3
Future Transportation Conditions

This chapter presents the anticipated future traffic demands in the I-95 study corridor and evaluates the resultant impacts of these future traffic demands on the operations along the existing roadway infrastructure. The resultant impacts were determined assuming no future geometric improvements will be made, except for already programmed construction and maintenance improvements, including the planned Route 11 project and the associated I-95/I-395/Route 11 interchange reconfiguration. This is generally referred to as the future no-build condition. Traffic growth projections were based on historical growth data and anticipated future land uses under the no-build condition. Mainline, interchange and intersection operations were analyzed utilizing future traffic demands and the results of this analysis are provided in this chapter.

For the purposes of this study, a design year of 2025 was selected as the basis for the future conditions analysis. Federal design guidelines recommend the design year for a project be established 20 years beyond the estimated time of completion of that project. For this study, that is year 2025. The selection of a design year that is 20 years beyond the estimated time of completion ensures that recommended improvements will provide long-term benefits to the traveling public.

3.1 Forecasting Future Traffic Conditions — 2002 to 2025

Based on existing traffic volume patterns and historical growth, forecasting changes in future traffic demand is best accomplished through predicting future land use and demographics. This information can then be used to develop a travel forecast model. Pursuant to this, the Connecticut Department of Transportation (ConnDOT) statewide travel demand model was used to predict future traffic volumes on roadways within the study area for the design year 2025. The model is comprehensive and requires the following inputs to generate future traffic volumes:

- A schematic roadway network of major and secondary roads within the state. Each road's characteristics and geometry, such as length, number of lanes, capacity, and travel speed are entered into the model. Planned improvements to the roadway network, such as widenings, that will increase roadway capacity are also entered into the future year model.
- A detailed zone system throughout the state with load points for trips to and from each zone accessing the roadway network. Towns within the state are represented by aggregations of zones. Trips originating in each zone are put into the schematic roadway network.

- Population and employment data for the 2025 future conditions were developed for each zone. The model uses the existing population and employment data from each zone to generate a trip table that represents the travel demand on a daily basis between all zones in the model for present day conditions. The forecasted population and employment are used to predict future traffic demand for the average weekday.
- Expected vehicle trips are then assigned to the roadway network, taking into account the roadway characteristics and travel times to determine travel routes from one zone to another. The statewide model is maintained by ConnDOT and is regularly updated.

The 2025 future condition includes the preferred alternative for reconfiguration of the Route 11/I-395/I-95 interchange that is being planned under a separate project. This reconfiguration includes the elimination of Exit 75 and Exit 80 and is reflected in all the tables and figures.

3.1.1 Study Area Land Use Update

As part of the 2025 future conditions assessment, meetings were held with each of the towns within the study area to obtain information on future land use. Town representatives identified planned and predicted developments which may have an effect on future operations in the I-95 corridor. This information was based on a 20 year schedule. Representatives from each community researched and compiled information relative to the increase and/or changes in land use if these identified developments were implemented.

The information and data compiled from local input were mapped and compared with population and employment forecast data already in the statewide model. This analysis found that the population and employment growth inputs to the model are consistent with anticipated land use changes in the I-95 study corridor.

3.2 Future Traffic Demand – Year 2025

Estimates of year 2025 daily and peak hour traffic volumes were obtained from ConnDOT for the mainline, interchange ramps, mainline weaving sections, and key intersections within the study area. Summer Friday peak hour volumes were used as the basis of analysis for the road-based transportation system. Traffic volume networks representing average summer Friday peak hour traffic volumes for 2025 are provided in the appendix. These projected volumes account for the potential developments in the region, as well as growth expected elsewhere in the state.

3.2.1 2025 Daily Volumes

Table 3-1 presents a comparison of the average daily traffic volumes (ADT) in the 2000 existing condition and 2025 future condition for each mainline section in the study area. All sections are projected to experience increased traffic demand. ADT volumes are projected to increase between 24 and 53 percent over the study period. The average change for this time period is 39 percent. This corresponds to an average yearly change of 1.6 percent assuming uniform annual increases.

The increased traffic demand is generally spread evenly throughout the corridor with minor deviations on specific sections due to land use changes or planned improvement projects such as the Route 11 construction project.

Table 3-1
I-95 Mainline Average Daily Traffic Volumes (ADT) Comparison – 2000 to 2025 (Two-Way)

Section	2000 ADT	2025 ADT	% Change (2000 TO 2025)	Average Yearly % Change (2000 to 2025)
Exit 54 to 55	83,900	114,600	37	1.5
Exit 55 to 56	80,000	108,400	36	1.4
Exit 56 to 57	75,700	104,000	37	1.5
Exit 57 to 58	74,200	102,600	38	1.5
Exit 58 to 59	71,300	99,600	40	1.6
Exit 59 to 60	68,400	93,400	37	1.5
Exit 60 to 61	71,600	97,800	37	1.5
Exit 61 to 62	67,100	90,000	34	1.4
Exit 62 to 63	66,600	89,200	34	1.4
Exit 63 to 64	64,200	85,400	33	1.3
Exit 64 to 65	64,100	85,000	33	1.3
Exit 65 to 66	61,000	79,000	30	1.2
Exit 66 to 67 (Elm St)	58,900	74,800	27	1.1
Exit 67 (Elm St) to 67 (Rte 154)	64,400	82,300	28	1.1
Exit 67 (Rte 154) to 68	57,600	71,300	24	1.0
Exit 68 to 69	66,500	88,900	34	1.3
Exit 69 to 70	80,600	114,300	42	1.7
Exit 70 to 71	69,800	98,300	41	1.6
Exit 71 to 72	70,100	101,700	45	1.8
Exit 72 to 73	71,400	99,100	39	1.6
Exit 73 to 74	71,600	99,100	38	1.5
Exit 74 to Exit 76	75,800	107,600	42	1.7
Exit 76 to 81	61,600	94,500	53	2.1
Exit 81 to 82	66,700	101,500	52	2.1
Exit 82 to 82A	77,400	107,700	39	1.6
Exit 82A to 83	68,800	92,300	34	1.4
Exit 83 to 84	90,100	123,900	38	1.5
Exit 84 to 85	121,000	167,400	38	1.5
Exit 85 to 86	91,500	130,100	42	1.7
Exit 86 to 87 (Rte 1)	67,400	95,500	42	1.7
Exit 87 (Rte 1) to 87 (Rte 349)	60,800	86,500	42	1.7
Exit 87 (Rte 349) to 88	75,900	106,900	41	1.6
Exit 88 to 89	69,400	100,300	45	1.8
Exit 89 to 90	63,800	91,300	43	1.7
Exit 90 to 91	52,600	77,300	47	1.9
Exit 91 to 92	42,900	65,300	52	2.1
Exit 92 to 93	36,600	54,100	48	1.9
Study Area Average			**39**	**1.6**

Note: Some existing condition sections were omitted because a direct comparison could not be made to a section in the 2025 future condition. The best corresponding existing section was used for a basis of comparison.

3.2.2 2025 Evening Peak Hour Volumes

Table 3-2 presents 2025 evening peak hour mainline volumes compared to 2002 evening peak hour volumes. The percent change for this period ranges from 36 to 65 percent. The average percent change for the study area is 43 percent. The average yearly percent change is 1.9 percent for the evening peak hour.

Table 3-2
I-95 Mainline Evening Peak Hour Volume Comparison – 2002 to 2025 (Two-Way)

Section	2002 Volume (vph)[1]	2025 Volume (vph)[1]	% Change (2002 to 2025)	Average Yearly % Change (2002 to 2025)
Exit 54 to 55	7,000	9,720	39	1.7
Exit 55 to 56	6,830	9,490	39	1.7
Exit 56 to 57	6,520	9,070	39	1.7
Exit 57 to 58	6,420	8,930	39	1.7
Exit 58 to 59	6,160	8,580	39	1.7
Exit 59 to 60	5,760	8,030	39	1.7
Exit 60 to 61	6,130	8,530	39	1.7
Exit 61 to 62	5,690	7,930	39	1.7
Exit 62 to 63	5,750	8,010	39	1.7
Exit 63 to 64	5,580	7,790	40	1.7
Exit 64 to 65	5,550	7,760	40	1.7
Exit 65 to 66	5,230	7,340	40	1.8
Exit 66 to 67 (Elm St)	5,030	7,070	41	1.8
Exit 67 (Elm St) to 67 (Rte 154)	5,140	7,930	54	2.4
Exit 67 (Rte 154) to 68	4,870	6,860	41	1.8
Exit 68 to 69	6,170	8,620	40	1.7
Exit 69 to 70	7,920	10,800	36	1.6
Exit 70 to 71	6,670	9,380	41	1.8
Exit 71 to 72	7,030	9,870	40	1.8
Exit 72 to 73	6,900	9,690	40	1.8
Exit 73 to 74	6,950	9,760	40	1.8
Exit 74 to Exit 76	7,370	10,590	44	1.9
Exit 76 to 81	6,220	10,030	61	2.7
Exit 81 to 82	6,750	10,830	60	2.6
Exit 82 to 82A	8,180	11,620	42	1.8
Exit 82A to 83	6,860	9,820	43	1.9
Exit 83 to 84	8,860	12,520	41	1.8
Exit 84 to 85	11,860	16,620	40	1.7
Exit 85 to 86	9,710	13,700	41	1.8
Exit 86 to 87 (Rte 1)	7,410	10,600	43	1.9
Exit 87 (Rte 1) to 87 (Rte 349)	6,560	10,850	65	2.8
Exit 87 (Rte 349) to 88	8,130	11,060	36	1.6
Exit 88 to 89	7,430	10,650	43	1.9
Exit 89 to 90	6,720	9,680	44	1.9
Exit 90 to 91	5,390	7,900	47	2.0
Exit 91 to 92	4,370	6,520	49	2.1
Exit 92 to 93	3,370	5,170	53	2.3
Study Area Average			**43**	**1.9**

1 vph — Vehicles per hour, including all vehicle types (e.g. passenger cars, trucks, motorcycles, etc.)

The highest growth experienced along I-95 in the study area is between Exits 87 (Rte 1) and 87 (Rte 349) — experiencing a 65 percent increase over existing traffic demands. The sections between Exits 69 and 70, and between Exits 87 (Rte 349) and 88 experience the least change in traffic with a 36 percent increase.

More detailed characteristics of the evening 2025 peak hour traffic volumes for the I-95 mainline sections in the study area are presented in Table 3-3.

Table 3-3
I-95 Mainline Evening Peak Hour Volumes – 2025 Future Conditions (Two-Way)

Section	2025 PM Peak Hour					
	2025 Volume (vph)[1]	% of Daily Traffic	Directional Split (vph)[1]		Directional Distribution	
			NB	SB		
Exit 54 to 55	9,720	8.5	5,200	4,520	53%	NB
Exit 55 to 56	9,490	8.8	5,160	4,330	54%	NB
Exit 56 to 57	9,070	8.7	4,960	4,110	55%	NB
Exit 57 to 58	8,930	8.7	4,820	4,110	54%	NB
Exit 58 to 59	8,580	8.6	4,510	4,070	53%	NB
Exit 59 to 60	8,030	8.6	4,370	3,660	54%	NB
Exit 60 to 61	8,530	8.7	4,640	3,890	54%	NB
Exit 61 to 62	7,930	8.8	4,350	3,580	55%	NB
Exit 62 to 63	8,010	9.0	4,300	3,710	54%	NB
Exit 63 to 64	7,790	9.1	4,150	3,640	53%	NB
Exit 64 to 65	7,760	9.1	4,040	3,720	52%	NB
Exit 65 to 66	7,340	9.3	3,910	3,430	53%	NB
Exit 66 to 67 (Elm St)	7,070	9.5	3,780	3,290	53%	NB
Exit 67 (Elm St) to 67 (Rte 154)	7,930	9.6	4,210	3,720	53%	NB
Exit 67 (Rte 154) to 68	6,860	9.6	3,760	3,100	55%	NB
Exit 68 to 69	8,620	9.7	4,710	3,910	55%	NB
Exit 69 to 70	10,800	9.4	5,770	5,030	53%	NB
Exit 70 to 71	9,380	9.5	4,870	4,510	52%	NB
Exit 71 to 72	9,870	9.7	5,150	4,720	52%	NB
Exit 72 to 73	9,690	9.8	5,010	4,680	52%	NB
Exit 73 to 74	9,760	9.8	4,940	4,820	51%	NB
Exit 74 to 76	10,590	9.8	5,410	5,180	51%	NB
Exit 76 to 81	10,030	10.6	4,840	5,190	52%	SB
Exit 81 to 82	10,830	10.7	5,230	5,600	52%	SB
Exit 82 to 82A	11,620	10.8	5,440	6,180	53%	SB
Exit 82A to 83	9,820	10.6	5,090	4,730	52%	NB
Exit 83 to 84	12,520	10.1	6,440	6,080	51%	NB
Exit 84 to 85	16,620	9.9	8,140	8,480	51%	SB
Exit 85 to 86	13,700	10.5	6,520	7,180	52%	SB
Exit 86 to 87 (Rte 1)	10,600	11.1	5,170	5,430	51%	SB
Exit 87(Rte 1) to 87 (Rte 349)	10,850	12.5	6,570	4,280	61%	NB
Exit 87 (Rte 349) to 88	11,060	10.3	6,020	5,040	54%	NB
Exit 88 to 89	10,650	10.6	6,020	4,630	57%	NB
Exit 89 to 90	9,680	10.6	5,330	4,350	55%	NB
Exit 90 to 91	7,900	10.2	4,570	3,330	58%	NB
Exit 91 to 92	6,520	10.0	3,720	2,800	57%	NB
Exit 92 to 93	5,170	9.6	3,080	2,090	60%	NB
Study Area Average		**9.7**			**54%**	

1 vph — Vehicles per hour, including all vehicle types (e.g. passenger cars, trucks, motorcycles, etc.)

3.3 Future Traffic Operations — Year 2025

The procedures and criteria used to evaluate the future conditions were based on the methodology presented in the 2000 Highway Capacity Manual (HCM). The HCM presents various methods for evaluating traffic operations for different types of roadway facilities based on 44 years of research into traffic operations and traffic flow. Level of service (LOS) is the qualitative designation used to describe operations. A detailed description of the LOS methodology and criteria is provided in Chapter 2. The following sections provide a summary of the future conditions in the study area.

3.3.1 Mainline Operations

The results of the 2025 future condition freeway section analysis are summarized in Table 3-4 and are illustrated in Figure 3-1. Table 3-4 provides a brief description of the geometric characteristics and the resulting level of service for the evening peak hour for each section of I-95 within the study area.

Table 3-4
Freeway Section Analysis – Summary of 2025 Future Conditions

Section		Terrain	Number of Lanes	Peak Hour	Level of Service	2025 Volumes (vph)[1]
From	To					
Northbound						
Exit 54	**Exit 55**	**Level**	**2**	**PM**	**F**	**5,200**
Exit 55	**Exit 56**	**Level**	**2**	**PM**	**F**	**5,160**
Exit 56	**Exit 57**	**Level**	**2**	**PM**	**F**	**4,960**
Exit 57	**Exit 58**	**Level**	**2**	**PM**	**F**	**4,820**
Exit 58	**Exit 59**	**Level**	**2**	**PM**	**F**	**4,510**
Exit 59	**Exit 60**	**Rolling**	**2**	**PM**	**F**	**4,370**
Exit 60	**Exit 61**	**Rolling**	**2**	**PM**	**F**	**4,640**
Exit 61	**Exit 62**	**Rolling**	**2**	**PM**	**F**	**4,350**
Exit 62	**Exit 63**	**Rolling**	**2**	**PM**	**F**	**4,300**
Exit 63	**Exit 64**	**Rolling**	**2**	**PM**	**F**	**4,150**
Exit 64	**Exit 65**	**Rolling**	**2**	**PM**	**F**	**4,040**
Exit 65	**Exit 66**	**Rolling**	**2**	**PM**	**F**	**3,910**
Exit 66	**Exit 67 (Elm St)**	**Rolling**	**2**	**PM**	**E**	**3,780**
Exit 67 (Rte 154)	**Exit 68**	**Rolling**	**2**	**PM**	**E**	**3,760**
Exit 68	**Exit 69**	**Rolling**	**3**	**PM**	**F[2]**	**4,710**
Exit 69	Exit 70	Rolling	4	PM	D	5,770
Exit 70	**Exit 71**	**Rolling**	**2**	**PM**	**F**	**4,870**
Exit 71	**Exit 72**	**Rolling**	**2**	**PM**	**F[2]**	**5,150**
Exit 72	**Exit 73**	**Rolling**	**2**	**PM**	**F**	**5,010**
Exit 73	**Exit 74**	**Rolling**	**2**	**PM**	**F**	**4,940**
Exit 74	Exit 76	Rolling	3[3]	PM	C[3]	5,410
Exit 76	Exit 81	Rolling	3[3]	PM	D[3]	4,840
Exit 81	**Exit 82**	**Rolling**	**2**	**PM**	**F**	**5,230**
Exit 82	**Exit 82A**	**Rolling**	**2**	**PM**	**F**	**5,440**

Table 3-4
Freeway Section Analysis – Summary of 2025 Future Conditions

Section		Terrain	Number of Lanes	Peak Hour	Level of Service	2025 Volumes (vph)[1]
From	To					
Exit 82A	**Exit 83**	**Rolling**	**3**	**PM**	**F[2]**	**5,090**
Exit 83	**Exit 84**	**Rolling**	**4**	**PM**	**F**	**6,440**
Exit 84	**Exit 85**	**Rolling**	**5**	**PM**	**E**	**8,140**
Exit 85	**Exit 86**	**Rolling**	**3**	**PM**	**F**	**6,520**
Exit 86	**Exit 87**	**Rolling**	**3**	**PM**	**E**	**5,170**
Exit 87	**Exit 88**	**Rolling**	**3**	**PM**	**F**	**6,570**
Exit 88	**Exit 89**	**Rolling**	**3**	**PM**	**F**	**6,020**
Exit 89	**Exit 90**	**Rolling**	**2**	**PM**	**F**	**5,330**
Exit 90	**Exit 91**	**Rolling**	**2**	**PM**	**F**	**4,570**
Exit 91	**Exit 92**	**Rolling**	**2**	**PM**	**E**	**3,720**
Exit 92	Exit 93	Rolling	2	PM	D	3,080
Exit 93	State Line	Rolling	2	PM	D	3,160
Southbound						
Exit 54	**Exit 55**	**Level**	**2**	**PM**	**F**	**4,520**
Exit 55	**Exit 56**	**Level**	**2**	**PM**	**F**	**4,330**
Exit 56	**Exit 57**	**Level**	**2**	**PM**	**F**	**4,110**
Exit 57	**Exit 58**	**Level**	**2**	**PM**	**F**	**4,110**
Exit 58	**Exit 59**	**Level**	**2**	**PM**	**F**	**4,070**
Exit 59	**Exit 60**	**Rolling**	**2**	**PM**	**F**	**3,660**
Exit 60	**Exit 61**	**Rolling**	**2**	**PM**	**F**	**3,890**
Exit 61	**Exit 62**	**Rolling**	**2**	**PM**	**F**	**3,580**
Exit 62	**Exit 63**	**Rolling**	**2**	**PM**	**F**	**3,710**
Exit 63	**Exit 64**	**Rolling**	**2**	**PM**	**F**	**3,640**
Exit 64	**Exit 65**	**Rolling**	**2**	**PM**	**F**	**3,720**
Exit 65	**Exit 66**	**Rolling**	**2**	**PM**	**E**	**3,430**
Exit 66	**Exit 67 (Elm St)**	**Rolling**	**2**	**PM**	**E**	**3,290**
Exit 67 (Elm St)	**Exit 67 (Rte 154)**	**Rolling**	**2**	**PM**	**F**	**3,720**
Exit 67 (Rte 154)	**Exit 68**	**Rolling**	**2**	**PM**	**E**	**3,100**
Exit 68	**Exit 69**	**Rolling**	**2**	**PM**	**F[2]**	**3,910**
Exit 69	Exit 70	Rolling	4	PM	C	5,030
Exit 70	**Exit 71**	**Rolling**	**2**	**PM**	**F**	**4,510**
Exit 71	**Exit 72**	**Rolling**	**2**	**PM**	**F[2]**	**4,720**
Exit 72	**Exit 73**	**Rolling**	**2**	**PM**	**F**	**4,680**
Exit 73	**Exit 74**	**Rolling**	**2**	**PM**	**F**	**4,820**
Exit 74	Exit 76	Rolling	3[3]	PM	D[3]	5,180
Exit 76	Exit 81	Rolling	3[3]	PM	D[3]	5,190
Exit 81	**Exit 82**	**Rolling**	**2**	**PM**	**F**	**5,600**
Exit 82	**Exit 82A (Frontage Rd)**	**Rolling**	**2**	**PM**	**F[2]**	**6,180**
Exit 82A (Frontage Rd)	**Exit 83**	**Rolling**	**2**	**PM**	**F**	**4,730**
Exit 83	**Exit 84**	**Rolling**	**4**	**PM**	**F**	**6,080**
Exit 84	**Exit 85**	**Rolling**	**5**	**PM**	**E**	**8,480**
Exit 85	**Exit 86**	**Rolling**	**4**	**PM**	**E**	**7,180**

Table 3-4
Freeway Section Analysis – Summary of 2025 Future Conditions

Section		Terrain	Number of Lanes	Peak Hour	Level of Service	2025 Volumes (vph)[1]
From	To					
Exit 86	**Exit 87 (Rte 1)**	**Rolling**	**3**	**PM**	**E**	**5,430**
Exit 87 (Rte 1)	Exit 87 (Rte 349)	Level	3	PM	D	4,280
Exit 87 (Rte 349)	**Exit 88**	**Rolling**	**3**	**PM**	**E**	**5,040**
Exit 88	Exit 89	Rolling	3	PM	D	4,630
Exit 89	**Exit 90**	**Rolling**	**2**	**PM**	**F**	**4,350**
Exit 90	**Exit 91**	**Rolling**	**2**	**PM**	**E**	**3,330**
Exit 91	Exit 92	Rolling	2	PM	D	2,800
Exit 92	Exit 93	Rolling	2	PM	C	2,090
Exit 93	State Line	Rolling	2	PM	C	2,290

Note: Boldface entries denote capacity deficiencies during the peak period.
1 vph – Vehicles per hour, including all vehicle types (e.g. passenger cars, trucks, motorcycles, etc.).
2 Weaving area
3 Number of lanes and LOS for 2020 taken from Administrative Final Environmental Impact Statement "Route 11 Corridor" dated December 5, 2002.

Northbound Freeway Sections

During the evening peak hour in year 2025, the northbound direction of I-95 will operate between LOS C and LOS F. Only 5 of the 36 northbound sections will operate at an acceptable level of service. One section will operate at LOS C, and four sections will operate at LOS D. Of the remaining 31 sections, six will operate at LOS E, and 25 will operate at LOS F. In general, the majority of northbound I-95 within the study area will experience operational deficiencies in the 2025 evening peak hour.

Southbound Freeway Sections

During the evening peak hour in year 2025, the southbound direction of I-95 will operate between LOS C and LOS F. Only eight of the 38 southbound sections will operate at an acceptable level of service. Three sections will operate at LOS C, and five will operate at LOS D. Of the remaining 30 sections, eight will operate at LOS E, and 22 will operate at LOS F. In general, the majority of northbound I-95 within the study area will experience operational deficiencies in the 2025 evening peak hour.

3.3.2 Ramp Operations

Level of service for ramp operations is based on the density of vehicles within the influence areas on the mainline created by merging or diverging vehicles. The results of the freeway merge and diverge analyses for 2025 traffic conditions are summarized in Table 3-5 and illustrated on Figure 3-1.

Table 3-5
Ramp Merge/Diverge Analysis – Summary of 2025 Future Conditions

Ramp	Ramp Volume	Terrain	Peak Hour	Level of Service	Density (pc/mi/ln)
Northbound					
Exit 54 On	**730**	**Level**	**PM**	**F**	**49**
Exit 55 Off	**540**	**Level**	**PM**	**F**	**53**
Exit 55 On	**500**	**Level**	**PM**	**F**	**49**
Exit 56 Off	**700**	**Level**	**PM**	**F**	**53**
Exit 56 On	**500**	**Level**	**PM**	**F**	**47**
Exit 57 Off	**500**	**Rolling**	**PM**	**F**	**53**
Exit 57 On	**360**	**Rolling**	**PM**	**F**	**48**
Exit 58 Off	**610**	**Rolling**	**PM**	**F**	**52**
Exit 58 On	**300**	**Rolling**	**PM**	**F**	**46**
Exit 59 Off	**750**	**Rolling**	**PM**	**F**	**48**
Exit 59 On	**610**	**Rolling**	**PM**	**F**	**43**
Exit 60 On	**270**	**Rolling**	**PM**	**F**	**46**
Exit 61 Off	**610**	**Rolling**	**PM**	**F**	**50**
Exit 61 On	**320**	**Rolling**	**PM**	**F**	**42**
Exit 62 Off	**470**	**Rolling**	**PM**	**F**	**47**
Exit 62 On	**420**	**Rolling**	**PM**	**F**	**43**
Exit 63 Off	**750**	**Rolling**	**PM**	**F**	**48**
Exit 63 On	**600**	**Rolling**	**PM**	**F**	**41**
Exit 64 Off	**460**	**Rolling**	**PM**	**F**	**45**
Exit 64 On	**350**	**Rolling**	**PM**	**F**	**40**
Exit 65 Off	**550**	**Rolling**	**PM**	**F**	**44**
Exit 65 On	**420**	**Rolling**	**PM**	**F**	**39**
Exit 66 Off	**410**	**Rolling**	**PM**	**F**	**43**
Exit 66 On	**280**	**Rolling**	**PM**	**E**	**40**
Exit 67 (Elm St) On	**430**	**Rolling**	**PM**	**F**	**46**
Exit 67 (Rte 154) Off	**450**	**Rolling**	**PM**	**F**	**44**
Exit 68 On	**950**	**Rolling**	**PM**	**F**	**46**
Exit 69 Off	**270**	**Rolling**	**PM**	**E**	**37**
Exit 69 On	**1,330**	**Rolling**	**PM**	**F**	**39**
Exit 70 Off	**1,210**	**Rolling**	**PM**	**F**	**44**
Exit 70 On	**310**	**Rolling**	**PM**	**F**	**50**
Exit 71 Off	**130**	**Rolling**	**PM**	**F**	**51**
Exit 71 On	**410**	**Rolling**	**PM**	**F**	**52**
Exit 72 Off	**480**	**Rolling**	**PM**	**F**	**54**
Exit 72 On	**340**	**Rolling**	**PM**	**F**	**51**
Exit 73 Off	**140**	**Rolling**	**PM**	**F**	**54**
Exit 73 On	**70**	**Rolling**	**PM**	**F**	**50**
Exit 74 Off	**420**	**Rolling**	**PM**	**F**	**53**
Exit 74 On	**890**	**Rolling**	**PM**	**F**	**52**
Exit 76 Off	1580	Rolling	PM	D[1]	58
Exit 76 On	1010	Rolling	PM	D[1]	49
Exit 81 (Cross Rd) Off	**300**	**Rolling**	**PM**	**F**	**52**
Exit 81 (Parkway South) On	**690**	**Rolling**	**PM**	**F**	**51**
Exit 82 Off	**450**	**Rolling**	**PM**	**F**	**56**
Exit 82 On	**660**	**Rolling**	**PM**	**F**	**55**

Table 3-5
Ramp Merge/Diverge Analysis – Summary of 2025 Future Conditions

Ramp	Ramp Volume	Terrain	Peak Hour	Level of Service	Density (pc/mi/ln)
Exit 82A Off	**550**	**Rolling**	**PM**	**F**	**59**
Exit 82A On	**200**	**Rolling**	**PM**	**F**	**51**
Exit 83 Off	**350**	**Rolling**	**PM**	**F**	**55**
Exit 83 On	**1700**	**Rolling**	**PM**	**F**	**42**
Exit 84 On	**1700**	**Rolling**	**PM**	**F**	**49**
Exit 85 Off	**1620**	**Rolling**	**PM**	**F**	**48**
Exit 86 Off	**1350**	**Rolling**	**PM**	**F**	**44**
Exit 87 Off	**350**	**Rolling**	**PM**	**F**	**51**
Exit 87 On	**1750**	**Rolling**	**PM**	**F**	**42**
Exit 88 Off	**1020**	**Rolling**	**PM**	**F**	**39**
Exit 88 On	**470**	**Rolling**	**PM**	**F**	**41**
Exit 89 Off	**1030**	**Rolling**	**PM**	**F**	**63**
Exit 89 On	**340**	**Rolling**	**PM**	**F**	**51**
Exit 90 Off	**1210**	**Rolling**	**PM**	**F**	**58**
Exit 90 On	**450**	**Rolling**	**PM**	**F**	**43**
Exit 91 Off	**950**	**Rolling**	**PM**	**F**	**48**
Exit 91 On	**100**	**Rolling**	**PM**	**E**	**37**
Exit 92 Off	**1180**	**Rolling**	**PM**	**F**	**51**
Exit 92 On	540	Rolling	PM	D	32
Exit 93 Off	**270**	**Rolling**	**PM**	**E**	**36**
Exit 93 On	350	Rolling	PM	D	32
Southbound					
Exit 54 Off	**880**	**Level**	**PM**	**F**	**47**
Exit 55 Off	**490**	**Level**	**PM**	**F**	**46**
Exit 55 On	**680**	**Level**	**PM**	**F**	**44**
Exit 56 (Industrial Rd) Off	**450**	**Level**	**PM**	**F**	**44**
Exit 56 (Leetes Island Rd) On	**670**	**Level**	**PM**	**F**	**42**
Exit 57 Off	**340**	**Rolling**	**PM**	**F**	**47**
Exit 57 On	**340**	**Rolling**	**PM**	**F**	**45**
Exit 58 Off	**410**	**Rolling**	**PM**	**F**	**45**
Exit 58 On	**450**	**Rolling**	**PM**	**F**	**43**
Exit 59 Off	**340**	**Rolling**	**PM**	**F**	**42**
Exit 59 On	**750**	**Rolling**	**PM**	**F**	**42**
Exit 60 Off	**230**	**Rolling**	**PM**	**F**	**44**
Exit 61 Off	**270**	**Rolling**	**PM**	**F**	**42**
Exit 61 On	**580**	**Rolling**	**PM**	**F**	**40**
Exit 62 Off	**520**	**Rolling**	**PM**	**F**	**42**
Exit 62 On	**390**	**Rolling**	**PM**	**F**	**39**
Exit 63 Off	**600**	**Rolling**	**PM**	**F**	**42**
Exit 63 On	**670**	**Rolling**	**PM**	**F**	**39**
Exit 64 Off	**420**	**Rolling**	**PM**	**F**	**42**
Exit 64 On	**340**	**Rolling**	**PM**	**F**	**39**
Exit 65 Off	**310**	**Rolling**	**PM**	**F**	**40**
Exit 65 On	**600**	**Rolling**	**PM**	**F**	**39**
Exit 66 Off	**270**	**Rolling**	**PM**	**E**	**40**
Exit 66 On	**410**	**Rolling**	**PM**	**E**	**38**
Exit 67 (Elm St) Off	**430**	**Rolling**	**PM**	**F**	**42**

Table 3-5
Ramp Merge/Diverge Analysis – Summary of 2025 Future Conditions

Ramp	Ramp Volume	Terrain	Peak Hour	Level of Service	Density (pc/mi/ln)
Exit 67 (Rte 154 – SB) On	**250**	**Rolling**	**PM**	**F**	**41**
Exit 67 (Rte 154 – NB) On	**370**	**Rolling**	**PM**	**E**	**38**
Exit 68 Off	**810**	**Rolling**	**PM**	**F**	**46**
Exit 69 Off	1530	Rolling	PM	D	30
Exit 69 On	**410**	**Rolling**	**PM**	**F**	**42**
Exit 70 Off	**250**	**Rolling**	**PM**	**F**	**46**
Exit 70 On	770	Rolling	PM	D	29
Exit 71 Off	**380**	**Rolling**	**PM**	**F**	**55**
Exit 71 On	**170**	**Rolling**	**PM**	**F**	**49**
Exit 72 Off	**300**	**Rolling**	**PM**	**F**	**54**
Exit 72 On	**340**	**Rolling**	**PM**	**F**	**51**
Exit 73 Off	**250**	**Rolling**	**PM**	**F**	**53**
Exit 73 On	**110**	**Rolling**	**PM**	**F**	**49**
Exit 74 Off	**770**	**Rolling**	**PM**	**F**	**60**
Exit 74 On	**410**	**Rolling**	**PM**	**F**	**50**
Exit 76 Off	1,400	Rolling	PM	D[1]	58
Exit 76 On	1,390	Rolling	PM	D[1]	53
Exit 81 (Cross Road) On	**370**	**Rolling**	**PM**	**F**	**53**
Exit 81 (Parkway North) Off	**780**	**Rolling**	**PM**	**F**	**62**
Exit 82 Off	**1,120**	**Rolling**	**PM**	**F**	**68**
Exit 82 On	**540**	**Rolling**	**PM**	**F**	**58**
Exit 82A (Frontage Rd) On	**1,450**	**Rolling**	**PM**	**F**	**61**
Exit 83 Off	**1350**	**Rolling**	**PM**	**F**	**42**
Exit 84 Off	**2400**	**Rolling**	**PM**	**F**	**51**
Exit 85 On	**1300**	**Rolling**	**PM**	**F**	**54**
Exit 86 On	**1750**	**Rolling**	**PM**	**F**	**50**
Exit 87 (Rte 349) Off	**410**	**Rolling**	**PM**	**F**	**47**
Exit 87 (Rte 1) Off	350	Rolling	PM	D	30
Exit 87 On	**1150**	**Rolling**	**PM**	**F**	**43**
Exit 88 Off	**340**	**Rolling**	**PM**	**F**	**42**
Exit 88 On	**750**	**Rolling**	**PM**	**E**	**36**
Exit 89 Off	**350**	**Rolling**	**PM**	**F**	**50**
Exit 89 On	**630**	**Rolling**	**PM**	**F**	**49**
Exit 90 Off	**390**	**Rolling**	**PM**	**E**	**39**
Exit 90 On	**1410**	**Rolling**	**PM**	**F**	**42**
Exit 91 Off	100	Rolling	PM	D	32
Exit 91 On	**630**	**Rolling**	**PM**	**E**	**37**
Exit 92 Off	340	Rolling	PM	C	23
Exit 92 On	1050	Rolling	PM	D	31
Exit 93 Off	410	Rolling	PM	C	27
Exit 93 On	210	Rolling	PM	C	26

Note: Boldface entries denote capacity deficiencies during the peak hour.
1 LOS for 2020 taken from Administrative Final Environmental Impact Statement "Route 11 Corridor" dated December 5, 2002.

Northbound Ramps

During the evening peak hour, four of the 66 northbound ramps analyzed are expected to operate under acceptable conditions at LOS D. The remaining 62 ramps are expected to experience operational deficiencies at LOS E or LOS F. Only four of these 62 will operate at LOS E.

Southbound Ramps

During the evening peak hour, ten of the 66 southbound ramps are expected to operate under acceptable conditions at LOS D or better. The remaining 56 ramps analyzed are expected to experience operational deficiencies at LOS E or LOS F. Of these, six ramps are expected to operate at LOS E.

3.3.3 Weaves

As detailed in Chapter 2, weaving areas occur when an on-ramp merge area is closely followed by an off-ramp diverge area. The LOS criteria is based on vehicle speeds, vehicular volume, and weaving length within the weaving section.

There are four study area locations where weaving conditions are experienced on I-95 during the 2002 existing condition. There is a proposed on/off ramp being constructed at Route 11 & I-395. It is assumed that this construction will be completed prior to year 2025 and will encompass Exits 75, 76, and 80. Due to the location of these new on/off ramps, the existing weave section between Exits 75 and 76 will be eliminated. The remaining three locations and the resulting LOS analyses are presented in Table 3-6 and shown graphically on Figure 3-1.

Table 3-6
Weaving Sections Analysis – Summary 2025 Future Conditions

Section Description	Weave Length (ft)	Peak Hour	Level of Service	Density (pc/mi/ln)
Northbound				
Exit 68 to Exit 69	**1320**	**PM**	**E**	**35**
Exit 71 to Exit 72	**800**	**PM**	**F**	**48**
Exit 82A to Exit 83	2300	PM	C	23
Southbound				
Exit 69 to Exit 68	1000	PM	D	32
Exit 72 to Exit 71	**500**	**PM**	**F**	**50**
Exit 82A (Frontage Rd) to Exit 82	**1000**	**PM**	**F**	**72**

During the evening peak hour, the weave areas for both northbound and southbound directions between Exits 71 and 72 are expected to operate at LOS F. The northbound weave areas between Exits 68 and 69 and Exits 82A and 83 are expected to operate at LOS E and C, respectively, during the evening peak hour in the 2025 design year. The southbound weave area between Exits 69 and 68 is expected to operate at LOS D. The southbound weave area between Exits 82A and 82 is expected to operate at LOS F during the evening peak hour. The northbound and southbound weave areas between Exits 75 and 76 will be removed as part of planned improvements to this section of the corridor. Therefore, analysis is not applicable for the 2025 design year.

3.3.4 Intersections

The results of the signalized intersection analysis for 2025 future traffic conditions are summarized in Table 3-7. Table 3-8 summarizes the unsignalized intersection analysis. The intersection LOS results are also presented graphically on Figure 3-2.

The tables and figures encompass the intersections that were evaluated for the existing evening peak hour levels of service. These intersections are listed in the appendix to Chapter 2. Additionally, LOS for intersections at the Exit 74 ramps have been obtained from the Administrative Final Environmental Impact Statement "Route 11 Corridor," and are included in the table.

Signalized Intersections

Of the 38 signalized intersections analyzed, 21 are expected to experience saturated conditions at LOS F during the evening peak hour. An additional nine intersections expected to operate at LOS E results in 30 total intersections that are expected to experience operational deficiencies. An estimated seven signalized intersections are projected to be significantly over capacity with a volume-to-capacity (V/C) ratio in excess of 1.2 during the evening peak hour.

When V/C ratios significantly exceed 1.0, the intersection cannot accommodate the traffic demands placed upon it and will fail (LOS F). As a result, significant delays and long queues occur. Furthermore, an intersection can only operate efficiently at capacity (V/C equals 1.0) under ideal conditions. There are four intersections that are expected to operate with a V/C ratio over 1.0 but less than 1.2. Eight intersections will operate under acceptable conditions at LOS D or better.

Unsignalized Intersections

There are 39 unsignalized intersections within the study area that were analyzed under the 2025 future traffic condition. Seventeen of these intersections are expected to operate at LOS E or F during the evening peak hour, including 12 of the 28 intersections where the I-95 ramps intersect the local street system. This represents an increase of nine locations over existing conditions that are expected to operate at saturated levels.

Table 3-7
Signalized Intersection Analysis – Summary of 2025 Future Conditions

Signalized Intersections	Peak Hour	Level of Service	V/C[1]	Delay[2]
Exit 54 NB Ramps at SR 740 (Cedar St)	**PM**	**E**	**0.88**	**58**
Exit 54 SB Ramps at SR 740 (Cedar St)	**PM**	**F**	**0.87**	**81**
US Rte 1 (Main St) at SR 740 (Cedar St)	**PM**	**F**	**1.65**	**356**
Exit 55 NB Ramps at US Rte 1 (East Main St)	**PM**	**F**	**0.75**	**98**
Exit 55 SB Ramp at US Rte 1 (East Main St)	**PM**	**F**	**1.20**	**195**
Exit 57 NB Ramps at US Rte 1 (Boston Post Rd)	**PM**	**F**	**0.98**	**197**
Exit 58 NB Ramps at Rte 77 (Church St)	**PM**	**F**	**1.02**	**99**
US Rte 1 at SR 718 (Goose Lane)	**PM**	**F**	**1.03**	**120**
Exit 61 SB Ramps at Rte 79 (Durham Rd)	**PM**	**E**	**0.58**	**72**
Route 79 (Durham Rd) at Old Rte 79/Woodland Rd	**PM**	**E**	**0.65**	**70**
Exit 62 NB Ramps at Hammonasset Connector	PM	B	0.43	19
Exit 63 NB Off-Ramp at North High St	PM	D	0.58	44
Exit 63 NB On-Ramp at Rte 81 (Killingworth Tpke)	**PM**	**F**	**1.52**	**229**
Exit 63 SB Ramps at Rte 81 (Killingworth Tpke)	**PM**	**F**	**0.89**	**285**
Rte 81 (High St) at Glenwood Rd	**PM**	**F**	**0.71**	**87**
Rte 145 at Old Clinton Rd	**PM**	**E**	**0.62**	**78**
Exit 65 NB Ramps at Rte 153 (Essex Rd)	PM	B	0.50	12
Exit 65 SB Ramps at Rte 153 (Essex Rd)	PM	C	0.61	31
Rte 153 at Westbrook Mall Entrance	PM	D	0.68	39
Exit 70 NB Off-Ramp at Rte 156 (Neck Rd)	PM	D	0.41	42
Exit 70 SB On-Ramp at Rte 156	**PM**	**F**	**1.52**	**510**
US Rte 1 (Halls Rd) at Rte 156	**PM**	**E**	**0.50**	**77**
Exit 70 SB Off-Ramp at US Rte 1(Boston Post Rd)	**PM**	**F**	**1.66**	**446**
SR 449 (Rocky Neck Connector) at Rte 156	**PM**	**E**	**0.46**	**67**
Exit 74 NB Off-Ramp at Rte 161 (Flanders Rd)	**PM**	**E[3]**	**-**	**-**
Exit 82 NB Ramps at Rte 85 (Broad St)	**PM**	**F**	**0.67**	**104**
Exit 82 SB Ramps at Rte 85 (Hartford Tpke)	PM	D	0.85	51
US Rte 1 (Coleman St) at Rte 85 (Broad St)	**PM**	**F**	**1.01**	**215**
Vauxhall St at US Rte 1 (Coleman St)	**PM**	**F**	**1.46**	**82**
US Rte 1 at Bridge St	**PM**	**E**	**0.51**	**72**
Exit 88 NB Ramps at Rte 117 (North Rd)	**PM**	**E**	**0.68**	**65**
Exit 88 SB Ramps at Rte 117 (North Rd)	PM	C	0.56	24
Exit 90 NB Ramps at Rte 27 (White Hall Ave)	**PM**	**F**	**1.13**	**127**
Rte 27 (White Hall Ave) at Coogan Blvd	**PM**	**F**	**1.32**	**189**
Exit 91 NB Ramps at Rte 234 (Pequot Trail)	**PM**	**F**	**0.81**	**179**
Exit 92 NB Off-Ramp at Rte 2 (Liberty St)	**PM**	**F**	**0.94**	**132**
Exit 92 SB On-Ramp at Rte 2 (Liberty St)	**PM**	**F**	**0.69**	**213**
Exit 92 SB Off-Ramp at Rte 49 (Pendleton Hill Rd)	**PM**	**F**	**0.61**	**99**

Note: Boldface entries denote operational deficiencies during the peak hour.
1 V/C - Volume to Capacity ratio
2 Delay - Average stopped delay to all vehicles entering the intersection in seconds per vehicle
3 LOS for 2020 taken from Administrative Final Environmental Impact Statement "Route 11 Corridor" dated December 5, 2002.

Table 3-8
Unsignalized Intersection Analysis – Summary of 2025 Future Conditions

Unsignalized Intersections	Movement	Demand[1]	Delay[2]	Level of Service
SR 740 (Cedar St) at Cedar Knolls Drive	Northbound Left	100	14	B
	Eastbound	**100**	**>100**	**F**
Exit 57 SB Ramps at US Rte 1 (Boston Post Rd)	**Westbound**	**340**	**55**	**F**
	Southbound	30	9	A
Rte 77 at Commuter Lot Drive	Northbound Left	10	9	A
Exit 58 SB Ramps at Rte 77 (Church St)	Northbound Left	270	12	B
Exit 58 NB Off-Ramp at North River St	Southbound	80	16	C
	Northbound	110	15	B
Exit 59 NB Ramps at SR 718 (Goose Lane)	Southbound Left	140	13	B
Exit 59 SB Ramps at SR 718 (Goose Lane)	Northbound Left	610	13	B
	Eastbound	**340**	**>100**	**F**
SR 718 (Goose Lane) at Clapboard Hill Rd	Southbound Left	20	10	B
	Westbound	**160**	**61**	**F**
Exit 60 SB Off-Ramp at Mungertown Rd	Northbound Left	50	8	A
	Westbound	230	15	C
	Eastbound	80	9	A
Exit 60 NB On-Ramp at Fort Path Rd	Northbound	70	10	B
Mungertown Rd at Fort Path Rd	Westbound	40	10	A
	Southbound Left	90	8	A
Exit 61 NB Ramps at Rte 79 (Durham Rd)	Southbound Left	110	13	B
	Eastbound Left	**260**	**>100**	**F**
	Eastbound Right	350	32	D
	Eastbound		**>100**	**F**
Rte 79 (Durham Road) at Commuter Lot Drive	Southbound Left	10	12	B
	Westbound	**30**	**42**	**E**
Exit 62 SB Ramps at Hammonasset Connector	Southbound Left	130	11	B
	Westbound	**520**	**>100**	**F**
Exit 64 NB Ramps at Rte 145 (Horse Hill Rd)	Southbound Left	100	10	A
	Eastbound	**460**	**>100**	**F**
Exit 64 SB Ramps at Rte 145 (Horse Hill Rd)	Northbound Left	200	9	A
	Westbound	**420**	**>100**	**F**
Exit 66 NB Ramps at Rte 166 (Spencer Plains Rd)	Northbound Left	180	9	A
	Eastbound	**410**	**49**	**E**
Exit 66 SB Ramps at Rte 166 (Spencer Plains Rd)	Southbound Left	60	9	A
	Westbound	**270**	**43**	**E**
Exit 67 SB Off-Ramp at Elm St	Westbound	430	16	C
Exit 67 NB On-Ramp at Elm St	Northbound Left	100	9	A
	Southbound Left	30	8	A
	Eastbound	**200**	**54**	**F**
Exit 67 NB Off-Ramp at Rte 154 (Middlesex Tpke)	**Eastbound Right**	**310**	**52**	**F**
	Eastbound Left	**140**	**>100**	**F**
	Eastbound		**>100**	**F**
Exit 68 SB Off-Ramp at Rte 628	**Westbound**	**810**	**47**	**E**
Exit 69 SB Off-Ramp at Essex Rd	Northbound	80	10	B

Table 3-8
Unsignalized Intersection Analysis – Summary of 2025 Future Conditions

Unsignalized Intersections	Movement	Demand[1]	Delay[2]	Level of Service
Exit 71 NB Ramps at Four Mile River Rd	Southbound Left	220	9	A
	Westbound	130	21	C
Exit 71 SB Ramps at Four Mile River Rd	Northbound Left	130	8	A
	Westbound	380	33	D
Four Mile River Rd at Hatchetts Hill Rd	Northbound Left	30	8	A
	Westbound	220	17	C
Exit 73 SB Ramps at West Society Rd	Northbound		10	A
	Northbound Left	0	11	B
	Northbound Right	250	10	A
	Westbound	110	8	A
Exit 73 NB Ramps at Society Rd	Southbound	140	11	B
	Eastbound Left	30	8	A
Exit 74 SB Ramps at Rte 161 (Flanders Rd)	**Intersection**	**-**	**-**	**F[3]**
Parkway North at Vauxhall St Extension	Northbound	780	19	C
Parkway South at Vauxhall St Extension	Southbound	300	10	B
Exit 89 NB Ramps at SR 614 (Allyn St)	Southbound Left	110	9	A
	Eastbound Left	**500**	**>100**	**F**
	Eastbound Right	530	25	C
	Eastbound		**>100**	**F**
Exit 89 SB Ramps at SR 614 (Allyn St)	Southbound Left	250	10	B
	Westbound	**350**	**>100**	**F**
Exit 90 SB Ramps at Rte 27 (White Hall Ave)	Northbound Left	70	9	A
Exit 90 NB Ramps at Clara Dr (Aquarium)	Northbound		13	B
	Northbound Right	190	13	B
Exit 91 SB Ramps at Taugwonk Rd	Southbound Left	60	8	A
	Westbound		12	B
Exit 91 SB Ramps at Taugwonk Rd (continued)	Westbound Left	80	13	B
	Westbound Right	20	10	A
Exit 93 NB Ramps at Rte 216 (Clark Falls Rd)	Southbound Left	290	9	A
	Eastbound	270	33	D
Exit 93 SB Ramps at Rte 216 (Clark Falls Rd)	Northbound Left	80	9	A
	Westbound	410	21	C
Rte 216 (Clark Falls Rd) at Rte 184	**Northbound**	**570**	**49**	**E**
	Southbound	110	12	B
	Eastbound	390	19	C
	Westbound	100	12	B
	Intersection		33	D

Note: Boldface entries denote operational deficiencies during the peak hour.
1 Demand is expressed in vehicles per hour, including all vehicle types (e.g. passenger cars, trucks, motorcycles, etc.).
2 Delay - Average stopped delay in seconds per vehicle
3 LOS for 2020 taken from Administrative Final Environmental Impact Statement "Route 11 Corridor" dated December 5, 2002.

3.3.5 Comparison of Existing and Future Conditions

The analyses of the 2025 future condition in the I-95 corridor and study area present a substantial degradation from the existing operations. Table 3-9 provides a summary comparison of the existing and future traffic conditions within the I-95 corridor as detailed in the previous sections.

Table 3-9
Comparison of Existing and Future Traffic Conditions – 2002 to 2025

Location	Total Locations Reviewed 2002 / (2025)	Summary of Deficient Locations (LOS E or F)	
		2002 Peak Hour	2025 Peak Hour
Mainline			
Northbound	38 / (36)	14	31
Southbound	40 / (38)	14	30
Ramps			
Northbound	68 / (66)	35	61
Southbound	68 / (66)	28	60
Weaves			
Northbound	4 / (3)	1	2
Southbound	4 / (3)	2	2
Intersections			
Signalized	37 / (38)	13	30
Unsignalized	38 / (39)	8	17

Mainline

The expected 2025 evening peak hour operating conditions of the northbound I-95 mainline will see a dramatic increase in the number of congested sections. Thirty-one sections will experience operational deficiencies in the design year. This is more than double the existing condition total of 14. It should be noted that in the future condition there will be two less sections due to the construction of Route 11.

The southbound direction results are almost identical to the northbound. Thirty sections will experience operational deficiencies. Again, this is more than double the 14 sections in the existing condition. It should be noted that in the future condition there are also two less sections.

Ramps

During the evening peak hour, 61 of the 66 northbound ramp junctions analyzed are expected to operate under congested conditions at LOS E or F during the 2025 design hour. Under existing conditions, 35 of the 68 ramps operate at LOS E or F.

During the evening peak hour, 60 of the 66 southbound ramp junctions analyzed are expected to operate under congested conditions at LOS E or F. This is an increase of 32 ramps over the existing condition, which has 28 of 68 ramps operating at LOS E or F.

Weaves

Under the 2025 future condition, two of the three weaving sections in both the northbound and southbound directions are expected to operate at LOS E or F during the evening peak hour. Under the existing condition, one section northbound and two sections southbound operate at LOS E or F. There is a decrease in the number of weaving sections for both directions from four in the existing condition to three in the future condition due to the construction of Route 11.

Intersections

Under the 2025 future condition, the operating LOS of most intersections (signalized and unsignalized) will deteriorate from the LOS of the existing conditions due to increased volumes. The number of signalized intersections operating at LOS E or F during the evening peak hour is expected to increase from 13 under the 2002 existing condition to 30 under the 2025 future condition. Similarly, the unsignalized intersections operating at a LOS E or F during the evening peak hour is expected to increase from eight under the 2002 existing condition to 17 under the 2025 future condition. All intersections are expected to encounter volume increases, longer delays, and higher volume to capacity (V/C) ratios.

3.4 Future Demand vs. Capacity

The future LOS analyses provide a "snapshot" of the evening peak hour conditions given the projected "unconstrained" traffic volumes. The word "unconstrained" is used because the traffic forecasts for the analysis were allowed to exceed the theoretical capacity of the corridor. In simple terms, this analysis demonstrates that there will be more demand for I-95 than the corridor can accommodate in the future. As the I-95 corridor approaches capacity and is not physically able to handle additional demands placed upon it, one of these four actions is typically triggered:

- Motorists decide to divert to other local and regional routes
- Motorists change the time of their travel to avoid the congested periods ("peak spreading")
- Motorists elect to travel by alternative mode (where options exist)
- Motorists decide not to travel at all

The level of forecasted demands expected to exceed the capacity of the I-95 corridor are quantified and discussed in the next section of this report.

3.4.1 2025 Demands Exceeding Capacity

Table 3-10 compares the estimated capacity of I-95 to the projected 2025 future demand. The hourly demands were adjusted to account for the influence of heavy vehicles and non-uniform hourly flow patterns based on the methodology documented in the Highway Capacity Manual. The "unmet demand," as defined in the table, is the demand over capacity that the roadway cannot accommodate. Again, these unmet demands in Table 3-10 assume I-95 can operate at or close to its theoretical capacity. An incident or accident along the corridor would significantly affect this assumption.

Table 3-10
2025 Forecasted Demand Compared to Capacity

Section		Number of Lanes	Ideal Capacity[1] (pcph)	Unconstrained Demand[2] (pcph)	Unmet Demand[3] (pcph)
From	To				
Northbound					
Exit 54	Exit 55	2	4,400	5,922	1,522
Exit 55	Exit 56	2	4,400	5,876	1,476
Exit 56	Exit 57	2	4,400	5,676	1,276
Exit 57	Exit 58	2	4,400	5,516	1,116
Exit 58	Exit 59	2	4,400	5,162	762
Exit 59	Exit 60	2	4,400	5,292	892
Exit 60	Exit 61	2	4,400	5,620	1,220
Exit 61	Exit 62	2	4,400	5,268	868
Exit 62	Exit 63	2	4,400	5,208	808
Exit 63	Exit 64	2	4,400	5,026	626
Exit 64	Exit 65	2	4,400	4,892	492
Exit 65	Exit 66	2	4,400	4,736	336
Exit 66	Exit 67 (Elm St)	2	4,400	4,578	178
Exit 67 (Rte 154)	Exit 68	2	4,400	4,554	154
Exit 68	Exit 69	3	6,900	8,556	1,656
Exit 69	Exit 70	4	9,200	6,988	---
Exit 70	Exit 71	2	4,400	5,816	1,498
Exit 71	Exit 72	2	4,400	6,152	1,838
Exit 72	Exit 73	2	4,400	5,984	1,584
Exit 73	Exit 74	2	4,400	5,900	1,500
Exit 74	Exit 76	2	4,400	6,462	2,062
Exit 76	Exit 81	2	4,400	5,700	1,300
Exit 81	Exit 82	2	4,400	6,160	1,760
Exit 82	Exit 82A	2	4,400	6,408	2,008
Exit 82A	Exit 83	3	6,900	8,991	2,091
Exit 83	Exit 84	4	9,200	7,584	---
Exit 84	Exit 85	5	11,500	9,585	---
Exit 85	Exit 86	3	6,900	7,680	780
Exit 86	Exit 87	3	6,900	6,174	---
Exit 87	Exit 88	3	6,900	7,956	1,056
Exit 88	Exit 89	3	6,900	7,290	390
Exit 89	Exit 90	2	4,400	6,544	2,144
Exit 90	Exit 91	2	4,400	5,610	1,210
Exit 91	Exit 92	2	4,400	4,568	168
Exit 92	Exit 93	2	4,400	3,832	---
Exit 93	State Line	2	4,400	3,932	---
Southbound					
Exit 54	Exit 55	2	4,400	5,224	824
Exit 55	Exit 56	2	4,400	5,004	604
Exit 56	Exit 57	2	4,400	4,772	372
Exit 57	Exit 58	2	4,400	4,772	372
Exit 58	Exit 59	2	4,400	4,726	326
Exit 59	Exit 60	2	4,400	4,676	276
Exit 60	Exit 61	2	4,400	4,970	570
Exit 61	Exit 62	2	4,400	4,574	174

Table 3-10
2025 Forecasted Demand Compared to Capacity

Section		Number of Lanes	Ideal Capacity[1] (pcph)	Unconstrained Demand[2] (pcph)	Unmet Demand[3] (pcph)
From	To				
Exit 62	Exit 63	2	4,400	4,740	340
Exit 63	Exit 64	2	4,400	4,652	252
Exit 64	Exit 65	2	4,400	4,754	354
Exit 65	Exit 66	2	4,400	4,382	---
Exit 66	Exit 67 (Elm St)	2	4,400	4,204	---
Exit 67 (Elm St)	Exit 67 (Rte 154)	2	4,400	4,754	354
Exit 67 (Rte 154)	Exit 68	2	4,400	3,962	---
Exit 68	Exit 69	2	4,400	4,996	596
Exit 69	Exit 70	4	9,200	6,428	---
Exit 70	Exit 71	2	4,400	5,762	1,362
Exit 71	Exit 72	2	4,400	5,952	1,552
Exit 72	Exit 73	2	4,400	5,902	1,502
Exit 73	Exit 74	2	4,400	5,998	1,598
Exit 74	Exit 76	2	4,400	6,532	2,132
Exit 76	Exit 81	2	4,400	6,372	1,972
Exit 81	Exit 82	2	4,400	6,782	2,382
Exit 82	Exit 82A (Frontage Rd)	2	4,400	7,484	3,084
Exit 82A (Frontage Rd)	Exit 83	2	4,400	5,650	1,250
Exit 83	Exit 84	4	9,200	7,264	---
Exit 84	Exit 85	5	11,500	9,990	---
Exit 85	Exit 86	4	9,200	8,456	---
Exit 86	Exit 87 (Rte 1)	3	6,900	6,486	---
Exit 87 (Rte 1)	Exit 87 (Rte 349)	3	6,900	4,923	---
Exit 87 (Rte 349)	Exit 88	3	6,900	6,273	---
Exit 88	Exit 89	3	6,900	5,763	---
Exit 89	Exit 90	2	4,400	5,486	1,086
Exit 90	Exit 91	2	4,400	4,254	---
Exit 91	Exit 92	2	4,400	3,624	---
Exit 92	Exit 93	2	4,400	2,740	---
Exit 93	State Line	2	4,400	3,078	---

1 The 2000 Highway Capacity Manual defines ideal freeway capacity to be 2,200 passenger cars per hour per lane (pcphpl) for 2-lane sections and 2,300 (pcphpl) for sections with 3 or more lanes. This assumes no obstructions and 12-foot lane widths.
2 To be comparable with the 2000 Highway Capacity Manual's definition of freeway capacity, the hourly volume is adjusted to account for the influence of heavy vehicles and variations in hourly flow.
3 The unmet demand is the difference between the adjusted unconstrained demand and the ideal capacity, expressed in passenger cars per hour (pcph).

Table 3-10 indicates the majority of the sections are forecasted to operate under constrained conditions in the evening peak periods. Peak hour unmet demands vary from approximately 80 to more than 3,000 vehicles. Only six of the 36 northbound sections will have adequate capacity to meet the projected demands. On average, the northbound ideal capacity is exceeded by an average of 1,159 vehicles for each constrained section. The southbound direction has 15 of the 38 sections that will be able to provide adequate capacity to meet the projected demands. On the constrained sections, there is an average of 1,015 vehicles in excess of the ideal capacity.

3.5 Future Deficiencies Summary – Year 2025

This chapter presented the future transportation conditions within the study area under the no-build condition. The existing deficiencies presented in Chapter 2 are worsened in the year 2025 as traffic demands increase by as much as 60 percent. The majority of mainline sections, ramps, and study area intersections degrade to unacceptable levels under 2025 design year conditions. The land use and traffic demand changes from 2002 to 2025, the future operating deficiencies, and the impacts of unmet demands for the study area corridor are summarized below.

Traffic Demand

From 2002 to 2025, daily and peak hour traffic volumes on I-95 are expected to increase by an average of 43 percent - about 1.9 percent per year. In general, the traffic growth is spread evenly along the I-95 Corridor. Although the magnitude of traffic demand is expected to increase from 2002 to 2025, the same patterns emerge. Peak hour volumes generally represent between about 8 and 12 percent of the daily volumes and traffic flow is distributed at approximately a 50/50 split directionally.

Traffic Operations

A comparison of Figures 2-2 and 2-3 (existing conditions) to Figures 3-1 and 3-2 (future conditions), respectively, graphically illustrates how the projected 2025 no-build condition worsens in comparison to existing operations. The operational problems identified in the existing conditions are exacerbated in the design year. The sheer magnitude of growth in traffic volumes result in constrained operations where capacity cannot accommodate the projected peak hour demands given the current geometry.

LOS E or F operations are projected during the evening peak hour in the design year for the following cases: 61 of the 74 mainline sections; 121 of the 132 ramp merge/diverge areas; four of the six weaving sections; 30 of the 38 signalized intersections; and 17 of the 39 unsignalized intersections. Under LOS E conditions, the facility is operating at its capacity. At LOS F, the facility is operating under "forced flow" conditions. LOS E and F are both considered to be unstable conditions where the slightest disruption in traffic flow could result in gridlock conditions.

Table 3-11 compares the existing LOS currently on the I-95 freeway sections to those that would be experienced under 2025 future traffic conditions assuming no geometric improvements are made.

Table 3-11
Comparative Levels of Service for Freeway Sections – Existing vs. 2025 No-Build Conditions

Section		Northbound				Southbound			
		2002 Existing Condition		2025 Future Condition		2002 Existing Condition		2025 Future Condition	
From	To	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Exit 54	Exit 55	0.84	F	1.18	F	0.80	F	1.03	F
Exit 55	Exit 56	0.83	F	1.17	F	0.79	F	0.98	F
Exit 56	Exit 57	0.80	D	1.13	F	0.77	D	0.93	F
Exit 57	Exit 58	0.78	D	1.10	F	0.76	D	0.93	F
Exit 58	Exit 59	0.73	D	1.03	F	0.72	D	0.93	F
Exit 59	Exit 60	0.70	D	0.99	F	0.66	D	0.83	F
Exit 60	Exit 61	0.75	D	1.05	F	0.69	D	0.88	F

Table 3-11
Comparative Levels of Service for Freeway Sections – Existing vs. 2025 No-Build Conditions

Section		Northbound				Southbound			
		2002 Existing Condition		2025 Future Condition		2002 Existing Condition		2025 Future Condition	
From	To	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Exit 61	Exit 62	0.70	D	0.99	F	0.61	D	0.81	F
Exit 62	Exit 63	0.69	D	0.98	F	0.62	D	0.84	F
Exit 63	Exit 64	0.67	D	0.94	F	0.60	D	0.83	F
Exit 64	Exit 65	0.65	D	0.92	F	0.61	D	0.85	F
Exit 65	Exit 66	0.63	D	0.89	F	0.56	D	0.78	E
Exit 66	Exit 67 (Elm St)	0.60	D	0.86	E	0.54	C	0.75	E
Exit 67 (Elm St)	Exit 67 (Rte 154)	---	---	---	---	0.57	D	0.85	F
Exit 67 (Rte 154)	Exit 68	0.60	D	0.85	E	0.51	C	0.70	E
Exit 68	Exit 69	0.48	E	0.68	F	0.65	D	0.89	F
Exit 69	Exit 70	0.45	C	0.63	D	0.41	C	0.55	C
Exit 70	Exit 71	0.78	E	1.11	F	0.74	E	1.03	F
Exit 71	Exit 72	0.83	E	1.17	F	0.77	E	1.07	F
Exit 72	Exit 73	0.80	E	1.14	F	0.76	E	1.06	F
Exit 73	Exit 74	0.79	E	1.12	F	0.79	E	1.10	F
Exit 74	Exit 76	0.85	E	1.23	C[1]	0.82	E	1.18	D[1]
Exit 76	Exit 81	0.72	D	1.10	D[1]	0.77	E	1.18	D[1]
Exit 81	Exit 82	0.75	D	1.19	F	0.82	E	1.27	F
Exit 82	Exit 82A	0.86	E	1.24	F	1.01	F	1.40	F
Exit 82A	Exit 83	0.53	F	0.74	F	0.76	F	1.08	F
Exit 83	Exit 84	0.51	F	0.70	F	0.47	F	0.66	F
Exit 84	Exit 85	0.50	C	0.71	E	0.53	D	0.74	E
Exit 85	Exit 86	0.66	F	0.94	F	0.56	D	0.78	E
Exit 86	Exit 87 (Rte 1)	0.51	C	0.75	E	0.56	C	0.79	E
Exit 87 (Rte 1)	Exit 87 (Rte 349)	---	---	---	---	0.47	C	0.62	D
Exit 87 (Rte 349)	Exit 88	0.66	D	0.95	F	0.52	C	0.73	E
Exit 88	Exit 89	0.60	D	0.87	F	0.48	C	0.67	D
Exit 89	Exit 90	0.83	E	1.21	F	0.69	D	0.99	F
Exit 90	Exit 91	0.70	D	1.04	F	0.54	C	0.76	E
Exit 91	Exit 92	0.56	C	0.85	E	0.43	C	0.64	D
Exit 92	Exit 93	0.45	C	0.70	D	0.33	B	0.48	C
Exit 93	State Line	0.47	C	0.72	D	0.35	B	0.52	C

Note: Some existing condition sections were omitted because a direct comparison could not be made to a section in the 2025 no-build condition. The best corresponding existing section was used for a basis of comparison.

1 LOS for 2020 taken from Administrative Final Environmental Impact Statement "Route 11 Corridor" dated December 5, 2002.

Table 3-11 shows 61 of the 74 freeway sections will experience operational deficiencies at LOS E or LOS F as demand approaches or exceeds capacity during the 2025 future condition. The overall mean volume-to-capacity (V/C) ratio for the freeway sections under the future condition is 0.92. Twenty-six of the 74 freeway sections have a V/C ratio at or above 1.0 (capacity). As discussed in Chapter 2, 28 of the 78 freeway sections operate at LOS E or LOS F during the 2002 evening peak period. Only one of these sections has a V/C ratio at or above 1.0. The overall mean V/C ratio for all the sections under the 2002 existing condition is 0.65.