The results are based on a forecast period between 2015 and 2030. These estimates represent only the economic impacts arising from travel efficiency savings and strategic development opportunities. They do not include benefits arising from construction and operations and maintenance impacts due to data limitations, as well as the short-term nature of construction benefits and the substitution effects related to operating and maintenance. Because the forecasts presented in this report represent only two categories of the above-listed benefits (travel efficiencies and strategic development impacts), the results of this study should be considered as conservative estimates.

The REMI model is a dynamic forecasting model that combines input-output modeling with economic geography, resulting in a dynamic economic impact forecasting tool. It models the economic impact of transportation by modeling the impacts in five sectors of the economy – output, production and labor supply, labor and capital demand, wages, costs and prices and market share.

The travel efficiency benefits arose as a result of savings accruing to users of the facility such as travel time savings, vehicle operating costs savings and accident savings. The Project Team used output generated by the travel demand model to model the economic impacts of travel changes using a regional economic model developed by Regional Economic Models Incorporated (REMI). This model estimated the economic impacts associated with travel efficiencies, i.e., reduced travel time, vehicle operating costs and other direct user benefits.

In general, Tables 2.7 and 2.8, (page 2-40), reveal that all I-73 Build Alternatives yield substantial economic benefits arising from travel efficiencies. The impacts indicated for each alternative are increases over the No-Build Alternative. While the absolute values vary between alternatives, examination of the relative differences reveal that there is very little difference between the

Table 2.7
I-73 Economic Impact Summary in 2030 - Value Change
(Alternatives compared to No-Build)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Variable	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Gross Regional Product (Millions of Dollars, 2000)	152	182	194	176	178	197	194	190
Personal Income (Millions of Dollars, 2000)	29	34	36	33	32	37	36	35
Total Employment	1,820	2,150	2,240	2,075	2,100	2,280	2,260	2,230
Population	2,670	3,090	3,225	2,980	2,935	3,280	3,190	3,150

Note: Population and employment values are rounded to the nearest 5.

Table 2.8
I-73 Economic Impact Summary Percentage Increase in 2030
(Alternatives compared to No-Build)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Variable	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Gross Regional Product (Millions of Dollars, 2000)	0.85%	1.01%	1.09%	0.98%	1.00%	1.10%	1.09%	1.05%
Personal Income (Millions of Dollars, 2000)	0.56%	0.65%	0.70%	0.64%	0.65%	0.71%	0.70%	0.68%
Total Employment	0.93%	1.09%	1.15%	1.07%	1.08%	1.17%	1.16%	1.13%
Population	0.71%	0.77%	0.85%	0.79%	0.78%	0.87%	0.84%	0.78%

Build Alternatives in terms of the magnitude of economic impacts. Table 2.9 presents the estimated cumulative impact of each of the Build Alternatives on the area's economic output.

Table 2.9
I-73 Cumulative Economic Output Impact from 2015 to 2030
(Alternatives compared to No-Build)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Gross Regional Product (Billions of Dollars, 2000)	1.59	1.89	2.00	1.82	1.77	2.02	1.97	1.95

The accumulated economic output (GRP) over the fifteen-year period is forecasted to range between about $1.6 billion (Alternative 1) and $2 billion (Alternative 6).

Based on two (2) point/year historical employment data, EDGE framework evaluates the mix and performance of industries in each county. The model compares a county in the study area with the rest of the State and with national averages. In case of I-73 investment, each of the counties in the study area: Marion, Dillon and Horry, is compared with the rest of the State of South Carolina and with the U.S. as a whole

The estimation of strategic development benefits that arise as a result of improved accessibility and connectivity was assessed using the Economic Development and Growth Evaluation (EDGE) model. Strategic development impacts arise as a result of improving the accessibility and connectivity to regions which may currently be underserved. These impacts really rely on the ability of the new facility to generate more traffic as opposed to moving existing traffic more efficiently. Since access to the proposed interstate would be fully-controlled, interchanges were anticipated to be the main

points of development. Existing water and sewer infrastructure, as well as current development were determined to be features that would attract development. Table 2.10 quantifies the projected employment impact from the Build Alternatives.

Table 2.10
Strategic Development Impacts of I-73,
Employment Increases by Alternative and County (Number of Jobs)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Alternative	Marion	Dillon	Horry	Total
1	306	87	1,897	2,290
2	290	82	1,802	2,175
3	234	66	1,454	1,755
4	280	79	1,739	2,099
5	275	78	1,707	2,061
6	250	71	1,549	1,870
7	250	71	1,549	1,870
8	321	91	1,992	2,404

The product of the number of jobs and the industrial wage yields an increase in income ranging from $51.8 million to $70.9 million annually (see Table 2.11).

Table 2.11
Annual Income Impacts based on Strategic Development Impacts of I-73,
by Alternative and County (in Millions of Dollars)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Alternative	Marion	Dillon	Horry	Total
1	9.9	2.5	55.2	67.5
2	9.4	2.4	52.4	64.2
3	7.6	1.9	42.3	51.8
4	9.1	2.3	50.6	61.9
5	8.9	2.2	49.7	60.8
6	8.1	2.0	45.1	55.2
7	8.1	2.0	45.1	55.2
8	10.4	2.6	57.9	70.9

Table 2.12, (page 2-42), displays the combined income and employment impacts for each of the eight Build Alternatives. The impacts indicated for each alternative are increases over the No-Build Alternative. As indicated, all alternatives give rise to substantial economic benefits for the region. Alternatives 2 and 8 appear to have higher total benefits to the area. However, the differences between Build Alternatives are irrelevant given the margin of error inherent in this type of modeling and since the total impact for each alternative represents less than 0.5 percent of the region's total projected future employment. Therefore, while all Build Alternatives are

Table 2.12
Summary Economic Impacts of I-73 in 2030, by Alternative
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Alternative	Travel Efficiency		Strategic Development		Total	
	Income (Millions of Dollars)	Employment (Number of Jobs)	Income (Millions of Dollars)	Employment (Number of Jobs)	Income (Millions of Dollars)	Employment (Number of Jobs)
1	29	1,820	67.5	2,290	96.5	4,110
2	34	2,150	64.2	2,175	98.2	4,325
3	36	2,240	51.8	1,755	87.8	3,995
4	33	2,075	61.9	2,099	94.9	4,174
5	32	2,100	60.8	2,061	92.8	4,161
6	37	2,280	55.2	1,870	92.2	4,150
7	36	2,260	55.2	1,870	91.2	4,130
8	35	2,230	70.9	2,404	105.9	4,634

projected to have a considerable positive economic impact on the region, the magnitude of that impact between alternatives is too similar for economic development to be the deciding factor in determining which alternative is preferred.

2.5.2 How would the alternatives meet the secondary needs of the project?

How would the alternatives meet the secondary need of hurricane evacuation?

A secondary need of the project is to facilitate a more effective evacuation of the Myrtle Beach region during emergencies. The hurricane evacuation study completed for the proposed project indicated that each of the eight Build Alternatives would provide similar time savings (refer to Chapter 1, Section 1.7 and the *I-73 Hurricane Evacuation Technical Memorandum*).

How would the alternatives relieve local traffic congestion?

Reducing existing traffic congestion on roads accessing the Myrtle Beach region is a secondary need of the project. As a measure of the effectiveness of the proposed facility to relieve local traffic congestion, the vehicle hours traveled (VHT) for the average annual daily traffic (AADT) on the project study area roadway network, minus the Grand Strand Area Transportation Study (GSATS) area, was determined for each alternative (refer to Table 2.6, page 2-20). The GSATS area was removed because of the different roadway capacities and daily traffic criterion used in the GSATS model. The roadway capacities are not set equivalent to the actual roadway capacity, and the daily traffic criterion is for peak daily, not average annual daily traffic. Lower VHT indicates a savings of time and money that can result from the proposed action. The ratio of vehicle miles traveled (VMT) to VHT, shown in Table 2.13, (page 2-43), shows the average speed of each trip in the network within the study area. Although the difference between the highest speed (56.59) and the lowest (55.78) of the Build Alternatives is slight, the difference

Table 2.13
Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network For Alternatives Using Average Annual Daily Traffic Volumes (Year 2030)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Alternative	VMT	VHT	VMT/VHT	VHT Savings Per Year
No-build	5,050,429.68	97,562.54	51.77	
1	5,383,233.51	96,500.64	55.78	-387,595
2	5,450,402.11	96,977.01	56.20	-213,719
3	5,462,506.35	96,903.01	56.37	-240,735
4	5,422,521.99	96,722.79	56.06	-306,509
5	5,446,095.46	97,593.40	55.80	11,260
6	5,415,238.48	95,687.37	56.59	-684,440
7	5,489,286.56	97,234.29	56.45	-119,812
8	5,434,873.84	96,924.22	56.07	-232,987

between the No-build (51.77) and the lowest of the Build Alternatives (55.78) has meaning, especially when evaluated in light of the number of miles per day traveled on the network.

As shown in Table 2.14, (page 2-44), the relationship between the No-Build and Build Alternatives is the same for the peak season (June, July, and August) speeds and subsequent time savings. This impact on the local road network is even more evident when the I-73 trips are taken out of the calculations. The reduction in VMT and VHT without I-73 shows the amount of traffic taken off the rest of the network (reduction in vehicle hours traveled) because of I-73 (refer to Table 2.15, page 2-44). The influence of I-73 on travel speed (VMT/VHT) is shown in the drop in the average network speeds with the I-73 trips removed.

A graphic portrayal of the congestion reduction is shown in Figures 2-24 through 2-32, (pages 2-45 to 2-53). These show the volume to capacity ratio (V/C) for the AADT volumes that the network would have in 2030 for the No-Build and the eight Build Alternatives. The V/C ratio measures the level of traffic volume against a road segment's capacity for

Level of Service (LOS) indicates the relative operating conditions of a roadway.

LOS A – (V/C<0.50) Free-flowing traffic with relatively high speeds.

LOS B – (0.50<V/C< 0.75) Stable traffic flow, but speeds beginning to be restricted by traffic conditions.

LOS C – (0.75 <V/C<1.00) Stable traffic flow, but most drivers are restricted in freedom to select speed.

LOS D – (1.00<V/C<1.15) Traffic approaches unstable flow, drivers have little room to maneuver.

LOS E – (1.15<V/C<1.35) Traffic flow is unstable and the may be short stoppages.

LOS F – (V/C>1.35) Forced flow with low speeds, congested, stop and go conditions.

Table 2.14
Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network For Alternatives using Peak Season Daily Traffic Volumes (Year 2030)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Alternative	VMT	VHT	VMT/VHT	VHT Savings Per Season*
No-build	5,618,781.43	115,522.28	48.64	
1	6,116,754.40	112,704.32	54.27	-253,616.26
2	6,209,121.00	114,475.73	54.24	-94,189.42
3	6,180,929.13	112,022.29	55.18	-314,416.35
4	6,109,841.74	112,064.66	54.52	-311,185.82
5	6,156,181.92	113,153.62	54.41	-213,178.81
6	6,142,503.39	111,718.71	54.98	-342,321.31
7	6,220,248.34	113,396.88	54.85	-191,285.59
8	6,106,759.41	113,341.33	53.88	-196,285.11

*Season length was 90 days.

Table 2.15
Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network For Alternatives using Average Annual Daily Traffic Volumes with I-73 Traffic Removed (Year 2030)
Interstate 73 EIS: I-95 to the Myrtle Beach Region

Alternative	VMT	VHT	Difference from No-build VMT	Difference from No-build VHT	VMT/VHT
No-build	5,050,429.68	97,562.54	-		51.77
1	4,346,201.55	81,562.60	-704,228.13	-15,999.95	53.29
2	4,395,106.05	81,849.68	-655,323.63	-15,712.86	53.70
3	4,419,831.82	81,908.84	-630,597.86	-15,653.71	53.96
4	4,295,749.75	80,404.84	-754,679.93	-17,157.71	53.43
5	4,470,602.50	83,614.56	-579,827.18	-13,947.98	53.47
6	4,325,224.13	80,001.84	-725,205.55	-17,560.71	54.06
7	4,395,100.48	81,463.08	-655,329.20	-16,099.46	53.95
8	4,290,856.04	80,414.28	-759,573.64	-17,148.27	53.36

vehicles. The higher the V/C ratio the worse traffic conditions become. A comparison of the Build Alternatives with the No-Build Alternative shows that in the Year 2030 the Level of Service on U.S. Route 501 north of S.C. Route 22 would become E for that alternative, while it would be better for all of the Build Alternatives. The LOS for U.S. Route 501 would not be less than C, while the I-73 LOS stays at B or better for all of the Build Alternatives. This means that the traffic flow would be stable for the Build Alternatives.

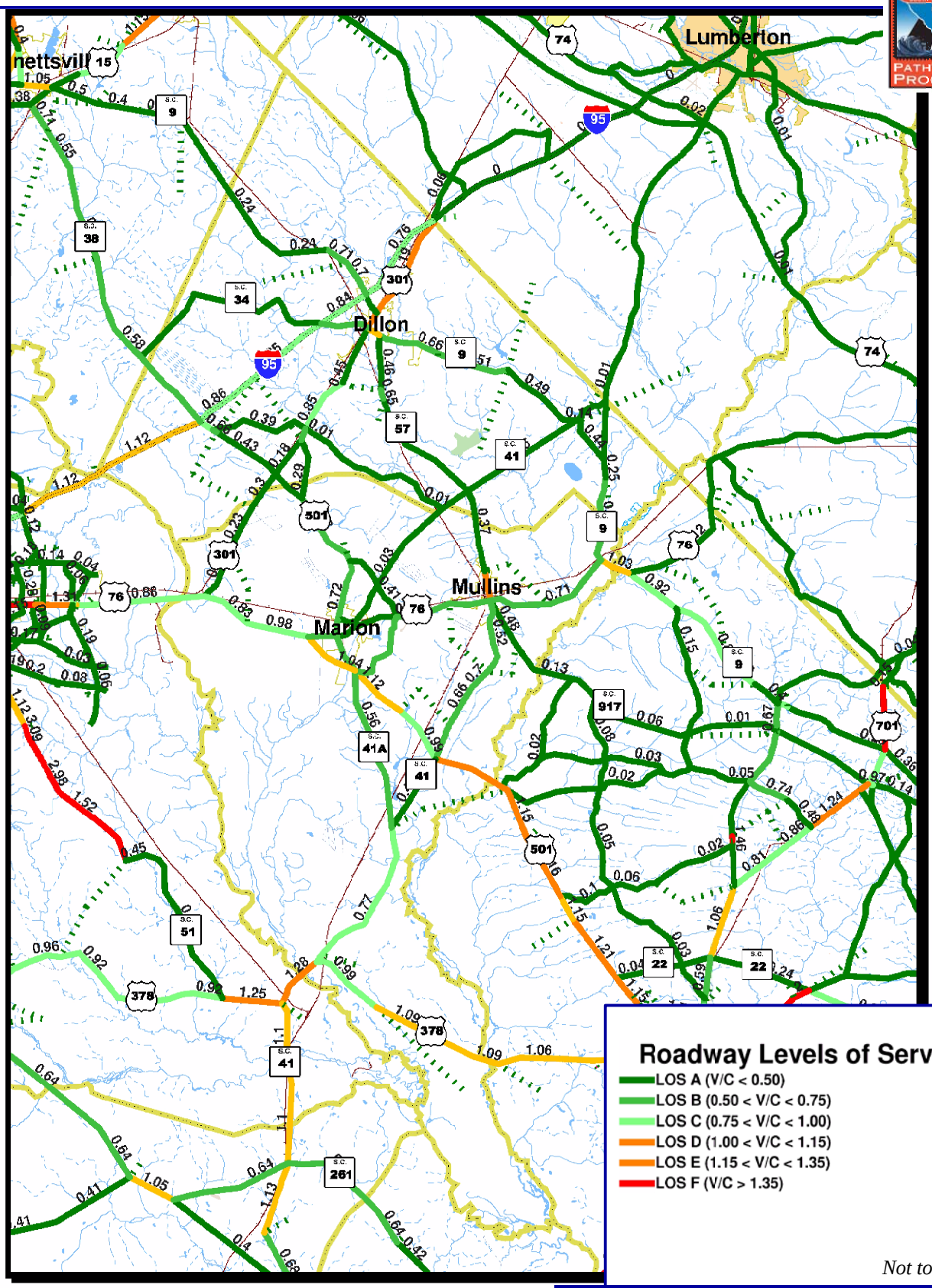

FIGURE 2-24

2030 AADT LEVEL OF SERVICE NO BUILD

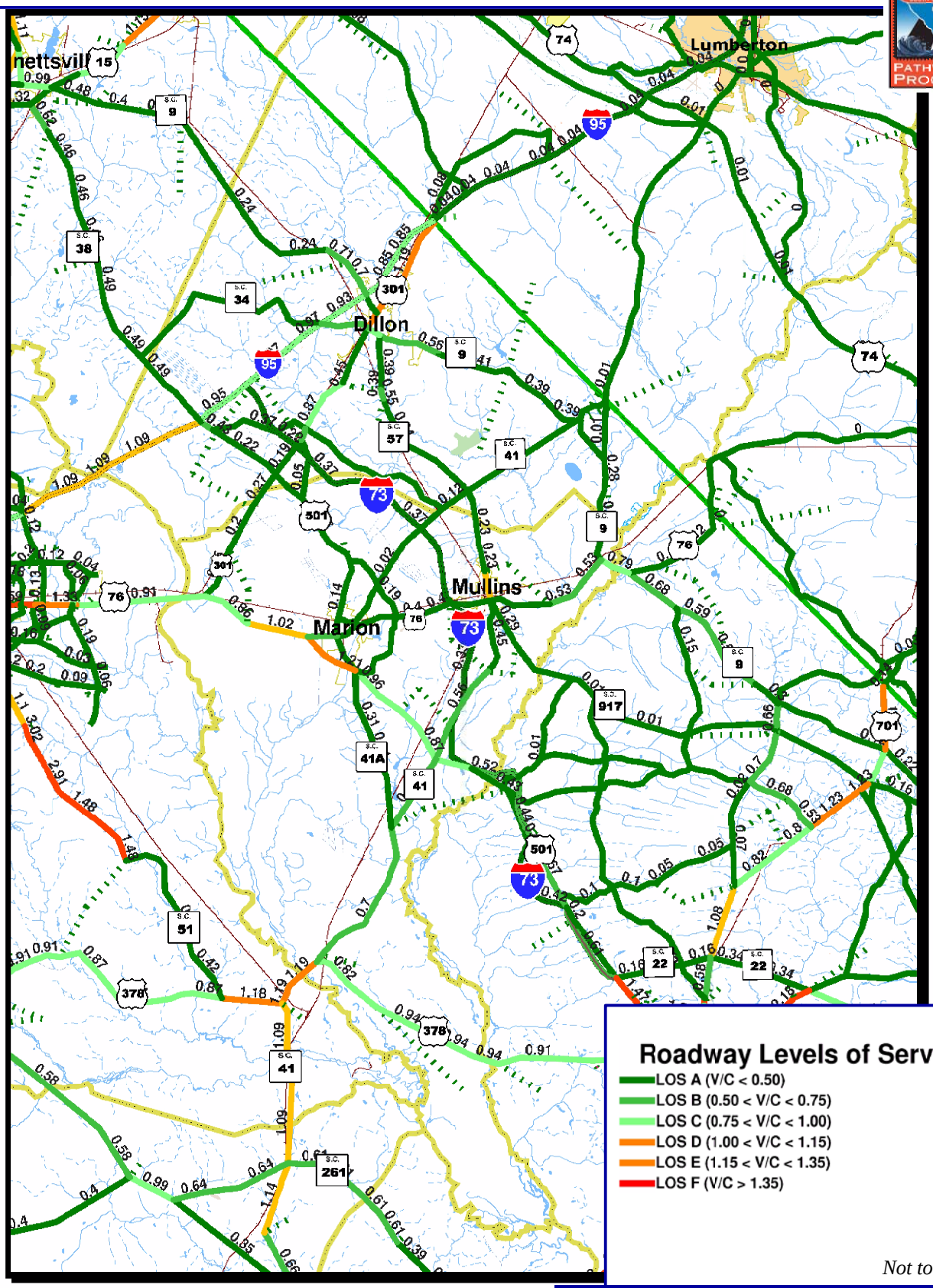

FIGURE 2-25

2030 AADT LEVEL OF SERVICE ALTERNATIVE 1

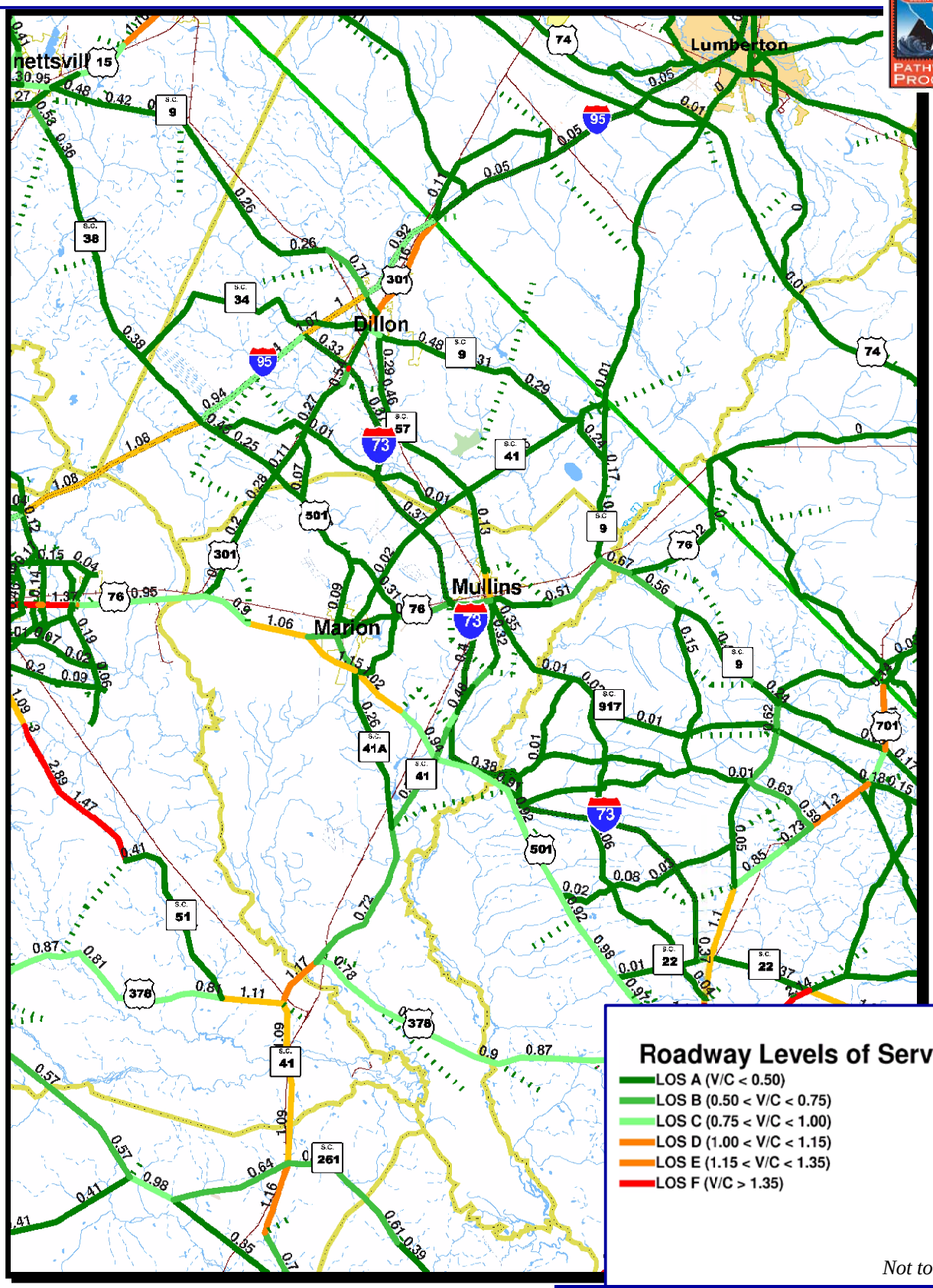

FIGURE 2-26

2030 AADT LEVEL OF SERVICE
ALTERNATIVE 2

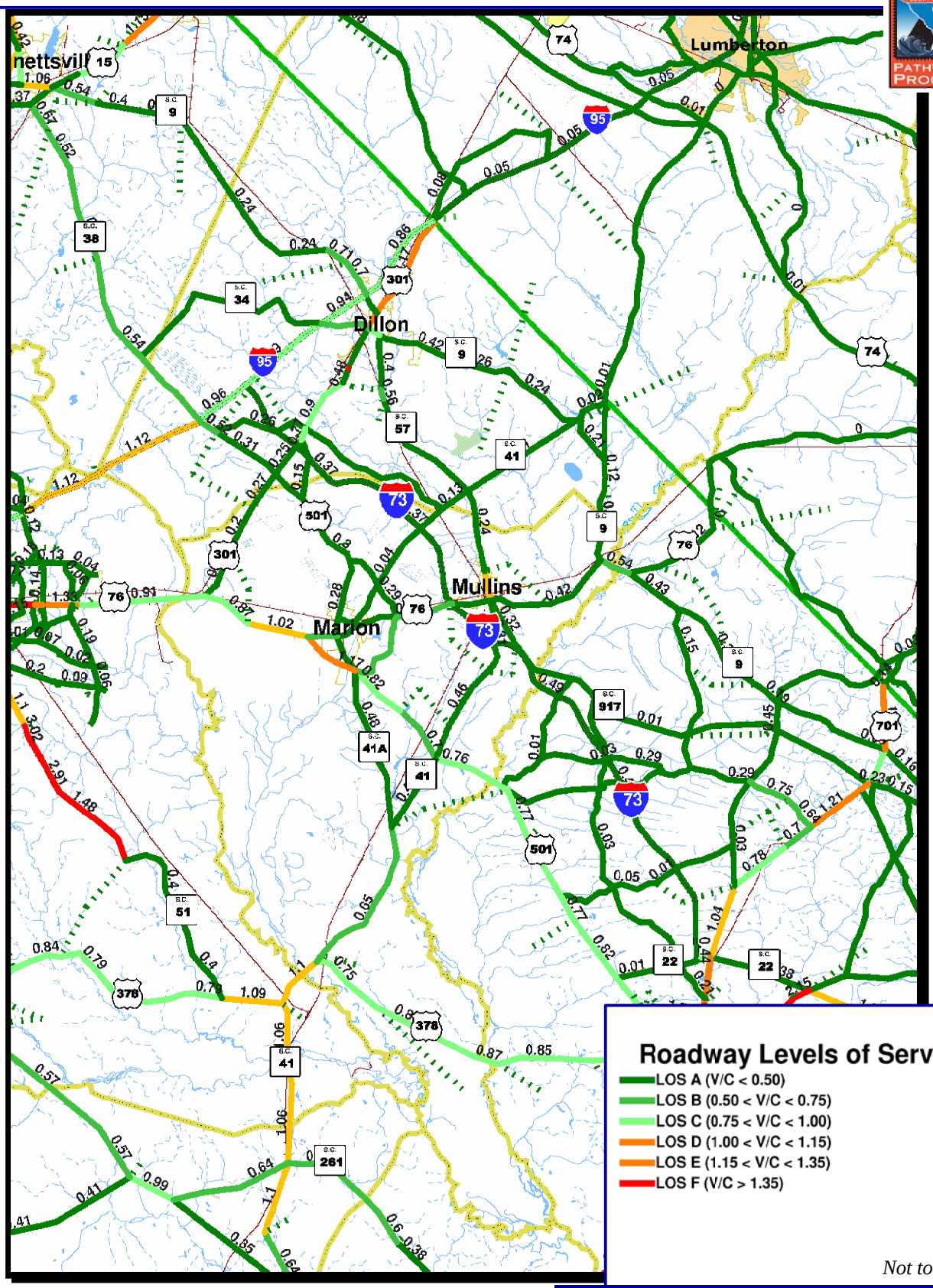

FIGURE 2-27

2030 AADT LEVEL OF SERVICE
ALTERNATIVE 3