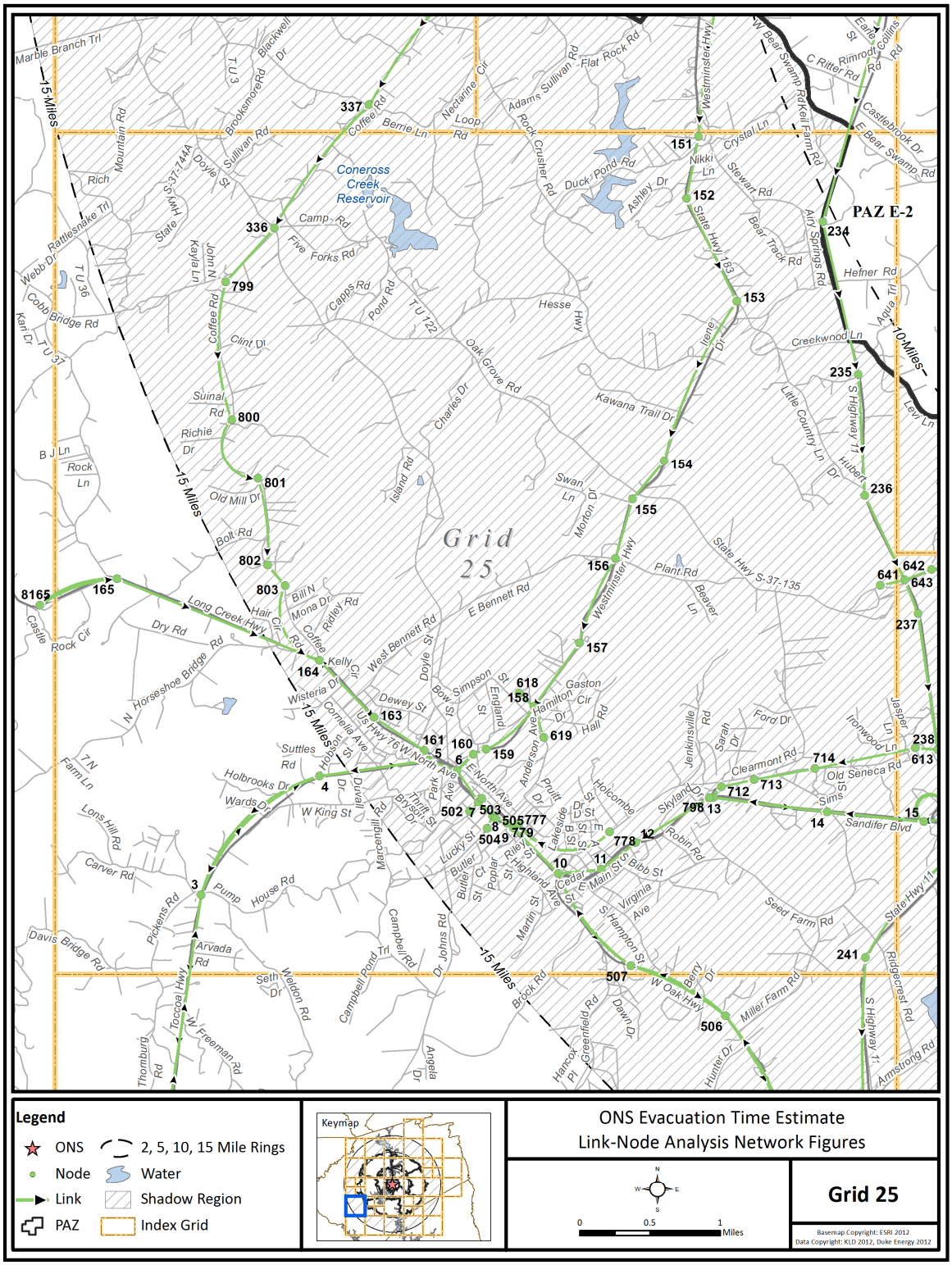

Figure K-26. Link-Node Analysis Network – Grid 25

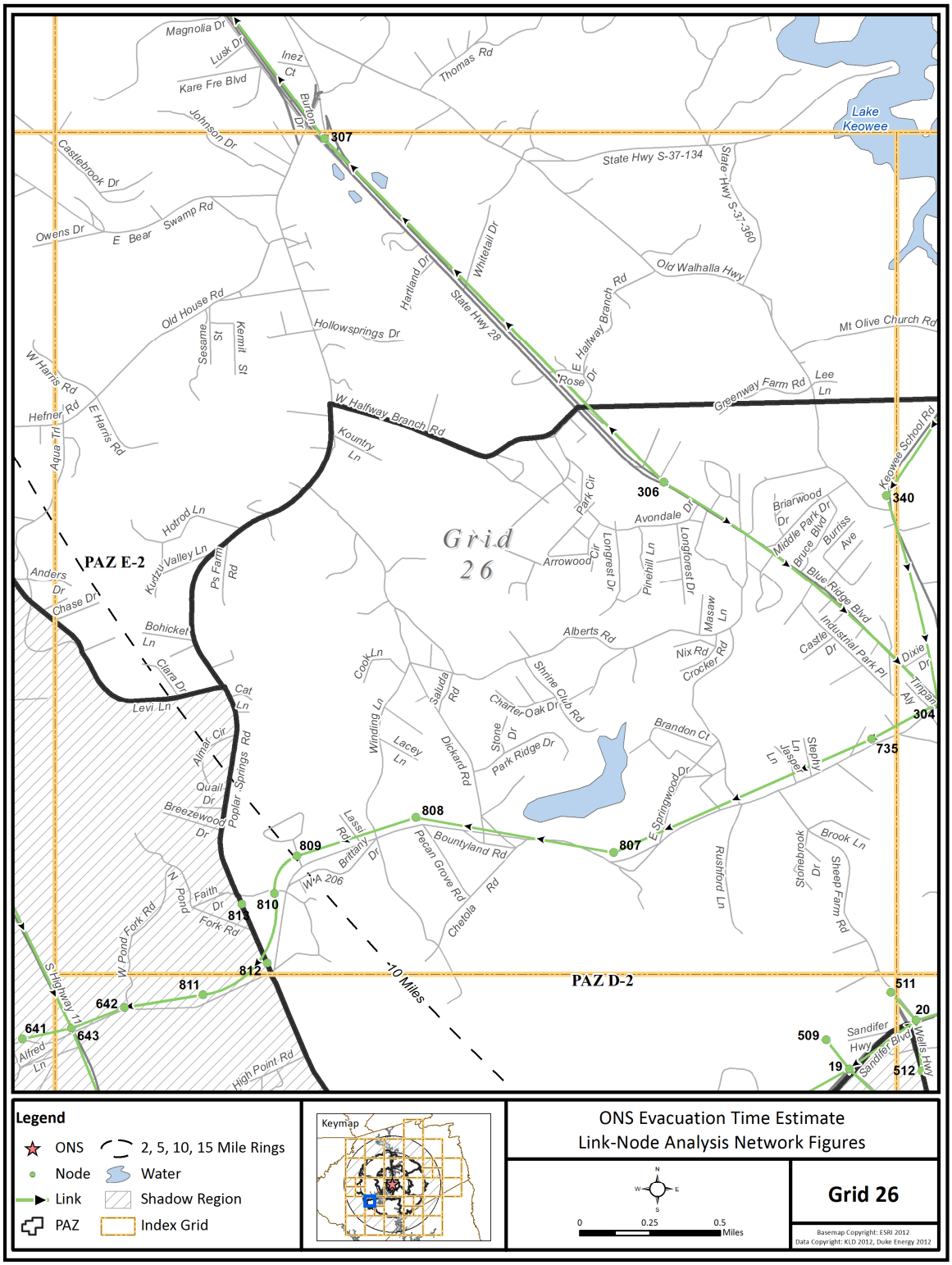

Figure K-27. Link-Node Analysis Network – Grid 26

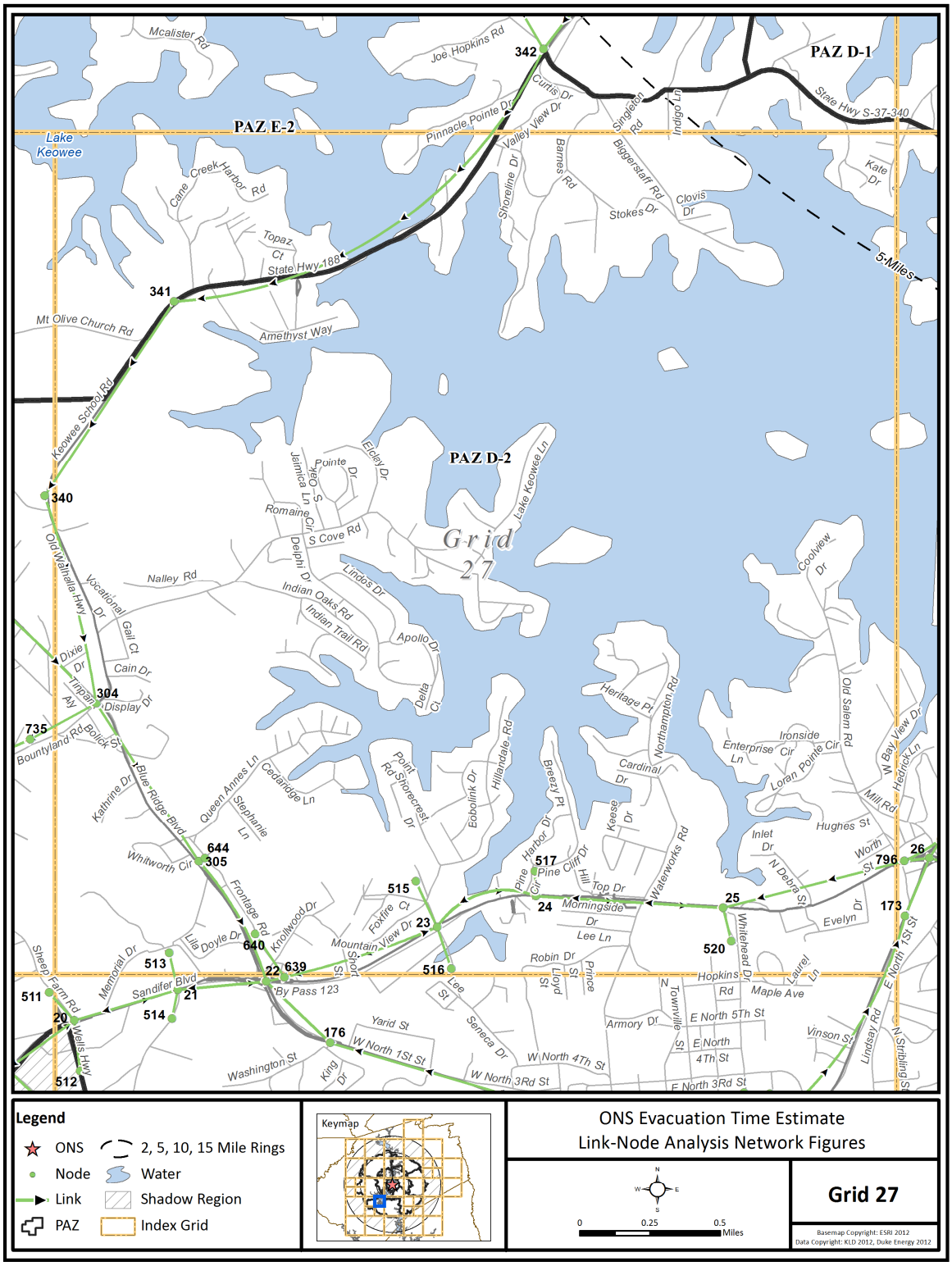

Figure K-28. Link-Node Analysis Network – Grid 27

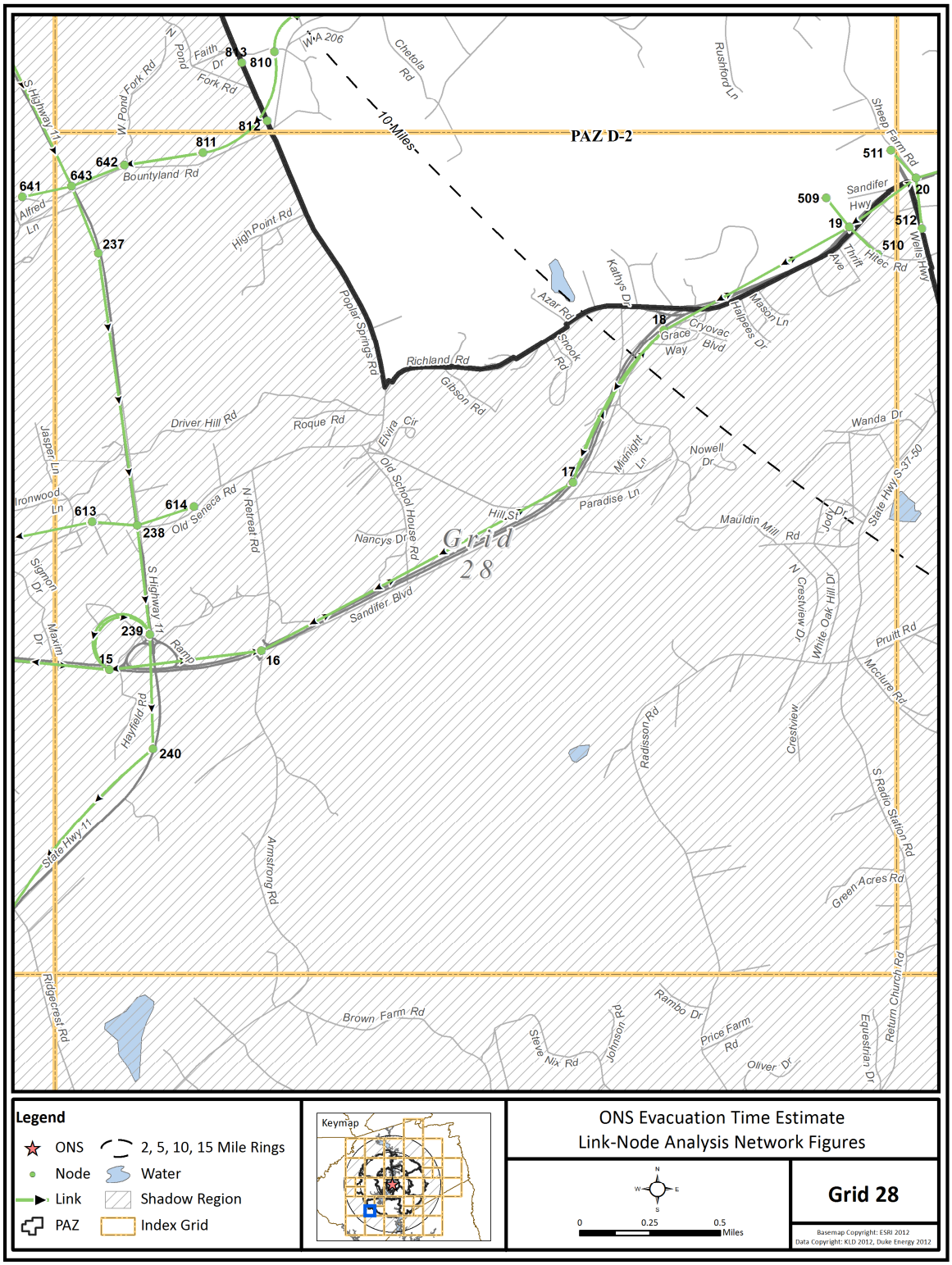

Figure K-29. Link-Node Analysis Network – Grid 28

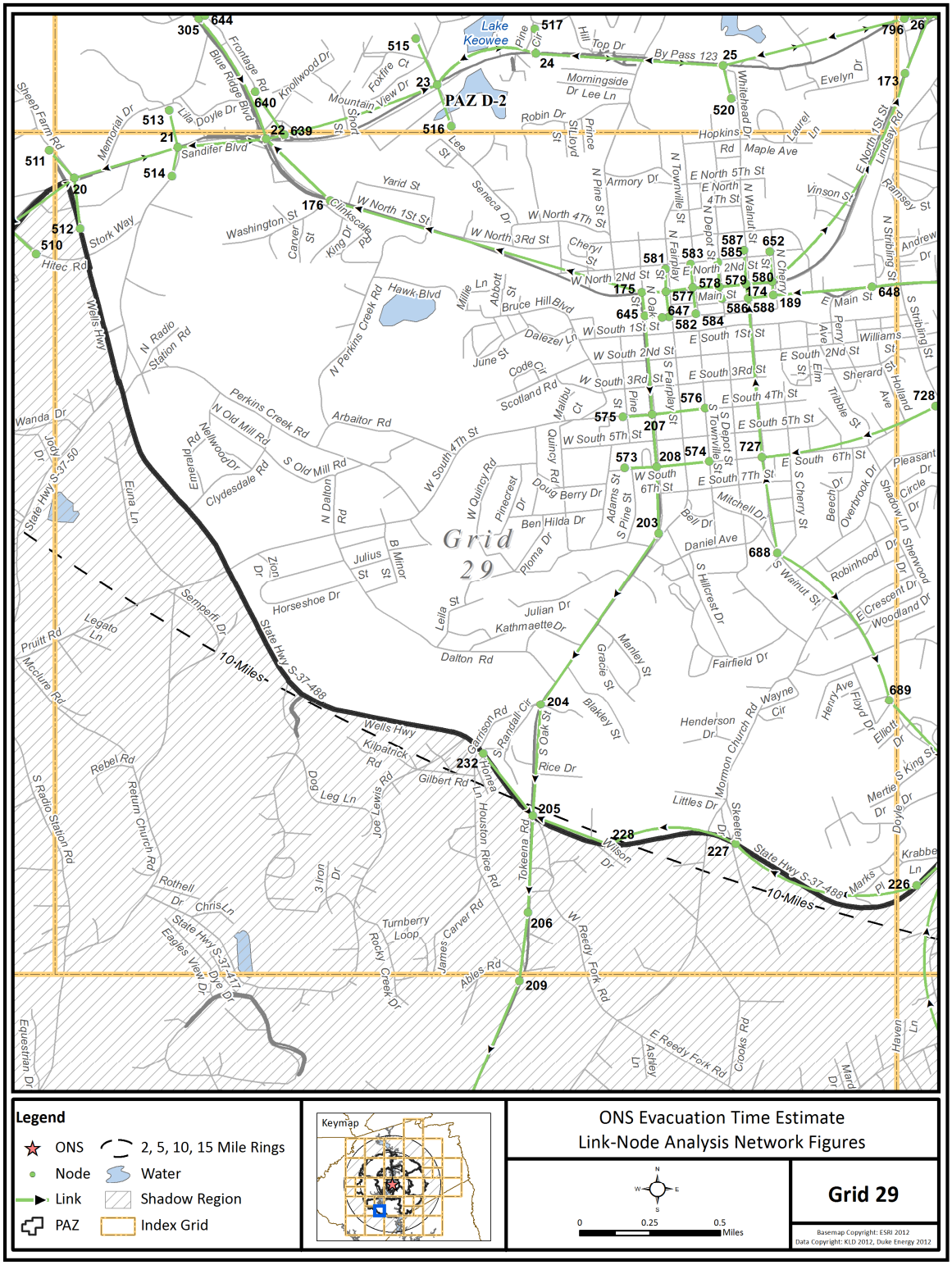

Figure K-30. Link-Node Analysis Network – Grid 29

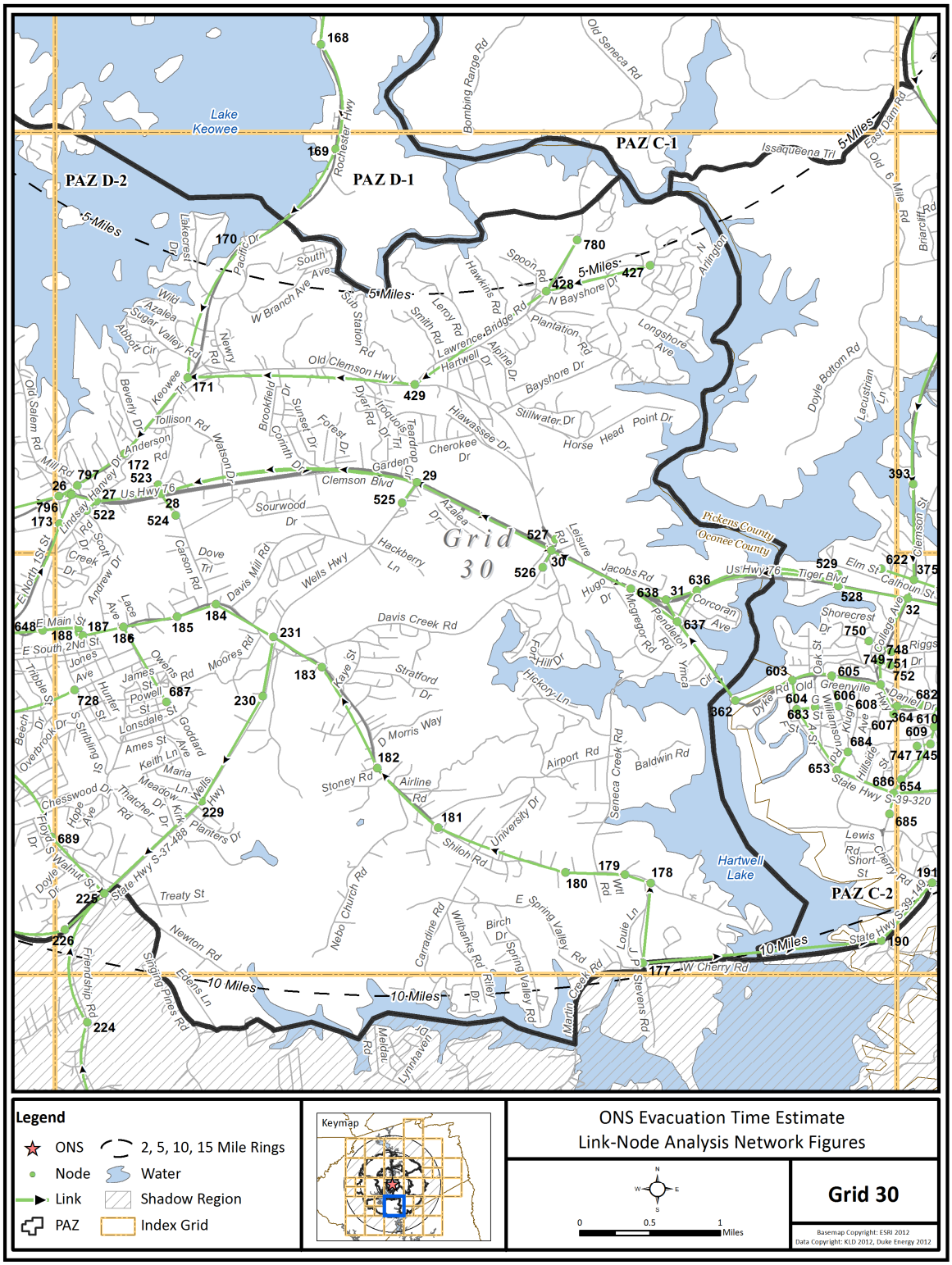

Figure K-31. Link-Node Analysis Network – Grid 30

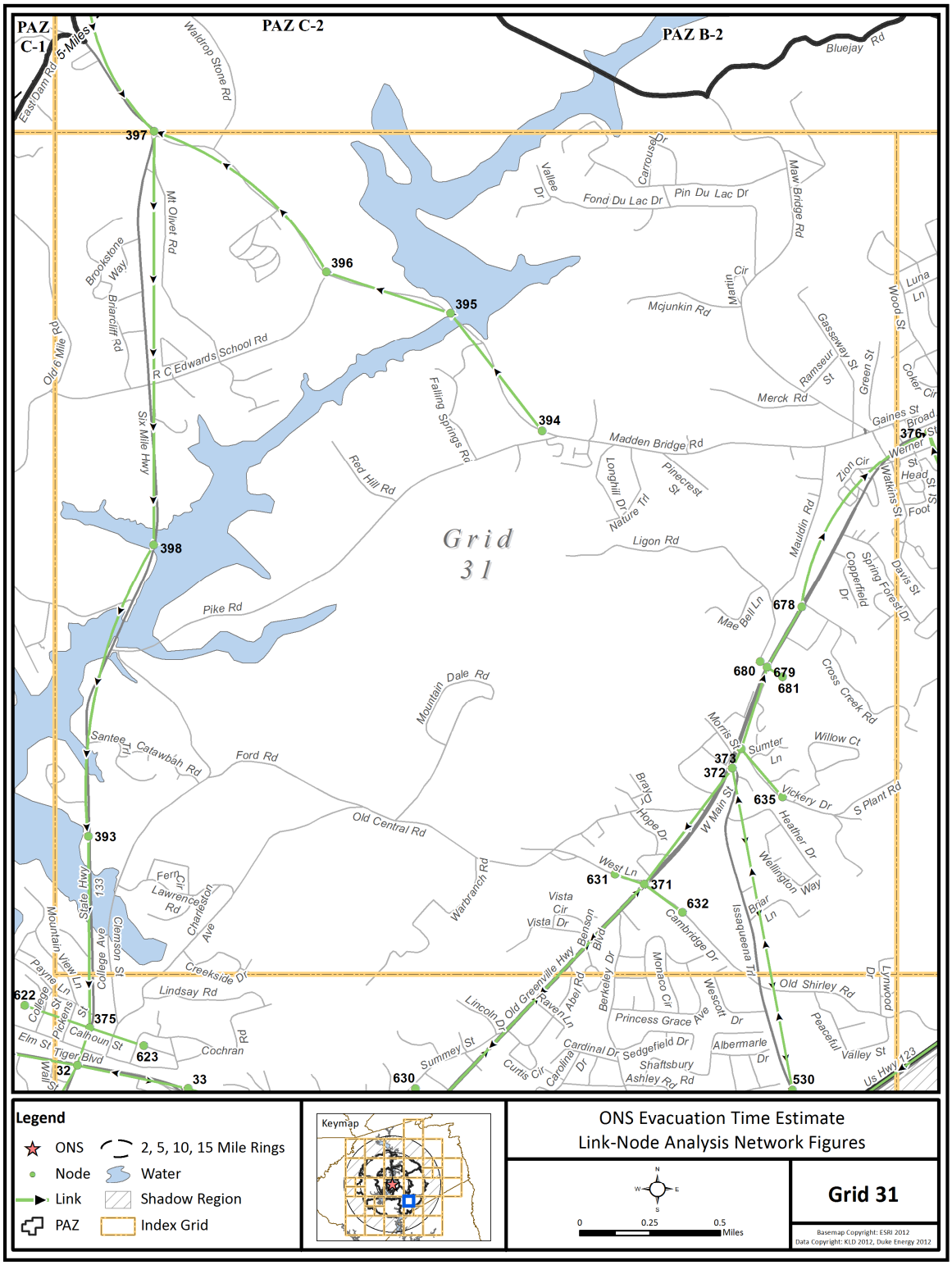

Figure K-32. Link-Node Analysis Network – Grid 31

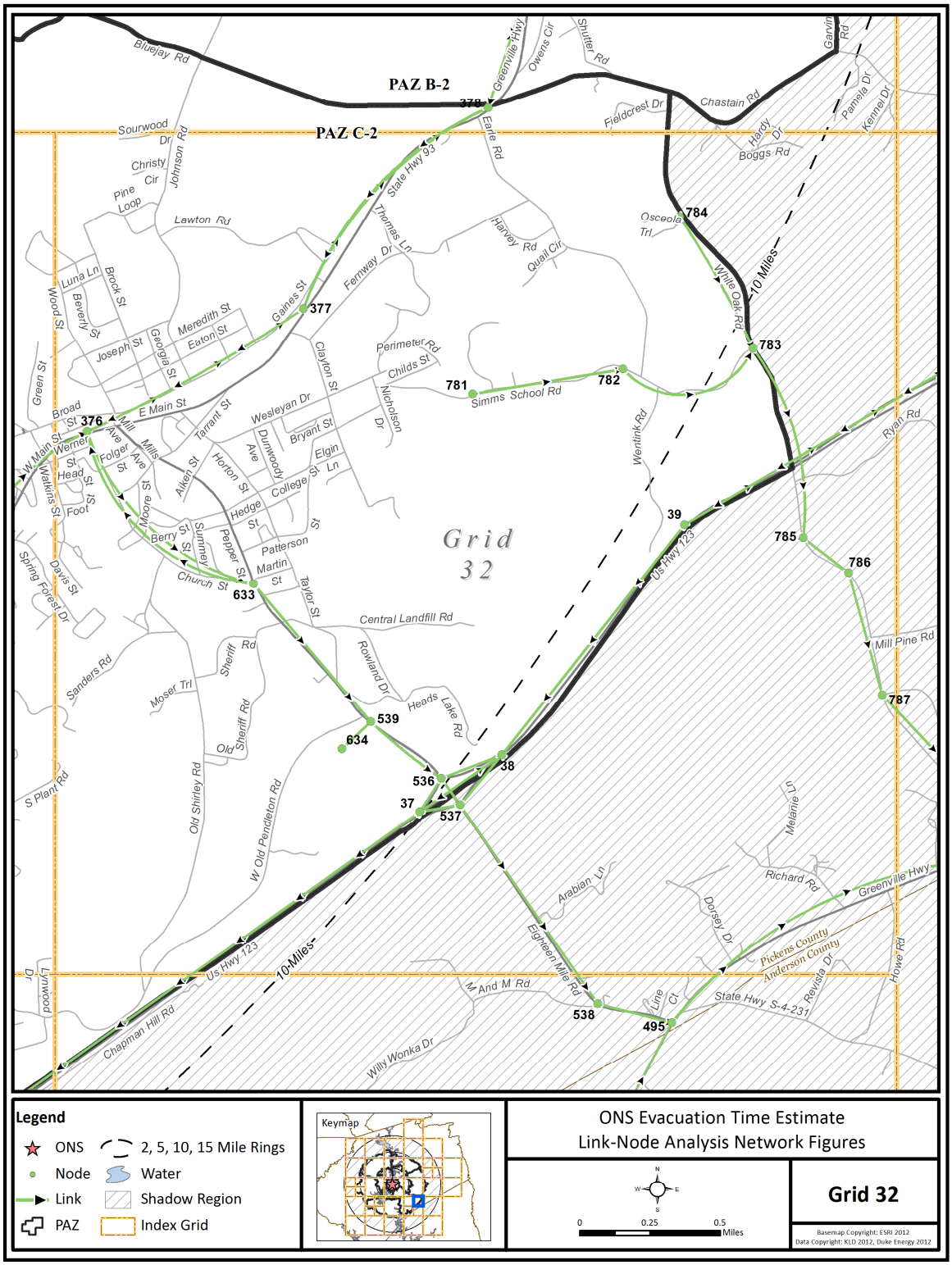

Figure K-33. Link-Node Analysis Network – Grid 32

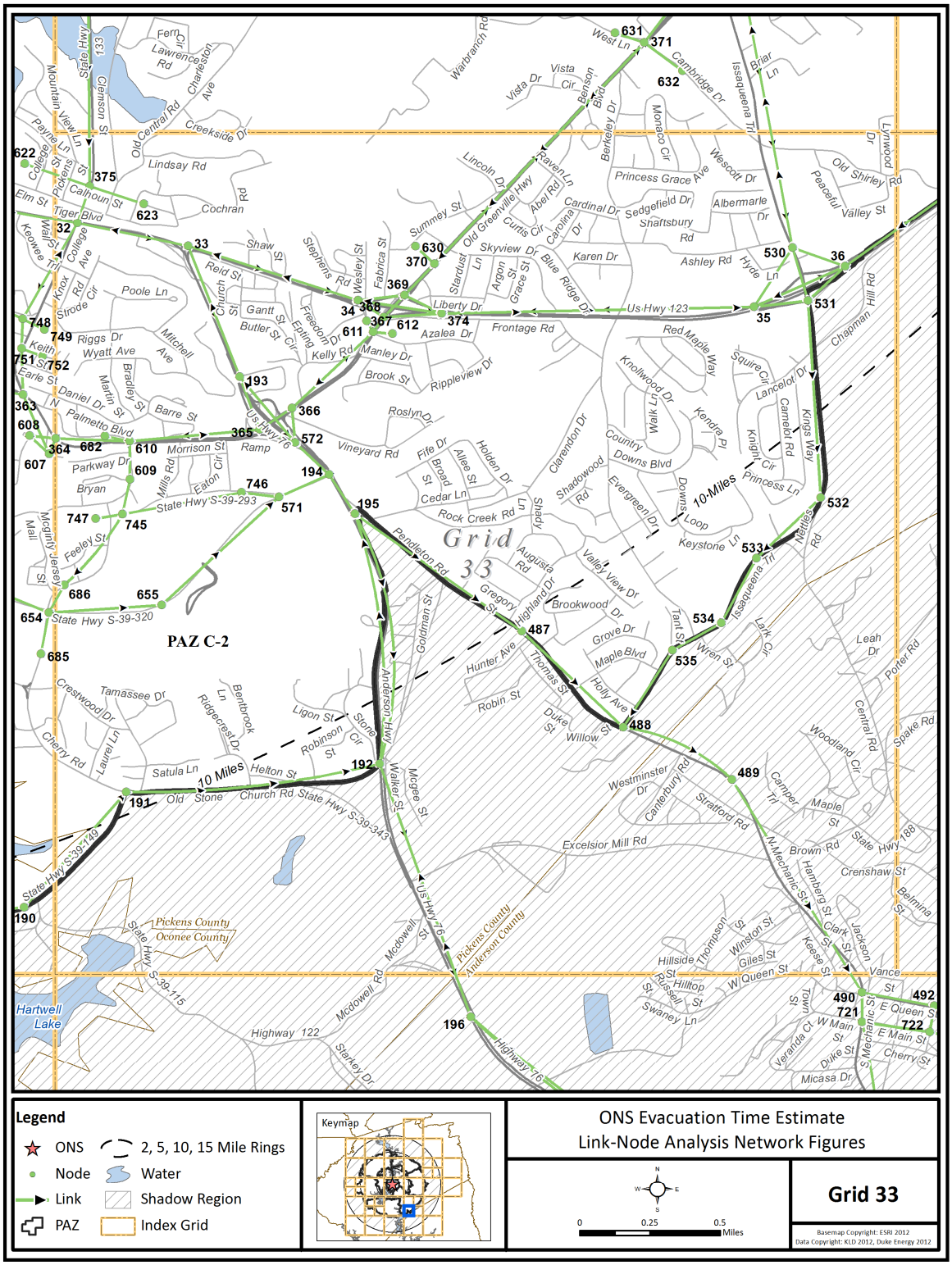

Figure K-34. Link-Node Analysis Network – Grid 33

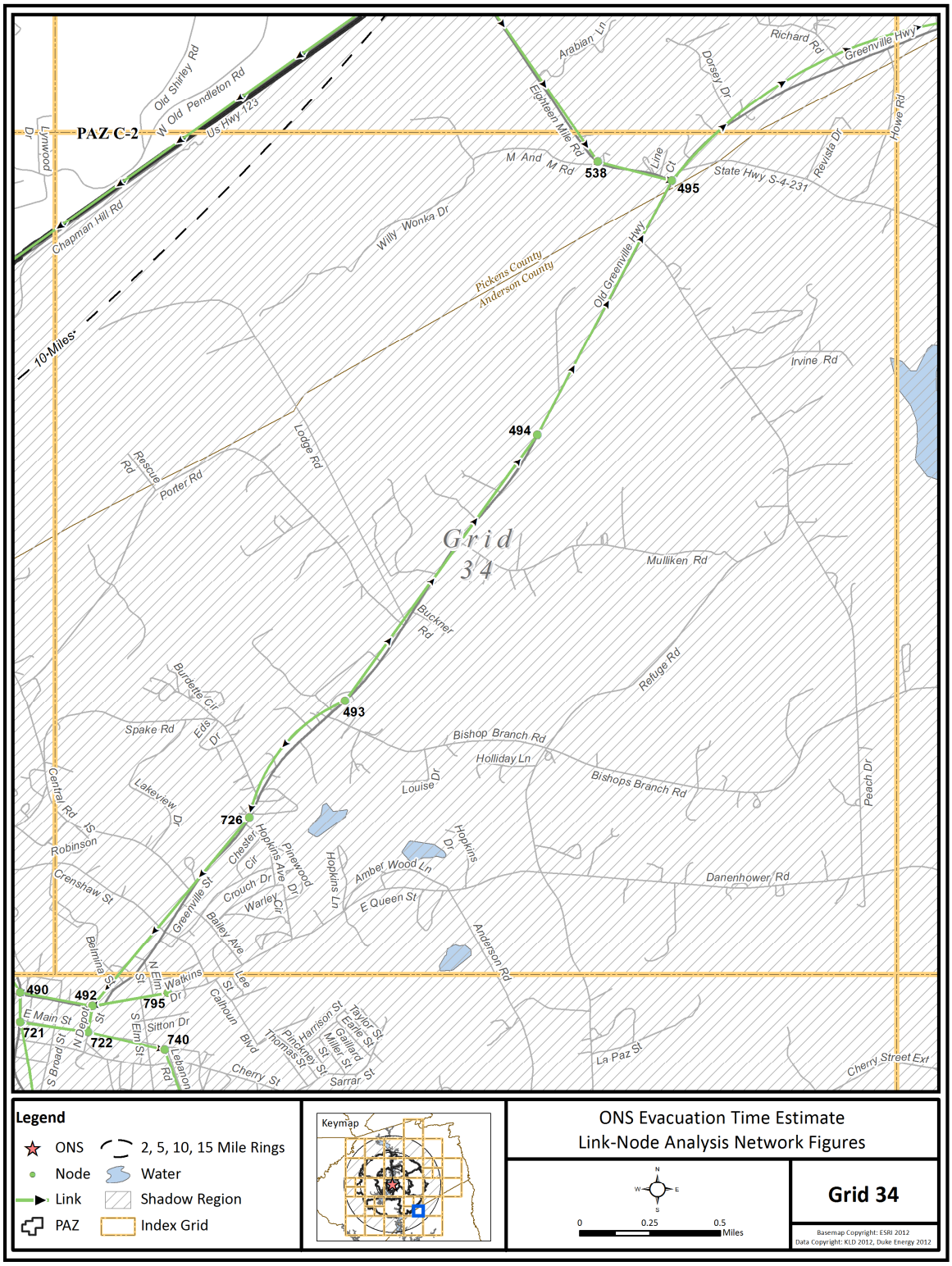

Figure K-35. Link-Node Analysis Network – Grid 34

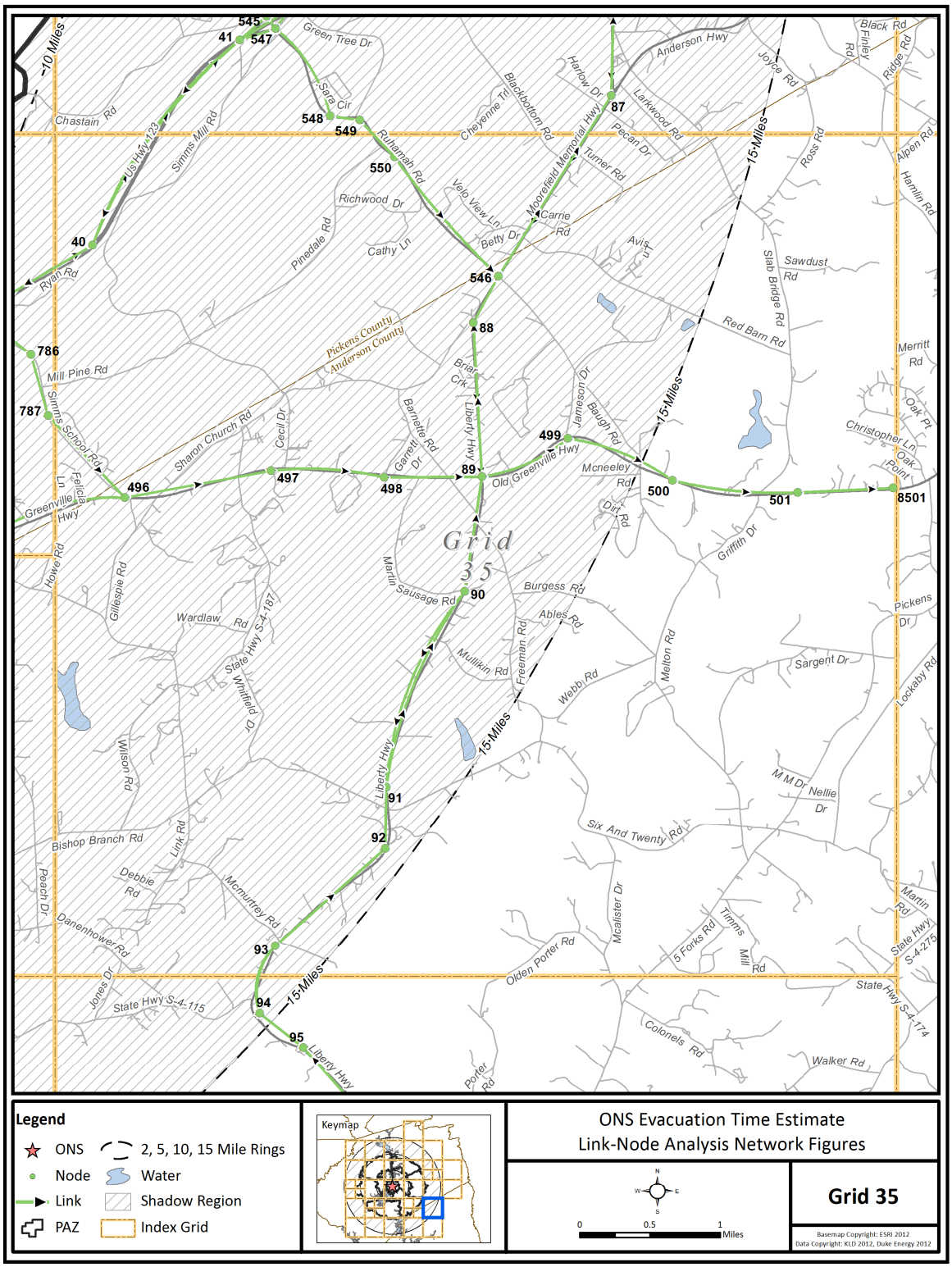

Figure K-36. Link-Node Analysis Network – Grid 35

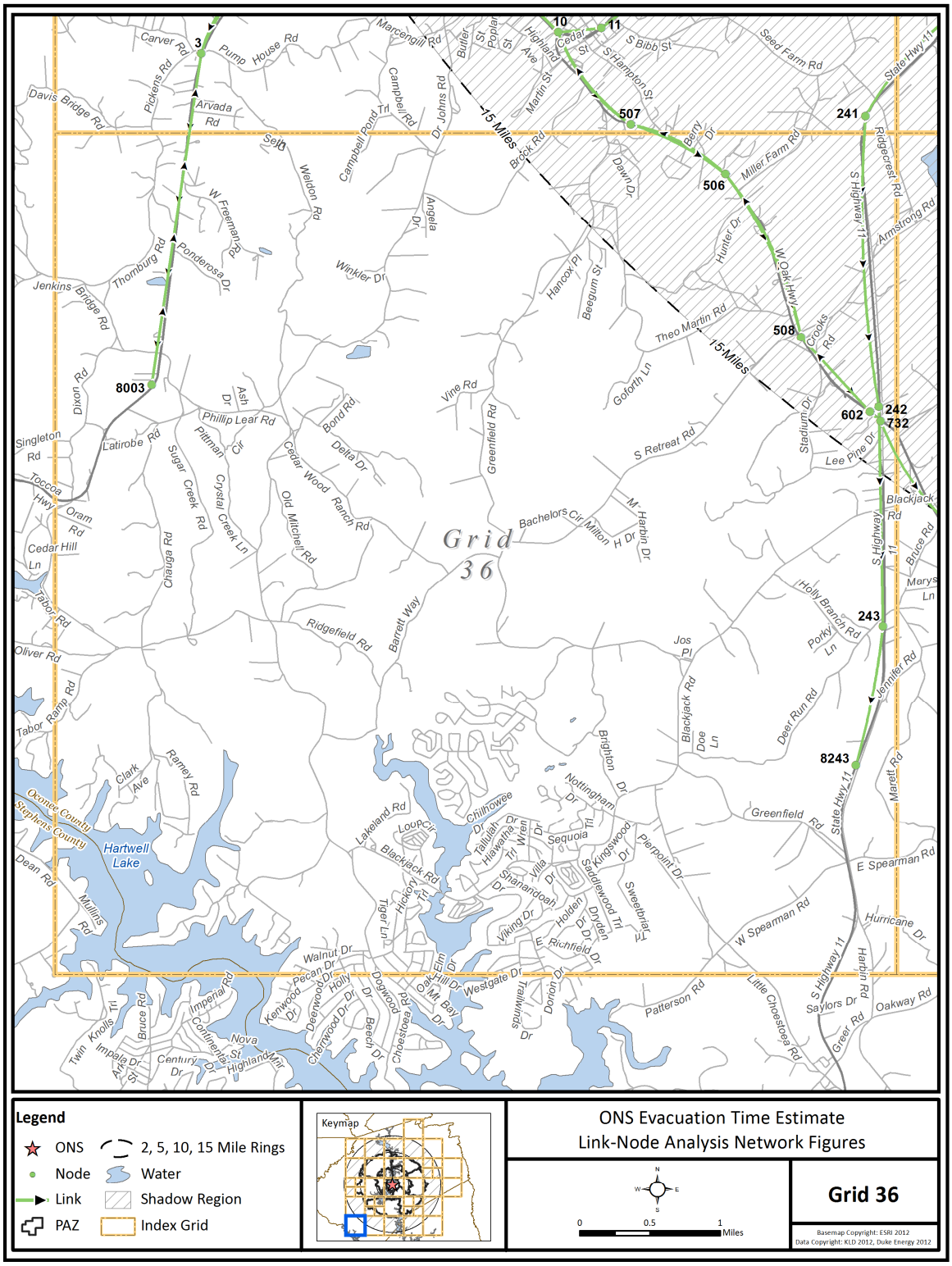

Figure K-37. Link-Node Analysis Network – Grid 36

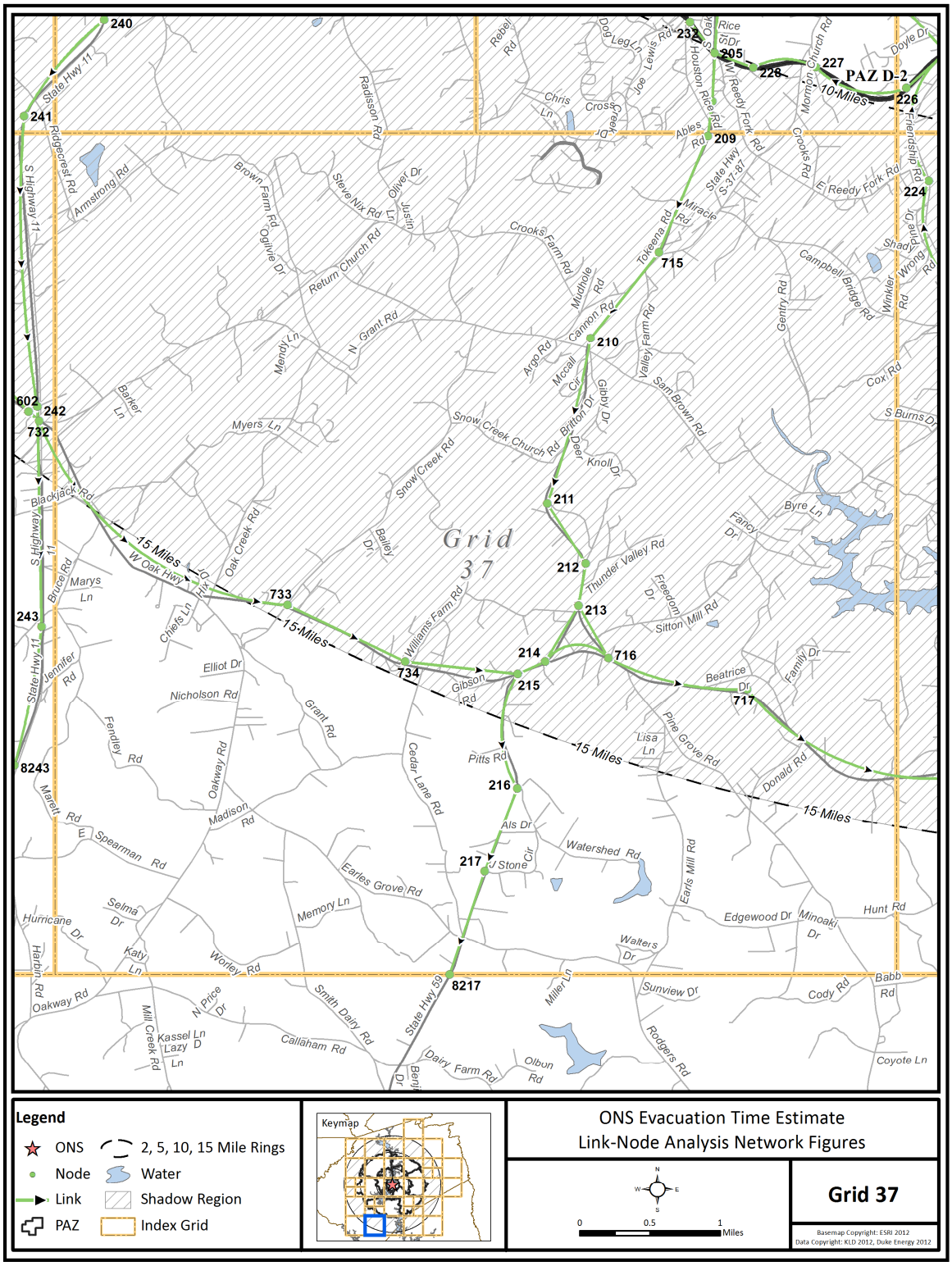

Figure K-38. Link-Node Analysis Network – Grid 37

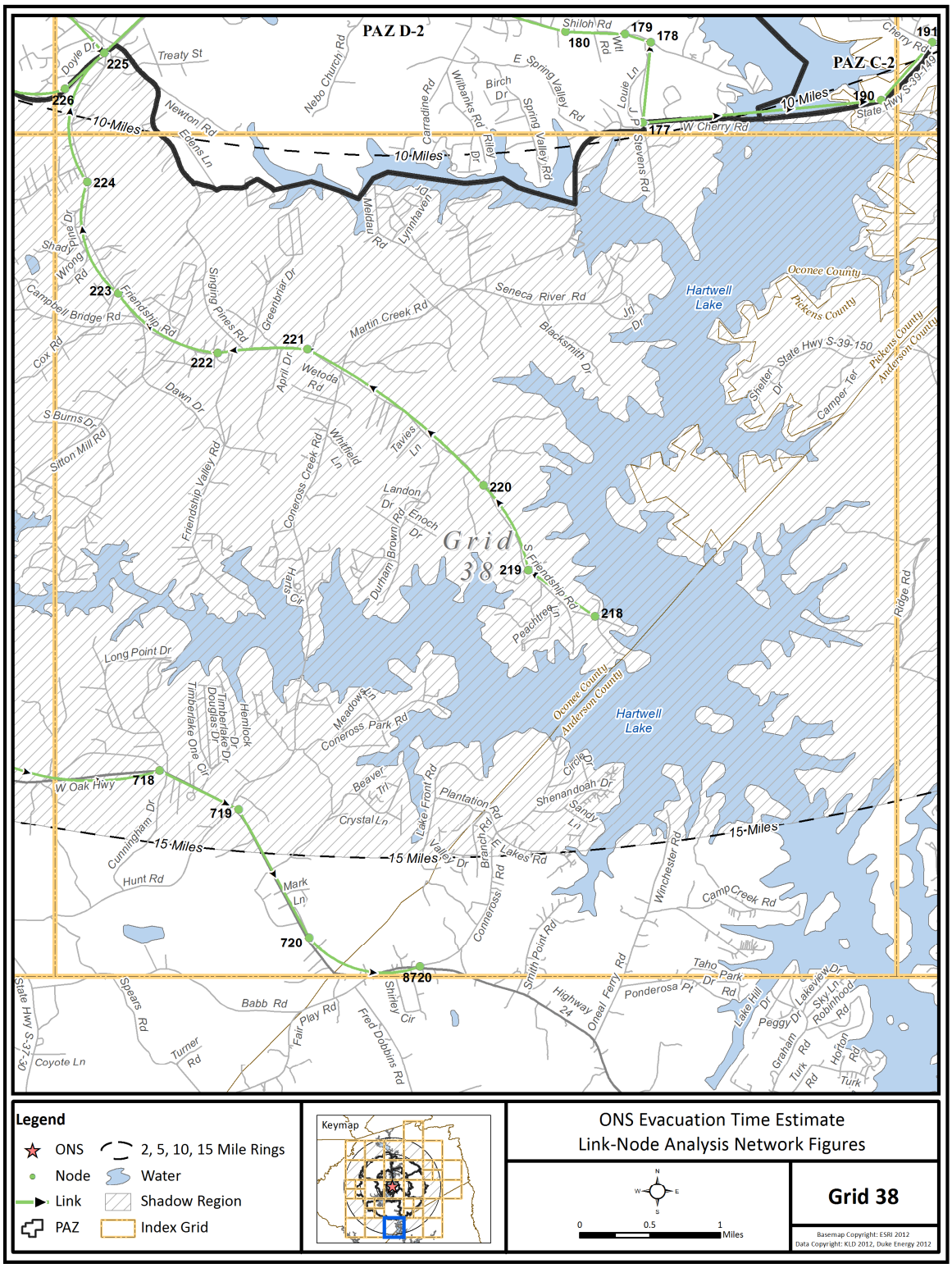

Figure K-39. Link-Node Analysis Network – Grid 38

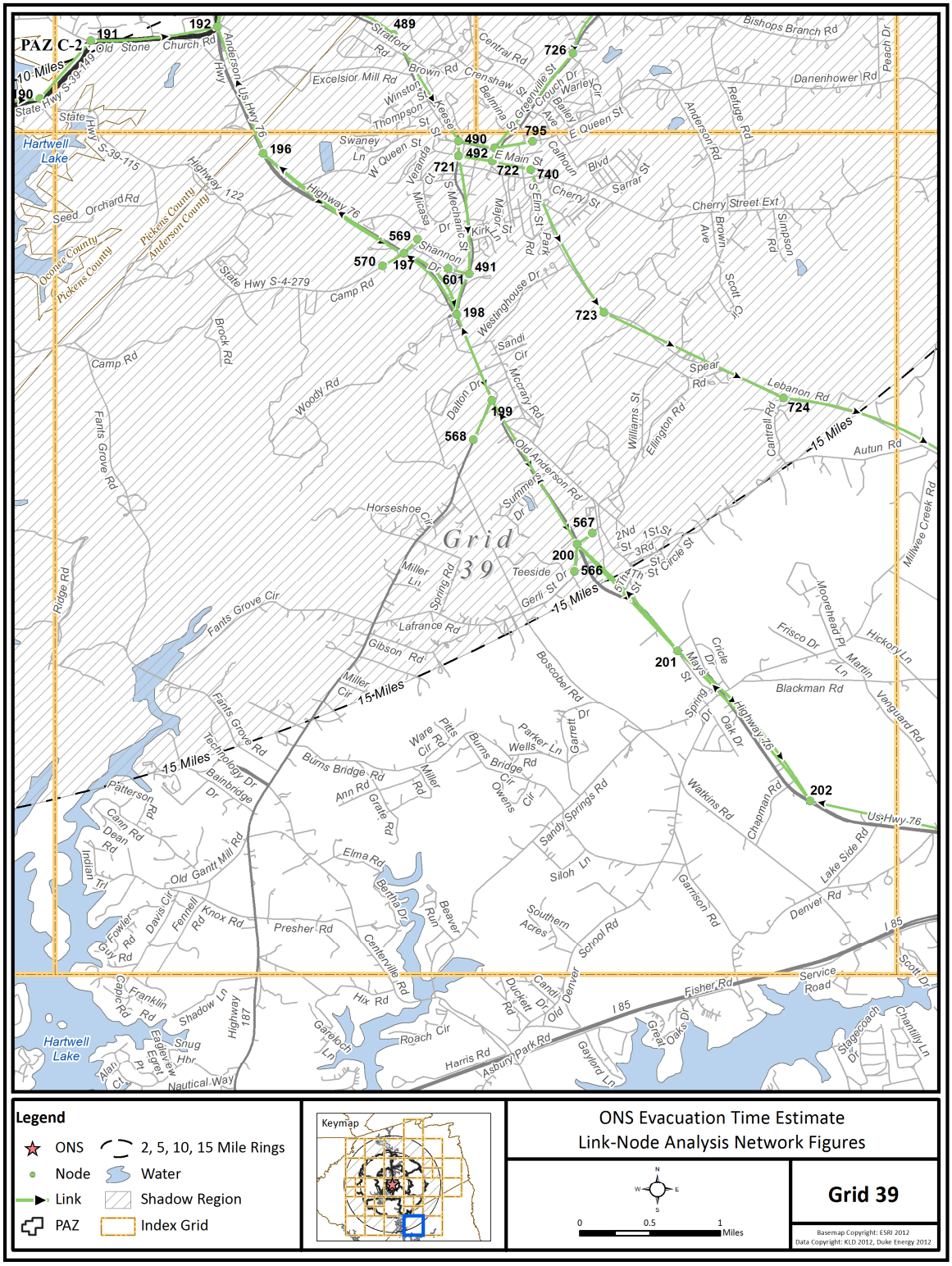

Figure K-40. Link-Node Analysis Network – Grid 39

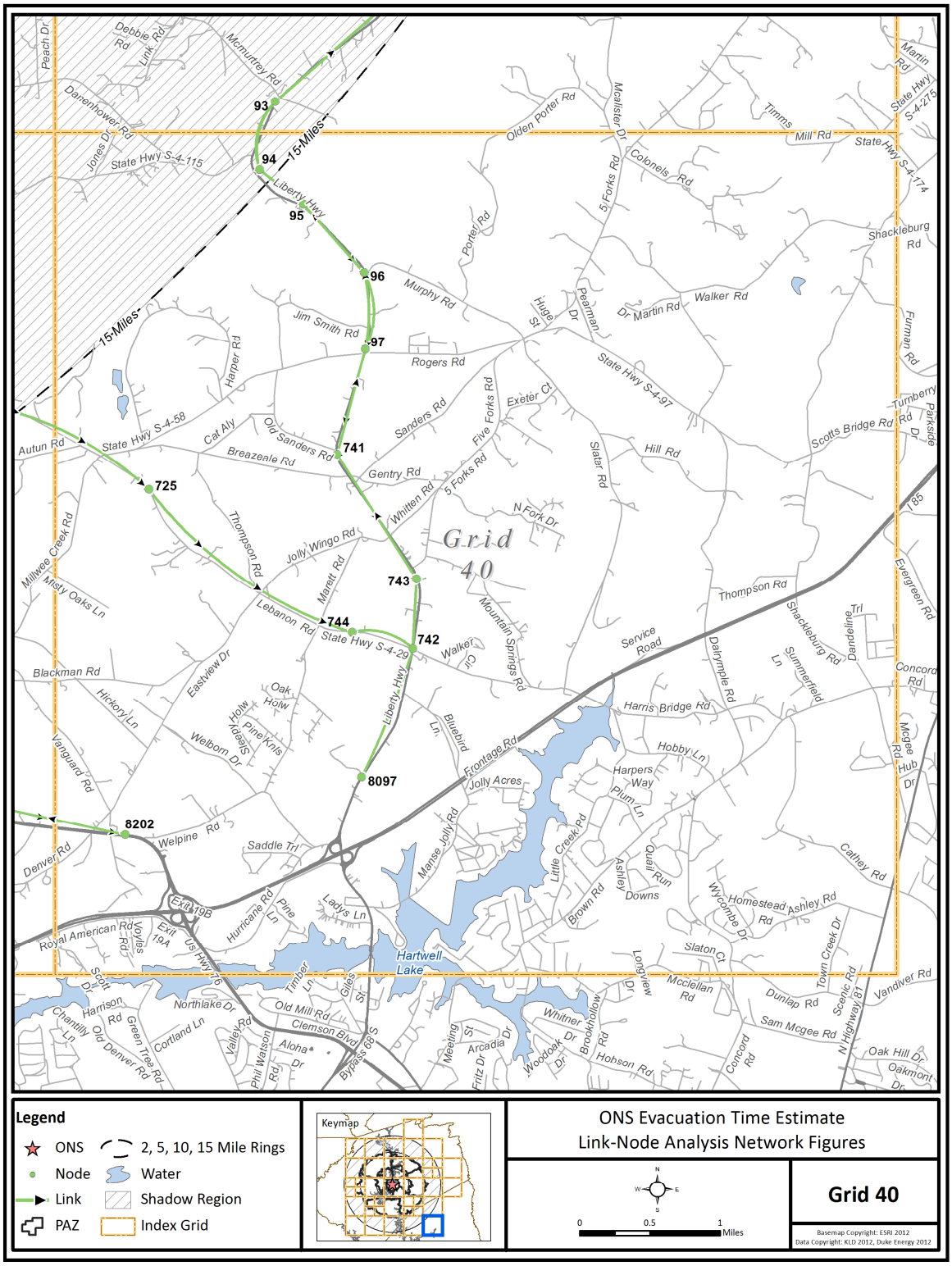

Figure K-41. Link-Node Analysis Network – Grid 40

Table K-1. Evacuation Roadway Network Characteristics

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
1	2	54	US 178	Collector	1277	1	12	0	1700	45	5
2	2	55	US 178	Collector	9735	1	12	0	1700	50	5
3	3	4	US 123	Collector	6221	1	12	0	1700	45	25
4	4	3	US 123	Collector	6243	1	12	0	1700	45	25
5	4	5	US 123	Collector	3942	1	12	0	1750	45	25
6	5	4	US 123	Collector	3942	1	12	0	1700	45	25
7	5	6	US 76	Collector	1711	1	12	1	1750	40	25
8	5	161	US 76	Collector	949	1	12	1	1700	45	25
9	6	5	US 76	Collector	1711	1	12	1	1750	45	25
10	6	7	US 76	Collector	907	1	12	0	1750	25	25
11	7	6	US 76	Collector	907	1	12	0	1750	35	25
12	7	8	US 76	Collector	1056	1	12	0	1750	25	25
13	8	7	US 76	Collector	1056	1	12	0	1750	25	25
14	8	779	US 76	Minor Arterial	779	2	12	0	1900	40	25
15	9	10	US 76	Minor Arterial	1586	2	12	0	1750	40	25
16	9	779	US 76	Collector	521	2	12	0	1750	40	25
17	10	9	US 76	Minor Arterial	1586	2	12	0	1900	40	25
18	10	11	US 76	Minor Arterial	1870	2	12	0	1900	40	25
19	10	507	SR 24	Collector	4479	1	12	0	1700	40	25
20	11	10	US 76	Minor Arterial	1870	2	12	0	1750	40	25
21	11	12	US 76	Minor Arterial	1643	2	12	0	1900	50	25
22	12	11	US 76	Minor Arterial	1643	2	12	0	1900	50	25
23	12	798	US 76	Minor Arterial	3376	2	12	0	1900	60	25
24	13	14	US 76	Minor Arterial	4134	2	12	0	1900	60	25
25	13	798	US 76	Minor Arterial	189	2	12	0	1900	60	25

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
26	14	13	US 76	Minor Arterial	4134	2	12	0	1900	60	25
27	14	15	US 76	Minor Arterial	3617	2	12	0	1900	60	25
28	15	14	US 76	Minor Arterial	3617	2	12	0	1900	60	25
29	15	16	US 76	Minor Arterial	2773	2	12	1	1900	50	28
30	15	239	OFF RAMP FROM US 123 TO SR 11	Freeway Ramp	2014	1	12	0	1350	30	28
31	16	15	US 76	Minor Arterial	2773	2	12	1	1900	50	28
32	16	17	US 76	Minor Arterial	6897	2	12	0	1900	60	28
33	17	16	US 76	Major Arterial	6897	2	12	0	1900	60	28
34	17	18	US 76	Minor Arterial	3401	2	12	0	1900	60	28
35	18	17	US 76	Minor Arterial	3401	2	12	0	1900	60	28
36	18	19	US 76	Minor Arterial	3510	2	12	0	1750	50	28
37	19	18	US 76	Minor Arterial	3510	2	12	0	1900	50	28
38	19	20	US 76	Minor Arterial	2080	2	12	0	1750	40	28
39	20	19	US 76	Minor Arterial	2080	2	12	0	1750	40	28
40	20	21	US 76	Minor Arterial	2158	2	12	0	1750	40	29
41	21	20	US 76	Minor Arterial	2158	2	12	0	1750	40	29
42	21	22	US 76	Minor Arterial	2016	2	12	0	1750	50	27
43	22	21	US 76	Minor Arterial	2016	2	12	0	1750	50	27
44	22	639	US 76	Minor Arterial	1009	2	12	0	1750	50	27
45	23	24	US 76	Minor Arterial	2469	2	12	0	1750	50	27
46	23	639	US 76	Minor Arterial	2073	2	12	0	1750	50	27
47	24	23	US 76	Minor Arterial	2469	2	12	0	1750	50	27
48	24	25	US 76	Minor Arterial	4413	2	12	0	1750	50	27
49	25	24	US 76	Minor Arterial	4413	2	12	0	1750	45	27

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
50	25	796	US 76	Minor Arterial	2494	2	12	0	1700	45	27
51	26	27	US 76	Minor Arterial	1027	2	12	0	1750	45	30
52	26	796	US 76	Minor Arterial	336	2	12	0	1700	50	30
53	27	26	US 76	Minor Arterial	1027	2	12	0	1750	45	30
54	27	28	US 76	Minor Arterial	2605	2	12	0	1750	50	30
55	28	27	US 76	Minor Arterial	2605	2	12	0	1750	50	30
56	28	29	US 76	Minor Arterial	9507	2	12	0	1750	60	30
57	29	28	US 76	Minor Arterial	9499	2	12	0	1750	60	30
58	29	30	US 76	Minor Arterial	5754	2	12	1	1750	60	30
59	30	29	US 76	Minor Arterial	5754	2	12	1	1750	60	30
60	30	638	US 76	Minor Arterial	3129	2	12	1	1900	60	30
61	31	636	US 76	Minor Arterial	1209	2	12	1	1900	60	30
62	31	637	SR 93	Minor Arterial	1009	2	12	3	1900	50	30
63	31	638	US 76	Minor Arterial	979	2	12	1	1900	60	30
64	32	33	US 76	Minor Arterial	2272	2	12	0	1750	45	33
65	32	528	US 76	Minor Arterial	2561	2	12	0	1750	45	30
66	32	748	SR 133	Minor Arterial	2225	2	12	0	1900	45	30
67	33	32	US 76	Minor Arterial	2272	2	12	0	1750	45	33
68	33	34	US 123	Minor Arterial	3412	2	12	1	1900	45	33
69	33	193	US 76	Minor Arterial	2647	2	12	0	1900	45	33
70	34	33	US 123	Minor Arterial	3412	2	12	1	1750	45	33
71	34	368	OFF RAMP FROM US 123 TO SR 93	Freeway Ramp	483	1	12	0	1750	45	33
72	34	374	US 123	Freeway	1290	2	12	1	2250	45	33
73	35	36	US 123	Freeway	1834	2	12	1	2250	50	33

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
74	35	374	US 123	Freeway	6037	2	12	1	2250	45	33
75	35	531	OFF RAMP FROM US 123 TO SR S-39-30	Freeway Ramp	905	1	12	0	1700	45	33
76	36	35	US 123	Freeway	1834	2	12	1	2250	50	33
77	36	37	US 123	Freeway	9296	2	12	1	2250	70	32
78	36	530	OFF RAMP FROM US 123 TO SR S-39-30	Freeway Ramp	1048	1	12	0	1700	45	33
79	37	36	US 123	Freeway	9296	2	12	1	2250	70	32
80	37	38	US 123	Freeway	1802	2	12	1	2250	70	32
81	37	537	OFF RAMP FROM US 123 TO 18 MILE RD	Freeway Ramp	968	1	12	0	1700	45	32
82	38	37	US 123	Freeway	1802	2	12	1	2250	70	32
83	38	39	US 123	Freeway	5918	2	12	1	2250	70	32
84	38	536	OFF RAMP FROM US 123 TO 18 MILE RD	Freeway Ramp	1009	1	12	0	1700	45	32
85	39	38	US 123	Freeway	5918	2	12	1	2250	70	32
86	39	40	US 123	Freeway	6317	2	12	1	2250	70	32
87	40	39	US 123	Freeway	6317	2	12	1	2250	70	32
88	40	41	US 123	Freeway	9576	2	12	1	2250	70	23
89	41	40	US 123	Freeway	9597	2	12	1	2250	70	23
90	41	42	US 123	Freeway	2285	2	12	1	2250	70	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
91	41	547	OFF RAMP FROM US 123 TO RUHAMMAH RD	Freeway Ramp	1235	1	12	0	1700	45	23
92	42	41	US 123	Freeway	2285	2	12	1	2250	70	23
93	42	545	OFF RAMP FROM US 123 TO RUHAMMAH RD	Freeway Ramp	1145	1	12	0	1700	45	23
94	42	704	US 123	Freeway	4976	2	12	1	2250	70	23
95	43	44	US 123	Freeway	2149	2	12	1	2250	70	23
96	43	704	US 123	Freeway	4614	2	12	1	2250	70	23
97	44	43	US 123	Freeway	2149	2	12	1	2250	70	23
98	44	45	US 123	Freeway	1658	2	12	1	2250	70	23
99	44	84	ON RAMP TO US 178 FROM US 123	Freeway Ramp	844	1	12	0	1700	45	23
100	45	44	US 123	Freeway	1658	2	12	1	2250	70	23
101	45	46	US 123	Freeway	4474	2	12	1	2250	70	23
102	45	83	ON RAMP TO US 178 FROM US 123	Freeway Ramp	874	1	12	0	1700	45	23
103	46	45	US 123	Freeway	4443	2	12	1	2250	70	23
104	46	47	US 123	Freeway	1831	2	12	1	2250	70	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
105	46	790	US 123 ON RAMP FROM SR S-39-53	Freeway Ramp	1119	1	12	4	1700	40	23
106	47	46	US 123	Freeway	1831	2	12	1	2250	70	23
107	47	48	US 123	Freeway	12426	2	12	1	2250	70	23
108	47	789	US 123 ON RAMP FROM SR S-39-53	Freeway Ramp	867	1	12	4	1700	40	23
109	48	47	US 123	Freeway	12426	2	12	1	2250	70	23
110	48	49	US 123	Freeway	3648	2	12	1	2250	70	24
111	49	48	US 123	Freeway	3648	2	12	1	2250	70	24
112	49	50	US 123	Freeway	1502	2	12	1	2250	70	24
113	50	51	US 123	Freeway	1278	2	12	1	2250	60	24
114	51	52	US 123	Freeway	4223	2	12	1	2250	55	24
115	51	667	US 123	Freeway	2011	2	12	0	2250	60	24
116	52	51	US 123	Freeway	4223	2	12	1	2250	55	24
117	52	53	US 123	Freeway	1470	2	12	1	2250	55	24
118	53	52	US 123	Freeway	1470	2	12	1	2250	55	24
119	54	2	US 178	Collector	1277	1	12	0	1700	45	5
120	54	271	SR 11	Collector	4839	1	12	3	1700	60	5
121	54	729	US 178	Collector	2269	1	12	0	1700	45	5
122	55	2	US 178	Collector	9739	1	12	0	1700	50	5
123	55	56	US 178	Collector	1243	1	12	0	1700	50	5
124	56	55	US 178	Collector	1243	1	12	0	1700	50	5
125	56	57	US 178	Collector	9163	1	12	0	1700	50	6
126	57	56	US 178	Collector	9163	1	12	0	1700	50	6

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
127	57	58	US 178	Collector	2902	1	12	0	1700	50	6
128	58	57	US 178	Collector	2891	1	12	0	1700	50	6
129	58	59	US 178	Collector	2092	1	12	0	1700	45	6
130	59	58	US 178	Collector	2092	1	12	0	1700	45	6
131	59	60	US 178	Collector	1371	1	12	0	1700	45	6
132	60	59	US 178	Collector	1340	1	12	0	1700	45	6
133	60	668	US 178	Collector	1068	1	12	0	1750	55	6
134	61	62	US 178	Minor Arterial	2797	2	12	0	1900	55	6
135	61	668	US 178	Collector	1645	2	12	0	1750	55	6
136	62	61	US 178	Minor Arterial	2815	2	12	0	1900	55	6
137	62	63	US 178	Collector	1031	2	12	0	1900	45	11
138	63	62	US 178	Collector	1031	2	12	0	1900	45	11
139	63	64	US 178	Minor Arterial	1983	2	12	0	1750	55	11
140	64	63	US 178	Minor Arterial	1990	2	12	0	1900	55	11
141	64	65	US 178	Minor Arterial	3431	2	12	0	1750	45	11
142	65	64	US 178	Minor Arterial	3431	2	12	0	1750	45	11
143	65	66	US 178	Minor Arterial	4809	1	12	0	1750	45	11
144	66	65	US 178	Minor Arterial	4775	2	12	0	1750	45	11
145	66	67	US 178	Minor Arterial	368	2	12	0	1750	45	11
146	67	66	US 178	Minor Arterial	368	1	12	0	1750	45	11
147	67	68	US 178	Collector	414	1	12	0	1750	40	11
148	67	116	SR 183	Minor Arterial	655	2	12	0	1750	45	11
149	68	67	US 178	Minor Arterial	414	2	12	0	1750	40	11
150	68	69	US 178	Minor Arterial	441	1	12	0	1750	40	11
151	69	68	US 178	Minor Arterial	441	2	12	0	1750	40	11
152	69	70	US 178	Minor Arterial	3372	2	12	0	1900	55	11

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
153	70	69	US 178	Minor Arterial	3365	2	12	0	1750	55	11
154	70	71	US 178	Collector	2743	1	12	0	1750	55	13
155	71	70	US 178	Collector	2743	1	12	0	1700	55	13
156	71	72	US 178	Collector	3340	1	12	0	1750	55	13
157	72	71	US 178	Collector	3340	1	12	0	1750	55	13
158	72	73	US 178	Collector	4015	1	12	0	1700	55	13
159	73	72	US 178	Collector	4026	1	12	0	1750	55	13
160	73	74	US 178	Collector	2719	1	12	0	1700	55	13
161	74	73	US 178	Collector	2719	1	12	0	1700	55	13
162	74	75	US 178	Collector	1818	1	12	0	1700	55	13
163	75	74	US 178	Collector	1818	1	12	0	1700	55	13
164	75	670	US 178	Collector	2106	1	12	0	1700	55	13
165	76	77	US 178	Collector	5691	1	12	0	1700	55	23
166	76	670	US 178	Collector	2941	1	12	0	1700	55	23
167	77	76	US 178	Collector	5691	1	12	0	1750	55	23
168	77	78	US 178	Collector	4722	1	12	0	1700	55	23
169	78	77	US 178	Collector	4722	1	12	0	1700	55	23
170	78	79	US 178	Collector	2111	1	12	2	1750	45	23
171	79	78	US 178	Collector	2111	1	12	2	1700	45	23
172	79	80	US 178	Collector	1530	1	12	4	1575	35	23
173	79	386	SR 93	Collector	1118	1	12	0	1700	40	23
174	80	79	US 178	Collector	1556	1	12	4	1750	45	23
175	80	81	US 178	Collector	1741	1	12	4	1700	45	23
176	81	80	US 178	Collector	1742	1	12	4	1700	45	23
177	81	82	US 178	Collector	1421	1	12	4	1700	45	23
178	82	81	US 178	Collector	1421	1	12	4	1700	45	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
179	82	83	US 178	Collector	3527	1	12	0	1700	45	23
180	83	44	ON RAMP TO US 123 FROM US 178	Freeway Ramp	826	1	12	0	1700	45	23
181	83	82	US 178	Collector	3527	1	12	0	1700	45	23
182	83	84	US 178	Collector	448	1	12	1	1700	45	23
183	84	45	ON RAMP TO US 123 FROM US 178	Freeway Ramp	895	1	12	0	1700	45	23
184	84	83	US 178	Collector	448	1	12	1	1700	45	23
185	84	85	US 178	Collector	5433	1	12	0	1700	50	23
186	85	84	US 178	Collector	5447	1	12	0	1700	50	23
187	85	86	US 178	Collector	4197	1	12	0	1700	55	23
188	86	85	US 178	Collector	4197	1	12	0	1700	55	23
189	86	87	US 178	Collector	3078	1	12	0	1700	60	23
190	87	86	US 178	Collector	3078	1	12	0	1700	60	23
191	87	546	US 178	Collector	8466	1	12	4	1700	60	35
192	88	89	US 178	Collector	6018	1	12	0	1700	60	35
193	88	546	US 178	Collector	1784	1	12	0	1700	60	35
194	89	88	US 178	Collector	6018	1	12	0	1700	60	35
195	89	90	US 178	Collector	4128	1	12	0	1700	60	35
196	89	499	SR 88	Collector	3768	1	12	0	1700	55	35
197	90	89	US 178	Collector	4128	1	12	0	1700	60	35
198	90	91	US 178	Collector	7855	1	12	0	1700	60	35
199	91	90	US 178	Collector	7855	1	12	0	1700	60	35
200	91	92	US 178	Collector	2607	1	12	0	1700	60	35

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
201	92	91	US 178	Collector	2607	1	12	0	1700	60	35
202	92	93	US 178	Collector	5857	1	12	0	1700	60	35
203	93	92	US 178	Collector	5857	1	12	0	1700	60	35
204	93	94	US 178	Collector	2803	1	12	0	1700	60	40
205	94	93	US 178	Collector	2803	1	12	0	1700	60	40
206	94	95	US 178	Collector	1953	1	12	0	1700	60	40
207	95	94	US 178	Collector	1953	1	12	0	1700	60	40
208	95	96	US 178	Collector	3680	1	12	0	1700	60	40
209	96	95	US 178	Collector	3680	1	12	0	1700	60	40
210	96	97	US 178	Collector	2742	1	12	0	1700	60	40
211	97	96	US 178	Collector	2742	1	12	0	1700	60	40
212	97	741	US 178	Collector	4315	1	12	0	1700	60	40
213	98	99	SR 183	Collector	3607	1	12	0	1700	50	21
214	98	131	SR 130	Collector	2093	1	12	1	1700	60	21
215	98	166	SR 130	Collector	2085	1	12	1	1700	60	21
216	99	98	SR 183	Collector	3607	1	12	0	1750	50	21
217	99	100	SR 183	Collector	4703	1	12	0	1700	50	21
218	100	101	SR 183	Collector	4883	1	12	0	1700	50	21
219	100	737	SR 39-160	Collector	1400	1	12	4	1700	45	21
220	101	102	SR 183	Collector	7322	1	12	0	1700	60	21
221	102	103	SR 183	Collector	2351	1	12	0	1700	60	9
222	103	104	SR 183	Collector	3623	1	12	0	1700	60	9
223	104	113	SR 183	Collector	1548	1	12	0	1700	60	9
224	105	106	SR 183	Collector	6803	1	12	0	1700	60	10
225	106	107	SR 183	Collector	5247	1	12	0	1700	60	10
226	107	108	SR 183	Collector	6073	1	12	0	1700	60	10

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
227	108	109	SR 183	Collector	1636	1	12	0	1700	60	10
228	109	110	SR 183	Collector	4523	1	12	0	1700	60	10
229	110	111	SR 183	Collector	7154	1	12	2	1700	45	10
230	111	112	SR 183	Collector	4512	1	12	2	1750	40	11
231	112	114	SR 183	Minor Arterial	1058	2	12	0	1900	40	11
232	113	105	SR 183	Collector	4679	1	12	0	1700	60	10
233	113	443	SR 133	Collector	8222	1	12	0	1700	60	9
234	114	115	SR 183	Minor Arterial	2615	2	12	0	1750	35	11
235	115	66	SR 183	Minor Arterial	1065	2	12	0	1750	45	11
236	116	67	SR 183	Minor Arterial	655	2	12	0	1750	45	11
237	116	117	SR 183	Minor Arterial	487	2	12	0	1750	45	11
238	117	116	SR 183	Minor Arterial	487	2	12	0	1750	45	11
239	117	118	SR 183	Minor Arterial	943	2	12	0	1900	45	11
240	117	558	SR 8	Minor Arterial	462	2	12	0	1750	45	11
241	118	119	SR 183	Minor Arterial	1151	2	12	0	1750	45	11
242	119	120	SR 183	Collector	2550	1	12	2	1700	45	11
243	119	124	SR 8	Minor Arterial	3336	2	12	0	1900	45	11
244	120	121	SR 183	Collector	3611	1	12	2	1700	45	11
245	121	122	SR 183	Collector	5279	1	12	2	1700	45	12
246	122	123	SR 183	Collector	9008	1	12	2	1700	45	12
247	124	125	SR 8	Minor Arterial	1542	2	12	0	1900	50	11
248	125	126	SR 8	Collector	2024	1	12	0	1700	60	11
249	126	127	SR 8	Collector	8743	1	12	0	1700	60	12
250	127	128	SR 186	Collector	3939	1	9	0	1700	55	6
251	127	129	SR 8	Collector	1895	1	12	0	1700	60	6
252	129	130	SR 8	Collector	4838	1	12	0	1700	60	6

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
253	131	98	SR 130	Collector	2094	1	12	1	1750	60	21
254	131	649	SR 130	Collector	1935	1	12	1	1700	60	21
255	132	133	SR 130	Collector	3035	1	12	3	1750	55	21
256	133	134	SR 183	Collector	9927	1	12	1	1700	55	21
257	133	272	SR 130	Collector	2295	1	12	1	1700	45	21
258	134	135	SR 183	Collector	9236	1	12	1	1700	55	20
259	135	136	SR 183	Collector	2884	1	12	0	1700	55	20
260	136	137	SR 183	Collector	5358	1	12	0	1700	55	20
261	136	693	LECROY RD	Collector	4581	1	12	4	1700	40	20
262	137	138	SR 183	Collector	2656	1	12	0	1700	55	20
263	138	139	SR 183	Collector	2469	1	12	0	1700	55	20
264	139	140	SR 183	Collector	3960	1	12	0	1700	55	20
265	140	141	SR 183	Collector	4038	1	12	3	1700	55	20
266	140	249	CHRISTOPHER S RD	Collector	2800	1	12	1	1700	45	20
267	141	142	SR 183	Collector	2482	1	12	3	1700	55	20
268	142	143	SR 183	Collector	1505	1	12	3	1700	55	20
269	143	144	SR 183	Collector	3670	1	12	3	1700	55	17
270	144	145	SR 183	Minor Arterial	1135	2	12	1	1750	45	17
271	145	146	SR 183	Minor Arterial	4871	2	12	0	1900	50	19
272	146	147	SR 183	Collector	1527	1	15	0	1750	40	19
273	147	312	SR 28	Collector	605	2	12	0	1750	45	19
274	148	149	SR 183	Collector	1720	1	12	2	1700	45	19
275	149	150	SR 183	Collector	2457	1	12	2	1700	45	19
276	150	151	SR 183	Collector	6171	1	12	0	1700	50	19
277	151	152	SR 183	Collector	2403	1	12	0	1700	60	25

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
278	152	153	SR 183	Collector	4851	1	12	0	1700	60	25
279	153	154	SR 183	Collector	6395	1	12	0	1700	60	25
280	154	155	SR 183	Collector	1532	1	12	0	1700	55	25
281	155	156	SR 183	Collector	2727	1	12	0	1700	55	25
282	156	157	SR 183	Collector	3295	1	12	5	1700	45	25
283	157	158	SR 183	Collector	3337	1	12	2	1750	45	25
284	158	159	SR 183	Collector	2944	1	12	4	1700	40	25
285	159	160	SR 183	Collector	578	1	12	5	1700	45	25
286	160	6	SR 183	Collector	739	1	12	5	1750	45	25
287	161	5	US 76	Collector	949	1	12	1	1750	45	25
288	161	163	US 76	Collector	2457	1	12	1	1700	45	25
289	163	161	US 76	Collector	2498	1	12	1	1700	45	25
290	163	164	US 76	Collector	1663	1	12	1	1700	45	25
291	164	163	US 76	Collector	1663	1	12	1	1700	45	25
292	164	165	US 76	Collector	8464	1	12	1	1700	45	25
293	165	164	US 76	Collector	8464	1	12	1	1700	45	25
294	166	167	SR 130	Collector	6999	1	12	1	1700	60	21
295	167	168	SR 130	Collector	7250	1	12	1	1700	60	21
296	168	169	SR 130	Collector	4284	1	12	1	1700	60	21
297	169	170	SR 130	Collector	5053	1	12	1	1700	55	30
298	170	171	SR 130	Collector	5029	1	12	1	1750	55	30
299	171	172	SR 130	Collector	4329	1	12	1	1700	55	30
300	172	797	SR 130	Collector	2146	1	12	1	1750	55	30
301	173	26	SR 130	Minor Arterial	1172	2	12	0	1750	45	30
302	174	173	SR 130	Minor Arterial	4461	2	12	0	1900	45	29
303	175	176	SR 130	Minor Arterial	6298	2	12	0	1900	45	29

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
304	175	577	SR 130	Minor Arterial	462	2	12	0	1750	25	29
305	175	645	SR 59	Minor Arterial	717	2	12	0	1750	45	29
306	176	22	SR 130	Minor Arterial	1535	2	12	0	1750	45	29
307	177	178	J P STEVENS RD	Collector	1588	1	12	0	1700	60	30
308	177	190	W CHERRY RD	Collector	5951	1	12	0	1700	50	30
309	178	179	SHILOH RD	Collector	3082	1	12	0	1700	55	30
310	179	180	SHILOH RD	Collector	3379	1	12	0	1700	55	30
311	180	181	SHILOH RD	Collector	5046	1	12	0	1700	55	30
312	181	182	SHILOH RD	Collector	3102	1	12	0	1700	55	30
313	182	183	SHILOH RD	Collector	4306	1	12	0	1700	50	30
314	183	231	SHILOH RD	Collector	1975	1	12	0	1700	50	30
315	184	185	SHILOH RD	Collector	1787	1	10	0	1700	45	30
316	185	186	SHILOH RD	Collector	1430	1	10	0	1700	45	30
317	186	187	SHILOH RD	Collector	2026	1	10	0	1700	45	30
318	187	188	SHILOH RD	Local Roadway	390	1	10	0	675	15	30
319	188	648	SR S-37-37	Local Roadway	1428	1	10	0	900	20	30
320	189	174	CHERRY ST	Local Roadway	445	1	12	0	1750	25	29
321	189	588	SR S-37-37	Local Roadway	898	1	10	0	1125	25	29
322	190	191	W CHERRY RD	Collector	2647	1	12	4	1700	50	33
323	191	192	RT 22	Collector	4808	1	12	1	1750	40	33
324	192	195	US 76	Minor Arterial	5037	2	12	4	1900	55	33
325	192	196	US 76	Minor Arterial	4992	2	12	4	1900	55	33
326	193	33	US 76	Minor Arterial	2647	2	12	0	1750	45	33

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
327	193	365	OFF RAMP FROM US 76 TO SR 93	Freeway Ramp	919	1	12	0	1700	45	33
328	193	572	US 76	Minor Arterial	1416	2	12	0	1900	45	33
329	194	195	US 76	Minor Arterial	1265	2	12	4	1900	45	33
330	194	572	US 76	Minor Arterial	603	2	12	0	1900	50	33
331	195	192	US 76	Minor Arterial	5031	2	12	4	1750	55	33
332	195	194	US 76	Minor Arterial	1265	2	12	4	1750	45	33
333	195	487	RT 28	Collector	3913	1	12	2	1575	35	33
334	196	192	US 76	Minor Arterial	4992	2	12	4	1750	55	33
335	196	197	US 76	Minor Arterial	6497	2	12	4	1750	55	39
336	197	196	US 76	Minor Arterial	6497	2	12	4	1900	55	39
337	197	198	US 76	Minor Arterial	3072	2	12	4	1750	60	39
338	198	197	US 76	Minor Arterial	3072	2	12	4	1750	60	39
339	198	199	US 76	Minor Arterial	3674	2	12	4	1750	55	39
340	199	198	US 76	Minor Arterial	3675	2	12	4	1750	55	39
341	199	200	US 76	Minor Arterial	7042	2	12	2	1750	55	39
342	200	199	US 76	Minor Arterial	7042	2	12	2	1750	55	39
343	200	201	US 76	Minor Arterial	4330	2	12	2	1900	55	39
344	201	200	US 76	Minor Arterial	4322	2	12	2	1750	55	39
345	201	202	US 76	Minor Arterial	7893	2	12	2	1900	55	39
346	202	201	US 76	Minor Arterial	7911	2	12	2	1900	55	39
347	203	204	SR 59	Minor Arterial	3832	2	12	0	1900	45	29
348	204	205	SR 59	Minor Arterial	1701	2	12	0	1750	45	29
349	205	206	SR 59	Minor Arterial	2282	2	12	0	1900	50	29
350	206	209	SR 59	Collector	1279	1	12	0	1700	50	29

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
351	207	208	SR 59	Minor Arterial	950	2	12	0	1750	45	29
352	208	203	SR 59	Minor Arterial	1777	2	12	0	1900	45	29
353	209	715	SR 59	Collector	4804	1	12	0	1700	60	37
354	210	211	SR 59	Collector	6380	1	12	0	1700	60	37
355	211	212	SR 59	Collector	2418	1	12	0	1700	60	37
356	212	213	SR 59	Collector	2224	1	12	0	1700	60	37
357	213	214	SR 59	Collector	1984	1	12	0	1700	60	37
358	213	716	CROSS ROADS DR	Collector	1297	1	12	4	1700	60	37
359	214	215	SR 59	Collector	1679	1	12	0	1700	60	37
360	214	716	SH 24	Collector	1613	1	12	4	1700	45	37
361	215	214	SR 59	Collector	1680	1	12	0	1700	60	37
362	215	216	SR 59	Collector	3521	1	12	0	1700	60	37
363	216	217	SR 59	Collector	4154	1	12	0	1700	60	37
364	218	219	SR S-37-21	Collector	3038	1	12	0	1700	50	38
365	219	220	SR S-37-21	Collector	4014	1	12	0	1700	45	38
366	220	221	SR S-37-21	Collector	7965	1	12	0	1700	50	38
367	221	222	SR S-37-21	Collector	3495	1	12	0	1700	50	38
368	222	223	SR S-37-21	Collector	4480	1	12	0	1700	45	38
369	223	224	SR S-37-21	Collector	4610	1	12	0	1700	45	38
370	224	225	SR S-37-21	Collector	5339	1	12	0	1700	45	30
371	225	226	WELLS HWY	Collector	2882	1	12	0	1700	50	30
372	226	227	WELLS HWY	Collector	3292	1	12	0	1700	55	29
373	227	228	WELLS HWY	Collector	2258	1	12	0	1700	60	29
374	228	205	WELLS HWY	Collector	1359	1	12	0	1750	60	29
375	229	225	WELLS HWY	Collector	4870	1	12	1	1700	50	30

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
376	230	229	WELLS HWY	Collector	4810	1	12	1	1700	50	30
377	231	184	SHILOH RD	Collector	2622	1	10	0	1700	45	30
378	231	230	WELLS HWY	Collector	2154	1	12	1	1700	50	30
379	232	205	WELLS HWY	Collector	1380	1	12	1	1750	45	29
380	233	234	SR 11	Collector	9801	1	12	0	1700	40	19
381	234	235	SR 11	Collector	6013	1	12	0	1700	60	25
382	235	236	SR 11	Collector	4399	1	12	0	1700	60	25
383	236	643	SR 11	Collector	3662	1	12	0	1750	55	25
384	237	238	SR 11	Collector	5290	1	12	0	1750	60	28
385	238	239	SR 11	Collector	1437	1	12	0	1700	60	28
386	238	613	OLD SENECA RD	Collector	885	1	12	1	1700	45	28
387	239	15	ON RAMP TO US 123 FROM SR 11	Freeway Ramp	1991	1	12	0	1700	45	28
388	239	240	SR 11	Collector	2969	1	12	0	1700	55	28
389	240	241	SR 11	Collector	4587	1	12	0	1700	55	28
390	241	242	SR 11	Collector	10867	1	12	0	1700	55	36
391	242	243	SR 11	Collector	8565	1	12	0	1700	55	36
392	244	233	SR 11	Collector	1106	2	12	3	1575	35	20
393	245	615	SR 11	Collector	3234	1	12	3	1750	45	20
394	246	245	SR 11	Collector	5999	1	12	3	1700	60	20
395	247	246	SR 11	Collector	5226	1	12	3	1700	55	20
396	248	247	SR 11	Collector	4697	1	12	3	1700	50	20
397	249	140	CHRISTOPHER S RD	Collector	2793	1	12	1	1700	45	20
398	249	248	SR 11	Collector	2509	1	12	3	1700	60	20

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
399	249	250	SR 11	Collector	8500	1	12	3	1700	60	20
400	250	249	SR 11	Collector	8500	1	12	3	1700	60	20
401	250	251	SR 11	Collector	3640	1	12	3	1700	60	8
402	251	250	SR 11	Collector	3653	1	12	3	1700	60	8
403	251	252	SR 11	Collector	3055	1	12	4	1700	60	8
404	252	251	SR 11	Collector	3055	1	12	4	1700	60	8
405	252	253	SR 11	Collector	2510	1	12	4	1700	60	8
406	253	252	SR 11	Collector	2510	1	12	4	1700	60	8
407	253	254	SR 11	Collector	3131	1	12	4	1700	60	8
408	254	253	SR 11	Collector	3131	1	12	4	1700	60	8
409	254	697	SR 11	Collector	937	1	12	4	1700	45	8
410	255	256	SR 11	Collector	5719	1	12	3	1700	60	8
411	255	697	SR 11	Collector	4336	1	12	3	1700	60	8
412	256	255	SR 11	Collector	5719	1	12	3	1700	60	8
413	256	257	SR 11	Collector	1770	1	12	3	1700	45	8
414	257	256	SR 11	Collector	1770	1	12	3	1700	45	8
415	257	258	SR 11	Collector	1681	1	12	3	1700	55	8
416	258	257	SR 11	Collector	1680	1	12	3	1700	55	8
417	258	259	SR 11	Collector	2155	1	12	3	1700	60	8
418	259	258	SR 11	Collector	2155	1	12	3	1700	60	8
419	259	260	SR 11	Collector	7026	1	12	3	1700	60	8
420	260	259	SR 11	Collector	7025	1	12	3	1700	60	8
421	260	261	SR 11	Collector	14628	1	12	3	1700	60	8
422	261	262	SR 11	Collector	4303	1	12	3	1700	60	4
423	262	263	SR 11	Collector	2251	1	12	3	1700	60	4
424	263	665	SR 11	Collector	10475	1	12	3	1700	60	4

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
425	264	265	SR 11	Collector	9399	1	12	3	1700	60	4
426	265	266	SR 11	Collector	5687	1	12	3	1700	60	4
427	266	267	SR 11	Collector	5542	1	12	3	1700	60	5
428	267	268	SR 11	Collector	10480	1	12	3	1700	60	5
429	268	269	SR 11	Collector	3814	1	12	3	1700	60	5
430	269	270	SR 11	Collector	4444	1	12	3	1700	60	5
431	270	54	SR 11	Collector	4801	1	12	3	1700	60	5
432	272	273	SR 130	Collector	6818	1	12	1	1700	50	21
433	273	274	SR 130	Collector	3409	1	12	1	1575	35	9
434	274	275	SR 130	Collector	2623	1	12	1	1700	40	9
435	275	276	SR 130	Collector	2664	1	12	1	1700	50	9
436	276	277	SR 130	Collector	2994	1	12	1	1700	50	9
437	277	278	SR 130	Collector	1527	1	12	1	1700	50	8
438	278	279	SR 130	Collector	1842	1	12	1	1700	50	8
439	279	280	SR 130	Collector	6911	1	12	1	1700	50	8
440	280	281	SR 130	Collector	1191	1	12	1	1700	50	8
441	281	282	SR 130	Collector	2498	1	12	1	1700	50	8
442	282	283	SR 130	Collector	2059	1	12	0	1700	50	8
443	283	284	SR 130	Collector	3950	1	12	0	1700	45	8
444	284	285	SR 130	Collector	4098	1	12	0	1700	50	8
445	285	286	SR 130	Collector	2152	1	12	0	1700	50	8
446	286	260	SR 130	Collector	1538	1	12	0	1700	50	8
447	287	260	SR 130	Collector	2073	1	12	0	1700	55	8
448	288	287	SR 130	Collector	2052	1	12	0	1700	55	3
449	289	288	SR 130	Collector	3005	1	12	0	1700	55	3
450	289	290	SR 130	Collector	3710	1	12	0	1700	55	3

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
451	290	291	SR 130	Collector	1252	1	12	0	1700	45	3
452	291	292	SR 130	Collector	1150	1	12	0	1700	45	3
453	292	293	SR 130	Collector	2692	1	12	0	1700	55	3
454	293	294	SR 130	Collector	2174	1	12	0	1700	55	3
455	294	295	SR 130	Collector	2418	1	12	0	1700	55	3
456	295	296	SR 130	Collector	1955	1	12	0	1700	45	3
457	296	297	SR 130	Collector	1636	1	12	0	1700	45	3
458	297	298	SR 130	Collector	1517	1	12	0	1700	45	3
459	298	299	SR 130	Collector	2642	1	12	0	1700	55	3
460	299	300	SR 130	Collector	1458	1	12	0	1700	45	3
461	300	301	SR 130	Collector	4109	1	12	0	1700	55	3
462	301	302	SR 130	Collector	3644	1	12	0	1700	55	3
463	302	303	SR 130	Collector	1912	1	12	0	1575	35	3
464	304	305	SR 28	Minor Arterial	3541	2	12	0	1900	45	27
465	304	306	SR 28	Minor Arterial	6087	2	12	0	1900	50	26
466	305	22	SR 28	Minor Arterial	3471	2	12	0	1750	45	27
467	306	304	SR 28	Minor Arterial	6087	2	12	0	1750	50	26
468	306	307	SR 28	Minor Arterial	8971	2	12	0	1900	50	26
469	307	308	SR 28	Minor Arterial	7094	2	12	0	1900	50	20
470	308	244	SR 28	Collector	1715	1	12	2	1700	45	20
471	308	309	SR 28	Minor Arterial	2363	2	12	0	1900	45	20
472	309	310	SR 28	Minor Arterial	2729	2	12	0	1750	45	19
473	310	594	SR 28	Minor Arterial	1515	2	12	0	1750	45	19
474	311	147	SR 28	Minor Arterial	655	2	12	0	1750	45	19
475	312	148	SR 183	Collector	815	1	15	4	1750	40	19
476	312	313	SR 28	Minor Arterial	867	2	12	4	1750	45	19

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
477	313	312	SR 28	Collector	867	1	12	1	1750	45	19
478	313	314	SR 28	Minor Arterial	992	2	12	0	1750	45	19
479	314	313	SR 28	Minor Arterial	993	2	12	1	1750	45	19
480	314	315	SR 28	Collector	2258	1	12	0	1900	45	19
481	315	314	SR 28	Minor Arterial	2258	2	12	1	1750	45	19
482	315	339	SR S-37-36	Collector	3975	1	12	2	1700	45	19
483	316	315	SR 28	Collector	1850	1	12	2	1700	45	19
484	317	316	SR 28	Collector	3341	1	12	2	1700	45	19
485	318	317	SR 28	Collector	1479	1	12	2	1700	50	19
486	318	319	SR 28	Collector	6378	1	12	2	1700	50	16
487	319	320	SR 28	Collector	3240	1	12	2	1700	45	16
488	320	321	SR 28	Collector	1175	1	12	2	1350	30	16
489	321	322	SR 28	Collector	990	1	12	2	1350	30	16
490	322	323	SR 28	Collector	1446	1	12	2	1700	40	16
491	323	324	SR 28	Collector	1746	1	12	2	1700	45	16
492	324	325	SR 28	Collector	2180	1	12	2	1700	40	16
493	325	326	SR 28	Collector	542	1	12	2	1125	25	16
494	326	327	SR 28	Collector	913	1	12	2	1575	35	16
495	327	328	SR 28	Collector	3454	1	12	2	1700	55	16
496	328	329	SR 28	Collector	3411	1	12	2	1700	55	7
497	329	330	SR 28	Collector	5700	1	12	4	1700	55	7
498	330	331	SR 28	Collector	2822	1	12	2	1700	55	7
499	330	349	SR 107	Collector	5758	1	11	0	1700	50	7
500	331	332	SR 28	Collector	1601	1	12	2	1700	55	7
501	332	333	SR 28	Collector	1156	1	12	2	1700	55	7
502	333	334	SR 28	Collector	3347	1	12	2	1700	55	7

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
503	334	335	SR 28	Collector	2749	1	12	2	1575	35	7
504	336	799	SR S-37-36	Collector	2895	1	12	2	1700	45	25
505	337	336	SR S-37-36	Collector	5637	1	12	2	1700	45	25
506	338	337	SR S-37-36	Collector	6401	1	12	2	1700	45	18
507	339	338	SR S-37-36	Collector	5093	1	12	2	1700	45	19
508	340	304	SR 188	Collector	3229	1	12	2	1750	45	27
509	341	340	SR 188	Collector	4551	1	12	2	1700	45	27
510	342	341	SR 188	Collector	8785	1	12	2	1700	45	27
511	343	342	SR 188	Collector	1914	1	12	2	1700	45	20
512	344	343	SR 188	Collector	7831	1	12	2	1700	55	20
513	344	345	SR 188	Collector	4017	1	12	1	1700	55	20
514	345	346	SR 188	Collector	2322	1	12	1	1700	50	20
515	346	347	SR 188	Collector	3188	1	12	1	1700	50	20
516	347	348	SR 188	Collector	2219	1	12	1	1700	50	20
517	348	135	SR 188	Collector	4206	1	12	1	1700	50	20
518	349	350	SR 107	Collector	4492	1	11	0	1700	50	7
519	350	351	SR 107	Collector	1879	1	11	0	1700	50	7
520	351	352	SR 107	Collector	3916	1	11	0	1700	50	7
521	352	353	SR 107	Collector	4454	1	11	0	1700	50	7
522	353	354	SR 107	Collector	6370	1	11	0	1700	50	7
523	354	355	SR 107	Collector	2724	1	11	0	1125	25	7
524	355	356	SR 107	Collector	3156	1	11	0	1700	50	2
525	356	357	SR 107	Collector	3012	1	11	0	1700	50	2
526	357	358	SR 107	Collector	7408	1	11	0	1700	60	2
527	358	359	SR 107	Collector	1483	1	11	0	1700	40	2
528	359	360	SR 107	Collector	2755	1	11	0	1700	40	2

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
529	360	361	SR 107	Collector	3588	1	11	0	1575	35	2
530	362	603	SR 93	Minor Arterial	1727	2	12	3	1750	50	30
531	362	637	SR 93	Minor Arterial	4153	2	12	3	1900	50	30
532	363	605	SR 93	Minor Arterial	1844	2	12	3	1750	40	30
533	363	607	SR 93	Minor Arterial	931	2	12	0	1750	45	30
534	363	751	SR 133	Collector	586	1	12	0	1750	45	30
535	364	607	SR 93	Minor Arterial	852	2	12	0	1750	45	30
536	364	610	SR 93	Minor Arterial	1096	2	12	0	1750	45	33
537	365	366	SR 93	Minor Arterial	1257	2	12	3	1750	45	33
538	365	572	ON RAMP TO US 76 FROM SR 93	Freeway Ramp	962	1	12	4	1700	45	33
539	365	610	SR 93	Minor Arterial	2065	2	12	3	1750	45	33
540	366	365	SR 93	Minor Arterial	1257	2	12	3	1900	45	33
541	366	367	SR 93	Minor Arterial	1477	2	12	3	1750	50	33
542	367	366	SR 93	Minor Arterial	1477	2	12	3	1750	50	33
543	367	368	SR 93	Minor Arterial	751	2	12	3	1750	50	33
544	368	367	SR 93	Minor Arterial	751	2	12	3	1750	50	33
545	368	369	SR 93	Minor Arterial	808	2	12	3	1750	50	33
546	368	374	ON RAMP TO US 123 FROM SR 93	Freeway Ramp	1010	1	12	0	1700	45	33
547	369	34	ON RAMP TO US 123 FROM SR 93	Freeway Ramp	850	1	12	0	1700	45	33
548	369	368	SR 93	Minor Arterial	808	2	12	3	1750	50	33
549	369	370	SR 93	Minor Arterial	1470	2	12	3	1750	50	33

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
550	370	369	SR 93	Minor Arterial	1470	2	12	3	1750	50	33
551	370	371	SR 93	Minor Arterial	3032	2	12	3	1750	50	33
552	371	370	SR 93	Minor Arterial	3032	2	12	3	1750	50	33
553	371	372	SR 93	Minor Arterial	3993	2	12	3	1750	50	31
554	372	371	SR 93	Minor Arterial	3993	2	12	3	1750	50	31
555	372	373	SR 93	Minor Arterial	2300	2	12	1	1750	45	31
556	372	530	SR S-39-30	Collector	5758	1	11	0	1700	50	31
557	373	679	SR 93	Minor Arterial	1027	2	12	1	1750	45	31
558	374	34	US 123	Freeway	1290	2	12	1	2250	45	33
559	374	35	US 123	Freeway	6037	2	12	1	2250	45	33
560	374	369	OFF RAMP FROM US 123 TO SR 93	Freeway Ramp	608	1	12	0	1750	45	33
561	375	32	SR 133	Minor Arterial	1057	2	12	0	1750	45	33
562	376	377	SR 93	Collector	4510	1	12	1	1700	45	32
563	376	633	18 MILE RD	Collector	5077	1	12	0	1700	50	32
564	377	376	SR 93	Collector	4511	1	12	1	1750	45	32
565	377	378	SR 93	Collector	5245	1	12	1	1700	50	32
566	378	377	SR 93	Collector	5255	1	12	1	1700	50	32
567	378	379	SR 93	Collector	4222	1	12	1	1700	55	22
568	379	378	SR 93	Collector	4222	1	12	1	1700	55	22
569	379	380	SR 93	Collector	2852	1	12	1	1700	50	22
570	380	379	SR 93	Collector	2853	1	12	1	1700	50	22
571	380	381	SR 93	Collector	1899	1	12	1	1700	45	22
572	381	382	SR 93	Collector	4874	1	12	1	1700	45	22
573	382	383	SR 93	Collector	7434	1	12	1	1700	45	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
574	383	384	SR 93	Collector	1759	1	12	1	1700	45	23
575	384	385	SR 93	Collector	1884	1	12	0	1750	50	23
576	385	565	SR 93	Collector	952	1	12	1	1700	45	23
577	386	387	SR 93	Collector	7010	1	12	0	1700	40	23
578	387	388	SR 93	Collector	3319	1	12	0	1700	55	23
579	388	389	SR 93	Collector	1528	1	12	0	1700	55	23
580	389	390	SR 93	Collector	5516	1	12	0	1700	55	23
581	390	391	SR 93	Collector	7147	1	12	0	1700	50	23
582	391	666	ROSS AVE	Collector	2252	1	12	0	1700	45	24
583	393	375	SR 133	Minor Arterial	3103	2	12	0	1750	50	31
584	394	395	SR S-39-15	Collector	2800	1	12	1	1700	40	31
585	395	396	SR S-39-15	Collector	2549	1	12	1	1700	40	31
586	396	397	SR S-39-15	Collector	4270	1	12	4	1750	40	31
587	397	398	SR 133	Collector	7876	1	12	0	1700	50	31
588	398	393	SR 133	Collector	5711	1	12	0	1700	60	31
589	399	400	SR S-39-337	Collector	5244	1	12	1	1700	40	22
590	400	401	SR S-39-337	Collector	4729	1	12	1	1700	40	22
591	401	402	SR S-39-337	Collector	2080	1	12	1	1700	40	22
592	402	403	SR S-39-337	Collector	3334	1	12	1	1700	40	22
593	403	408	SR 133	Collector	2072	1	12	1	1700	50	22
594	403	409	SR 133	Collector	2917	1	14	0	1700	45	22
595	404	397	SR 133	Collector	5048	1	12	1	1750	60	22
596	405	404	SR 133	Collector	3545	1	12	1	1700	50	22
597	406	405	SR 133	Collector	4793	1	12	1	1700	60	22
598	407	406	SR 133	Collector	2409	1	12	1	1700	60	22
599	408	407	SR 133	Collector	3865	1	12	1	1700	60	22

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
600	409	410	SR 133	Collector	2423	1	14	0	1700	40	22
601	409	411	SR 137	Collector	2837	1	12	1	1700	50	22
602	410	417	SR 133	Collector	3143	1	12	0	1700	45	22
603	410	419	SR 137	Collector	3961	1	12	0	1700	50	22
604	411	412	SR 137	Collector	4539	1	12	1	1700	55	22
605	412	413	SR 137	Collector	6448	1	12	0	1700	60	22
606	413	414	SR 137	Collector	4023	1	12	0	1700	60	22
607	414	415	SR 137	Collector	2588	1	12	0	1700	50	22
608	415	416	SR 137	Collector	2824	1	12	0	1700	40	22
609	416	380	SR 137	Collector	1834	1	12	0	675	15	22
610	417	418	SR 133	Collector	5939	1	12	0	1700	60	22
611	418	113	SR 133	Collector	2508	1	12	0	1700	60	9
612	419	420	SR 137	Collector	4357	1	12	0	1700	50	22
613	420	421	SR 137	Collector	1860	1	12	0	1700	50	10
614	421	422	SR 137	Collector	3081	1	12	0	1700	50	10
615	422	106	SR 137	Collector	2623	1	12	0	1700	50	10
616	423	424	SR S-39-160	Collector	4727	1	11	0	1700	45	21
617	424	425	SR S-39-160	Collector	689	1	11	0	1700	45	21
618	425	405	SR S-39-160	Collector	5838	1	11	0	1700	45	21
619	426	423	SR S-39-291	Collector	7292	1	11	0	1700	45	21
620	427	428	SR S-37-27	Collector	4070	1	12	0	1700	40	30
621	428	429	SR S-37-27	Collector	6309	1	12	0	1700	40	30
622	429	171	OLD CLEMSON HWY	Collector	8075	1	12	0	1750	40	30
623	430	431	SR 133	Collector	5373	1	12	0	1700	60	9

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
624	431	432	SR 133	Collector	5479	1	12	0	1700	55	4
625	432	433	SR 133	Collector	4667	1	12	0	1700	55	4
626	433	434	SR 133	Collector	3719	1	12	0	1700	55	4
627	434	264	SR 133	Collector	3828	1	12	0	1700	55	4
628	435	436	DUNCAN RD	Collector	1199	1	12	0	1700	40	10
629	436	437	DUNCAN RD	Collector	3908	1	12	0	1700	40	10
630	437	438	LOVE AND CARE RD	Collector	2078	1	12	0	1700	40	10
631	438	439	LOVE AND CARE RD	Collector	1316	1	12	0	1700	40	10
632	439	440	HUNTING HOLLOW RD	Collector	776	1	12	0	1700	40	10
633	440	441	HUNTING HOLLOW RD	Collector	1029	1	12	0	1700	40	10
634	441	442	HUNTING HOLLOW RD	Collector	897	1	12	0	1700	40	9
635	442	443	HUNTING HOLLOW RD	Collector	2471	1	12	0	1700	40	9
636	443	113	SR 133	Collector	8153	1	12	0	1700	60	9
637	443	444	SR 133	Collector	2192	1	12	0	1700	60	9
638	444	445	SR 133	Collector	3952	1	12	0	1700	60	9
639	445	695	SR 133	Collector	3628	1	12	0	1700	60	9
640	446	430	SR 133	Collector	6636	1	12	0	1700	60	10
641	447	448	SR 8	Minor Arterial	2479	2	12	0	1750	45	11
642	448	626	SR 8	Minor Arterial	1556	2	12	0	1750	50	11
643	449	450	SR 8	Minor Arterial	5762	2	12	0	1750	50	14
644	450	451	SR 8	Minor Arterial	5981	2	12	0	1900	50	14

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
645	451	452	SR 8	Minor Arterial	2293	2	12	0	1900	50	14
646	452	628	SR 8	Minor Arterial	1072	2	12	0	1750	55	14
647	469	658	SR S-37-129	Collector	1485	1	10	0	1125	25	8
648	470	469	SR S-37-129	Collector	2507	1	10	0	1700	50	8
649	470	471	SR S-37-129	Collector	3793	1	10	0	1700	50	8
650	470	657	SR S-37-173	Collector	2498	1	10	0	1700	40	8
651	471	472	SR S-37-129	Collector	1462	1	12	0	1700	40	8
652	472	258	SR S-37-129	Collector	5551	1	12	0	1700	40	8
653	473	474	SHADY GROVE RD	Collector	3249	1	10	0	1700	45	10
654	473	482	SHADY GROVE RD	Collector	3794	1	10	0	1700	45	10
655	474	475	SHADY GROVE RD	Collector	1751	1	10	0	1700	45	10
656	475	476	SHADY GROVE RD	Collector	1588	1	10	0	1700	45	10
657	476	477	SHADY GROVE RD	Collector	1351	1	10	0	1700	45	10
658	477	478	SHADY GROVE RD	Collector	3375	1	10	0	1700	45	10
659	478	479	SHADY GROVE RD	Collector	1894	1	10	0	1700	45	5
660	479	480	SHADY GROVE RD	Collector	3789	1	10	0	1700	45	5
661	480	431	SHADY GROVE RD	Collector	4338	1	10	0	1700	45	5
662	481	473	REECE MILL RD	Collector	6928	1	12	0	1700	40	10

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
663	482	483	SHADY GROVE RD	Collector	3711	1	10	0	1700	45	10
664	483	484	SHADY GROVE RD	Collector	5018	1	10	0	1700	45	10
665	484	112	SHADY GROVE RD	Collector	7338	1	10	0	1750	45	10
666	485	486	SR S-39-137	Collector	11830	1	12	0	1700	40	22
667	486	385	SUMMIT DR	Collector	8245	1	12	0	1750	40	23
668	487	488	RT 28	Collector	2409	1	12	1	1700	50	33
669	488	489	RT 28	Collector	2558	1	12	4	1700	55	33
670	489	490	RT 28	Collector	4572	1	12	4	1350	35	33
671	490	721	RT 28	Collector	666	1	12	4	1750	55	39
672	491	198	RT 28	Collector	1854	1	12	4	1750	55	39
673	492	490	SR 88	Local Roadway	1528	1	15	0	1350	30	39
674	492	722	N DEPOT ST	Local Roadway	737	1	15	0	1350	30	39
675	493	494	SR 88	Collector	6164	1	12	0	1700	55	34
676	493	726	SR 88	Collector	2929	1	15	0	1700	45	34
677	494	495	SR 88	Collector	5439	1	12	0	1700	60	34
678	495	496	SR 88	Collector	7474	1	12	0	1700	55	32
679	496	497	SR 88	Collector	5964	1	12	0	1700	55	35
680	497	498	SR 88	Collector	4317	1	12	0	1700	55	35
681	498	89	SR 88	Collector	3357	1	12	0	1700	55	35
682	499	500	SR 88	Collector	4310	1	12	0	1700	55	35
683	500	501	SR 88	Collector	4714	1	12	0	1700	55	35
684	502	7	MIMOSA RD	Local Roadway	406	1	12	0	1750	25	25
685	503	7	MIMOSA RD	Local Roadway	564	1	12	0	1750	25	25
686	504	8	LUCKY ST	Local Roadway	419	1	12	0	1750	30	25

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
687	505	8	LUCKY ST	Local Roadway	760	1	12	0	1750	30	25
688	506	507	SR 24	Collector	4455	1	12	0	1700	50	36
689	506	508	SR 24	Collector	7023	1	12	0	1700	50	36
690	507	10	SR 24	Collector	4467	1	15	0	1750	40	25
691	507	506	SR 24	Collector	4456	1	12	0	1700	50	36
692	508	506	SR 24	Collector	7029	1	12	0	1700	50	36
693	508	602	SR 24	Collector	3579	1	12	0	1700	50	36
694	509	19	SCHOOL ENTRANCE	Minor Arterial	646	2	12	0	1750	30	28
695	510	19	HITEC RD	Collector	575	1	12	0	1750	45	28
696	511	20	SR S-37-402	Collector	552	1	12	0	1750	45	29
697	512	20	WELLS HWY	Collector	747	1	12	0	1750	45	29
698	513	21	HOSPITAL DR	Local Roadway	480	1	12	0	1750	35	27
699	514	21	SR S-37-50	Collector	580	1	12	0	1750	45	29
700	515	23	MOUNTAIN VIEW DR	Collector	867	1	12	0	1750	45	27
701	516	23	SENECA DR	Collector	670	1	12	0	1750	45	27
702	517	24	PINE CLIFF DR	Collector	827	1	12	0	1750	45	27
703	520	25	N WALNUTE ST	Collector	587	1	12	0	1750	45	27
704	522	27	LINDSAY RD	Collector	534	1	12	0	1750	45	30
705	523	28	SR S-37-395	Collector	657	1	12	0	1750	40	30
706	524	28	CARSON RD	Collector	833	1	12	0	1750	40	30
707	525	29	SR S-37-56	Collector	837	1	12	0	1750	40	30
708	526	30	SR S-37-439	Collector	673	1	12	0	1750	40	30

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
709	527	30	OLD CLEMSON HWY	Collector	661	1	12	0	1750	40	30
710	528	32	US 76	Minor Arterial	2578	2	12	0	1750	45	30
711	528	636	US 76	Minor Arterial	5630	2	12	1	1900	60	30
712	529	528	RESTAURANT DRIVEWAY	Local Roadway	657	1	12	0	1750	30	30
713	530	35	ON RAMP TO US 123 FROM SR S-39-30	Freeway Ramp	1137	1	12	0	1700	45	33
714	530	372	SR S-39-30	Collector	5758	1	11	0	1750	50	31
715	530	531	SR S-39-30	Collector	1163	1	11	0	1700	50	33
716	531	36	ON RAMP TO US 123 FROM SR S-39-30	Freeway Ramp	1236	1	12	0	1700	45	33
717	531	530	SR S-39-30	Collector	1163	1	11	0	1700	50	33
718	531	532	SR S-39-30	Collector	3543	1	11	0	1700	45	33
719	532	533	SR S-39-30	Collector	1589	1	11	0	1700	45	33
720	533	534	SR S-39-30	Collector	1363	1	11	0	1700	45	33
721	534	535	SR S-39-30	Collector	1043	1	11	0	1700	45	33
722	535	488	SR S-39-30	Collector	1664	1	11	0	1700	45	33
723	536	37	ON RAMP TO US 123 FROM 18 MILE RD	Freeway Ramp	1008	1	12	0	1700	45	32
724	536	537	18 MILE RD	Collector	953	1	12	0	1700	50	32
725	537	38	ON RAMP TO US 123 FROM 18 MILE RD	Freeway Ramp	1092	1	12	0	1700	45	32

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
726	537	538	18 MILE RD	Collector	4317	1	12	0	1700	50	32
727	538	495	18 MILE RD	Collector	1022	1	12	0	1700	50	34
728	539	536	18 MILE RD	Collector	1477	1	12	0	1700	50	32
729	543	565	S PEACHTREE RD	Local Roadway	2756	1	12	1	1575	35	23
730	543	705	S PEACHTREE RD	Local Roadway	2062	1	12	1	1700	40	23
731	544	543	RUHAMMAH RD	Collector	2801	1	12	0	1700	50	23
732	544	545	RUHAMMAH RD	Collector	8019	1	12	0	1700	50	23
733	545	41	ON RAMP TO US 123 FROM RUHAMMAH RD	Freeway Ramp	1263	1	12	0	1700	45	23
734	545	547	RUHAMMAH RD	Collector	648	1	12	0	1700	40	23
735	546	87	US 178	Collector	8466	1	12	0	1700	60	35
736	546	88	US 178	Collector	1784	1	12	0	1700	60	35
737	547	42	ON RAMP TO US 123 FROM RUHAMMAH RD	Freeway Ramp	1112	1	12	0	1700	45	23
738	547	548	RUHAMMAH RD	Collector	3973	1	12	0	1700	50	23
739	548	549	RUHAMMAH RD	Collector	1324	1	12	0	1700	50	23
740	549	550	RUHAMMAH RD	Collector	1945	1	12	0	1700	50	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
741	550	546	RUHAMMAH RD	Collector	5865	1	12	0	1700	50	35
742	551	64	SPARKS LN	Collector	1241	1	12	0	1750	40	11
743	552	65	W JONES AVE	Collector	1081	1	12	0	1750	40	11
744	553	65	E JONES AVE	Collector	1325	1	12	0	1750	40	11
745	554	68	W CEDAR ROCK ST	Minor Arterial	1372	2	12	0	1750	40	11
746	554	115	SOUTH CATHERINE ST	Local Roadway	418	1	12	0	1750	35	11
747	555	68	E CEDAR ROCK ST	Minor Arterial	664	2	12	0	1750	40	11
748	555	116	S LEWIS ST	Collector	391	1	12	0	1750	40	11
749	555	558	E CEDAR ROCK ST	Minor Arterial	470	2	12	0	1750	40	11
750	556	69	JOHNSON ST	Collector	1240	1	12	0	1750	40	11
751	557	69	JOHNSON ST	Collector	714	1	12	0	1750	40	11
752	558	117	SR 8	Minor Arterial	462	2	12	0	1750	45	11
753	558	447	SR 8	Minor Arterial	1671	2	12	0	1900	45	11
754	559	558	RAILROAD ST	Collector	418	1	12	0	1750	40	11
755	560	558	E CEDAR ROCK ST	Collector	355	1	12	0	1750	40	11
756	561	71	LAW ENFORCEMENT CENTER RD	Collector	982	1	12	0	1750	40	13
757	562	71	LAW ENFORCEMENT CENTER RD	Collector	908	1	12	0	1750	40	13

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
758	563	72	BELL SHOALS RD	Collector	1303	1	12	0	1750	40	13
759	564	72	BETHLEHEM RIDGE RD	Collector	958	1	12	0	1750	40	13
760	565	675	SR 93	Collector	2063	1	12	1	1750	40	23
761	566	200	SH 162	Collector	697	1	12	0	1750	40	39
762	567	200	SH 162	Collector	868	1	12	0	1750	40	39
763	568	199	RT 187	Collector	1239	1	12	0	1750	40	39
764	569	197	PERIMETER RD	Collector	811	1	12	0	1750	40	39
765	570	197	FANTS GROVE RD	Collector	887	1	12	0	1750	40	39
766	571	194	PERIMETER RD	Collector	720	1	12	3	1750	50	33
767	572	193	US 76	Minor Arterial	1416	2	12	0	1900	45	33
768	572	194	US 76	Minor Arterial	603	2	12	0	1750	50	33
769	572	366	OFF RAMP FROM US 76 TO SR 93	Freeway Ramp	801	1	12	0	1750	45	33
770	573	208	W SOUTH 6TH ST	Collector	558	1	12	0	1750	45	29
771	574	208	E SOUTH 6TH ST	Collector	919	1	12	0	1750	45	29
772	575	207	W SOUTH 4TH ST	Collector	669	1	12	0	1750	45	29
773	576	207	E SOUTH 4TH ST	Collector	842	1	12	0	1750	45	29
774	577	175	SR 130	Minor Arterial	462	2	12	0	1750	25	29

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
775	577	578	SR 130	Minor Arterial	434	2	12	0	1750	25	29
776	578	577	SR 130	Minor Arterial	434	2	12	0	1750	25	29
777	578	579	SR 130	Minor Arterial	469	2	12	0	1750	25	29
778	579	578	SR 130	Minor Arterial	469	2	12	0	1750	25	29
779	579	580	SR 130	Minor Arterial	568	2	12	0	1750	25	29
780	580	174	SR 130	Minor Arterial	958	2	12	0	1750	25	29
781	580	579	SR 130	Minor Arterial	568	2	12	0	1750	25	29
782	581	577	N FAIRPLAY ST	Local Roadway	421	1	12	0	1750	25	29
783	582	577	S FAIRPLAY ST	Local Roadway	469	1	12	0	1750	25	29
784	583	578	N TOWNVILLE ST	Local Roadway	395	1	12	0	1750	25	29
785	584	578	S TOWNVILLE ST	Local Roadway	446	1	12	0	1750	25	29
786	585	579	N DEPOT ST	Local Roadway	420	1	12	0	1750	25	29
787	586	579	S DEPOT ST	Local Roadway	446	1	12	0	1750	25	29
788	587	580	N WALNUT ST	Local Roadway	426	1	12	0	1750	25	29
789	588	580	S WALNUT ST	Local Roadway	339	1	12	0	1750	25	29
790	589	99	PLANT ACCESS RD	Private Road	2765	2	12	0	1700	40	21
791	590	313	N TUGALOO ST	Collector	937	1	15	0	1750	40	19
792	591	148	E SOUTH BROAD ST	Collector	953	1	15	0	1750	40	19
793	591	313	S TUGALOO ST	Collector	829	1	15	0	1750	40	19
794	592	314	N CHURCH RD	Collector	962	1	15	0	1750	40	19

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
795	593	314	S CHURCH RD	Collector	828	1	15	0	1750	40	19
796	594	311	SR 28	Collector	531	2	12	0	1750	45	19
797	595	311	N SPRING ST	Collector	655	1	15	4	1750	40	19
798	596	148	E SOUTH BROAD ST	Collector	1157	1	15	4	1750	40	19
799	596	311	S SPRING ST	Collector	743	1	15	4	1750	40	19
800	597	594	N ANN ST	Collector	780	1	15	4	1750	40	19
801	598	594	S ANN ST	Collector	765	1	15	4	1750	40	19
802	599	310	EARLE ST	Collector	1293	1	15	0	1750	40	19
803	600	310	EARLE ST	Collector	1554	1	15	0	1750	40	19
804	601	491	SH 175	Collector	868	1	12	0	1750	40	39
805	602	242	SR 24	Collector	930	1	12	0	1700	50	36
806	602	508	SR 24	Collector	3579	1	12	0	1700	50	36
807	602	732	SR 24	Collector	1658	1	12	0	1700	50	36
808	603	362	SR 93	Minor Arterial	1726	2	12	3	1900	50	30
809	603	605	SR 93	Minor Arterial	1449	2	12	3	1750	40	30
810	604	603	PERIMETER RD	Major Arterial	1294	3	12	4	1750	50	30
811	605	363	SR 93	Minor Arterial	1842	2	12	3	1750	40	30
812	605	603	SR 93	Minor Arterial	1448	2	12	3	1750	40	30
813	606	605	WILLIAMSON DR	Local Roadway	1034	1	12	0	1750	40	30
814	607	363	SR 93	Minor Arterial	931	2	12	0	1750	45	30
815	607	364	SR 93	Minor Arterial	852	2	12	0	1750	45	30
816	608	364	CALHOUN ST	Local Roadway	754	1	12	0	1750	25	30
817	608	607	PARKWAY DR	Local Roadway	626	1	12	0	1750	25	30

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
818	609	610	CHERRY RD	Collector	791	1	12	0	1750	25	33
819	609	745	CHERRY RD	Collector	593	1	12	0	1750	25	33
820	610	364	SR 93	Minor Arterial	1096	2	12	0	1750	45	33
821	610	365	SR 93	Minor Arterial	2065	2	12	3	1900	45	33
822	611	367	WESLEY RD	Local Roadway	464	1	12	0	1750	40	33
823	612	367	FRONTAGE RD	Collector	579	1	12	0	1750	40	33
824	613	238	OLD SENECA RD	Collector	885	1	12	1	1750	45	28
825	613	714	OLD SENECA RD	Collector	4215	1	12	1	1700	45	25
826	614	238	SR S-37-13	Collector	914	1	12	1	1750	45	28
827	615	244	SR 11	Collector	2135	1	12	3	1700	45	20
828	616	615	W MAIN ST	Collector	994	1	12	1	1750	45	20
829	617	615	W MAIN ST	Collector	1292	1	12	1	1750	45	20
830	618	158	WEST OAK MIDDLE SCHOOL ENTRANCE	Collector	1297	1	12	1	1750	30	25
831	619	158	ANDERSON AVE	Collector	1137	1	12	1	1750	45	25
832	620	115	N CATHERINE ST	Local Roadway	1191	1	12	0	1750	35	11
833	621	116	N LEWIS ST	Local Roadway	563	1	12	0	1750	35	11
834	622	375	CALHOUN ST	Collector	1182	1	12	0	1750	40	33
835	623	375	CALHOUN ST	Collector	1006	1	12	0	1750	40	33

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
836	624	448	LAW ENFORCEMENT CENTER RD	Collector	706	1	12	0	1750	45	11
837	625	448	IRELAND RD	Collector	773	1	12	0	1750	45	11
838	626	449	SR 8	Minor Arterial	3018	2	12	0	1900	50	13
839	627	626	EVERGREEN ACRES RD	Collector	715	1	12	0	1750	45	13
840	628	453	SR 8	Minor Arterial	1235	2	12	0	1900	55	14
841	629	628	RICE RD	Collector	530	1	12	0	1750	45	14
842	630	370	NEWTON ST	Collector	925	1	12	0	1750	45	33
843	631	371	CAMBRIDGE DR	Collector	778	1	12	0	1750	45	31
844	632	371	CAMBRIDGE DR	Collector	782	1	12	0	1750	45	31
845	633	376	18 MILE RD	Collector	5080	1	12	4	1750	45	32
846	633	539	18 MILE RD	Collector	2828	1	12	0	1750	50	32
847	634	539	WALMART ENTRANCE	Private Road	828	1	12	0	1750	30	32
848	635	373	VICKERY DR	Collector	1172	1	12	0	1750	40	31
849	636	31	US 76	Minor Arterial	1209	2	12	1	1750	60	30
850	636	528	US 76	Minor Arterial	5636	2	12	1	1750	50	30
851	637	31	SR 93	Minor Arterial	1009	2	12	3	1750	50	30
852	637	362	SR 93	Minor Arterial	4152	2	12	3	1900	50	30
853	637	636	SR 93	Collector	1415	1	12	1	1700	45	30
854	638	30	US 76	Minor Arterial	3127	2	12	1	1750	60	30
855	638	31	US 76	Minor Arterial	979	2	12	1	1750	60	30
856	638	637	US 76	Collector	1811	1	12	1	1700	45	30

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
857	639	22	US 76	Minor Arterial	1066	2	12	0	1750	50	27
858	639	23	US 76	Minor Arterial	2062	2	12	0	1750	50	27
859	640	639	FRONTAGE RD	Collector	885	1	12	0	1750	45	27
860	641	643	MOUNTAIN RD	Collector	950	1	12	0	1750	45	28
861	642	643	CRITTER RD	Collector	901	1	12	0	1750	45	28
862	643	237	SR 11	Collector	1126	1	12	0	1700	60	28
863	644	305	FRONTAGE RD	Collector	745	1	12	0	1700	45	27
864	645	175	SR 59	Minor Arterial	717	2	12	0	1750	45	29
865	645	207	SR 59	Minor Arterial	989	2	12	0	1750	45	29
866	647	645	RAILROAD ST	Collector	507	1	12	0	1750	45	29
867	648	189	SR S-37-37	Local Roadway	1589	1	10	0	450	10	29
868	649	131	SR 130	Collector	1935	1	12	1	1700	60	21
869	649	132	SR 130	Collector	1402	1	12	3	1700	45	21
870	650	649	PLANT ENTRANCE	Minor Arterial	749	2	12	0	1700	45	21
871	651	134	HIGH FALLS RD	Local Roadway	3170	1	12	0	1700	25	21
872	652	174	CHERRY ST	Local Roadway	421	1	12	0	1750	25	29
873	653	604	PERIMETER RD	Minor Arterial	2491	2	12	4	1750	50	30
874	653	654	PERIMETER RD	Minor Arterial	2183	2	12	4	1750	50	30
875	654	653	PERIMETER RD	Minor Arterial	2184	2	12	4	1750	50	30

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
876	654	655	PERIMETER RD	Collector	2058	1	12	3	1700	50	33
877	655	571	PERIMETER RD	Collector	2796	1	12	3	1700	50	33
878	656	145	RAZORBACK LN	Collector	905	1	12	0	1750	45	17
879	657	282	SR S-37-173	Collector	3302	1	10	0	1700	40	8
880	658	661	SR S-37-129	Collector	1554	1	10	0	1700	50	8
881	659	658	OCONEE CREEK RD	Collector	3806	1	12	0	1700	45	8
882	660	659	OCONEE CREEK RD	Collector	3431	1	12	0	1700	45	8
883	661	662	SR S-37-129	Collector	3879	1	10	0	1700	50	8
884	662	663	SR S-37-129	Collector	2469	1	10	0	1700	40	8
885	663	254	SR S-37-129	Collector	4381	1	10	0	1350	30	8
886	664	665	CABIN RD	Local Roadway	996	1	10	0	675	15	4
887	665	264	SR 11	Collector	1042	1	12	3	1700	60	4
888	666	50	ROSS AVE	Collector	1347	1	12	1	1700	45	24
889	666	667	ROSS AVE	Collector	752	1	12	1	1700	45	24
890	667	49	US 123	Freeway	860	2	12	0	2250	60	24
891	668	60	US 178	Collector	1239	1	12	0	1700	55	6
892	668	61	US 178	Collector	1657	1	12	0	1700	55	6
893	669	668	FOX SQUIRREL RIDGE RD	Collector	958	1	12	0	1750	45	6
894	670	75	US 178	Collector	2094	1	12	0	1700	55	13
895	670	76	US 178	Collector	2939	1	12	0	1750	55	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
896	671	76	RICES CREEK RD	Collector	1289	1	12	0	1750	45	23
897	672	76	BREAZEALE RD	Collector	1186	1	12	0	1750	45	23
898	673	450	OLD BETHLEHEM SCHOOL RD	Collector	764	1	12	0	1750	45	14
899	674	450	WILSON WAY	Collector	718	1	12	0	1750	45	14
900	675	79	SR 93	Collector	883	1	12	0	1750	40	23
901	676	675	COMMERCE ST	Collector	845	1	12	0	1750	45	23
902	677	675	COMMERCE ST	Collector	932	1	12	0	1750	45	23
903	678	376	SR 93	Collector	4231	1	12	1	1750	50	31
904	679	678	SR 93	Minor Arterial	889	2	12	1	1900	45	31
905	680	679	MAULDIN RD	Collector	524	1	12	0	1750	45	31
906	681	679	MAULDIN RD	Collector	475	1	12	0	1750	45	31
907	682	610	N PALMETTO BLVD	Local Roadway	452	1	12	0	1750	25	33
908	683	604	AVENUE OF CHAMPIONS	Local Roadway	775	1	12	0	1750	25	30
909	684	653	WILLIAMSON RD	Collector	791	1	12	0	1750	45	30
910	685	654	CHERRY RD	Local Roadway	663	1	12	0	1750	25	30
911	686	654	CHERRY RD	Local Roadway	657	1	12	0	1750	25	30
912	687	186	GODDARD AVE	Collector	3229	1	12	4	1700	45	30
913	688	689	S WALNUT ST	Local Roadway	3900	1	12	0	1125	25	29

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
914	688	727	S WALNUT ST	Local Roadway	1457	1	12	0	1750	25	29
915	689	225	S WALNUT ST	Local Roadway	3053	1	12	0	1125	25	30
916	690	250	LECROY RD	Collector	2970	1	12	4	1700	40	8
917	691	690	LECROY RD	Collector	5972	1	12	4	1700	40	8
918	692	691	LECROY RD	Collector	7429	1	12	4	1700	40	8
919	693	692	LECROY RD	Collector	1815	1	12	4	1700	40	20
920	694	342	EBENEZER RD	Collector	13217	1	12	4	1700	40	20
921	695	446	SR 133	Collector	3474	1	12	0	1700	60	9
922	696	261	SR S-37-127	Collector	8003	1	12	4	1700	45	3
923	697	254	SR 11	Collector	937	1	12	4	1700	45	8
924	697	255	SR 11	Collector	4331	1	12	3	1700	60	8
925	698	697	CHEOHEE VALLEY RD	Collector	2124	1	12	4	1700	45	8
926	699	698	CHEOHEE VALLEY RD	Collector	1820	1	12	4	1700	45	8
927	700	699	CHEOHEE VALLEY RD	Collector	1104	1	12	4	1700	45	8
928	701	700	CHEOHEE VALLEY RD	Collector	1648	1	12	4	1700	45	8
929	702	701	CHEOHEE VALLEY RD	Collector	4226	1	12	4	1700	45	8
930	703	702	CHEOHEE VALLEY RD	Collector	3894	1	12	4	1700	45	8
931	704	42	US 123	Freeway	4976	2	12	1	2250	70	23
932	704	43	US 123	Freeway	4614	2	12	1	2250	70	23
933	705	708	S PEACHTREE RD	Collector	2278	1	12	1	1700	40	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
934	708	709	SR S-39-64	Collector	4115	1	12	1	1700	40	23
935	709	710	SR S-39-64	Collector	2069	1	12	1	1700	40	23
936	710	711	SR S-39-64	Collector	2328	1	12	1	1700	40	23
937	711	85	SR S-39-64	Collector	1987	1	12	1	1700	40	23
938	712	13	OLD SENECA RD	Collector	439	1	12	1	1700	45	25
939	712	798	OLD SENECA RD	Collector	505	1	12	1	1700	45	25
940	713	712	OLD SENECA RD	Collector	1268	1	12	1	1700	45	25
941	714	713	OLD SENECA RD	Collector	2327	1	12	1	1700	45	25
942	715	210	SR 59	Collector	4170	1	12	0	1700	60	37
943	716	717	SH 24	Collector	5988	1	12	4	1700	45	37
944	717	718	SH 24	Collector	10731	1	12	4	1700	45	37
945	718	719	SH 24	Collector	3318	1	12	4	1700	45	38
946	719	720	SH 24	Collector	5518	1	12	4	1700	45	38
947	721	491	RT 28	Collector	4456	1	12	4	1750	55	39
948	721	722	E MAIN ST	Local Roadway	1557	1	15	0	1350	30	39
949	722	740	LEBANON ST	Collector	581	1	12	4	1700	45	39
950	723	724	LEBANON ST	Collector	7479	1	12	4	1700	45	39
951	724	725	LEBANON ST	Collector	8369	1	12	4	1700	45	39
952	725	744	LEBANON ST	Collector	9700	1	12	4	1700	45	40
953	726	492	SR 88	Collector	4512	1	15	0	1700	45	34
954	727	588	S WALNUT ST	Local Roadway	2829	1	12	0	1125	25	29
955	728	727	E SOUTH 6TH ST	Collector	3692	1	12	4	1750	40	29

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
956	729	54	US 178	Collector	1757	1	12	0	1700	45	5
957	730	312	N COLLEGE ST	Collector	983	1	12	4	1750	40	19
958	731	133	SEXTANT DR	Local Roadway	658	1	12	4	1750	35	21
959	732	733	SR 24	Collector	11323	1	12	0	1700	50	37
960	733	734	SR 24	Collector	4902	1	12	0	1700	50	37
961	734	215	SR 24	Collector	4283	1	12	0	1700	50	37
962	735	304	SR 118	Collector	1555	1	12	4	1750	50	27
963	736	119	BLUE FLAME DR	Collector	1137	1	12	4	1750	45	11
964	737	738	SR 39-160	Collector	4177	1	12	4	1700	45	21
965	738	739	SR 39-160	Collector	1383	1	12	4	1700	45	21
966	739	423	SR 39-160	Collector	2015	1	12	4	1700	45	21
967	740	723	LEBANON ST	Collector	6561	1	12	4	1700	45	39
968	741	97	US 178	Collector	4315	1	12	0	1700	60	40
969	741	743	US 178	Collector	5631	1	12	0	1700	60	40
970	742	743	US 178	Collector	2795	1	12	0	1700	60	40
971	743	741	US 178	Collector	5241	1	12	0	1700	60	40
972	743	742	US 178	Collector	2405	1	12	0	1750	60	40
973	744	742	LEBANON ST	Collector	2083	1	12	4	1750	45	40
974	745	609	CHERRY RD	Local Roadway	593	1	12	0	1125	25	33
975	745	686	CHERRY RD	Local Roadway	1735	1	12	0	1125	25	33
976	745	746	OLD STADIUM RD	Local Roadway	2452	1	12	0	1125	25	33
977	746	571	OLD STADIUM RD	Local Roadway	515	1	12	0	1125	25	33
978	747	745	S PALMETTO BLVD	Local Roadway	477	1	12	0	1750	25	33

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
979	748	32	SR 133	Minor Arterial	2225	2	12	0	1750	45	30
980	748	751	SR 133	Collector	593	1	12	0	1750	45	30
981	749	748	EDGEWOOD AVE	Local Roadway	454	1	12	0	1125	25	30
982	750	748	EDGEWOOD AVE	Local Roadway	479	1	12	0	1125	25	30
983	751	363	SR 133	Collector	585	1	12	0	1750	45	30
984	751	748	SR 133	Collector	592	1	12	0	1750	45	30
985	752	751	KEITH AVE	Local Roadway	429	1	12	0	1750	25	30
986	777	9	QUICK ST	Collector	448	1	12	4	1700	40	25
987	778	777	NORTH AVE	Collector	3895	1	12	4	1700	40	25
988	779	8	US 76	Collector	779	1	12	0	1750	40	25
989	779	9	US 76	Minor Arterial	521	2	12	0	1900	40	25
990	780	428	LAWRENCE BRIDGE RD	Collector	2093	1	12	4	1700	40	30
991	781	782	SR S-39-165	Collector	2826	1	12	4	1700	40	32
992	782	783	SR S-39-165	Collector	2859	1	12	4	1700	40	32
993	783	785	SR S-39-44	Collector	4135	1	12	4	1700	40	32
994	784	783	SR S-39-44	Collector	2739	1	12	4	1700	40	32
995	785	786	SR S-39-44	Collector	1168	1	12	4	1700	40	32
996	786	787	SR S-39-44	Collector	2394	1	12	4	1700	40	32
997	787	496	SR S-39-44	Collector	3937	1	12	4	1700	40	35
998	788	789	SR S-39-53	Collector	3248	1	12	4	1700	40	23
999	789	46	US 123 OFF RAMP TO SR S-39-53	Freeway Ramp	1109	1	12	4	1700	40	23
1000	789	790	SR S-39-53	Collector	663	1	12	4	1700	40	23

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
1001	790	47	US 123 OFF RAMP TO SR S-39-53	Freeway Ramp	808	1	12	4	1700	40	23
1002	791	790	SR S-39-53	Collector	835	1	12	4	1700	40	23
1003	792	791	SR S-39-53	Collector	1439	1	12	4	1700	40	23
1004	793	791	ANN DR	Collector	1433	1	12	4	1700	40	23
1005	794	793	ANN DR	Collector	1598	1	12	4	1700	40	23
1006	795	492	QUEEN ST	Collector	1369	1	12	4	1700	40	39
1007	796	25	US 76	Minor Arterial	2493	2	12	0	1750	50	27
1008	796	26	US 76	Minor Arterial	336	2	12	0	1750	45	30
1009	797	26	SR 130	Collector	303	1	12	1	1750	55	30
1010	797	796	SR 130	Collector	592	1	12	1	1700	55	30
1011	798	12	US 76	Minor Arterial	3363	2	12	0	1900	60	25
1012	798	13	US 76	Minor Arterial	176	2	12	0	1900	60	25
1013	799	800	SR S-37-36	Collector	4758	1	12	2	1700	45	25
1014	800	801	SR S-37-36	Collector	3160	1	12	2	1700	45	25
1015	801	802	SR S-37-36	Collector	3492	1	12	2	1700	45	25
1016	802	803	SR S-37-36	Collector	1128	1	12	2	1700	45	25
1017	803	164	SR S-37-36	Collector	3474	1	12	2	1700	45	25
1018	304	735	SR S-37-135	Collector	1423	1	12	4	1700	45	26
1019	735	807	SR S-37-135	Collector	1968	1	12	4	1700	45	26
1020	807	808	SR S-37-135	Collector	3640	1	12	4	1700	45	26
1021	808	809	SR S-37-135	Collector	2364	1	12	4	1700	45	26
1022	809	810	SR S-37-135	Collector	935	1	12	4	1700	45	26
1023	810	812	SR S-37-135	Collector	1338	1	12	4	1700	45	26
1024	812	811	SR S-37-135	Collector	1398	1	12	4	1700	45	26

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
1025	811	642	SR S-37-135	Collector	1431	1	12	4	1700	45	26
1026	813	812	POPLAR SPRINGS RD	Collector	915	1	12	4	1700	45	26
1027	8003	3	US 123	Collector	11977	1	12	0	1700	45	36
1028	8053	53	US 123	Freeway	3375	2	12	1	2250	55	24
1029	8054	729	US 178	Collector	3244	1	12	0	1700	45	5
1030	8097	742	US 178	Collector	4914	1	12	0	1750	60	40
1031	8165	165	US 76	Collector	3237	1	12	1	1700	45	25
Exit Link	53	8053	US 123	Freeway	3375	2	12	1	2250	55	24
Exit Link	501	8501	SR 88	Collector	3532	1	12	0	1700	55	35
Exit Link	123	8124	SR 183	Collector	2107	1	12	2	1700	45	12
Exit Link	128	8129	SR 186	Collector	1819	1	9	0	1700	55	6
Exit Link	130	8131	SR 8	Collector	2090	1	12	0	1700	60	6
Exit Link	165	8165	US 76	Collector	3237	1	12	1	1700	45	25
Exit Link	202	8202	US 76	Minor Arterial	5976	2	12	2	1900	55	39
Exit Link	217	8217	SR 59	Collector	3810	1	12	1	1700	45	37
Exit Link	243	8243	SR 11	Collector	5055	1	12	3	1700	45	36
Exit Link	271	8271	SR 11	Collector	3657	1	12	3	1700	60	1

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft.)	No. of Lanes	Lane Width (ft.)	Shoulder Width (ft.)	Saturation Flow Rate (pcphpl)	Free Flow Speed (mph)	Grid Map Number
Exit Link	303	8303	SR 130	Collector	2051	1	12	0	1575	35	3
Exit Link	335	8335	SR 28	Collector	2772	1	12	2	1575	35	7
Exit Link	361	8365	SR 107	Collector	2136	1	11	0	1575	35	2
Exit Link	453	8453	SR 8	Minor Arterial	4309	2	12	0	1900	55	14
Exit Link	720	8720	SH 24	Collector	4665	1	12	4	1700	45	38
Exit Link	729	8054	US 178	Collector	2732	1	12	0	1700	45	5
Exit Link	742	8097	US 178	Collector	4931	1	12	0	1700	60	40
Exit Link	3	8003	US 123	Collector	11977	1	12	0	1700	45	36

Table K-2. Nodes in the Link-Node Analysis Network which are Controlled

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
5	1367109	1038404	Actuated	25
6	1368786	1038065	Actuated	25
7	1369195	1037256	Actuated	25
8	1369953	1036521	Actuated	25
10	1372004	1034600	Actuated	25
13	1378271	1037144	Stop	25
15	1385995	1036515	Stop	28
19	1399632	1044070	Actuated	28
20	1401185	1045454	Actuated	29
21	1403116	1046418	Actuated	27
22	1405132	1046418	Actuated	27
23	1407942	1047342	Actuated	27
24	1410293	1048013	Actuated	27
25	1414699	1047762	Actuated	27
26	1417381	1048616	Actuated	30
27	1418391	1048433	Actuated	30
28	1420993	1048560	Actuated	30
29	1430402	1049125	Actuated	30
30	1435500	1046458	Actuated	30
31	1439380	1045119	Actuated	30
32	1448670	1044818	Actuated	33
33	1450849	1044172	Actuated	33
37	1470722	1049243	Yield	32
38	1472064	1050446	Yield	32
41	1486616	1066092	Yield	23
42	1488707	1067014	Yield	23
44	1497581	1074180	Yield	23
45	1498046	1075771	Yield	23
50	1516829	1089341	Yield	24
54	1473206	1153152	Stop	5
64	1486229	1122379	Actuated	11
65	1486833	1119002	Actuated	11
66	1487485	1114304	Actuated	11
67	1487816	1114465	Actuated	11
68	1487937	1114070	Actuated	11
69	1488004	1113634	Actuated	11
71	1487759	1107630	Actuated	13

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
72	1488331	1104339	Actuated	13
76	1490046	1091624	Actuated	23
79	1491302	1079415	Actuated	23
83	1497628	1075004	Stop	23
84	1498057	1074876	Stop	23
85	1501967	1071348	Stop	23
89	1495701	1049524	Stop	35
98	1428877	1079618	Traffic and Access Control Point - Actuated	21
99	1432354	1080579	Stop	21
106	1457400	1101465	Stop	10
112	1483209	1112408	Actuated	11
115	1486484	1113941	Actuated	11
116	1488437	1114675	Actuated	11
117	1488881	1114877	Actuated	11
119	1490454	1116256	Actuated	11
133	1427228	1087399	Actuated	21
134	1417908	1087818	Stop	21
135	1408757	1086768	Stop	20
137	1400669	1087007	Stop	20
140	1392024	1086731	Stop	20
145	1383511	1078653	Actuated	17
147	1380598	1073174	Actuated	19
148	1379860	1072414	Actuated	19
158	1371685	1040379	Actuated	25
164	1364095	1042157	Stop	25
171	1422167	1053368	Actuated	30
174	1414873	1043626	Actuated	29
175	1412024	1043206	Actuated	29
178	1441788	1032726	Stop	30
186	1419874	1043791	Stop	30
189	1414898	1043182	Stop	29
191	1449653	1033994	Stop	33
192	1454447	1034360	Actuated	33
194	1452880	1039995	Actuated	33
197	1461434	1025866	Actuated	39

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
198	1463296	1023423	Actuated	39
199	1464747	1020047	Actuated	39
200	1468255	1013941	Actuated	39
205	1410089	1033870	Actuated	29
207	1412135	1041505	Actuated	29
208	1412135	1040555	Actuated	29
225	1418767	1033520	Stop	30
231	1425140	1043200	Stop	30
238	1386918	1039142	Actuated	28
239	1387156	1037725	Yield	28
242	1384889	1020483	Stop	36
244	1385375	1069523	Stop	20
249	1390301	1088646	Stop	20
250	1386615	1096305	Stop	8
254	1389960	1107002	Stop	8
258	1397039	1118770	Stop	8
260	1404459	1123846	Stop	8
261	1418857	1126433	Stop	4
264	1435164	1132929	Stop	4
282	1408798	1111664	Stop	8
304	1401603	1052432	Actuated	27
310	1383012	1072033	Actuated	19
311	1381229	1072996	Actuated	19
312	1379994	1073218	Actuated	19
313	1379149	1073412	Actuated	19
314	1378182	1073637	Actuated	19
342	1410225	1063859	Stop	20
363	1447244	1041728	Actuated	30
364	1448539	1040510	Actuated	33
365	1451686	1040801	Stop	33
366	1452839	1041302	Actuated	33
367	1453950	1042274	Actuated	33
368	1454427	1042855	Actuated	33
369	1454946	1043474	Actuated	33
370	1455938	1044558	Actuated	33
371	1457961	1046816	Actuated	31
372	1460745	1049679	Actuated	31
373	1461371	1051892	Actuated	31

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
375	1449038	1045809	Actuated	33
376	1464839	1056853	Actuated	32
380	1472938	1069567	Stop	22
385	1487456	1078779	Actuated	23
397	1450192	1062338	Stop	22
403	1454663	1082232	Stop	22
405	1449308	1070494	Traffic and Access Control Point	22
423	1442120	1078439	Traffic and Access Control Point - Actuated	21
428	1435467	1056283	Stop	30
429	1430187	1052829	Stop	30
431	1446964	1126649	Stop	4
448	1490905	1110872	Actuated	11
450	1498593	1104673	Actuated	14
473	1465186	1120339	Stop	10
480	1451149	1127790	Stop	5
488	1458802	1035295	Stop	33
490	1463381	1030186	Actuated	39
491	1463929	1025151	Actuated	39
492	1464902	1030042	Stop	39
495	1475489	1045709	Stop	34
496	1482181	1048653	Stop	35
528	1446161	1045331	Actuated	30
530	1462090	1044080	Stop	33
531	1462330	1042942	Stop	33
536	1471091	1050181	Stop	32
537	1471672	1049426	Stop	32
539	1469998	1051161	Actuated	32
543	1489306	1076332	Stop	23
545	1487565	1066926	Stop	23
546	1496329	1057073	Stop	35
547	1487828	1066333	Stop	23
558	1489010	1114433	Actuated	11

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
565	1488395	1078933	Stop	23
572	1452610	1040534	Stop	33
577	1412481	1043280	Actuated	29
578	1412912	1043330	Actuated	29
579	1413381	1043342	Actuated	29
580	1413948	1043380	Actuated	29
588	1414010	1043047	Stop	29
594	1381773	1072905	Actuated	19
603	1444007	1041131	Actuated	30
604	1444597	1039980	Actuated	30
605	1445426	1041424	Actuated	30
607	1447875	1041044	Actuated	30
610	1449630	1040616	Actuated	33
615	1386677	1071215	Actuated	20
626	1492116	1109914	Actuated	11
628	1506013	1099337	Actuated	14
636	1440568	1045341	Yield	30
637	1439835	1044218	Yield	30
639	1406141	1046446	Actuated	27
643	1385695	1045378	Actuated	28
649	1428939	1083559	Stop	21
653	1446288	1038150	Actuated	30
654	1448332	1037383	Actuated	30
658	1400912	1107895	Stop	8
665	1434294	1132355	Stop	4
667	1516099	1089204	Yield	24
668	1484348	1129206	Actuated	6
675	1490441	1079203	Actuated	23
679	1461869	1052790	Actuated	31
697	1390255	1107891	Stop	8
716	1405390	1011138	Stop	37
722	1464933	1029305	Stop	39
727	1414310	1040234	Actuated	29
742	1493163	1010955	Actuated	40
745	1449447	1039278	Actuated	33
748	1447735	1042799	Actuated	30
751	1447469	1042269	Actuated	30
783	1477051	1058422	Stop	32

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
789	1501469	1080005	Stop	23
790	1501830	1079449	Stop	23
791	1501997	1078662	Stop	23
796	1417045	1048610	Yield	30
798	1378084	1037118	Yield	25
812	1388937	1046585	Stop	26

APPENDIX L

PAZ Boundaries

L. PAZ BOUNDARIES

A-0

County: Oconee and Pickens

Communities: South of ONS, North of the ONS, Keowee Key, Gap Hill, East Cove

Defined as the area within the following boundary: Mid-stream on Lake Keowee, two miles north of ONS, east on the two mile radius arc from ONS to the junction of War Path Rd and Walhalla Highway (SC 183); southeast on two mile arc to a point east of junction of Dan Ross Rd and Ridgeland Rd; south on the two mile arc to Jones Mill Rd (SSR 160); SSR 160 east to junction with Old Seneca Rd (SSR 291); SSR 291 southwest to junction with Brown Bottom Rd; northwest to two mile arc south of ONS; west to Rochester Highway (SC 130); Rochester Highway south to junction with Katelynn Lane; Katelynn Lane north to two mile arc; northwest to junction of Ellenburg Rd and Knox Campground Rd; two mile arc north to junction of Highfalls Rd and Jubie Lane; two mile arc northeast to SC 183 bridge (west of Flagship Drive); two mile arc northeast to a point south of junction Highway 130 and South Craggmore Drive; two mile arc east to midstream of Lake Keowee two miles north of ONS.

A-1

County: Pickens

Communities: Mile Creek, Mile Creek County Park

Defined as the area within the following boundary: Midstream of Lake Keowee at midstream of Cedar Creek Inlet east to and along Lakeside Drive to junction with 30th Street, then east to junction with Crowe Creek Rd (SC 133); SC 133 south to junction with Hunting Hollow Rd; east to junction with Love And Care Rd; southeast overland to junction of Walhalla Highway (SC 183) and High Hope Rd; southwest along SC 183 to junction with War Path Road; two mile radius arc from ONS west to midstream of Lake Keowee; north to midstream of Cedar Creek Inlet.

A-2 County: Pickens

Communities: Shady Grove, Mountain View, Piney Grove, Cedar Creek, Crowe Creek

Defined as the area within the following boundary: Mid-span SC 11 bridge over Lake Keowee east to junction of SC 11 and Crowe Creek Road (SC 133); SC 133 east to junction with Shady Grove Rd (SSR 32); SSR 32 east to junction with Concord Church Rd; south to junction with Prison Camp Rd; southeast along Prison Camp Rd, then overland to Holder Knob Rd at Walhalla Highway (SC 183); SC 183 southwest to junction with High Hope Rd; north overland to junction of Duncan Rd and Love And Care Rd; to Hunting Hollow Road northwest to junction with Crowe Creek Rd (SC 133); SC 133 north to junction with 30th Street; 30th Street west to Lakeside Drive, then along Lakeside Drive; west to lake shore; west midstream of Cedar Creek to midstream of Lake Keowee; north mid-stream of Lake Keowee to mid-span SC 11 bridge.

B-1 County: Pickens

Communities: Six Mile, Kings Grove

Defined as the area within the following boundary: Junction of War Path Rd and Walhalla Highway (SC 183) northeast along SC 183 to junction with Cedar Hill Rd; south to junction with Lusk Rd; southeast to junction with Holliday Rd; northeast along Holliday Rd to junction with North Main St (SC 137) south along N. Main St to junction with Belle Shoals Rd (SSR 267); SSR 267 southeast to junction with Ridgeland Dr.; southeast to junction with Liberty Highway (SSR 137); SSR 137 west to junction with John Holliday Rd (SSR 125); SSR 125 south to junction with Norris Highway (SC 137); SC 137 southeast to junction with Camp Creek Rd (SSR 65); SSR 65 southwest to junction with Maw Bridge Rd (SSR 337); SSR337 south to junction with Brookbend Rd; west to junction with Six Mile Highway (SC 133)and Pleasant Hill Church Road; Pleasant Hill Church Road west to Jones Mill Rd (SSR 160); SSR 160 northwest to two mile radius arc from ONS; two mile radius arc north to Junction of War Path Rd and Walhalla Highway (SC 183).

B-2 County: Pickens

Communities: Norris, Cateechee, Praters, Roanoke, Golden Creek, Terrapin Crossing

Defined as the area within the following boundary: Junction Walhalla Highway (SC 183) and Cedar Hill Rd east to crossing of Cannon Creek; southeast along Cannon Creek to Twelve Mile Creek: south along Twelve Mile Creek to Wolf Creek; southeast overland to junction of Daniel Boone Trail and Belle Shoals Rd (SSR 267); SSR267 east to Roanoke Rd (SSR 223); along SSR 223 (Roanoke, Campground, McAlister Rds) to junction with Summit (SSR158) and Hunter Mill Rd; Hunter Mill Rd west to Liberty city limit; southeast along Liberty city limit to Greenville Highway (SC 93); SC 93 southwest to Old Norris Road; southeast to Farmers Hill Rd; south to Pine Thicket Rd; southwest to Gavin Rd (SSR 270); south to Chastain Rd (SSR 395); SSR 395 west to junction with SC 93; junction west along an unnamed creek to the junction of Blue Jay Rd and Johnson Rd; southwest on Blue Jay Rd to Maw Bridge Rd (SSR 337); SSR 337 north to Camp Creek Rd (SSR 65); SSR 65 east to Norris Highway (SC 137); SC 137 northwest to John Holliday Rd (SSR 125); SSR 125 north to Liberty Highway (SSR 137); east to Ridgeland Drive; northwest to Belle Shoals RD (SSR 267); northwest to North Main Street (SC 137); SC 137 north to Holliday Rd; west to Lusk Rd; northwest to Cedar Hill Rd; Cedar Hill Rd north to junction with Walhalla Highway (SC 183).

C-1 County: Pickens

Communities: Pleasant Hill

Defined as the area within the following boundary: Midstream of Seneca River on two mile arc south of ONS east to Brown Bottom Rd; south on Brown Bottom Rd to Old Seneca Rd (SSR 291); SSR 291 northeast to Jones Mill Rd (SSR 160); SSR 160 southeast to Six Mile Highway (SC 133); SC 133 southwest to Isaqueena Dam Rd; Isaqueena Dam Rd west to outlet of Isaqueena Lake; west and north along Seneca River to two mile arc south of ONS.

C-2 County: Pickens

Communities: Central, Clemson, Clemson University

Defined as the area within the following boundary: Seneca River at outlet of Isaqueena Lake along Isaqueena Dam Rd to Six Mile Highway (SC 133); north to Brookbend Rd; southeast to Maw Bridge RD (SSR 337); SSR 337 south and east to Blue Jay Rd; southeast and east to junction with Johnson Rd (SSR 52); east along unnamed creek to junction of Greenville Highway (SC 93) and Chastain Rd (SSR 395); SSR 395 east to White Oak Rd (SSR 91); SSR 91 south to US Highway 123; US Highway 123 southwest to Isaqueena Trail (SSR 30); south and southwest to Pendleton Rd (SC 28); SC 28 northwest to US 76; US 76 south to Old Stone Church Rd; west to Old Cherry Rd (SSR 37); SSR 37 to mid-span of bridge at Lake Hartwell; north along mid-steam Seneca River to outlet of Lake Isaqueena.

D-1 County: Oconee

Communities: Fairview

Defined as the area within the following boundary: Junction SC188 and Petty Rd (SSR589) east and north on Clyde Crenshaw Rd to Frenge Branch Rd (SSR 61; SSR 61 northeast to Lake Keowee west shore; northeast to two mile arc southwest of ONS; southeast along arc to Doug Hollow Rd; south and east to Rochester highway (SC 130); north on SC 130 for 0.75 mile; east to mid-stream of Seneca River; downstream to a point due east of Dodd Farm Rd; west overland to Dodd Farm Rd across Lawrence Bridge Rd and overland to mid-stream of little River; Little River west to Little River spillway; west northwest across Lake Keowee to east end of Maughan Trail; northwest to Harbor Way; west to to Mallard Bend Rd; north to Fairview Church Rd; west-northwest to a point between Hampton Shores and Fairview Shores developments; north overland to mid-stream of Crooked Creek; northwest to mid-span Keowee School Rd bridge (SC 188); SC 188 northwest to junction with Biggerstaff Rd (SSR 589).

D-2 County: Oconee

Communities: Bayshore, Newry, Hanover Hills

Defined as the area within the following boundary: Junction of SC 188 and Biggerstaff Rd (SSR 46); southeast along Biggerstaff Rd Fairview Church Rd northeast and east to Mallard Bend Rd; south to Harber's Way; southeast to Maughan Trail; southeast to west shore of Lake Keowee; southeast across Lake Keowee to the Little River spillway on SC 130; east along the Little River to a point west of junction of Lawrence Bridge Rd (SSR 225) and Dodd Farm Rd; east to the junction and northeast along Dodd Farm Rd to mid-stream Seneca River; downstream to mid-span of Old Cherry Rd (SSR 37) bridge; SSR 37 west to J P Stevens Rd (SSR 37); south Curry Drive (SSR 65); SSR 65 west and south to mid-span of bridge over Lake Hartwell at Martin Creek; west mid-stream to west shore, east to junction of Seneca Springs Landing and Singing Pines Rd (SSR 137); SSR 137 north to Wells Highway (SSR 488); SSR 488 west and northwest to Sandifer Blvd (US 76-123); US 76-123 southwest to Richland Rd (SSR 13); SSR 13 west to Poplar Springs Rd (SSR 35); SSR 35 north to West Halfway Branch Rd; east to Blue Ridge Blvd (SC 28); east northeast overland to a point on Keowee School Rd (SC 188) halfway between the junctions with Old Walhalla Highway (SSR 60) and Mt Olive Church Rd (W A66); SC 188 northeast to junction with Biggerstaff Rd (SSR 46).

E-1 County: Oconee

Communities: Keowee, New Hope

Defined as the area within the following boundary: Junction Jones Rd (SSR 24) and Old Station (SSR 40) north on Alexander Rd to Burnt Tanyard Rd (SSR132); SSR 132 northeast to mid-span Tanyard Bridge; east mid-stream of Little River to mid-stream Stamp Creek Inlet (Fork Bottom Bend); southeast to two mile arc northwest of ONS; south along arc across junction of High Falls Rd and Jubie Lane; south along arc across Ellenburg Rd and the east end of Knox Landing to mid-stream of Lake Keowee; south west to the northwest end of Fenge Branch Rd; southwest to Clyde Crenshaw Rd; west to junction of Keowee School Rd (SC 188) and Petty RD (SSR 589); south on SC 188 to mid-span of the bridge over Crooked Creek; Crooked Creek northwest to the Wolf Stake Church Rd (SSR 223) creek crossing; SSR 223 northeast and north to junction SC 183 and Old Station Rd (SSR 40); SSR 40 northwest to the junction with Jones Rd (SSR 24).

E-2

County: Oconee

Communities: Wolfs Stake, Ebenezer, West Union, Poplar Springs

Defined as the area within the following boundary: Junction White Cut Rd (SSR 174) and Oconee Station Rd (SSR 95) east along SSR 95 to junction with SC 11 and LeCroy Rd (SSR 198); SSR 198 (Le Croy, Deaton, Jones Rds) east to Old Station Rd (SSR40); SSR 40 to junction with Pickens Highway (SC 183); and Wolf Stake Church Rd (SSR223); SSR 223 south to crossing of Crooked Creek; southeast along mid-stream of Crooked Creek past Tanyard Bridge (on SC 188) to a point midstream, north of the midpoint between Hampton Shores and Fairview Shores developments on Fairview Church Rd; south along the line formed by the points, then west on Fairview Church Rd to Biggerstaff Rd (SSR 46); northwest to Keowee School Rd (SC 188); southwest along SC 188 to a point due east of the junction of Blue Ridge Blvd (SC 28) and Halfway Branch Rd; west overland to the junction and along Halfway Branch Rd to Poplar Springs Rd (SSR 35); south to Levi Lane; northwest to junction with SC 11; north to West Bear Swamp Rd (SSR 220); northwest to junction with Sc-S-37-241 and SC 183; south to Flat Rock Rd; south to Flat Rock Rd; south to Skyview Drive; northwest along the intermittent creek bed of the Negro Fork to the junction of Coffee RD and Sc-S-37-176; along a line overland to the west end of Boomer Rd, then north paralleling Zion Rd (Sc-S-37-176) to the junction of Highlands Highway (SC 28) and W A3 road; northeast along a line overland to the junction of Playground Road and Kyle Drive; east northeast along a line overland to the junction of Picket Post Rd and Twin Branch Drive; north along Picket Post Rd to White Cut Rd(Sc-S-37-174); north to junction with Oconee Station Rd (SSR 95).

F-1

County: Oconee

Communities: Stamp Creek

Defined as the area within the following boundary: Tanyard Bridge on Burnt Tanyard Rd (SSR 132) northeast to Collins Rd; east and north to Rochester Highway (SC 130); northwest to Stamp Creek Rd east to Nimmons Bridge Rd (SSR 128); south to Keowee Town Landing Rd (SSR 98); SSR 98 to west shore of Lake Keowee; east to mid-stream of Lake Keowee; south along midstream to two mile arc north of ONS; southwest along the arc to mid-stream of Stamp Creek Inlet; northwest mid-stream to mid-stream of the Little River Inlet; west to the Tanyard Bridge on Burnt Tanyard Rd (SSR 132).

F-2

County: Oconee

Communities: Tamassee, Salem, Picket Poast, Oconee Creek, D.A.R., Fall Creek, Flat Shoals

Defined as the area within the following boundary: Junction White Cut Rd (SSR 174) and Oconee Station RD (SSR 95)northwest along SSR 95 to Rocky Ford Rd; north to Sc-S-37-95; north to Tamassee Knob Rd; north and east to junction with Cherokee Valley Rd; east overland to Mud Creek; north up Mud Creek to the creek crossing of Lewin Way; Lewin Way north to Whitmire Church Rd; southeast to Baineridge Drive; northeast overland to the shore of Whitewater Lake ; north overland to Little River Rd; southeast to Little River Rd creek crossing of the Whitewater Lake outfall; northeast overland to a point midway between North Fork Little River and Ridge Rd; southeast to Smeltzer Creek; north along Smeltzer Creek to a point due west of the junction of Whitewater Falls Rd (SC 130) and Smeltzer Mtn. Rd; east to the junction; Smeltzer Mtn Rd east overland to Boone Trail: east to Shallow Shack Rd; north to Jocassee Lake Rd; northeast to the junction with Patterson Ridge Rd; due east overland to Jocassee Rd; Jocassee Rd southwest to west shore of Lake Keowee; southeast to mid-stream of Lake Keowee; south to Keowee Town Landing; Keowee Town Landing Rd west to Nimmons Bridge Rd (SSR 128); north to Stamp Creek Rd (SSR 200); west to SC 130; south to Collins Rd; south and west to Burnt Tanyard Rd (SSR 132); southwest to Alexander Springs Rd; southwest to Old Station Rd (SSR 24); northwest on Jones, Denton and LeCroy Rd (SSR198) to Oconee Station Rd (SSR95); northwest to junction with White Cut Rd (SSR 174).

APPENDIX M

Evacuation Sensitivity Studies

M. EVACUATION SENSITIVITY STUDIES

This appendix presents the results of a series of sensitivity analyses. These analyses are designed to identify the sensitivity of the ETE to changes in some base evacuation conditions.

M.1 Effect of Changes in Trip Generation Times

A sensitivity study was performed to determine whether changes in the estimated trip generation time have an effect on the ETE for the entire EPZ. Specifically, if the tail of the mobilization distribution were truncated (i.e., if those who responded most slowly to the Advisory to Evacuate, could be persuaded to respond much more rapidly), how would the ETE be affected? The case considered was Scenario 1, Region 3; a summer, midweek, midday, good weather evacuation of the entire EPZ. Table M-1 presents the results of this study.

Table M-1. Evacuation Time Estimates for Trip Generation Sensitivity Study

Trip Generation Period	Evacuation Time Estimate for Entire EPZ	
	90th Percentile	100th Percentile
2 Hours	3:40	4:55
3 Hours	3:40	5:00
4 Hours	3:45	5:00
5 Hours (Base)	3:50	5:10

As discussed in Section 7.3, traffic congestion persists within the EPZ for about 5 hours. As such, the ETE for the 100th percentile are not significantly affected by the trip generation time, but rather by the time needed to clear the congestion within the EPZ. The 90th percentile ETE are also not sensitive to truncating the tail of the mobilization time distribution due to the traffic congestion.

M.2 Effect of Changes in the Number of People in the Shadow Region Who Relocate

A sensitivity study was conducted to determine the effect on ETE of changes in the percentage of people who decide to relocate from the Shadow Region. The case considered was Scenario 1, Region 3; a summer, midweek, midday, good weather evacuation for the entire EPZ. The movement of people in the Shadow Region has the potential to impede vehicles evacuating from an Evacuation Region within the EPZ. Refer to Sections 3.2 and 7.1 for additional information on population within the shadow region.

Table M-2 presents the evacuation time estimates for each of the cases considered. The results show that the ETE is reduced by 5 minutes for the 100th percentile ETE when reducing shadow evacuation from 20% to 0%. Reducing the shadow evacuation to 0% or 15% reduces the 90th percentile ETE by 15 minutes and 5 minutes, respectively. Tripling the shadow percentage increases the ETE by 10 minutes for both the 90th and 100th percentiles – not a significant change. Note, the telephone survey results presented in Appendix F indicate that 17% of households would elect to evacuate if advised to shelter. Thus, the base assumption of 20% non-compliance suggested in NUREG/CR-7002 is valid.

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

Percent Shadow Evacuation	Evacuating Shadow Vehicles	Evacuation Time Estimate for Entire EPZ	
		90th Percentile	100th Percentile
0	0	3:35	5:05
15	5,036	3:45	5:05
20 (Base)	6,714	3:50	5:10
60	20,142	4:00	5:20

M.3 Effect of Changes in EPZ Resident Population

A sensitivity study was conducted to determine the effect on ETE of changes in the resident population within the EPZ. As population in the EPZ changes over time, the time required to evacuate the public may increase. Since the ETE is related to the demand to capacity ratio present within the EPZ, changes in population will cause the demand side of the equation to change. The sensitivity study was conducted using the following planning assumptions:

1. The change in population within the EPZ was treated parametrically. The percent population change increased up to 30%. Changes in population were applied to permanent residents only (as per federal guidance), in both the EPZ area and the Shadow Region.
2. The transportation infrastructure remained fixed; the presence of new roads or highway capacity improvements were not considered.
3. The study was performed for the 2-Mile Region (R01), the 5-Mile Region (R02) and the entire EPZ (R03).
4. The good weather scenario which yielded the highest ETE values was selected as the case to be considered in this sensitivity study (Scenario 1).
5. The scenario which yielded the highest ETE values overall was also considered in this sensitivity (Scenario 13 – special event – Clemson Football).

Table M-3 and Table M-4 present the results of the sensitivity study. Section IV of Appendix E to 10 CFR Part 50, and NUREG/CR-7002, Section 5.4, require licensees to provide an updated ETE analysis to the NRC when a population increase within the EPZ causes ETE values (for the 2-Mile Region, 5-Mile Region or entire EPZ) to increase by 25 percent or 30 minutes, whichever is less.

Those percent population changes which result in ETE changes greater than 25% or 30 minutes are indicated in red boldface font in Table M-3 – greater than or equal to a 20% change in the EPZ population and Table M-4 – a 20% increase in the EPZ population. Duke Energy will have to estimate the EPZ population on an annual basis. If the cumulative change in EPZ population since the 2010 Census increases by 20% or more, an updated ETE analysis will be needed.

Table M-3. ETE Variation with Population Change (Scenario 1)

Resident & Shadow Population	Base[1]	Population Change		
		10%	20%	30%
	94,699	104,169	113,639	123,109
ETE for 90th Percentile				
		Population Change		
Region	Base	10%	20%	30%
2-MILE	1:35	1:35	1:35	1:35
5-MILE	2:10	2:10	2:15	2:15
FULL EPZ	3:50	3:55	4:15	**4:30**
ETE for 100th Percentile				
		Population Change		
Region	Base	10%	20%	30%
2-MILE	5:00	5:00	5:00	5:00
5-MILE	5:05	5:05	5:05	5:05
FULL EPZ	5:10	5:20	**5:40**	**6:10**

Table M-4. ETE Variation with Population Change (Scenario 13)

Resident & Shadow Population	Base[1]	Population Change		
		18%	19%	20%
	94,699	111,745	112,692	113,639
ETE for 90th Percentile				
		Population Change		
Region	Base	18%	19%	20%
2-MILE	1:25	1:30	1:30	1:30
5-MILE	1:55	1:55	1:55	2:00
FULL EPZ	6:05	6:25	6:30	6:30
ETE for 100th Percentile				
		Population Change		
Region	Base	18%	19%	20%
2-MILE	5:00	5:00	5:00	5:00
5-MILE	5:05	5:05	5:05	5:05
FULL EPZ	8:45	9:05	9:10	**9:25**

[1] Base population is total EPZ population and 20% of shadow population, refer to Table 3-7.

M.4 Sheep Farm Rd Sensitivity Analysis

A sensitivity study was conducted to determine the effect on ETE of the proposed roadway improvements to Sheep Farm Road. The proposed Sheep Farm Road will extend north from US 76/123 (existing intersection) to SC 28, traversing Bountyland Road. The total length of the proposed roadway is 2.3 miles. Figure M-1 displays the location of the roadway.

Sheep Farm Road will be a five-lane (2 lanes in each direction with a center lane for left turns) minor arterial with 12 foot lanes and a 4 foot shoulder. The current posted speed is 35 mph.

The construction is scheduled to be complete and the road opened by December 30, 2012, but it may open sooner due to good weather during construction. Once open, the route will serve as the only route to bypass the heavily used intersection of US 123 and SC 28 – often referred to as the "Miracle Circle" – in Seneca.

The good weather scenario which yielded the highest ETE values was selected as the case to be considered in this sensitivity study (Scenario 1).

Table M-5 summarizes the ETE for the 2-Mile, 5-Mile and Full EPZ regions for the base case as well as the sensitivity study. For all cases, the ETE does not change at the 90th or 100th percentile when Sheep Farm Road is included as an evacuation route.

The simulation results indicate that more than a thousand vehicles divert to this new route to avoid the congestion at the Miracle Circle intersection. This diversion does reduce congestion at the Miracle Circle intersection and results in the intersection clearing sooner. However, the narrowing of US 76/US 123 westbound through Westminster in the Shadow Region is still the last bottleneck to clear. This bottleneck dictates the ETE, which explains why the Sheep Farm Rd improvement does not impact ETE even though it aids local traffic congestion. In conclusion, the opening of Sheep Farm Rd in late 2012 will not impact ETE for the ONS EPZ.

Table M-5. Evacuation Time Estimates for Sheep Farm Road Analysis

Case	Region	90th Percentile ETE	100th Percentile ETE
Base ETE	2-Mile Region	1:35	5:00
	5-Mile Region	2:10	5:05
	Full EPZ	3:50	5:10
ETE with Sheep Farm Road	2-Mile Region	1:35	5:00
	5-Mile Region	2:10	5:05
	Full EPZ	3:50	5:10

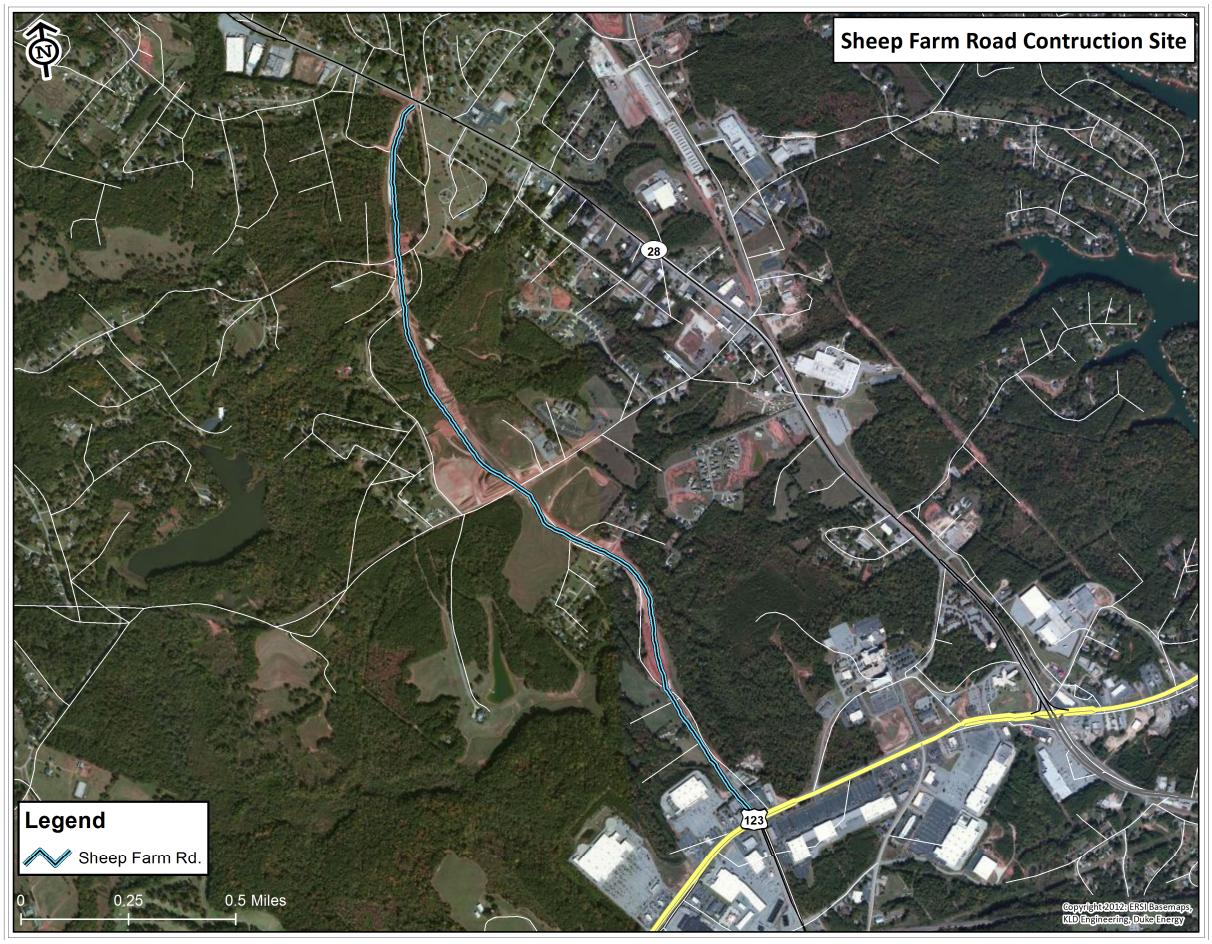

Figure M-1. Sheep Farm Road Location

APPENDIX N

ETE Criteria Checklist

N. ETE CRITERIA CHECKLIST

Table N-1. ETE Review Criteria Checklist

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
1.0 Introduction		
a. The emergency planning zone (EPZ) and surrounding area should be described.	Yes	Section 1
b. A map should be included that identifies primary features of the site, including major roadways, significant topographical features, boundaries of counties, and population centers within the EPZ.	Yes	Figures 1-1, 3-1
c. A comparison of the current and previous ETE should be provided and includes similar information as identified in Table 1-1, "ETE Comparison," of NUREG/CR-7002.	Yes	Table 1-3
1.1 Approach		
a. A discussion of the approach and level of detail obtained during the field survey of the roadway network should be provided.	Yes	Section 1.3
b. Sources of demographic data for schools, special facilities, large employers, and special events should be identified.	Yes	Sections 2.1, 3, 8
c. Discussion should be presented on use of traffic control plans in the analysis.	Yes	Sections 1.3, 2.2, 9; Appendix G
d. Traffic simulation models used for the analyses should be identified by name and version.	Yes	Section 1.3, Table 1-3, Appendix B, Appendix C

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
e. Methods used to address data uncertainties should be described.	Yes	Section 3 – avoid double counting Section 5, Appendix F – 4.4% sampling error at 95% confidence interval for telephone survey
1.2 Assumptions		
a. The planning basis for the ETE includes the assumption that the evacuation should be ordered promptly and no early protective actions have been implemented.	Yes	Section 2.3 – Assumption 1 Section 5.1
b. Assumptions consistent with Table 1-2, "General Assumptions," of NUREG/CR-7002 should be provided and include the basis to support their use.	Yes	Sections 2.2, 2.3
1.3 Scenario Development		
a. The ten scenarios in Table 1-3, Evacuation Scenarios, should be developed for the ETE analysis, or a reason should be provided for use of other scenarios.	Yes	Tables 2-1, 6-2
1.3.1 Staged Evacuation		
a. A discussion should be provided on the approach used in development of a staged evacuation.	Yes	Sections 5.4.2, 7.2
1.4 Evacuation Planning Areas		
a. A map of EPZ with emergency response planning areas (ERPAs) should be included.	Yes	Figure 6-1
b. A table should be provided identifying the ERPAs considered for each ETE calculation by downwind direction in each sector.	Yes	Tables 6-1, 7-5, H-1

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
c. A table similar to Table 1-4, "Evacuation Areas for a Staged Evacuation Keyhole," of NUREG/CR-7002 should be provided and includes the complete evacuation of the 2, 5, and 10 mile areas and for the 2 mile area/5 mile keyhole evacuations.	Yes	Tables 7-3, 7-4
2.0 Demand Estimation		
a. Demand estimation should be developed for the four population groups, including permanent residents of the EPZ, transients, special facilities, and schools.	Yes	Permanent residents, employees, transients – Section 3, Appendix E Special facilities, schools – Section 8, Appendix E
2.1 Permanent Residents and Transient Population		
a. The US Census should be the source of the population values, or another credible source should be provided.	Yes	Section 3.1
b. Population values should be adjusted as necessary for growth to reflect population estimates to the year of the ETE.	Yes	2010 used as the base year for analysis.
c. A sector diagram should be included, similar to Figure 2-1, "Population by Sector," of NUREG/CR-7002, showing the population distribution for permanent residents.	Yes	Figure 3-2
2.1.1 Permanent Residents with Vehicles		
a. The persons per vehicle value should be between 1 and 2 or justification should be provided for other values.	Yes	1.69 persons per vehicle based on telephone survey results – see Table 1-3
b. Major employers should be listed.	Yes	Appendix E – Table E-4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
2.1.2 Transient Population		
a. A list of facilities which attract transient populations should be included, and peak and average attendance for these facilities should be listed. The source of information used to develop attendance values should be provided.	Yes	Sections 3.3, 3.4, Appendix E
b. The average population during the season should be used, itemized and totaled for each scenario.	Yes	Tables 3-4, 3-5 and Appendix E itemize the transient population and employee estimates. These estimates are multiplied by the scenario specific percentages provided in Table 6-3 to estimate average transient population by scenario. Section 2.1 – Item 6, Section 3.3
c. The percent of permanent residents assumed to be at facilities should be estimated.	Yes	Sections 3.3, 3.4
d. The number of people per vehicle should be provided. Numbers may vary by scenario, and if so, discussion on why values vary should be provided.	Yes	Sections 3.3, 3.4
e. A sector diagram should be included, similar to Figure 2-1 of NUREG/CR-7002, showing the population distribution for the transient population.	Yes	Figure 3-6 – transients Figure 3-8 – employees
2.2 Transit Dependent Permanent Residents		
a. The methodology used to determine the number of transit dependent residents should be discussed.	Yes	Section 8.1, Table 8-1
b. Transportation resources needed to evacuate this group should be quantified.	Yes	Section 8.1, Tables 8-5, 8-10

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
c. The county/local evacuation plans for transit dependent residents should be used in the analysis.	Yes	Sections 8.1, 8.4
d. The methodology used to determine the number of people with disabilities and those with access and functional needs who may need assistance and do not reside in special facilities should be provided. Data from local/county registration programs should be used in the estimate, but should not be the only set of data.	Yes	Section 8.5
e. Capacities should be provided for all types of transportation resources. Bus seating capacity of 50% should be used or justification should be provided for higher values.	Yes	Section 2.3 – Assumption 10 Sections 3.5, 8.1, 8.2, 8.3
f. An estimate of this population should be provided and information should be provided that the existing registration programs were used in developing the estimate.	Yes	Table 8-1 – transit dependents Section 8.5 – special needs
g. A summary table of the total number of buses, ambulances, or other transport needed to support evacuation should be provided and the quantification of resources should be detailed enough to assure double counting has not occurred.	Yes	Sections 8.3, 8.4 – page 8-6 Table 8-5 Section 2
2.3 Special Facility Residents		
a. A list of special facilities, including the type of facility, location, and average population should be provided. Special facility staff should be included in the total special facility population.	Yes	Appendix E, Tables E-1, E-2, E-3, E-7 – list facilities, type, location, and population

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
b. A discussion should be provided on how special facility data was obtained.	Yes	Sections 8.2, 8.3, 8.6
c. The number of wheelchair and bed-bound individuals should be provided.	Yes	Section 8.3, Table 8-4
d. An estimate of the number and capacity of vehicles needed to support the evacuation of the facility should be provided.	Yes	Section 8.3 Tables 8-4, 8-5
e. The logistics for mobilizing specially trained staff (e.g., medical support or security support for prisons, jails, and other correctional facilities) should be discussed when appropriate.	Yes	Section 8.4, 8.6
2.4 Schools		
a. A list of schools including name, location, student population, and transportation resources required to support the evacuation, should be provided. The source of this information should be provided.	Yes	Table 8-2 Section 8.2
b. Transportation resources for elementary and middle schools should be based on 100% of the school capacity.	Yes	Table 8-2
c. The estimate of high school students who will use their personal vehicle to evacuate should be provided and a basis for the values used should be discussed.	Yes	Section 8.2
d. The need for return trips should be identified if necessary.	Yes	There are sufficient resources to evacuate schools in a single wave. However, Section 8.4 and Figure 8-1 discuss the potential for a multiple wave evacuation

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
2.5.1 Special Events		
a. A complete list of special events should be provided and includes information on the population, estimated duration, and season of the event.	Yes	Section 3.7
b. The special event that encompasses the peak transient population should be analyzed in the ETE.	Yes	Section 3.7
c. The percent of permanent residents attending the event should be estimated.	Yes	Section 3.7
2.5.2 Shadow Evacuation		
a. A shadow evacuation of 20 percent should be included for areas outside the evacuation area extending to 15 miles from the NPP.	Yes	Section 2.2 – Assumption 5 Figures 2-1, 7-1 Section 3.2
b. Population estimates for the shadow evacuation in the 10 to 15 mile area beyond the EPZ are provided by sector.	Yes	Section 3.2 Figure 3-4 Table 3-3
c. The loading of the shadow evacuation onto the roadway network should be consistent with the trip generation time generated for the permanent resident population.	Yes	Section 5 – Table 5-9
2.5.3 Background and Pass Through Traffic		
a. The volume of background traffic and pass through traffic is based on the average daytime traffic. Values may be reduced for nighttime scenarios.	Yes	Sections 3.6, 6 Table 3-6, 6-3, 6-4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
b. Pass through traffic is assumed to have stopped entering the EPZ about two hours after the initial notification.	Yes	Section 2.3 – Assumption 5 Section 3.6 Table 6-3 – External Through Traffic footnote Appendix G
2.6 Summary of Demand Estimation		
a. A summary table should be provided that identifies the total populations and total vehicles used in analysis for permanent residents, transients, transit dependent residents, special facilities, schools, shadow population, and pass-through demand used in each scenario.	Yes	Tables 3-7, 3-8, 6-4
3.0 Roadway Capacity		
a. The method(s) used to assess roadway capacity should be discussed.	Yes	Section 4
3.1 Roadway Characteristics		
a. A field survey of key routes within the EPZ has been conducted.	Yes	Section 1.3
b. Information should be provided describing the extent of the survey, and types of information gathered and used in the analysis.	Yes	Section 1.3
c. A table similar to that in Appendix A, "Roadway Characteristics," of NUREG/CR-7002 should be provided.	Yes	Appendix K, Table K-1
d. Calculations for a representative roadway segment should be provided.	Yes	Section 4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
e. A legible map of the roadway system that identifies node numbers and segments used to develop the ETE should be provided and should be similar to Figure 3-1, "Roadway Network Identifying Nodes and Segments," of NUREG/CR-7002.	Yes	Appendix K, Figures K-1 through K-41 present the entire link-node analysis network at a scale suitable to identify all links and nodes
3.2 Capacity Analysis		
a. The approach used to calculate the roadway capacity for the transportation network should be described in detail and identifies factors that should be expressly used in the modeling.	Yes	Section 4
b. The capacity analysis identifies where field information should be used in the ETE calculation.	Yes	Section 1.3, Section 4
3.3 Intersection Control		
a. A list of intersections should be provided that includes the total number of intersections modeled that are unsignalized, signalized, or manned by response personnel.	Yes	Appendix K, Table K-2
b. Characteristics for the 10 highest volume intersections within the EPZ are provided including the location, signal cycle length, and turn lane queue capacity.	Yes	Table J-1
c. Discussion should be provided on how signal cycle time is used in the calculations.	Yes	Section 4.1, Appendix C

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
3.4 Adverse Weather		
a. The adverse weather condition should be identified and the effects of adverse weather on mobilization time should be considered.	Yes	Table 2-1, Section 2.3 – Assumption 9 Mobilization time – Table 2-2, Section 5.3 (page 5-10)
b. The speed and capacity reduction factors identified in Table 3-1, "Weather Capacity Factors," of NUREG/CR-7002 should be used or a basis should be provided for other values.	Yes	Table 2-2 – based on HCM 2010. The factors provided in Table 3-1 of NUREG/CR-7002 are from HCM 2000.
c. The study identifies assumptions for snow removal on streets and driveways, when applicable.	Yes	Section 5.3 – page 5-10 Appendix F – Section F.3.3
4.0 Development of Evacuation Times		
4.1 Trip Generation Time		
a. The process used to develop trip generation times should be identified.	Yes	Section 5
b. When telephone surveys are used, the scope of the survey, area of survey, number of participants, and statistical relevance should be provided.	Yes	Appendix F
c. Data obtained from telephone surveys should be summarized.	Yes	Appendix F
d. The trip generation time for each population group should be developed from site specific information.	Yes	Section 5, Appendix F

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
4.1.1 Permanent Residents and Transient Population		
a. Permanent residents are assumed to evacuate from their homes but are not assumed to be at home at all times. Trip generation time includes the assumption that a percentage of residents will need to return home prior to evacuating.	Yes	Section 5 discusses trip generation for households with and without returning commuters. Table 6-3 presents the percentage of households with returning commuters and the percentage of households either without returning commuters or with no commuters. Appendix F presents the percent households who will await the return of commuters. Section 2.3, Assumption 3
b. Discussion should be provided on the time and method used to notify transients. The trip generation time discusses any difficulties notifying persons in hard to reach areas such as on lakes or in campgrounds.	Yes	Section 5.4.3
c. The trip generation time accounts for transients potentially returning to hotels prior to evacuating.	Yes	Section 5, Figure 5-1
d. Effect of public transportation resources used during special events where a large number of transients should be expected should be considered.	Yes	Section 3.7
e. The trip generation time for the transient population should be integrated and loaded onto the transportation network with the general public.	Yes	Section 5, Table 5-9

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
4.1.2 Transit Dependent Residents		
a. If available, existing plans and bus routes should be used in the ETE analysis. If new plans should be developed with the ETE, they have been agreed upon by the responsible authorities.	Yes	Section 8.4 – page 8-8. Pre-established bus routes do not exist. Basic bus routes were developed for the ETE analysis – see Figure 8-2, Table 8-10. State and county emergency management agencies reviewed and approved the ETE study including these prescribed routes.
b. Discussion should be included on the means of evacuating ambulatory and non-ambulatory residents.	Yes	Sections 8.4, 8.5
c. The number, location, and availability of buses, and other resources needed to support the demand estimation should be provided.	Yes	Section 8.4, Table 8-5
d. Logistical details, such as the time to obtain buses, brief drivers, and initiate the bus route should be provided.	Yes	Section 8.4, Figure 8-1
e. Discussion should identify the time estimated for transit dependent residents to prepare and travel to a bus pickup point, and describes the expected means of travel to the pickup point.	Yes	Section 8.4, page 8-8
f. The number of bus stops and time needed to load passengers should be discussed.	Yes	Section 8.4
g. A map of bus routes should be included.	Yes	Figure 8-2
h. The trip generation time for non-ambulatory persons includes the time to mobilize ambulances or special vehicles, time to drive to the home of residents, loading time, and time to drive out of the EPZ should be provided.	Yes	Section 8.5

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
i. Information should be provided to supports analysis of return trips, if necessary.	Yes	Sections 8.4, 8.5 Figure 8-1 Tables 8-11 through 8-13
4.1.3 Special Facilities		
a. Information on evacuation logistics and mobilization times should be provided.	Yes	Section 8-4, Tables 8-7 through 8-9, 8-14 through 8-16
b. Discussion should be provided on the inbound and outbound speeds.	Yes	Section 8.4
c. The number of wheelchair and bed-bounds individuals should be provided, and the logistics of evacuating these residents should be discussed.	Yes	Section 8.4, Tables 8-4, 8-14 through 8-16
d. Time for loading of residents should be provided	Yes	Section 8.4
e. Information should be provided that indicates whether the evacuation can be completed in a single trip or if additional trips should be needed.	Yes	Section 8.4, Table 8-5
f. If return trips should be needed, the destination of vehicles should be provided.	Yes	Section 8.4
g. Discussion should be provided on whether special facility residents are expected to pass through the reception center prior to being evacuated to their final destination.	Yes	Section 8.4
h. Supporting information should be provided to quantify the time elements for the return trips.	Yes	Section 8.4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
4.1.4 Schools		
a. Information on evacuation logistics and mobilization time should be provided.	Yes	Section 8.4
b. Discussion should be provided on the inbound and outbound speeds.	Yes	School bus routes are presented in Table 8-6. School bus speeds are presented in Tables 8-7 through 8-9 Section 8.4 discusses inbound and outbound speeds
c. Time for loading of students should be provided.	Yes	Tables 8-7 through 8-9, Discussion in Section 8.4
d. Information should be provided that indicates whether the evacuation can be completed in a single trip or if additional trips are needed.	Yes	Section 8.4 – page 8-6
e. If return trips are needed, the destination of school buses should be provided.	Yes	Return trips are not needed. Sufficient resources to evacuate in single wave.
f. If used, reception centers should be identified. Discussion should be provided on whether students are expected to pass through the reception center prior to being evacuated to their final destination.	Yes	Table 8-3. Students are evacuated to school pick-up points where they will be picked up by parents or guardians.
g. Supporting information should be provided to quantify the time elements for the return trips.	Yes	Return trips are not needed. Tables 8-7 through 8-9 provide time needed to arrive at school pick-up points, which could be used to compute a second wave evacuation if necessary

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
4.2 ETE Modeling		
a. General information about the model should be provided and demonstrates its use in ETE studies.	Yes	DYNEV II (Ver. 4.0.2.0) System. Section 1.3, Table 1-3, Appendix B, Appendix C
b. If a traffic simulation model is not used to conduct the ETE calculation, sufficient detail should be provided to validate the analytical approach used. All criteria elements should have been met, as appropriate.	No	Not applicable as a traffic simulation model was used.
4.2.1 Traffic Simulation Model Input		
a. Traffic simulation model assumptions and a representative set of model inputs should be provided.	Yes	Appendices B and C describe the simulation model assumptions and algorithms Table J-2 – model inputs
b. A glossary of terms should be provided for the key performance measures and parameters used in the analysis.	Yes	Appendix A Tables C-1, C-2
4.2.2 Traffic Simulation Model Output		
a. A discussion regarding whether the traffic simulation model used must be in equilibration prior to calculating the ETE should be provided.	Yes	Appendix B

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
b. The minimum following model outputs should be provided to support review: 1. Total volume and percent by hour at each EPZ exit node. 2. Network wide average travel time. 3. Longest queue length for the 10 intersections with the highest traffic volume. 4. Total vehicles exiting the network. 5. A plot that provides both the mobilization curve and evacuation curve identifying the cumulative percentage of evacuees who have mobilized and exited the EPZ. 6. Average speed for each major evacuation route that exits the EPZ.	Yes	1. Table J-5. 2. Table J-3. 3. Table J-1. 4. Table J-3. 5. Figures J-1 through J-14 (one plot for each scenario considered). 6. Table J-4. Network wide average speed also provided in Table J-3.
c. Color coded roadway maps should be provided for various times (i.e., at 2, 4, 6 hrs., etc.) during a full EPZ evacuation scenario, identifying areas where long queues exist including level of service (LOS) "E" and LOS "F" conditions, if they occur.	Yes	Figures 7-3 through 7-10
4.3 Evacuation Time Estimates for the General Public		
a. The ETE should include the time to evacuate 90% and 100% of the total permanent resident and transient population	Yes	Tables 7-1, 7-2

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
b. The ETE for 100% of the general public should include all members of the general public. Any reductions or truncated data should be explained.	Yes	Section 5.4 – truncating survey data to eliminate statistical outliers Table 7-2 – 100th percentile ETE for general population
c. Tables should be provided for the 90 and 100 percent ETEs similar to Table 4-3, "ETEs for Staged Evacuation Keyhole," of NUREG/CR-7002.	Yes	Tables 7-3, 7-4
d. ETEs should be provided for the 100 percent evacuation of special facilities, transit dependent, and school populations.	Yes	Section 8.4, 8.5 Tables 8-7 through 8-9 Tables 8-11 through 8-16
5.0 Other Considerations		
5.1 Development of Traffic Control Plans		
a. Information that responsible authorities have approved the traffic control plan used in the analysis should be provided.	Yes	Section 9, Appendix G
b. A discussion of adjustments or additions to the traffic control plan that affect the ETE should be provided.	Yes	Appendix G
5.2 Enhancements in Evacuation Time		
a. The results of assessments for improvement of evacuation time should be provided.	Yes	Appendix M
b. A statement or discussion regarding presentation of enhancements to local authorities should be provided.	Yes	Results of the ETE study were formally presented to local authorities at the final project meeting. Recommended enhancements were discussed.

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
5.3 State and Local Review		
a. A list of agencies contacted and the extent of interaction with these agencies should be discussed.	Yes	Table 1-1
b. Information should be provided on any unresolved issues that may affect the ETE.	Yes	After review with the offsite agencies, all issues have been resolved.
5.4 Reviews and Updates		
a. A discussion of when an updated ETE analysis is required to be performed and submitted to the NRC.	Yes	Appendix M, Section M.3
5.5 Reception Centers and Congregate Care Center		
a. A map of congregate care centers and reception centers should be provided.	Yes	Figure 10-1
b. If return trips are required, assumptions used to estimate return times for buses should be provided.	Yes	Section 8.4 discusses a multi-wave evacuation procedure. Figure 8-1
c. It should be clearly stated if it is assumed that passengers are left at the reception center and are taken by separate buses to the congregate care center.	Yes	Section 2.3 – Assumption 7h Section 10

Technical Reviewer _____ Date _____

Supervisory Review _____ Date _____