DRAFT

SOUTHEAST VOLUSIA REGIONAL TRANSPORTATION STUDY

CITIES OF EDGEWATER – NEW SMYRNA BEACH – PORT ORANGE

COUNTY OF VOLUSIA

GHYABI & ASSOCIATES, INC.

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ACKNOWLEDGEMENTS

CITY OF EDGEWATER

Jon Williams, City Manager

Darren Lear, AICP, Department of Development Services Director

CITY OF NEW SMYRNA BEACH

John E. Hagood, City Manager

Mark H. Rakowski, AICP, Department of Development Services Director

Chad T. Lingenfelter, AICP, PTP, Chief Planner

CITY OF PORT ORANGE

Kenneth W. Parker, City Manager

Melissa K. Booker, Senior Planner - Transportation

COUNTY OF VOLUSIA

James Dinneen, County Manager

Jon E. Cheney, P.E., Department of Traffic Engineering Director

GHYABI & ASSOCIATES, INC.

A. Shawn Collins, AICP, PTP, Transportation Planning Senior Project Manager

Veena Madineni, E.I., Transportation Engineer

Shawanda Watson, Transportation Planner

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I. INTRODUCTION

The Cities of Edgewater, New Smyrna Beach, and Port Orange, and Volusia County (Study Partners) agreed to partner and complete a regional transportation study, identifying deficiencies and developing a "fair-share" funding program. The City of New Smyrna Beach was the lead entity. Ghyabi & Associates was contracted to work closely with the Study Partners, the Volusia County Metropolitan Planning Organization (MPO), and the Florida Department of Transportation (FDOT) to complete the *Southeast Volusia Regional Transportation Study* (SVRTS).

The purpose of the SVRTS is to identify and define potential deficiencies and to suggest possible solutions, including a financial plan within the study to address transportation mitigation to ensure necessary roadway improvements are completed in order to maintain adopted level-of-service (LOS) standards.

Travel Demand Forecasting (TDF) is a tool to support this transportation planning process. TDF is a set of mathematical procedures used to forecast the amount of travel for a specific future time frame on the street and highway system within a study area. Forecasting travel allows transportation professionals to peer into the future and see how the impacts of increasing population, changing land use characteristics, and various policies influence travel patterns. It is also useful in identifying existing and potential transportation system problems such as congested facilities, transit service needs, air quality, and other environmental issues. When potential problems are identified, it is important to develop alternative solutions to address them. These solutions may include transit service extensions, increased highway capacity, multi-use trails, the use of Intelligent Transportation Systems, and site design or land use alternatives. The TDF process allows transportation professionals to test and evaluate the effectiveness of various solutions prior to implementation. The TDF process is a very valuable tool to inform decision makers of the future needs, the alternatives to meet those needs, and the possible impacts on the transportation system. The TDF contains the following elements:

- Travel Demand Network – The TDF process utilizes a conceptual street network that is representative of the actual roadway system and consists of a series of nodes and links. Nodes represent intersections while links represent existing and future roads and contain information about the roadway such as travel speed, distance, number of lanes, and available capacity. Not all streets are included in the conceptual street network. Typically streets included in the network are based on their Federal Functional Classification and consist of collectors and higher. Local streets are accounted for by generalized connections to the network and are commonly called centroid connectors.

- Traffic Analysis Zones (TAZ) – Traffic analysis zones are geographically defined areas that are used to aggregate socioeconomic data (Zdata) such as population, dwelling units, retail employment, non-retail employment, and school enrollment. These zones are designed to be homogeneous in character regarding land use. At the activity center of each TAZ is a node, which is referred to as the centroid of the zone. Each centroid is connected to the network via the previously mentioned centroid connectors. The centroid of each zone is where all travel involving that zone either begins or ends.

Travel Demand Forecasting consists of a four-step process that ultimately results in forecasted traffic volumes on the transportation network within a study area. The four steps include, Trip Generation, Trip Distribution, Mode Choice, and Trip Assignment. The following is a brief description of each step:

1. Trip Generation – Forecasts the number of trips that will be made based on socioeconomic variables such as, but not limited to, population, employment, car availability, household size, dwelling units, etc. One popular method is to use the parameters and equations outlined in the National Cooperative Highway Research Program Report 365, Travel Estimation Techniques for Urban Planning. Trip Distribution is reflected in a mathematical equation, the "gravity model." The gravity model links trip productions and trip attractions together based on the relative attractiveness of each TAZ as well as the accessibility provided by the Travel Demand Network. Thus, the more attractive a particular TAZ is and the better access provided would result in a greater number of trips assigned to that TAZ. The number of trips produced is dependant on the population and number of dwelling units in each TAZ. The attractiveness of the destination TAZs is related to the activities taking place in each TAZ, such as the amount of employment and school enrollment. The trip distribution process results in an origin-destination trip table that illustrates the number of trips between all TAZ pairs. This trip table is then used in the Trip Assignment process.

2. Trip Distribution – Determines the direction and magnitude of trip interchanges between origin and destination.

3. Mode Choice – Predicts how the trips will be divided among the available modes of travel. Due to the relatively low percentage of travel by modes other than personal vehicles, the mode choice option in the four-step process will not be utilized.

4. Trip Assignment – Predicts route choice, or the number of trips using highway links and transit links or lines. Trip Assignment determines the most likely routes through the Travel Demand Network that will be taken by a traveler going from an origin to a destination. The output of the traffic assignment process is a loaded network, meaning all links in the network have been assigned volumes of traffic. Thus, any link can be examined to determine the total number of vehicles traversing it in a 24-hour period.

Utilizing the travel demand software, analyses are preformed to identify existing and potential future congested roadway segments. Transportation improvement alternatives are suggested in an effort to alleviate congestion on the Travel Demand Network. The size, scope, and timing of roadway projects are then proposed based on these findings.

This report, entitled *Southeast Volusia Regional Transportation Study*, documents the results of a study and planning process conducted to address the future travel needs of the traditional automobile and truck modes. A great deal of the information was compiled and used to prepare the travel demand model for use in forecasting vehicular travel in 2015 and 2025. This model relies on socioeconomic data (population and employment) for the base year (2005) as well as forecasts for the 2015 and 2025 horizon years. Extensive use has been made of geographic information systems (GIS) in the compilation, evaluation, and presentation of this data. This spatial database software enables a maximum of efficiency and accuracy in data assembly and storage. All network maps were in line format and linked to a database file containing all roadway attributes, such as number of lanes, functional classification, area types, daily volumes, K and D factors, etc. The GIS process was automated so that each time the model was ran, the model output loaded file was linked to the GIS database file, which enabled the review of several maps showing the daily volumes on each network link, the volume to capacity ratios for each link, and other model results

in a graphical interface. The process has involved close cooperation between the Study Partners' staff and the consultant and has ensured a better product than would have been possible without it. The consultant team has utilized state-of-the-art methodologies for linking GIS databases with the modeling software for the post-processing of travel forecast data and presentation of results.

Ghyabi & Associates worked closely with the Study Partners to resolve any inconsistencies in the Florida Standard Urban Transportation Model Structure (FSUTMS), Central Florida Regional Planning Model (CFRPM) version 4.02, Travel Model Network, to discuss the level of analysis for the purpose of establishing the fair share funding, and to determine methodologies for level-of-service (LOS) evaluations. The study methodology was finalized at the kick-off meeting on August 3, 2006.

Ghyabi & Associates developed maps that assisted in the evaluation of the *Southeast Volusia Regional Transportation Study* area network. The maps included the study area boundary map, the roadway network map, the traffic analysis zone map, and other necessary maps used to accomplish the goals of the project. Ghyabi & Associates utilized CUBE 4.0 to plot the FSUTMS networks, such as number of lanes, facility types, area types, model volumes, volume to capacity ratios, and other plots resulting from the modeling efforts.

The Study Partners had collectively met with Ghyabi & Associates ten (10) times to discuss the level of analysis, the land use data, the schedule, and to review loaded Travel Demand Networks. The Study Partners met on December 18, 2007, to review the final Alternative Analysis (Scenario I) of this study, including solutions to mitigate the facilities that have been demonstrated to be at, near, or over capacity by 2015 and 2025.

STUDY AREA BOUNDARY

The study area is located within a Metropolitan Area Planning Boundary comprised of the entire Volusia County and a portion of Flagler County and was bounded to the north by State Road 400 (Beville Road), east to the Atlantic Ocean, south to Ariel Road, and west to State Road and County Road 415 (see **Map 1**). All network and data modifications were limited to this area of Volusia County.

TRAVEL DEMAND NETWORK

A new Travel Demand Network was prepared for the base year validation. In preparing this type of sub-area Travel Demand Forecasting model analysis, it was necessary to review the each of the Study Partners' Concurrency Management Systems to ensure all locally significant roads are included in the validation. The adopted CFRPM Travel Model Network was reviewed carefully to determine the additional local roads that needed to be added. Limited access facilities were double line coded. In addition, the network was rectified to match the centerline file for all roadways within the study area. To fully understand the existing transportation system and to provide inputs to the transportation model, key traffic and roadway characteristics were inventoried, documented, and updated to 2005. These characteristics include:

- Classification
- Number of lanes
- Posted speed limit

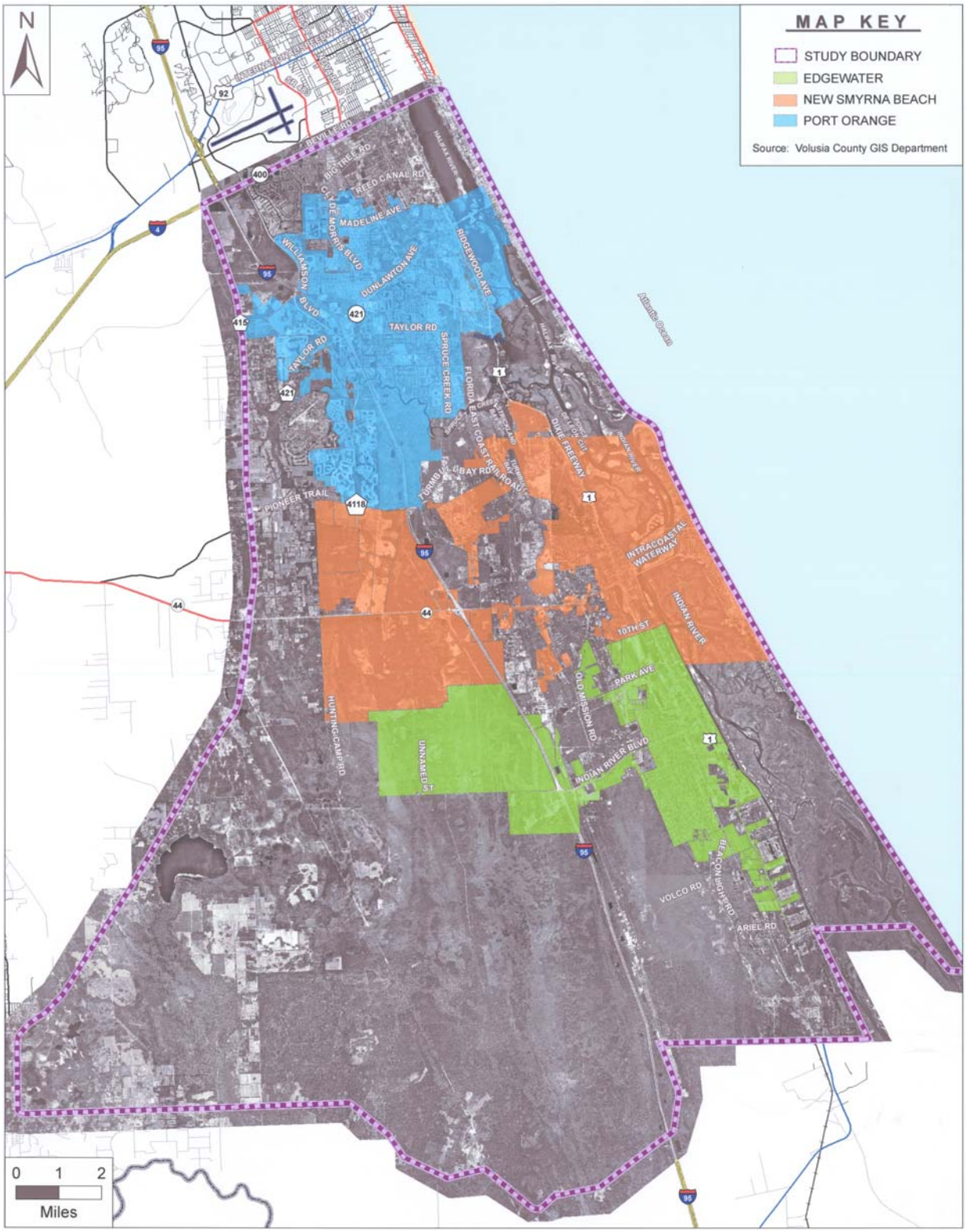
- Facility type
- Area type
- Acceptable level-of-service (LOS)

These characteristics are important in establishing the model roadway network and assigning roadway capacities that reflect field conditions. The number of lanes on each roadway within the modeled network, along with existing speed limits and existing signalized intersection locations were identified and reflected in the analyses that followed every model run. **Maps 2 through 5** identify the roadway characteristics of the roadway network.

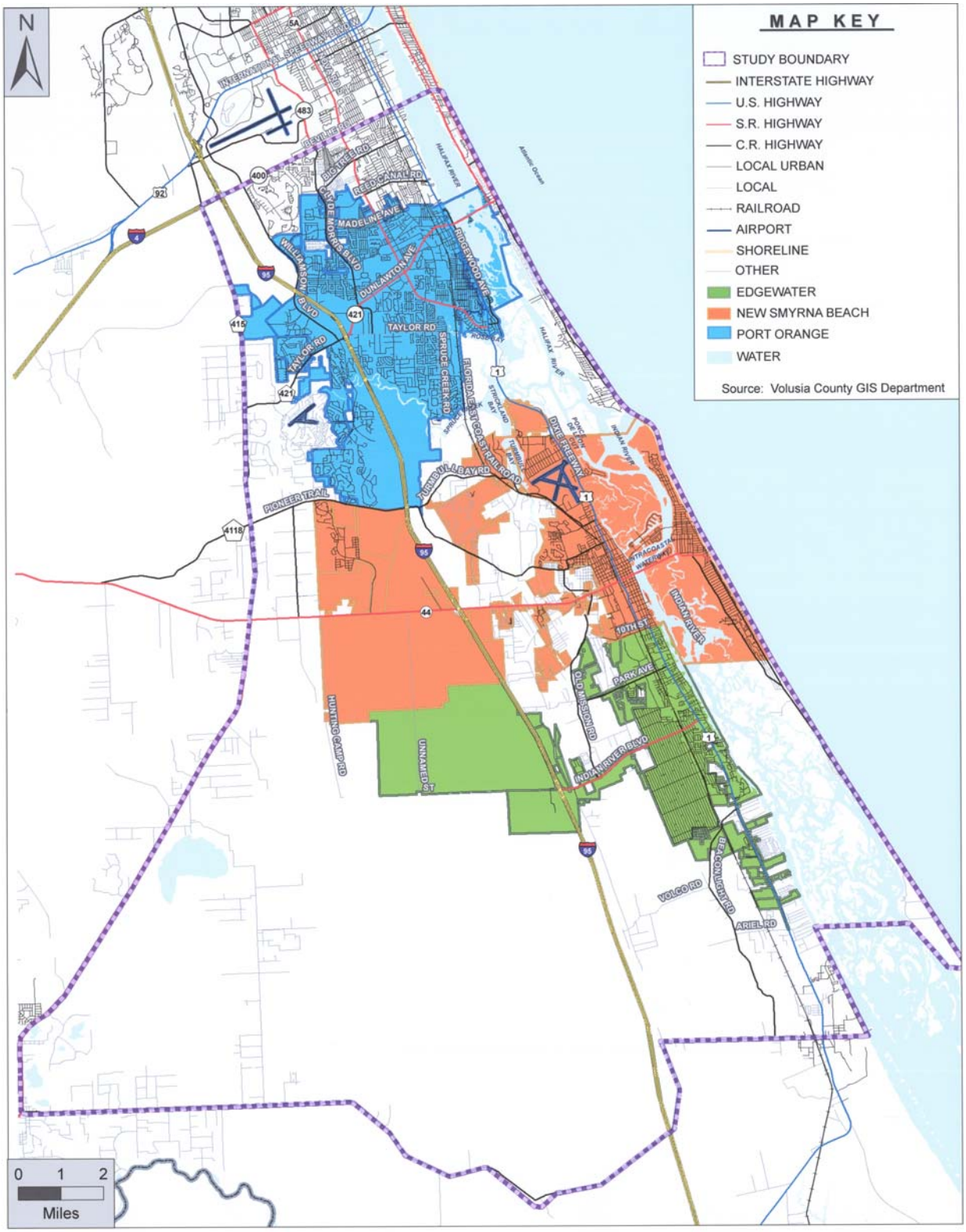
TRAFFIC ANALYSIS ZONES

The **Map 6** shows the 135 TAZs that are within the study area boundaries.

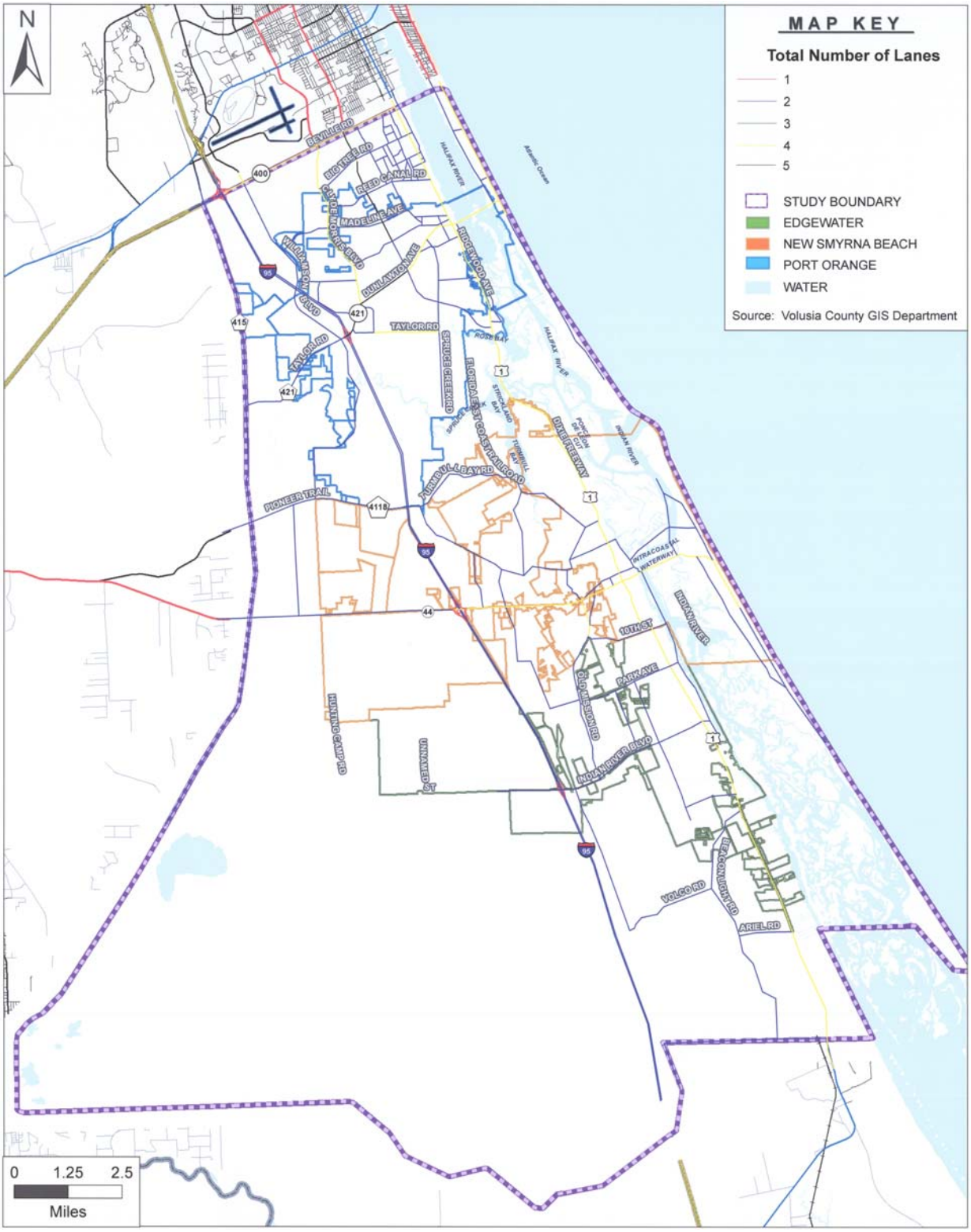
Map 1: Study Area Boundary



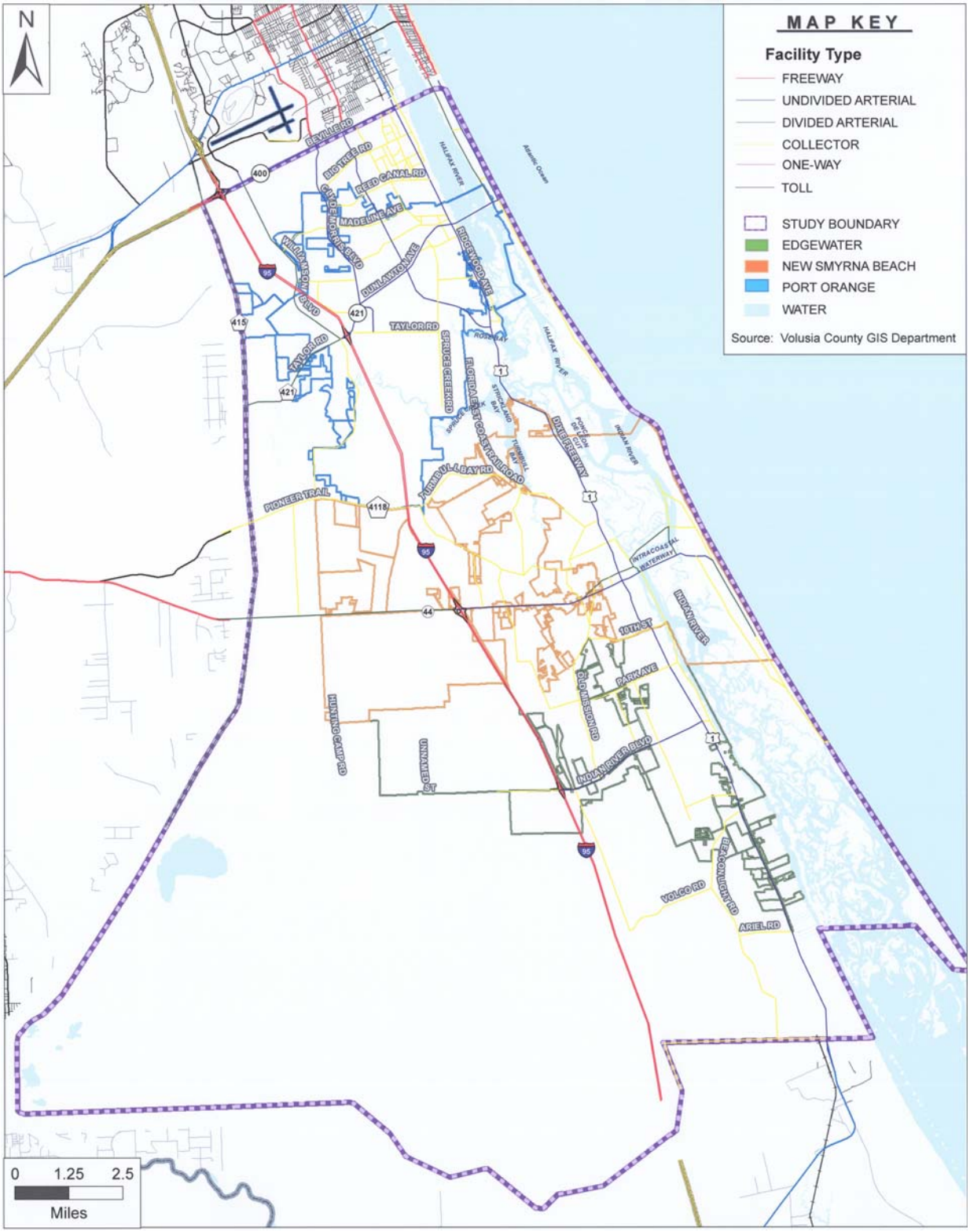
Map 2: Roadway Network, 2006



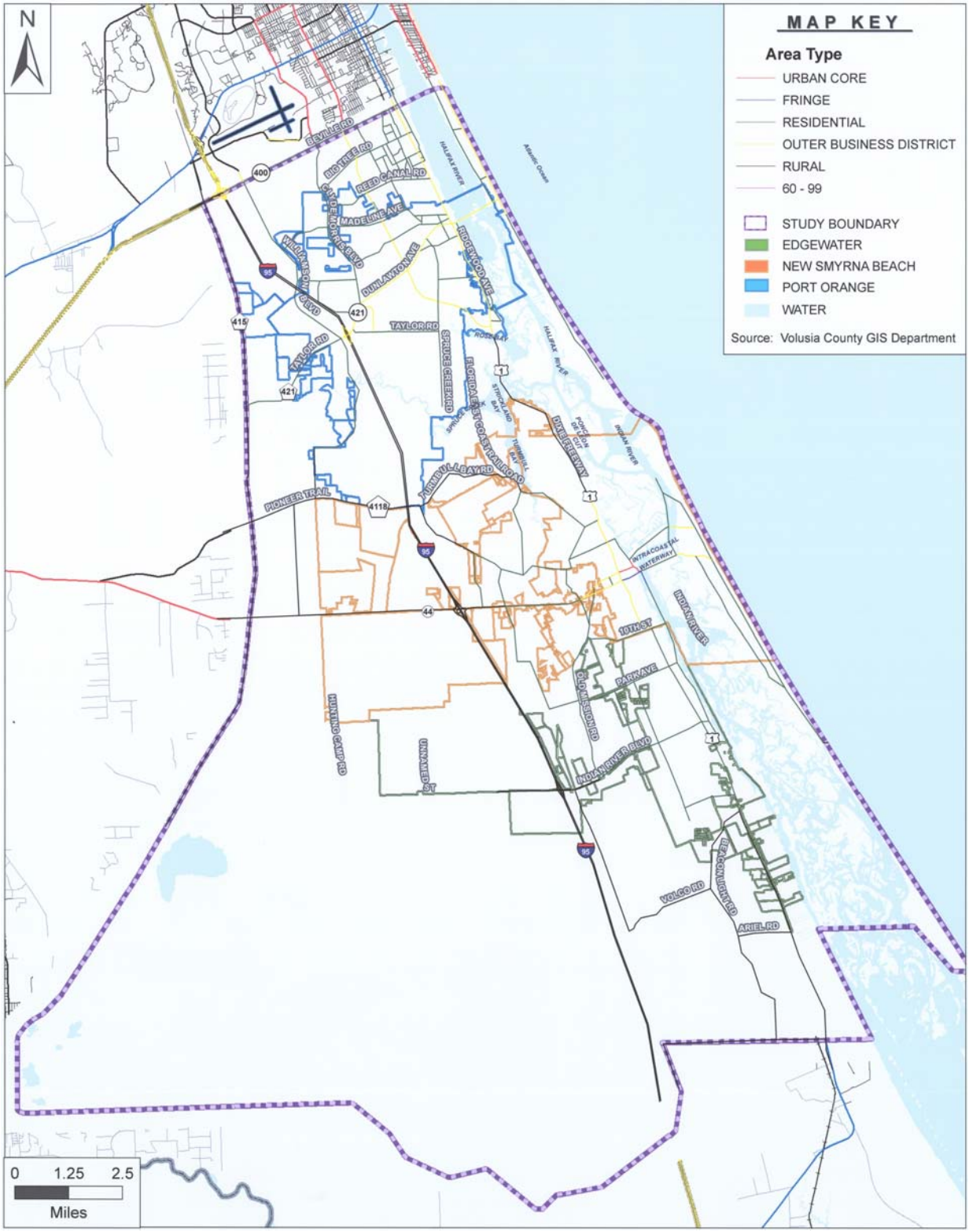
Map 3: Roadway Network Number of Lanes, 2006



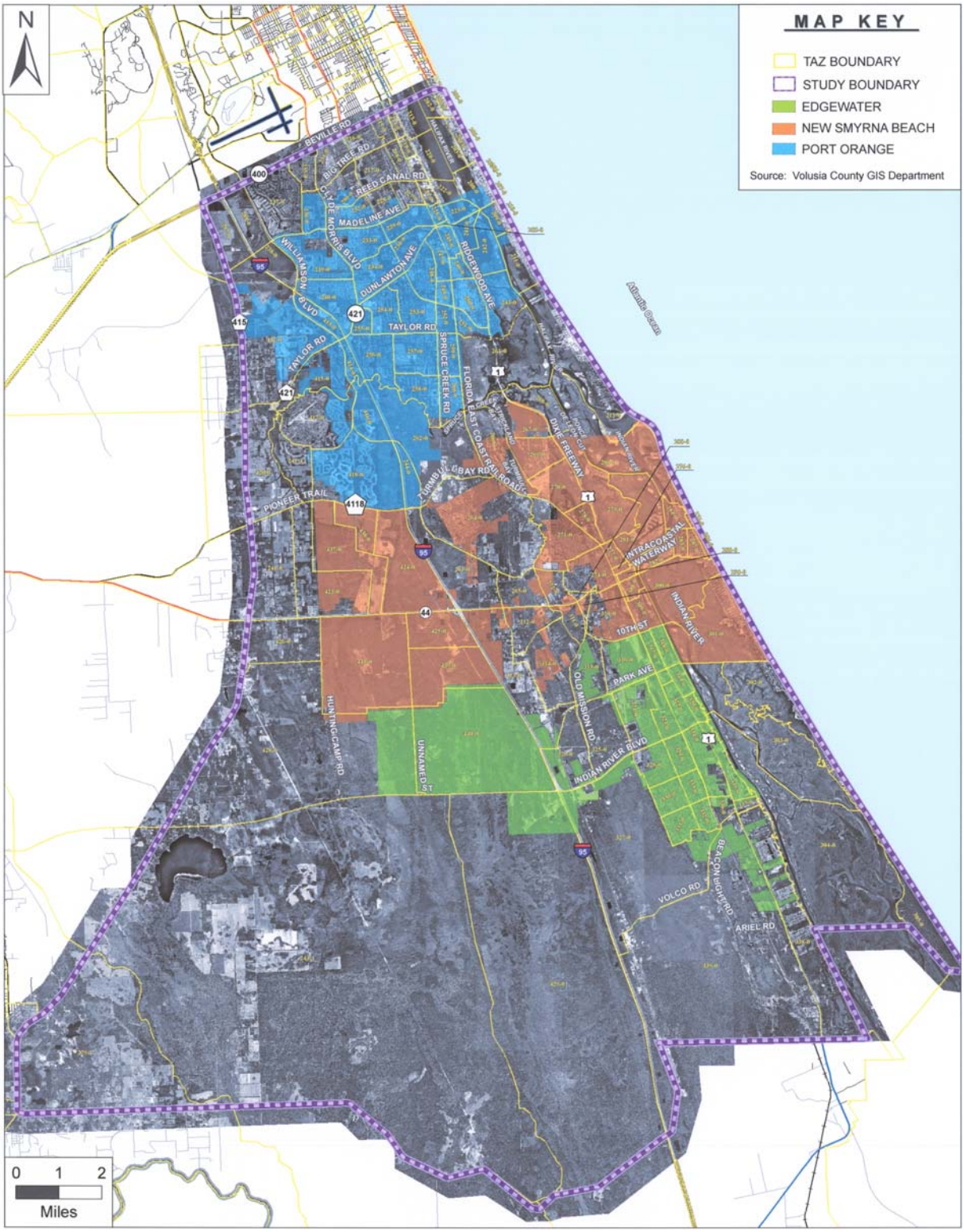
Map 4: Roadway Network Facility Type, 2006



Map 5: Roadway Network Area Type, 2006



Map 6: Traffic Analysis Zones, 2006



II. BASE YEAR (2005) DATA

The demand for travel is created by land use activities. So, to forecast future travel demand, existing travel demand must be understood. Quantifying the existing land use and socioeconomic data is essential in establishing base year travel patterns and behavior so that future travel demand estimates can be achieved.

POPULATION

The population of the southeast Volusia area has grown steadily over the past few years (see **Table 1**). Between 2000 and 2007, the cities' population has increased by 17,367 persons with the City of Port Orange experiencing the greatest annual percentage increase of 3.4 percent. Unincorporated Volusia County has experienced an annual 1.3 percent increase in population between 2000 and 2007.

Table 1: Population, 2000 - 2007

	2000	2007	Annual Growth
Edgewater	18,668	21,770	2.4%
New Smyrna Beach	20,048	23,286	2.3%
Port Orange	45,823	56,850	3.4%
Unincorporated Volusia County	106,880	116,542	1.3%

Sources: US Census Bureau, 2000, and University of Florida, Warrington College of Business Administration, Bureau of Economic and Business Research, 2008

HOUSEHOLDS

In response to the increase in population, the total number of housing units in the cities has increased 21.4 percent from 35,383 in 1990 to 42,955 in 2000. The average household size in Volusia County was 2.33 and 2.32 in 1990 and 2000, respectively. The cities have also shown a decrease in the average household size during this same time period, with the greatest decrease occurring in the City of Edgewater, where the average household size dropped from 2.54 persons in 1990 to 2.46 persons in 2000 (see **Table 2**).

EMPLOYMENT

In 2000 there were 364,534 people employed within the Volusia County, an increase from 1990 of 19.3 percent. Among the cities within the study area, the City of Port Orange has experienced the greatest percentage increase (28.4 percent) in employment since 1990. As of 2000, there were 70,178 people in the labor force located within the cities of the study area, an increase of 26.1 percent from 1990.

DEVELOPMENT OF DATA SETS

Since time constraints prevented the creation of a 2005 base year model for calibration and validation for the *Southeast Volusia Regional Transportation Study*, the Florida Standard Urban Transportation Model Structure (FSUTMS), Central Florida Regional Planning Model (CFRPM) version 4.02, with a base year of 2000 was utilized. The evaluation of certain demographic and socio-economic characteristics in

the southeast Volusia area is important. This data was crucial during the development of the SVRTS because they have a substantial impact on the transportation system and assist in planning for the future.

The CFRPM model was based on 2000 Census geography and the level of geography used was Census tracts. The same level of geography is retained in the CFRPM model to maintain consistency with the original structure. The entire model is comprised of 3,700 TAZs. However, the SVRTS study area is comprised of approximately 135 internal traffic analysis zones. **Map 6: Traffic Analysis Zones** illustrates the TAZs in each of the study partner's jurisdiction. In an effort to update the existing datasets to 2005, and thus more reflective of the actual conditions for the *Southeast Volusia Regional Transportation Study*, the Cities of Edgewater, New Smyrna Beach, and Port Orange compiled actual changes in socio-economic data from 2000 to 2005 were reflected by tracking building permits within each TAZ. Datasets for the unincorporated portions of Volusia County within the study area involved the extrapolation of the datasets utilized in the Volusia County MPO *2025 Long Range Transportation Plan* (LRTP) that was adopted in November 2005. Those datasets have a base year of 2000 data and 2005 was calculated based upon the growth between 2000 and 2025. The 2025 LRTP data were created from a variety of sources, namely;

- 2000 U.S. Census
- Employment data tabulated by the U.S. Department of Commerce Bureau of Economic Analysis
- Volusia County School Board
- Florida Department of Labor and Employment Security
- Volusia County MPO staff and other sources

Spreadsheet files were given to each of the Study Partners that contained the existing TAZ datasets located within their respective jurisdictional boundaries. For the Zdata1 dataset, the information included the amount of residential units and population by TAZ. The Zdata2 dataset included information about the number of employees by sector, as well as, the school enrollment.

Once the Zdata was submitted for use, it was the input into the Trip Generation programs. This analysis produced volume to capacity (V/C) ratios mapped thematically to display the congested areas and assisted in planning for future transportation projects.

Table 2: Base Year Data, 2005

City	TAZ	Single-Family Dwelling Units		Single-Family Population		Multi-Family Dwelling Units		Multi-Family Population		Hotel-Motel Units		Hotel-Motel Population		Industrial Employment		Commercial Employment		Service Employment		Total Employment		School Enrollment	
Source Year		MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005	MPO 2000	SVRTS 2005
	1779	95	95	216	216	58	58	183	183	0	1	0	1	276	276	21	21	204	204	501	501	0	0
	2188	1	1	2	2	326	330	67	76	854	868	756	768	0	0	71	90	318	341	389	431	0	0
	2189	208	227	459	494	107	108	22	25	15	16	13	14	30	35	39	49	75	80	144	164	0	0
	2190	77	78	170	172	0	0	0	0	0	0	0	0	0	0	2	2	2	2	4	4	0	0
	2191	79	80	175	177	3	3	2	2	0	0	0	0	0	0	0	0	1	1	1	1	0	0
	2192	176	192	389	419	737	752	259	260	33	33	29	29	15	18	159	202	247	265	421	485	553	553
	2193	29	32	64	69	1,096	1,096	0	72	79	124	70	109	4	5	0	0	40	43	44	48	0	0
	2194	0	0	0	0	114	118	70	70	1,054	1,075	933	952	0	0	4	5	274	294	278	299	0	0
	2195	0	0	0	0	150	150	3	12	443	616	392	545	0	0	0	0	40	43	40	43	0	0
PO	2196	382	410	664	715	100	104	61	61	15	16	14	15	39	46	320	406	132	142	491	594	0	0
PO	2197	134	181	181	205	205	205	106	106	47	47	42	42	2	2	129	129	95	95	226	226	0	0
PO	2198	2	2	3	3	460	474	239	239	420	420	372	372	1	1	21	27	36	39	58	67	0	0
PO	2199	528	580	870	973	479	511	388	388	24	26	21	23	7	7	34	37	40	46	81	90	0	0
NSB/PO	2200	923	1,075	1,965	2,263	1,101	1,148	564	612	45	51	40	45	20	21	190	208	350	399	560	628	0	0
	2201	148	148	294	295	469	471	933	936	60	60	53	53	30	31	153	159	102	111	285	301	0	0
	2202	60	60	112	113	284	285	491	493	0	0	0	0	127	130	143	148	437	474	707	752	0	0
	2203	638	640	1,709	1,715	0	0	0	0	0	0	0	0	11	11	68	71	128	139	207	221	0	0
	2204	808	811	2,027	2,034	0	0	0	0	0	0	0	0	250	256	184	191	466	506	900	953	0	0
	2205	1,797	1,803	4,509	4,525	0	0	0	0	0	0	0	0	36	37	25	26	154	167	215	230	0	0
	2206	593	595	1,422	1,427	61	61	81	81	0	0	0	0	2	2	10	10	236	256	248	268	986	1,082
	2207	135	135	309	310	249	250	476	478	0	0	0	0	7	7	83	86	58	63	148	156	0	0
	2208	58	58	114	115	181	182	354	355	29	29	26	26	4	4	117	121	295	320	416	445	0	0
	2209	6	6	16	16	405	406	514	516	0	0	0	0	17	17	317	329	643	698	977	1,044	0	0
PO	2210	35	35	94	94	49	49	62	62	0	0	0	0	10	10	47	37	45	25	102	72	0	0
PO	2211	13	10	30	25	130	130	124	124	0	0	0	0	3	3	135	100	79	40	217	143	0	0
PO	2212	1	1	3	3	100	100	127	127	0	0	0	0	336	336	91	95	129	140	556	571	0	0
PO	2213	96	96	222	222	79	79	75	75	0	0	0	0	171	171	57	40	50	40	278	251	0	0
PO	2214	12	12	21	21	16	16	18	18	0	0	0	0	3	3	13	10	41	50	57	63	0	0
PO	2215	596	596	1,630	1,630	5	5	3	3	0	0	0	0	4	4	9	11	13	13	26	28	0	0
PO	2216	423	423	1,157	1,157	9	9	5	5	0	0	0	0	35	37	4	4	5	5	44	46	0	0
PO	2217	577	577	1,744	1,744	381	381	712	712	0	0	0	0	120	120	120	120	302	302	542	542	882	882
PO	2218	325	340	880	900	222	250	749	800	0	0	0	0	34	34	367	400	480	400	881	834	0	0
	2219	371	371	1,027	1,027	1,192	1,192	1,387	1,387	0	0	0	0	28	0	439	439	226	0	693	439	0	0
PO	2220	125	128	302	311	1,124	1,158	1,695	1,745	0	0	0	0	45	40	58	58	83	83	186	181	1,540	1,540
PO	2221	701	701	1,793	1,793	779	1,267	1,292	1,900	0	0	0	0	20	30	35	39	112	130	167	199	0	0
PO	2222	322	340	748	748	502	510	961	980	0	0	0	0	255	275	179	200	1,127	1,200	1,561	1,675	1,886	1,886
	2223	531	537	1,329	1,343	814	823	1,492	1,506	0	0	0	0	18	18	2	2	95	97	115	117	0	0
PO	2224	162	162	405	405	362	362	663	663	0	0	0	0	14	14	2	5	13	20	29	39	0	0
PO	2225	998	1,008	2,224	2,247	888	896	1,326	1,338	0	0	0	0	283	283	11	11	464	474	758	768	0	0
PO	2226	0	53	0	122	0	0	0	0	0	0	0	0	0	0	0	167	0	0	0	167	0	0
PO	2227	731	767	1,629	1,687	811	811	1,213	1,213	0	0	0	0	40	40	130	130	377	377	547	547	0	0
PO	2228	879	900	2,393	2,424	446	450	800	820	0	0	0	0	13	13	123	323	215	350	351	686	860	860
PO	2229	82	82	145	145	217	217	240	240	13	13	12	12	8	8	153	153	101	120	262	281	0	0
PO	2230	88	95	226	250	160	160	196	196	0	0	0	0	3	3	66	66	6	6	75	75	0	0
PO	2231	302	302	774	774	151	151	185	185	0	0	0	0	14	14	75	75	39	29	128	118	0	0
PO	2232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
PO	2233	182	200	321	345	250	280	276	300	10	10	9	9	57	57	61	61	332	350	450	468	394	394
PO	2234	106	140	193	300	449	470	610	610	19	19	17	17	44	44	18	18	28	28	90	90	0	0
PO	2235	35	55	98	140	14	20	16	20	0	0	0	0	466	550	176	200	279	300	921	1,050	0	0
PO	2236	460	500	1,269	1,200	399	420	646	670	0	0	0	0	58	58	552	700	361	575	971	1,333	0	0
PO	2237	0	0	0	0	527	530	584	550	0	0	0	0	6	6	1	1	14	15	21	22	0	0
PO	2238	358	358	941	941	990	990	1,337	1,337	19	19	17	17	40	40	111	111	118	118	269	269	0	0
PO	2239	234	234	606	606	134	134	178	178	10	10	9	9	5	5	10	10	14	14	29	29	0	0
PO	2240	0	0	0	0	274	274	681	681	0	0	0	0	8	8	3	3	36	50	47	61	0	0
PO	2241	1,018	1,018	2,982	2,982	1,086	1,086	1,592	1,592	0	0	0	0	22	2	260	260	403	420	685	682	0	0
PO	2242	680	765	1,738	1,950	268	268	443	443	0	0	0	0	17	17	568	580	530	650	1,115	1,247	2,996	2,996
PO	2243	62	62	156	156	0	11	0	28	0	0	0	0	4	4	30	30	60	170	94	204	0	0
PO	2244	725	825	2,313	2,475	11	75	28	182	0	200	0	0	23	23	11	11	35	40	69	74	0	0
PO	2245	1,076	1,200	3,276	3,600	75	75	182	150	0	0	0	0	49	44	5	5	169	164	223	213	720	720
PO	2246	448	470	1,363	1,370	65	17	158	25	0	0	0	0	18	18	44	44	48	48	110	110	0	0
PO	2247	434	450	1,293	1,358	16	37	24	21	0	0	0	0	9	9	6	6	45	45	60	60	0	0
PO	2248	540	600	1,609	2,400	37	64	21	36	0	0	0	0	2	2	8	8	10	10	20	20	0	0
PO	2249	17	17	50	50	64	1	36	36	0	0	0	0	1	1	5	5	196	200	202	206	0	0
NSB/PO	2250	52	52	94	94	1	218	1	1	0	0	0	0	10	10	0	0	19	19	29	29	0	0
NSB/PO	2251	61	61	110	110	8	8	7	7	0	0	0	0	7	7	5	16	44	46	56	69	0	0
NSB/PO	2252	802	833	1,470	1,533	146	146	125	125	0	0	0	0	58	58	6	10	130	374	194	442	0	0
NSB	2253	106	106	260	260	5	5	1	1	0	0	0	0	7	7	111	111	30	30	148	148	0	0
NSB	2254	152	244	361	545	16	157	23	305	0	0	0	0	5	5	85	127	82	193	172	325	0	0
NSB	2255	23	23	55	55	50	50	72	72	0	0	0	0	2	2	50	57	12	16	64	75	0	0
NSB	2256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	1	1	8	8	0	0
NSB	2257	634	670	1,526	1,604	102	105	149	155	0	0	0	0	7	7	50	82	29	80	86	169	0	0
NSB	2258	0	0	0	0	0	0	0	0	0	0	0	0	178	178	82	84	112	118	372	380	0	0
NSB	2259	1,277	1,286	2,661	2,679	533	550	647	676	0	0	0	0	19	19	11	12	147	190	177	221	0	0
NSB	2260	166	166	407	407	8	8	2	2	0	0	0	0	5	5	72	72	47	47	124	124	0	0
NSB	2261	4	4	11	11	2	2	1	1	9	9	8	8	1	1	4	4	2	2	7	7	0	0
NSB	2262	839	842	1,784	1,791	735	735	1,935	1,935	0	0	0	0	50	50	53	59	241	319	344	428	386	406
NSB	2263	29	30	56	58	209	209	504	504	0	0	0	0	36	36	155	163	412	468	603	667	0	0
NSB	2264	9	11	17	20	7	7	17	17	7	7	6	6	69	69	144	144	279	279	492	492	0	0
NSB	2265	229	231	444	448	110	110	265	265	44	44	39	39	32	32	74	74	111	111	217	217	0	0
NSB	2266	228	230	497	501	117	117	101	101	55	55	49	49	126	126	81	81	238	238	445	445	213	223
NSB	2267	223	240	529	563	50	54	72	80	32	32	28	28	15	15	207	207	99	99	321	321	0	0
NSB	2268	382	394	432	456	288	432	161	467	8	8	7	7	2	2	11	20	51	165	64	187	0	0
NSB	2269	223	231	486	502	470	470	406	406	12	12	11	11	42	42	267	279	562	632	871	953	1,905	1,990
NSB	2270	46	47	69	71	389	405	322	351	0	0	0	0	0	0	0	0	18	26	18	26	0	0
NSB	2271	340	350	511	531	116	116	96	96	0	0	0	0	5	5	187	221	120	179	312	405	0	0
NSB	2272	355	371	488	520	137	137	41	41	0	0	0	0	6	6	69	69	43	44	118	119	0	0
NSB	2273	9	9	12	12	209	231	63	107	0	0	0	0	0	0	51	51	11	11	62	62	0	0
NSB	2274	24	25	31	33	83	83	52	52	214	214	189	189	0	0	12	12	85	85	97	97	0	0
NSB	2275	353	355	451	455	110	110	69	69	10	10	9	9	15	15	61	66	47	58	123	139	0	0
NSB	2276	25	25	61	61	2	2	0	0	0	0	0	0	18	18	13	13	10	10	41	41	0	0
	2277	0	202	0	466	0	180	0	257	0	0	0	0	0	373	5	5	0	170	5	548	0	0
PO	2278	21	21	50	50	671	677	1,012	1,021	0	0	0	0	95	95	146	146	429	438	670	679	0	0
	2285	0	0	0	0	0	0	0	0	0	0	0	0	43	43	0	0	1	1	44	44	0	0
E/NSB	2286	20	20	50	50	0	0	0	0	0	0	0	0	9	9	4	4	8	8	21	21	0	0
E/NSB	2288	247	248	384	386	81	81	14	14	162	162	143	143	7	7	99	99	100	100	206	206	0	0
E/NSB	2289	983	1,006	1,549	1,593	378	415	64	132	89	89	79	79	7	7	440	476	474	578	921	1,061	317	319
NSB	2290	610	610	962	963	953	953	162	354	0	8	0	7	4	4	3	3	81	81	88	88	0	0
E/NSB	2291	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0
E	2292	0	0	0	0	231	231	38	85	0	37	0	33	0	0	0	0	0	0	0	0	0	0
	2293	240	254	373	436	151	160	25	61	0	0	0	0	72	72	53	53	52	54	177	179	0	0
	2294	1	1	2	2	0	0	0	0	0	0	0	0	0	0	2	2	1	1	3	3	0	0
NSB	2296	98	98	190	190	56	56	135	135	0	0	0	0	16	16	97	97	254	254	367	367	0	0
E/NSB	2297	358	361	703	709	169	169	416	416	60	60	53	53	32	32	70	71	197	206	299	309	565	476
NSB	2298	161	181	406	447	80	288	111	415	0	0	0	0	9	9	12	12	209	212	230	233	1,579	1,538
NSB	2299	4	4	10	10	124	124	172	172	0	0	0	0	3	3	225	225	253	253	481	481	0	0
NSB	2300	341	342	797	800	112	132	174	234	0	0	0	0	23	23	107	107	113	113	243	243	0	0
E/NSB	2301	121	121	283	283	76	76	118	118	0	0	0	0	19	19	317	317	66	66	402	402	0	0
NSB	2302	260	261	709	711	145	145	313	313	0	0	0	0	29	29	20	20	46	48	95	97	0	0
E	2303	112	128	301	342	90	104	190	213	0	0	0	0	7	8	8	9	27	32	42	49	0	0
NSB	2304	49	49	118	118	56	56	100	100	0	0	0	0	137	205	66	69	121	121	324	395	0	0
E/NSB	2305	106	114	254	273	241	241	431	431	15	15	13	13	29	29	34	37	139	200	202	266	0	0
E/NSB	2306	239	257	573	616	65	65	116	116	23	23	20	20	11	11	51	55	133	133	195	199	0	0
E	2307	229	234	320	327	97	97	145	145	15	15	14	14	25	25	27	53	79	79	131	157	0	0
E	2308	222	232	501	524	58	58	84	84	0	0	0	0	45	45	39	44	55	55	139	144	0	0
E	2309	55	55	77	77	156	156	233	233	0	0	0	0	209	209	17	17	56	56	282	282	0	0
E	2310	147	148	205	206	387	387	579	579	0	48	0	42	117	167	132	150	270	270	519	587	762	638
E	2311	518	579	1,230	1,375	126	126	236	236	0	0	0	0	43	43	53	53	27	27	123	123	0	0
E	2312	685	753	1,691	1,859	63	63	163	163	0	0	0	0	127	172	41	41	49	49	217	262	0	0
E	2313	54	54	127	127	27	27	50	50	0	0	0	0	61	92	24	24	20	20	105	136	0	0
E	2314	13	66	30	152	198	198	306	306	0	0	0	0	24	24	164	164	33	33	221	221	0	0
E	2315	169	170	528	531	16	16	45	45	0	0	0	0	16	16	2	2	1	1	19	19	0	0
E	2316	751	895	1,898	2,262	0	0	0	0	0	0	0	0	7	7	8	8	3	3	18	18	0	0
E	2317	464	577	1,171	1,456	58	62	156	167	0	0	0	0	32	32	18	39	76	76	126	147	0	0
E	2318	760	962	2,172	2,749	0	0	0	0	0	0	0	0	9	9	6	6	16	16	31	31	0	0
E	2319	737	959	2,334	3,037	0	0	0	0	0	0	0	0	8	8	11	11	3	3	22	22	0	0
E	2320	359	493	1,139	1,564	36	42	103	120	0	0	0	0	5	7	5	5	6	6	16	18	0	0
E	2321	332	442	948	1,262	82	91	177	196	0	0	0	0	13	17	3	10	17	17	33	44	0	0
E	2322	521	771	1,223	1,810	266	269	337	341	0	0	0	0	66	75	438	479	111	111	615	665	0	0
E	2323	127	155	294	359	433	433	537	537	0	0	0	0	14	14	46	98	114	114	174	226	0	0
E	2324	1	30	2	60	11	11	14	14	59	59	53	53	0	4	8	48	114	114	122	166	714	722
E	2325	99	99	229	229	10	10	12	12	0	0	0	0	5	5	12	12	5	5	22	22	0	0
E	2326	418	418	713	713	1,468	1,468	1,696	1,696	0	0	0	0	121	121	122	122	120	120	363	363	0	0
E	2327	206	206	699	699	271	271	485	485	0	0	0	0	102	102	61	61	93	93	256	256	0	0
PO	2401	338	1,000	781	2,200	218	218	436	436	0	0	0	0	76	76	266	266	37	37	379	379	0	0
PO	2402	0	0	0	0	0	0	0	0	0	0	0	0	59	54	13	13	10	10	82	77	0	0
PO	2403	92	92	210	210	0	0	0	0	0	0	0	0	16	50	22	50	37	100	75	200	0	0
PO	2404	431	600	996	1,100	176	280	353	504	0	0	0	0	3	3	52	70	96	100	151	173	0	0
PO	2405	128	170	292	416	207	350	407	525	0	0	0	0	3	3	1	1	11	100	15	104	0	0
PO	2406	1,098	1,500	2,539	3,300	265	290	532	550	0	0	0	0	26	35	50	75	254	800	330	910	0	0
PO	2407	710	658	1,642	1,984	10	100	20	150	0	0	0	0	36	36	0	0	199	199	235	235	1,202	1,202
PO	2408	268	325	612	760	172	216	339	422	0	0	0	0	93	97	7	7	24	40	124	144	0	0
	2409	230	230	525	525	3	3	6	6	0	1	0	1	27	27	2	2	18	18	47	47	0	0
	2411	57	57	136	136	18	18	27	27	0	1	0	1	55	55	10	10	40	40	105	105	242	280
NSB	2412	50	166	120	342	12	64	18	85	0	1	0	1	45	45	18	18	7	7	70	70	0	0
NSB	2413	0	0	0	0	0	0	0	0	0	0	0	0	10	10	8	18	3	14	21	42	0	0
NSB	2414	0	0	0	0	0	0	0	0	0	0	0	0	12	12	0	0	0	0	12	12	0	0
NSB	2415	23	23	55	55	6	6	9	9	0	1	0	1	27	27	9	9	2	2	38	38	0	0
E/NSB	2417	138	138	330	330	20	20	30	30	0	1	0	1	23	23	7	7	13	13	43	43	0	0
E	2418	0	0	0	0	0	0	0	0	0	0	0	0	33	33	0	0	0	0	33	33	0	0
E	2423	65	65	156	156	117	117	178	178	0	1	0	1	285	285	2	2	62	62	349	349	0	0
NSB	2426	3	430	7	1,140	0	21	0	57	0	0	0	0	1	1	0	0	0	0	1	1	0	0
NSB	2427	0	0	0	257	0	48	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E/NSB	2428	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E/NSB	2429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E/NSB	2430	2	2	5	5	2	2	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	41,684	46,507	99,128	111,262	32,252	34,638	41,389	44,800	4,003	4,570	3,546	3,871	6,310	7,025	11,406	12,698	18,821	21,546	36,537	41,269	18,702	18,707
E		7,044	8,491	17,988	21,876	4,201	4,237	5,764	5,885	74	160	67	143	1,374	1,520	1,247	1,458	1,357	1,362	3,978	4,340	1,476	1,360
E/NSB		2,214	2,267	4,131	4,245	1,032	1,069	1,192	1,260	349	354	308	313	137	137	1,022	1,066	1,130	1,304	2,289	2,507	882	795
NSB		7,275	8,054	14,523	16,616	5,292	5,988	6,193	7,640	391	401	346	355	956	1,024	2,422	2,593	3,878	4,506	7,256	8,123	4,083	4,157
NSB/PO		1,838	2,021	3,639	4,000	1,256	1,520	697	745	45	51	40	45	95	96	201	234	543	838	839	1,168	0	0
PO		16,975	19,061	43,468	48,491	14,053	15,178	21,151	22,467	577	780	513	516	2,696	2,831	4,605	5,324	7,760	9,148	15,061	17,303	10,480	10,480
Total		35,346	39,894	83,749	95,228	25,834	27,992	34,997	37,997	1,436	1,746	1,274	1,372	5,258	5,608	9,497	10,675	14,668	17,158	29,423	33,441	16,921	16,792

Note: **Green** numbers are 2005 increases compared to the MPO 2000 model and **red** numbers are decreases.

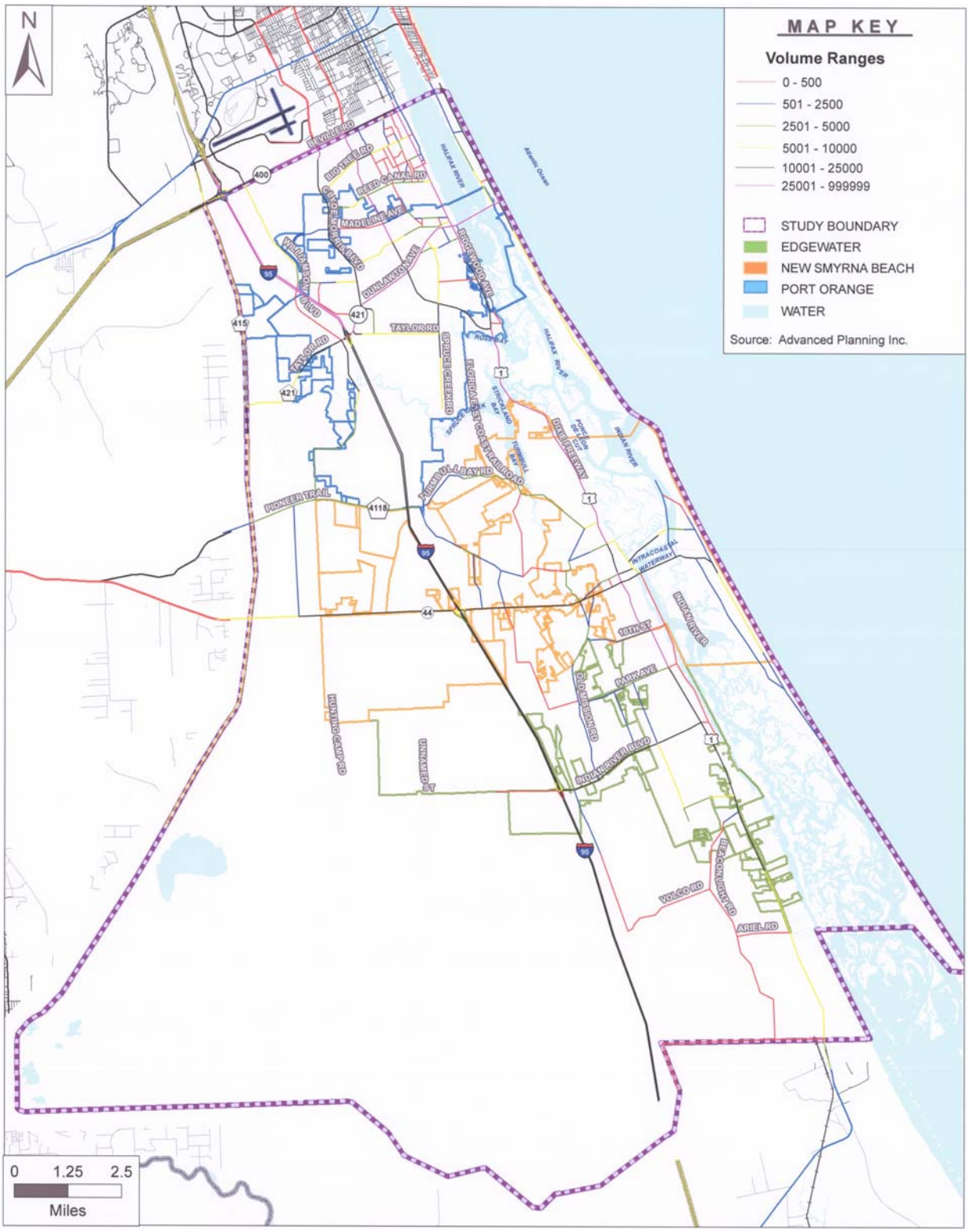
Sources: Volusia County MPO 2025 Long Range Transportation, *November 2005, and Study Partners, 2007*

TRAFFIC COUNTS

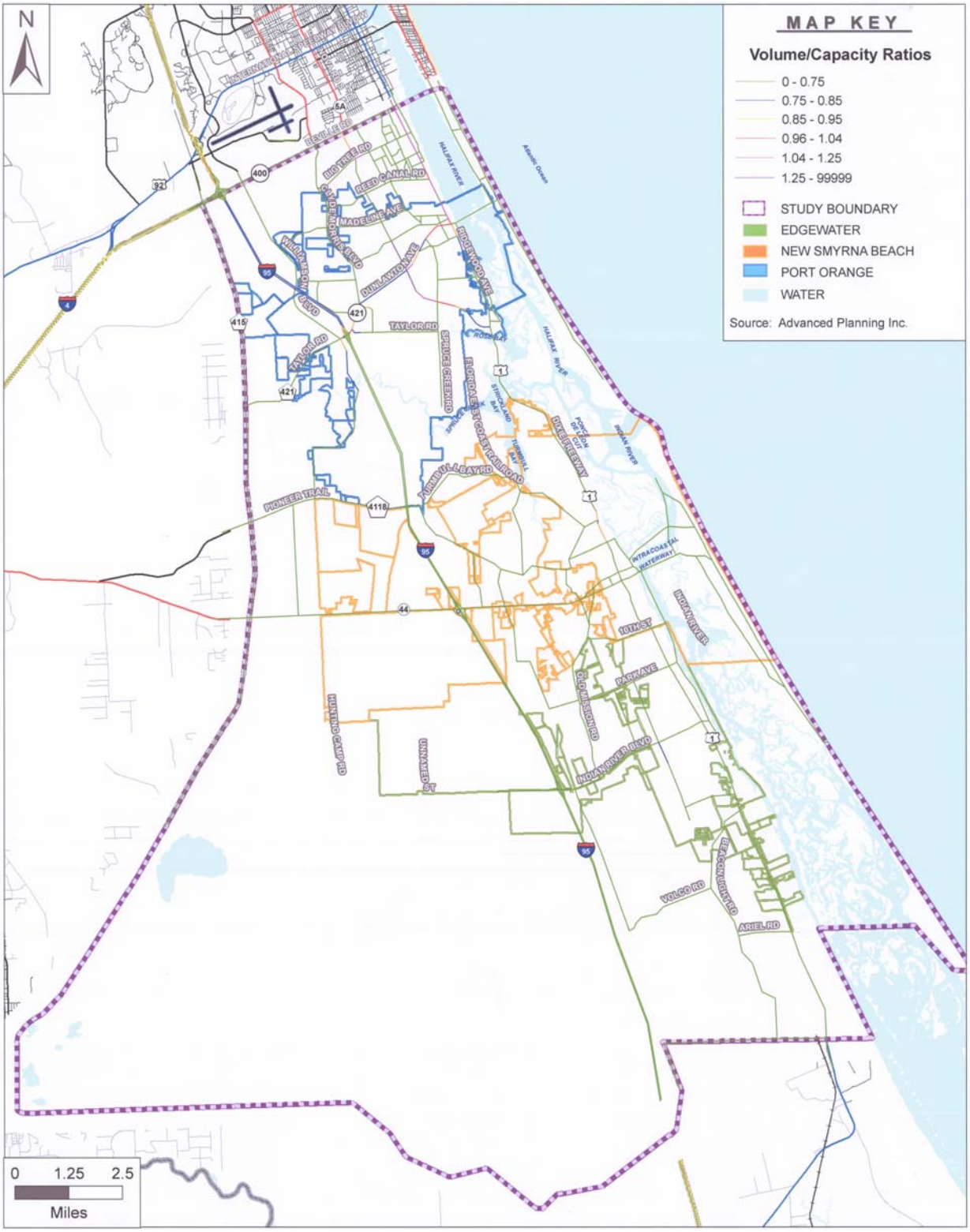
The use of traffic count data in regional transportation studies is crucial to the accuracy of the study results. Ghyabi & Associates collected the available traffic count information necessary to validate/calibrate the Base Year model. The traffic counts were reviewed for adequacy and were adjusted to average weekday peak season counts. The number of available and relevant 2005 traffic counts was sufficient for model validation. Traffic count data for the SVRTS came from two (2) sources, namely; Volusia County Traffic Engineering department and the District Five (5) FDOT offices in Deland. The *Southeast Volusia Regional Transportation Study* model was validated against the 2006 traffic count data (see **Map 7**). The validation was performed for each of the standard phases of the modeling process.

Volume to capacity ratios are displayed on **Map 8** using 2006 traffic count data divided by the existing roadway capacity, based on the acceptable levels-of-service as designated in each Study Partners' comprehensive plan.

Map 7: Roadway Volume, 2006



Map 8: Roadway Volume to Capacity, 2006



III. HORIZON YEAR (2015, 2025, AND 2030) DATA

In developing a transportation plan to meet the future needs of each of the Study Partners, it is necessary to determine where, and to what extent, deficiencies in the transportation system will exist. The basic premise involved in projecting future roadway traffic conditions is that there is a stable relationship between travel demand (as indicated by traffic volumes) and socioeconomic activities in an urban area. The demand for travel is created by land use activities. So, to forecast future travel demand, the best indicators of socioeconomic activity in an area are population and employment. As the population and employment increase in a given urban area, the demand upon the local transportation facilities should increase accordingly.

Ghyabi & Associates reviewed the datasets utilized in the Volusia County MPO *2025 Long Range Transportation Plan* (LRTP) that was adopted in November 2005. The Study Partners reviewed and provided projections of dwelling units, populations, hotel-motel units, employment, and school enrollment by TAZ for 2015, 2025, and 2030. The Zdata3 file was reviewed and it was determined that no additional special generators were necessary. Ghyabi & Associates checked the trips at the external stations and re-counting these locations was not necessary.

Ghyabi & Associates worked with the Study Partners to ensure that the future land use map is properly represented in the database and reflected in the Zdata files used to generate the horizon year travel demand.

STUDY AREA TRAFFIC ANALYSIS ZONES

To confirm the validity of the projected socio-economic data for each TAZ (Zdata), the Study Partners reviewed the Zdata for 2015, 2025, and 2030 for the study area. The compilation of the socio-economic data is shown in **Tables 7 through 9**. Once the Zdata was submitted for use, it was the input into the Trip Generation programs.

The zonal data included a number of attributes that represent different characteristics of the geographic area. The main attributes defined are:

- Residential Units (both single family and multi-family)
- Population
- Auto Ownership
- School Enrollment
- Retail Employment
- Commercial Employment, and
- Industrial Employment

The resulting output is a matrix illustrating trip productions and trip attractions for each TAZ. At this point the Trip Generation process is complete and the matrix is used as an input into the next step, Trip Distribution.

Spreadsheet files were given to each of the Study Partners that contained the existing TAZ datasets located within their respective jurisdictional boundaries. For the Zdata1 dataset, the information included the amount of residential units and population by TAZ. The Zdata2 dataset included information about the number of employees by sector, as well as, the school enrollment.

The partners agreed that there would not be limits or control totals utilized within this process. However, for comparative purposes, the consultant provided the partners with projection information from the Bureau of Employment and Population Research (BEBR) located at the University of Florida. This information was used to show the differences between the totals from the model (CFRPM) files and those from BEBR.

Based upon those comparisons, a lengthy discussion ensued. The City of New Smyrna Beach had concerns about the low BEBR projections in single-family units, as well as, the commercial square footage-to-employee ratio used in the CFRPM projections. Another issue was the decision to use, or not use the development numbers from the Restoration DRI application. It was agreed that this study would the units and employees from this DRI.

HOUSEHOLDS

The total number of single- and multi-family dwelling units within the study area is projected to increase 3.5 percent annually by 2015 to 109,630. By 2030, the total dwelling units in the study area is projected to increase 2.2 percent annually to 125,699. **Table 3** shows the percentage increases in dwelling units that are projected by the Study Partners to be experienced.

Table 3: Households, 2005 - 2030

	2005	2015	2025	2030	Annual Growth
Edgewater	14,396	23,072	29,732	28,527	3.9%
New Smyrna Beach	17,481	27,232	34,134	28,678	2.6%
Port Orange	36,010	45,005	52,331	45,005	1.0%
Unincorporated Volusia County	13,259	14,321	15,323	23,490	3.1%

Source: Study Partners, 2007

POPULATION

As in the past, the allocation of population growth to the TAZs began with the preparation of estimate totals by jurisdiction for housing units. The estimated number of each type of dwelling unit was then translated into population numbers, which are then assigned to the TAZs. The total population of the study area is projected to increase 3.5 percent annually by 2015 to 211,327. By 2030, the total population within the study area is projected to increase 2.1 percent annually to 238,716. **Table 4** shows the percentage increases in population that are projected by the Study Partners to be experienced.

Table 4: Population, 2005 - 2030

	2005	2015	2025	2030	Annual Growth
Edgewater	30,514	47,792	61,106	59,854	3.8%
New Smyrna Beach	29,381	47,310	60,065	49,777	2.8%
Port Orange	73,331	91,199	101,075	91,199	1.0%
Unincorporated Volusia County	22,837	25,027	27,154	37,886	2.6%

Source: Study Partners, 2007

EMPLOYMENT

As in the past, the allocation of employment to the TAZs began with the preparation of estimate totals by jurisdiction for non-residential square footage. The estimated square footage of each type of non-residential uses is then translated into employment numbers, which are then assigned to the TAZs by type. The total employment of the study area is projected to increase 5.1 percent annually by 2015 to 62,394. By 2030, the total population within the study area is projected to increase 3.1 percent annually to 72,926. **Table 5** shows the percentage increases in total employment that are projected by the Study Partners to be experienced.

Table 5: Total Employment, 2005 - 2030

	2005	2015	2025	2030	Annual Growth
Edgewater	5,594	9,333	12,107	11,397	4.1%
New Smyrna Beach	9,961	17,646	21,235	14,899	2.0%
Port Orange	17,887	25,639	31,948	25,639	1.7%
Unincorporated Volusia County	7,828	9,776	11,710	20,992	6.7%

Source: Study Partners, 2007

SCHOOL ENROLLMENT

The total school enrollment of the study area is projected to increase 0.6 percent annually by 2015 to 19,917. By 2030, the school enrollment within the study area is projected to increase 1.8 percent annually to 26,990. **Table 6** shows the percentage increases in school enrollment that are projected by the Study Partners to be experienced.

Table 6: School Enrollment, 2005 - 2030

	2005	2015	2025	2030	Annual Growth
Edgewater	1,758	2,844	4,209	4,592	6.5%
New Smyrna Beach	4,555	3,996	6,213	8,842	3.8%
Port Orange	10,480	10,480	10,480	10,480	0.0%
Unincorporated Volusia County	1,915	2,598	2,917	3,077	2.4%

Source: Study Partners, 2007

Several large-scale development applications were coded into the network datasets. The following were included:

TAZ #	Project Name	Units/Square Footages			
		SF Units	MF Units	Comm. Sq. Ft.	School Enrollment
2251	Gardens 207	993	535	320,000	0
2412	Venetian Palms	600	456	0	0
2414	Unknown	165	360	280,000	0
2426	Venetian Bay	824	923	107,000	735
2426	Promenade	332	0	0	0
2426	Tiffany	92	0	0	0
2427	Pioneer Land Trust	758	260	0	0
2428	Unknown	165	360	280,000	0
2430	Land Mar South Village	850	1062	239,000	3,235

TRIP GENERATION

Once the Zdata was submitted for use, it was the input into the Trip Generation programs.

Table 7: Horizon Year Data, 2015

City	TAZ	Single-Family Dwelling Units	Single-Family Population	Multi-Family Dwelling Units	Multi-Family Population	Hotel-Motel Units	Hotel-Motel Population	Industrial Employment	Commercial Employment	Service Employment	Total Employment	School Enrollment
	1779	95	216	58	183	3	2	276	21	204	501	0
	2188	1	2	338	95	896	788	0	128	388	516	0
	2189	265	565	111	31	19	16	46	70	91	207	0
	2190	80	176	0	0	0	0	0	2	2	4	0
	2191	82	181	3	3	0	0	0	0	1	1	0
	2192	225	480	782	263	33	29	23	287	301	611	553
	2193	37	79	1,096	216	213	172	6	0	49	55	0
	2194	0	0	126	70	1,118	982	0	7	334	341	0
	2195	0	0	151	31	961	789	0	0	49	49	0
PO	2196	465	818	111	61	18	16	59	578	161	798	0
PO	2197	160	180	230	130	20	18	3	200	115	318	0
PO	2198	3	4	502	239	420	372	2	38	44	84	0
PO	2199	685	1,179	576	388	30	26	8	43	57	108	0
NSB/PO	2200	1,379	2,860	1,243	708	64	54	24	245	496	765	0
	2201	149	297	475	942	61	53	33	171	128	332	0
	2202	61	114	287	496	0	0	137	159	549	845	0
	2203	645	1,727	0	0	0	0	12	76	161	249	0
	2204	817	2,048	0	0	0	0	269	205	585	1,059	0
	2205	1,816	4,556	0	0	0	0	39	28	194	261	0
	2206	599	1,437	62	82	0	0	2	11	296	309	1,273
	2207	136	312	252	481	0	0	8	93	73	174	0
	2208	59	116	183	357	29	26	5	130	371	506	0
	2209	6	16	408	519	0	0	18	353	808	1,179	0
PO	2210	20	80	200	150	0	0	10	200	200	410	0
PO	2211	10	25	175	200	50	0	3	200	300	503	0
PO	2212	0	0	100	100	50	0	350	100	160	610	0
PO	2213	30	70	180	200	150	0	171	100	60	331	0
PO	2214	5	10	0	0	0	0	3	30	70	103	0
PO	2215	596	1,630	305	250	0	0	4	13	15	32	0
PO	2216	500	1,100	100	250	0	0	39	4	6	49	0
PO	2217	450	1,000	500	850	0	0	120	435	362	917	882
PO	2218	340	900	300	900	0	0	34	450	500	984	0
	2219	380	1,040	1,228	1,429	0	0	0	439	0	439	0
PO	2220	130	330	1,200	1,800	0	0	45	100	150	295	1,540
PO	2221	701	1,793	1,350	2,025	0	0	20	200	180	400	0
PO	2222	390	800	555	1,110	0	0	100	325	1,480	1,905	1,886
	2223	549	1,371	842	1,533	0	0	18	2	101	121	0
PO	2224	162	405	430	710	0	0	14	50	40	104	0
PO	2225	1,028	2,294	913	1,362	0	0	283	11	494	788	0
PO	2226	159	366	0	0	0	0	0	500	0	500	0
PO	2227	881	1,938	1,230	2,218	0	0	40	140	450	630	0
PO	2228	1,278	2,811	1,179	2,122	0	0	13	400	450	863	860
PO	2229	100	170	350	348	0	0	8	153	150	311	0
PO	2230	110	250	190	283	0	0	3	66	10	79	0
PO	2231	302	774	200	300	0	0	14	75	50	139	0
PO	2232	0	0	0	0	0	0	0	0	1	1	0
PO	2233	210	370	300	310	10	9	57	61	400	518	394
PO	2234	180	360	580	650	0	0	44	18	35	97	0
PO	2235	79	160	25	50	0	0	650	250	350	1,250	0
PO	2236	650	1,400	530	600	0	0	58	750	650	1,458	0
PO	2237	0	0	600	800	0	0	6	1	20	27	0
PO	2238	400	888	1,050	1,500	0	0	40	111	140	291	0
PO	2239	234	606	134	178	10	9	5	10	20	35	0
PO	2240	0	0	350	750	0	0	8	5	60	73	0
PO	2241	1,200	3,050	1,200	1,650	0	0	22	260	550	832	0
PO	2242	765	1,950	268	430	0	0	17	620	750	1,387	2,996
PO	2243	70	165	0	0	0	0	4	450	200	654	0
PO	2244	875	2,625	11	28	200	0	23	11	50	84	0
PO	2245	1,300	3,900	75	175	0	0	49	5	169	223	720
PO	2246	480	1,400	85	190	0	0	18	44	48	110	0
PO	2247	600	1,600	18	27	0	0	9	6	55	70	0
PO	2248	650	2,400	32	21	0	0	2	8	10	20	0
PO	2249	21	50	64	36	0	0	1	7	280	288	0
NSB/PO	2250	137	267	0	0	0	0	10	0	40	50	0
NSB/PO	2251	826	1,613	476	619	0	0	100	339	488	927	0
NSB/PO	2252	1,230	2,424	171	239	0	0	78	103	159	340	0
NSB	2253	400	975	5	7	0	0	7	366	54	427	0
NSB	2254	300	724	109	132	0	0	5	30	30	65	0
NSB	2255	24	56	50	72	0	0	2	56	16	74	0
NSB	2256	0	0	0	0	0	0	0	8	1	9	0
NSB	2257	752	1,615	102	149	0	0	7	82	80	169	0
NSB	2258	0	0	0	0	0	0	198	87	128	413	0
NSB	2259	1,106	2,302	550	673	0	0	19	12	185	216	0
NSB	2260	177	432	8	12	0	0	5	76	53	134	0
NSB	2261	4	11	2	2	10	8	1	4	2	7	0
NSB	2262	657	1,390	760	1,968	0	0	50	59	307	416	224
NSB	2263	30	58	216	513	0	0	36	166	486	688	0
NSB	2264	37	70	7	17	7	6	69	151	310	530	0
NSB	2265	248	480	114	270	45	40	32	78	124	234	0
NSB	2266	234	508	117	164	59	51	126	85	265	476	0
NSB	2267	255	603	51	74	33	28	15	217	110	342	0
NSB	2268	392	452	464	645	10	8	2	20	51	73	0
NSB	2269	309	673	550	613	14	12	42	286	660	988	0
NSB	2270	61	92	440	619	0	0	0	0	24	24	0
NSB	2271	378	566	136	191	0	0	5	213	163	381	0
NSB	2272	381	550	137	212	0	0	6	72	49	127	0
NSB	2273	105	158	249	382	0	0	0	54	12	66	0
NSB	2274	66	99	83	122	290	243	0	95	13	108	0
NSB	2275	372	516	111	107	11	10	15	67	58	140	0
NSB	2276	25	62	2	2	0	0	18	14	11	43	0
	2277	607	1,399	540	772	0	0	1,120	5	510	1,635	0
PO	2278	22	51	690	1,040	0	0	95	146	457	698	0
	2285	0	0	0	0	0	0	43	0	1	44	0
E/NSB	2286	47	119	0	0	0	0	9	104	9	122	0
E/NSB	2288	282	414	113	179	184	158	7	104	111	222	0
E/NSB	2289	2,507	3,648	999	1,570	103	89	7	104	111	222	215
NSB	2290	611	965	953	739	24	18	4	3	81	88	0
E/NSB	2291	0	0	0	0	13	10	0	0	0	0	0
E	2292	0	0	231	179	112	86	0	0	0	0	0
	2293	282	561	178	133	0	0	72	53	58	183	0
	2294	1	3	0	0	0	0	0	2	1	3	0
NSB	2296	100	194	56	134	0	0	16	102	454	572	0
E/NSB	2297	221	433	175	423	61	54	32	74	224	330	340
NSB	2298	313	795	328	410	0	0	69	163	534	766	3,494
NSB	2299	20	50	129	178	0	0	3	236	282	521	0
NSB	2300	349	813	280	349	0	0	23	207	143	373	0
E/NSB	2301	400	761	76	117	0	0	10	93	34	137	0
NSB	2302	356	954	245	515	0	0	0	0	0	0	0
E	2303	160	425	132	258	0	0	10	11	43	64	0
NSB	2304	65	158	75	130	0	0	246	92	183	521	0
E/NSB	2305	148	361	321	561	20	17	38	49	271	358	0
E/NSB	2306	334	814	87	151	31	26	15	73	201	289	0
E	2307	277	437	124	189	20	17	33	62	119	214	0
E	2308	299	697	74	109	0	0	59	57	83	199	0
E	2309	66	104	199	303	0	0	271	23	85	379	0
E	2310	176	278	494	753	48	42	202	195	407	804	866
E	2311	743	1,799	170	307	0	0	56	71	41	168	0
E	2312	979	2,440	93	212	0	0	210	55	74	339	0
E	2313	71	171	37	66	0	0	110	32	30	172	0
E	2314	70	166	255	398	0	0	31	220	50	301	0
E	2315	241	713	25	59	0	0	21	3	2	26	0
E	2316	1,148	2,914	0	0	0	0	9	11	5	25	900
E	2317	733	1,859	91	213	0	0	42	45	115	202	0
E	2318	1,252	3,482	0	0	0	0	12	8	24	44	0
E	2319	1,271	3,809	0	0	0	0	11	15	5	31	0
E	2320	645	1,937	61	149	0	0	9	7	9	25	0
E	2321	569	1,581	124	249	0	0	21	11	26	58	0
E	2322	934	2,240	332	442	0	0	95	628	168	891	0
E	2323	194	461	533	699	0	0	18	114	172	304	0
E	2324	31	69	14	26	80	67	4	51	172	227	800
E	2325	130	308	12	15	0	0	7	16	8	31	0
E	2326	479	954	1,681	1,843	0	0	121	122	131	374	0
E	2327	236	699	311	485	0	0	102	61	102	265	0
PO	2401	2,100	4,620	642	1,284	0	0	150	480	380	1,010	0
PO	2402	0	0	0	0	0	0	550	1,210	500	2,260	0
PO	2403	120	280	0	0	0	0	50	50	150	250	0
PO	2404	700	1,150	350	515	0	0	3	136	160	299	0
PO	2405	264	646	470	907	0	0	3	25	110	138	0
PO	2406	200	4,400	500	750	0	0	35	80	380	495	0
PO	2407	2,456	5,403	600	900	0	0	36	450	100	586	1,202
PO	2408	439	1,057	304	589	0	0	105	7	71	183	0
	2409	231	526	3	6	3	2	27	2	18	47	0
	2411	57	136	18	27	4	3	55	10	40	105	772
NSB	2412	403	795	228	296	4	3	0	0	0	0	0
NSB	2413	218	424	106	138	0	0	25	988	5	1,018	0
NSB	2414	0	0	0	0	0	0	12	2,200	0	2,212	0
NSB	2415	403	964	262	393	4	3	27	64	76	167	0
E/NSB	2417	139	331	20	30	4	3	23	7	13	43	0
E	2418	576	1,716	786	1,179	0	0	52	913	45	1,010	0
E	2423	65	156	117	178	4	3	285	2	62	349	0
NSB	2426	930	1,716	902	1,150	0	0	0	813	50	863	0
NSB	2427	508	951	254	330	0	0	0	154	369	523	0
E/NSB	2428	683	1,278	262	341	0	0	0	55	73	128	0
E/NSB	2429	1,261	3,003	1,961	2,942	0	0	0	1,250	2,268	3,518	0
E/NSB	2430	831	1,621	795	1,034	0	0	0	210	83	293	0
	Total	62,059	145,349	47,571	65,978	5,553	4,368	8,824	24,729	28,841	62,394	19,917

Source: Study Partners, 2007

Table 8: Horizon Year Data, 2025

City	TAZ	Single-Family Dwelling Units		Single-Family Population		Multi-Family Dwelling Units		Multi-Family Population		Hotel-Motel Units		Hotel-Motel Population		Industrial Employment		Commercial Employment		Service Employment		Total Employment		School Enrollment	
Source		MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS	MPO	SVRTS
	1779	95	95	216	216	58	58	183	183	4	4	4	4	276	276	21	21	204	204	501	501	0	0
	2188	1	1	2	2	345	345	113	113	924	924	818	818	0	0	166	166	434	434	600	600	0	0
	2189	303	303	636	636	113	113	37	37	21	21	19	19	56	56	91	91	102	102	249	249	0	0
	2190	81	81	179	179	0	0	0	0	0	0	0	0	0	0	2	2	2	2	4	4	0	0
	2191	83	83	184	184	3	3	4	4	0	0	0	0	0	0	0	0	1	1	1	1	0	0
	2192	257	257	540	540	812	812	266	266	33	33	29	29	28	28	372	372	337	337	737	737	553	553
	2193	42	42	88	88	1,096	1,096	359	359	302	302	267	267	7	7	0	0	55	55	62	62	0	0
	2194	0	0	0	0	134	134	70	70	1,161	1,161	1,027	1,027	0	0	9	9	374	374	383	383	0	0
	2195	0	0	0	0	151	151	49	49	1,306	1,306	1,156	1,156	0	0	0	0	55	55	55	55	0	0
PO	2196	520	520	921	921	118	118	61	61	20	20	18	18	72	72	749	749	180	180	1,001	1,001	0	0
PO	2197	172	170	252	220	236	400	106	200	54	0	48	0	4	4	302	302	130	130	436	436	0	0
PO	2198	3	3	5	5	529	529	239	239	420	420	372	372	2	2	49	49	49	49	100	100	0	0
PO	2199	790	790	1,385	1,385	641	641	388	388	34	34	30	30	9	9	48	48	68	68	125	125	0	0
NSB/PO	2200	1,682	1,682	3,457	3,457	1,337	1,337	804	804	76	76	67	67	27	27	281	281	593	593	901	901	0	0
	2201	150	150	299	299	478	478	948	948	61	61	54	54	34	34	182	182	145	145	361	361	0	0
	2202	61	61	115	115	289	289	499	499	0	0	0	0	143	143	170	170	623	623	936	936	0	0
	2203	650	650	1,739	1,739	0	0	0	0	0	0	0	0	12	12	81	81	182	182	275	275	0	0
	2204	822	822	2,062	2,062	0	0	0	0	0	0	0	0	282	282	219	219	664	664	1,165	1,165	0	0
	2205	1,828	1,828	4,587	4,587	0	0	0	0	0	0	0	0	41	41	30	30	220	220	291	291	0	0
	2206	603	603	1,447	1,447	62	62	83	83	0	0	0	0	2	2	12	12	336	336	350	350	1,464	1,464
	2207	137	137	314	314	254	254	484	484	0	0	0	0	8	8	99	99	83	83	190	190	0	0
	2208	59	59	117	117	184	184	359	359	29	29	26	26	5	5	139	139	421	421	565	565	0	0
	2209	6	6	16	16	410	410	522	522	0	0	0	0	19	19	377	377	917	917	1,313	1,313	0	0
PO	2210	36	20	97	80	50	400	64	200	0	0	0	0	11	11	56	200	64	250	131	461	0	0
PO	2211	18	10	43	25	159	200	302	250	0	200	0	0	10	10	195	450	189	700	394	1,160	0	0
PO	2212	1	0	3	0	101	200	129	200	0	100	0	0	379	360	108	110	184	190	671	660	0	0
PO	2213	134	30	321	70	97	300	184	225	0	100	0	0	171	171	57	115	98	100	326	386	0	0
PO	2214	16	5	31	10	20	0	26	0	0	0	0	0	3	3	13	40	81	100	97	143	0	0
PO	2215	607	596	1,658	1,630	5	400	8	290	0	0	0	0	5	5	11	13	19	17	35	35	0	0
PO	2216	431	500	1,177	1,100	9	500	15	350	0	0	0	0	40	41	5	5	7	8	52	54	0	0
PO	2217	875	450	2,519	1,000	550	600	1,033	1,000	0	0	0	0	120	120	120	500	594	400	834	1,020	1,197	882
PO	2218	475	340	1,270	900	400	600	1,087	1,000	0	0	0	0	34	34	367	500	943	650	1,344	1,184	0	0
	2219	394	380	1,081	1,040	1,235	1,228	1,449	1,429	0	0	0	0	28	0	439	439	251	0	718	439	0	0
PO	2220	177	130	437	330	1,124	1,200	1,695	1,800	0	0	0	0	45	45	58	180	281	200	384	425	2,090	1,540
PO	2221	1,007	701	2,589	1,793	1,085	1,350	1,873	2,025	0	0	0	0	20	20	35	400	220	190	275	610	0	0
PO	2222	450	430	1,081	1,000	730	780	1,394	1,300	0	0	0	0	255	125	179	400	2,215	2,000	2,649	2,525	2,560	1,886
	2223	561	561	1,399	1,399	861	861	1,560	1,560	0	0	0	0	18	18	2	2	105	105	125	125	0	0
PO	2224	231	170	584	405	362	450	663	810	0	0	0	0	14	14	124	80	68	80	206	174	0	0
PO	2225	1,048	1,048	2,341	2,341	929	929	1,385	1,385	0	0	0	0	283	283	11	11	514	514	808	808	0	0
PO	2226	264	264	609	609	0	0	0	0	0	0	0	0	0	0	833	833	0	0	833	833	0	0
PO	2227	731	881	1,629	1,938	811	1,380	1,213	2,484	0	0	0	0	40	40	130	140	824	475	994	655	0	0
PO	2228	1,288	1,300	3,456	2,900	446	1,530	800	2,790	0	0	0	0	13	13	123	475	423	600	559	1,088	1,167	860
PO	2229	107	107	210	190	274	274	348	350	19	19	17	17	8	8	153	153	199	199	360	360	0	0
PO	2230	127	127	327	327	206	200	283	300	0	0	0	0	3	3	66	66	12	15	81	84	0	0
PO	2231	434	302	1,117	774	195	250	269	375	0	0	0	0	14	14	75	75	77	27	166	116	0	0
PO	2232	0	20	0	40	0	0	0	0	0	0	0	0	25	0	200	0	200	2	425	2	0	0
PO	2233	237	237	464	390	315	315	400	320	14	14	12	12	57	57	61	61	653	480	771	598	535	394
PO	2234	139	139	279	229	594	594	886	880	28	28	25	25	44	44	18	18	55	55	117	117	0	0
PO	2235	52	85	142	142	18	25	24	50	0	0	0	0	590	650	224	250	329	350	1,143	1,250	0	0
PO	2236	677	677	1,833	1,833	552	552	937	937	0	0	0	0	58	58	552	800	710	750	1,320	1,608	0	0
PO	2237	0	0	0	0	665	665	846	846	0	0	0	0	6	6	1	1	28	35	35	42	0	0
PO	2238	519	400	1,360	880	1,307	1,050	1,939	1,500	28	0	25	0	40	40	111	111	232	280	383	431	0	0
PO	2239	337	234	874	606	176	134	258	178	14	10	12	9	5	5	10	10	28	28	43	43	0	0
PO	2240	0	0	0	0	435	435	987	987	0	0	0	0	8	8	3	5	71	70	82	83	0	0
PO	2241	1,527	1,000	4,305	3,100	1,463	1,300	2,308	1,700	0	0	0	0	22	22	260	260	792	800	1,074	1,082	0	0
PO	2242	977	765	2,510	1,950	373	268	643	420	0	0	0	0	17	17	568	630	1,042	900	1,627	1,547	4,066	2,996
PO	2243	89	75	226	170	0	0	0	0	0	0	0	0	4	4	30	470	118	225	152	699	0	0
PO	2244	1,120	875	3,340	2,625	18	18	41	41	0	200	0	0	23	23	11	11	69	69	103	103	0	0
PO	2245	1,635	1,600	4,729	4,625	118	75	264	110	0	0	0	0	49	49	5	5	332	200	386	254	977	720
PO	2246	681	500	1,969	1,500	102	100	228	200	0	0	0	0	18	18	44	46	94	60	156	124	0	0
PO	2247	655	665	1,868	1,868	22	22	35	35	0	0	0	0	9	9	6	6	88	88	103	103	0	0
PO	2248	815	850	2,324	2,280	42	37	80	21	0	0	0	0	2	2	8	8	20	20	30	30	0	0
PO	2249	32	30	79	50	79	70	47	36	0	0	0	0	1	2	7	7	332	340	340	349	0	0
NSB/PO	2250	75	137	146	267	2	0	3	0	0	0	0	0	10	0	0	0	60	0	70	0	0	0
NSB/PO	2251	315	1,542	614	3,011	174	835	226	1,086	0	125	0	110	7	100	60	339	54	54	121	493	0	0
NSB/PO	2252	1,012	1,057	1,973	2,083	149	196	193	274	0	0	0	0	58	98	7	103	159	159	224	360	0	0
NSB	2253	111	400	270	975	5	5	6	7	0	0	0	0	7	7	121	371	37	57	165	435	0	0
NSB	2254	159	500	375	1,207	261	261	339	339	0	0	0	0	5	5	93	30	100	30	198	65	0	0
NSB	2255	24	24	57	58	52	50	75	72	0	0	0	0	2	2	55	55	15	15	72	72	0	0
NSB	2256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	1	1	9	9	0	0
NSB	2257	834	752	1,626	1,403	102	102	149	149	0	0	0	0	7	7	55	82	35	80	97	169	0	0
NSB	2258	0	0	0	0	0	0	0	0	0	0	0	0	178	218	90	90	137	137	405	445	0	0
NSB	2259	1,326	1,126	2,757	2,340	550	550	669	669	0	0	0	0	19	19	12	12	180	180	211	211	0	0
NSB	2260	174	177	423	423	8	8	10	10	0	0	0	0	5	5	79	79	58	58	142	142	0	0
NSB	2261	4	4	11	11	2	2	3	3	10	10	9	9	1	1	4	4	2	2	7	7	0	0
NSB	2262	872	672	1,848	1,422	785	785	2,000	2,000	0	0	0	0	50	50	58	58	295	295	403	403	472	261
NSB	2263	30	30	58	58	222	222	521	521	0	0	0	0	36	36	169	169	504	504	709	709	0	0
NSB	2264	9	37	17	66	7	7	17	17	7	7	6	6	69	69	157	157	341	341	567	567	0	0
NSB	2265	237	248	460	480	117	114	274	264	46	46	41	41	32	32	81	81	136	136	249	249	0	0
NSB	2266	237	237	515	515	120	117	156	164	62	62	55	55	126	126	88	88	291	291	505	505	261	0
NSB	2267	233	255	549	603	52	51	75	73	33	33	29	29	15	15	226	226	121	121	362	362	0	0
NSB	2268	390	392	448	449	292	544	379	756	11	11	10	10	2	2	12	20	62	51	76	73	0	0
NSB	2269	232	423	504	921	630	630	819	819	15	15	13	13	42	42	292	292	688	688	1,022	1,022	2,331	0
NSB	2270	47	61	71	92	397	440	515	619	0	0	0	0	0	0	0	0	22	22	22	22	0	0
NSB	2271	406	380	601	560	118	150	153	211	0	0	0	0	5	5	204	204	147	147	356	356	0	0
NSB	2272	391	391	579	579	138	137	179	172	0	0	0	0	6	6	75	75	53	53	134	134	0	0
NSB	2273	45	105	67	158	211	257	274	394	0	0	0	0	0	0	56	56	13	13	69	69	0	0
NSB	2274	60	66	89	99	84	83	109	109	366	366	324	324	0	0	13	13	104	104	117	117	0	0
NSB	2275	389	389	576	576	112	112	145	145	12	12	11	11	15	15	67	67	58	58	140	140	0	0
NSB	2276	26	25	63	62	2	2	3	3	0	0	0	0	18	18	14	14	12	12	44	44	0	0
	2277	1,011	1,011	2,332	2,332	900	900	1,287	1,287	0	0	0	0	1,867	1,867	5	5	850	850	2,722	2,722	0	0
PO	2278	22	22	52	52	703	703	1,058	1,058	0	0	0	0	95	95	146	146	476	476	717	717	0	0
	2285	0	0	0	0	0	0	0	0	0	0	0	0	43	43	0	0	1	1	44	44	0	0
E/NSB	2286	21	47	52	119	0	0	0	0	0	0	0	0	9	9	4	104	10	10	23	123	0	0
E/NSB	2288	383	303	567	445	81	139	105	220	205	205	181	181	7	7	108	108	122	122	237	237	0	0
E/NSB	2289	1,019	2,507	1,508	3,648	380	1,009	493	1,586	116	116	103	0	7	7	481	517	580	580	1,068	1,104	388	250
NSB	2290	612	612	967	967	953	953	1,124	1,124	39	39	35	35	4	4	3	3	81	81	88	88	0	0
E/NSB	2291	0	0	0	0	0	0	0	0	21	21	19	19	0	0	0	0	0	0	0	0	0	0
E	2292	0	0	0	0	231	231	273	273	186	186	165	165	0	0	0	0	0	0	0	0	0	0
	2293	310	310	686	686	195	195	205	205	0	0	0	0	72	72	53	53	62	62	187	187	0	0
	2294	1	1	3	3	0	0	0	0	0	0	0	0	0	0	2	2	1	1	3	3	0	0
NSB	2296	102	102	198	198	59	56	139	131	0	0	0	0	16	16	106	106	311	454	433	576	0	0
E/NSB	2297	371	221	728	433	180	180	430	430	62	62	55	55	32	32	76	76	241	241	349	349	691	397
NSB	2298	161	363	406	921	224	348	291	435	0	0	0	0	9	99	13	163	256	534	278	796	1,932	4,668
NSB	2299	4	20	10	50	128	129	177	178	0	0	0	0	3	3	246	246	310	310	559	559	0	0
NSB	2300	356	356	826	824	278	400	361	499	0	162	0	143	23	23	117	307	138	173	278	503	0	0
E/NSB	2301	206	400	402	761	79	76	122	117	0	0	0	0	19	10	346	193	81	64	446	267	0	0
NSB	2302	273	456	734	1,223	153	345	323	726	0	0	0	0	29	0	22	0	56	0	107	0	0	0
E	2303	192	192	507	507	160	160	303	303	0	0	0	0	11	11	13	13	54	54	78	78	0	0
NSB	2304	80	80	198	198	93	93	160	160	0	0	0	0	219	287	111	114	244	244	574	646	0	0
E/NSB	2305	174	182	429	449	401	401	690	690	25	25	22	22	46	46	57	60	280	341	383	447	0	0
E/NSB	2306	392	410	967	1,011	108	108	186	186	38	38	34	34	18	18	86	90	268	268	372	376	0	0
E	2307	314	319	539	548	151	151	233	233	25	25	22	22	40	40	45	71	159	159	244	270	0	0
E	2308	356	366	846	870	89	89	134	134	0	0	0	0	72	72	65	70	111	111	248	253	0	0
E	2309	76	76	131	131	242	242	372	372	0	0	0	0	333	333	29	29	113	113	475	475	0	0
E	2310	202	203	347	349	601	601	926	926	0	48	0	43	187	237	222	240	544	544	953	1,021	1,599	916
E	2311	846	907	2,074	2,224	213	213	377	377	0	0	0	0	69	69	89	89	54	54	212	212	0	0
E	2312	1,136	1,204	2,851	3,022	123	123	260	260	0	0	0	0	203	248	69	69	99	99	371	416	0	0
E	2313	88	88	214	214	46	46	81	81	0	0	0	0	97	128	40	40	40	40	177	208	0	0
E	2314	21	74	51	180	311	311	489	489	0	0	0	0	38	38	275	275	66	66	379	379	0	0
E	2315	310	311	891	894	33	33	73	73	0	0	0	0	26	26	3	3	2	2	31	31	0	0
E	2316	1,257	1,401	3,200	3,567	0	0	0	0	0	0	0	0	11	11	13	13	6	6	30	30	0	1,164
E	2317	776	889	1,974	2,261	116	120	250	259	0	0	0	0	51	51	30	51	153	153	234	255	0	0
E	2318	1,339	1,541	3,662	4,214	0	0	0	0	0	0	0	0	14	14	10	10	32	32	56	56	0	0
E	2319	1,360	1,582	3,937	4,580	0	0	0	0	0	0	0	0	13	13	18	18	6	6	37	37	0	0
E	2320	663	797	1,921	2,309	74	80	165	178	0	0	0	0	8	10	8	8	12	12	28	30	0	0
E	2321	585	695	1,599	1,900	148	157	284	301	0	0	0	0	21	25	5	12	34	34	60	71	0	0
E	2322	847	1,097	2,062	2,671	391	394	540	544	0	0	0	0	105	114	735	776	224	224	1,064	1,114	0	0
E	2323	205	233	495	563	632	632	860	860	0	0	0	0	22	22	77	129	230	230	329	381	0	0
E	2324	2	31	5	78	16	16	22	38	100	100	89	89	0	4	13	53	230	230	243	287	1,499	845
E	2325	160	160	386	386	14	14	18	18	0	0	0	0	8	8	20	20	10	10	38	38	0	0
E	2326	539	539	1,195	1,195	1,894	1,894	1,989	1,989	0	0	0	0	121	121	122	122	142	142	385	385	0	0
E	2327	266	266	699	699	350	350	485	485	0	0	0	0	102	102	61	61	110	110	273	273	0	0
PO	2401	2,164	2,200	4,992	4,820	624	750	892	1,350	0	0	0	0	197	210	648	700	644	700	1,489	1,610	500	0
PO	2402	0	0	0	0	0	0	0	0	0	0	0	0	297	700	100	1,500	98	600	495	2,800	0	0
PO	2403	190	190	465	465	0	0	0	0	0	0	0	0	19	55	22	50	157	170	198	275	0	0
PO	2404	895	895	2,202	1,200	404	404	786	886	0	0	0	0	4	4	52	145	406	300	462	449	0	0
PO	2405	264	264	646	646	470	470	907	907	0	0	0	0	3	3	75	75	71	140	149	218	0	0
PO	2406	2,280	2,250	5,612	5,612	609	609	1,186	1,186	0	0	0	0	34	34	138	140	459	500	631	674	500	0
PO	2407	1,475	2,600	3,631	5,720	23	700	45	1,050	0	0	0	0	99	99	350	750	318	350	767	1,199	2,512	1,202
PO	2408	553	553	1,353	1,353	391	391	755	755	0	0	0	0	112	112	7	7	102	102	221	221	0	0
	2409	231	231	527	527	3	3	6	6	5	5	4	4	27	27	2	2	18	18	47	47	0	0
	2411	57	57	136	136	18	18	27	27	6	6	5	5	55	55	10	10	40	40	105	105	422	900
NSB	2412	630	617	1,229	1,200	270	456	351	592	6	6	5	5	45	0	18	0	7	0	70	0	0	0
NSB	2413	435	435	848	848	212	212	276	276	0	0	0	0	10	25	12	988	5	5	27	1,018	0	0
NSB	2414	0	0	0	0	0	250	0	325	0	0	0	0	12	12	0	2,200	0	250	12	2,462	0	0
NSB	2415	23	403	55	964	6	262	9	393	6	6	5	5	27	27	9	524	2	673	38	1,224	0	0
E/NSB	2417	139	139	332	332	20	20	30	30	6	6	5	5	23	23	7	7	13	13	43	43	0	0
E	2418	0	576	0	1,377	0	786	0	1,179	0	0	0	0	71	71	0	913	0	45	71	1,029	0	0
E	2423	65	65	156	156	117	117	178	178	6	6	5	5	285	285	2	2	62	62	349	349	0	0
NSB	2426	658	930	1,283	1,716	240	902	312	1,150	0	0	0	0	1	0	188	813	0	369	189	1,182	0	0
NSB	2427	658	1,016	1,283	1,901	242	262	315	341	0	0	0	0	0	0	188	60	0	488	188	548	0	0
E/NSB	2428	0	840	0	1,572	0	0	0	0	0	0	0	0	0	0	0	523	0	673	0	1,196	0	0
E/NSB	2429	0	3,783	0	9,036	0	6,083	0	9,124	0	0	0	0	0	0	0	1,250	0	2,268	0	3,518	0	1,920
E/NSB	2430	930	1,076	1,814	2,098	570	795	741	1,034	0	0	0	0	0	0	310	524	0	673	310	1,197	0	0
	Total	63,572	73,771	150,754	168,457	42,739	57,748	60,670	80,942	5,962	6,811	5,278	5,395	9,625	10,334	16,856	29,626	31,622	37,038	58,103	76,999	27,716	23,818

Note: **Green** numbers are increases compared to the MPO model and **red** numbers are decreases

Sources: Volusia County MPO 2025 Long Range Transportation Plan, *November 2005, and Study Partners, 2007*

Table 9: Horizon Year Data, 2030

City	TAZ	Single-Family Dwelling Units	Single-Family Population	Multi-Family Dwelling Units	Multi-Family Population	Hotel-Motel Units	Hotel-Motel Population	Industrial Employment	Commercial Employment	Service Employment	Total Employment	School Enrollment
	1779	95	216	58	183	5	5	276	21	204	501	0
	2188	1	2	349	122	938	828	0	185	457	642	0
	2189	322	672	114	40	22	20	61	102	108	271	0
	2190	82	181	0	0	0	0	0	2	2	4	0
	2191	84	186	3	5	0	0	0	0	1	1	0
	2192	273	570	827	268	33	29	31	415	355	801	553
	2193	45	93	1,096	431	347	299	8	0	58	66	0
	2194	0	0	138	70	1,183	1,042	0	10	394	404	0
	2195	0	0	151	58	1,479	1,278	0	0	58	58	0
PO	2196	548	973	122	61	21	19	79	835	190	1,104	0
PO	2197	170	240	450	225	0	0	4	320	140	464	0
PO	2198	3	6	543	239	420	372	2	55	52	109	0
PO	2199	843	1,488	674	388	36	31	10	51	74	135	0
NSB/PO	2200	1,834	3,756	1,384	852	82	71	29	299	642	970	0
	2201	151	300	480	951	61	54	35	188	154	377	0
	2202	61	116	290	501	0	0	146	176	660	982	0
	2203	653	1,745	0	0	0	0	12	84	193	289	0
	2204	825	2,069	0	0	0	0	289	226	704	1,219	0
	2205	1,834	4,603	0	0	0	0	42	31	233	306	0
	2206	605	1,452	62	84	0	0	2	13	356	371	1,560
	2207	138	315	255	486	0	0	8	102	88	198	0
	2208	59	118	185	360	29	26	5	144	446	595	0
	2209	6	16	411	524	0	0	20	389	972	1,381	0
PO	2210	20	80	400	200	0	0	11	210	260	481	0
PO	2211	10	25	250	300	100	0	10	550	800	1,360	0
PO	2212	0	0	300	300	100	0	360	120	200	680	0
PO	2213	30	70	313	250	100	0	171	120	110	401	0
PO	2214	5	10	0	0	0	0	3	50	110	163	0
PO	2215	596	1,630	400	320	0	0	5	14	20	39	0
PO	2216	500	1,100	600	500	0	0	42	5	8	55	0
PO	2217	450	1,000	650	1,100	0	0	120	550	425	1,095	882
PO	2218	340	900	650	1,100	0	0	34	525	700	1,259	0
	2219	380	1,040	1,228	1,429	0	0	0	439	0	439	0
PO	2220	150	370	1,200	1,800	0	0	45	200	220	465	1,540
PO	2221	701	1,793	1,350	2,025	0	0	25	410	190	625	0
PO	2222	430	1,000	780	1,300	0	0	170	420	2,100	2,690	1,886
	2223	567	1,413	871	1,574	0	0	18	2	107	127	0
PO	2224	170	405	460	828	0	0	14	100	100	214	0
PO	2225	1,058	2,365	937	1,397	0	0	283	11	524	818	0
PO	2226	317	731	0	0	0	0	0	1,000	0	1,000	0
PO	2227	881	1,938	1,400	2,500	0	0	40	150	500	690	0
PO	2228	1,300	2,900	1,550	2,790	0	0	13	500	610	1,123	860
PO	2229	120	200	300	350	40	20	8	175	200	383	0
PO	2230	127	321	200	300	0	0	3	66	20	89	0
PO	2231	302	774	300	450	0	0	14	80	85	179	0
PO	2232	20	40	0	0	0	0	0	0	2	2	0
PO	2233	250	400	400	340	0	0	57	61	530	648	394
PO	2234	142	235	599	890	0	0	44	18	55	117	0
PO	2235	88	150	25	50	0	0	650	250	350	1,250	0
PO	2236	680	1,844	560	950	0	0	58	850	800	1,708	0
PO	2237	0	0	0	0	0	0	6	1	32	39	0
PO	2238	450	880	1,150	1,725	0	0	40	111	300	451	0
PO	2239	234	606	134	178	10	9	5	10	30	45	0
PO	2240	0	0	435	987	0	0	8	6	80	94	0
PO	2241	1,500	3,150	1,400	1,750	0	0	22	300	810	1,132	0
PO	2242	765	1,950	268	418	0	0	17	635	950	1,602	2,996
PO	2243	78	170	0	0	0	0	4	490	250	744	0
PO	2244	875	2,625	18	182	0	0	23	11	69	103	0
PO	2245	1,630	4,729	75	100	200	0	49	5	230	284	720
PO	2246	500	1,500	100	200	0	0	18	46	65	129	0
PO	2247	670	2,000	23	34	0	0	9	6	90	105	0
PO	2248	810	2,320	37	21	0	0	2	8	20	30	0
PO	2249	32	50	74	36	0	0	2	8	380	390	0
NSB/PO	2250	75	146	2	2	0	0	10	0	65	75	0
NSB/PO	2251	379	740	216	281	0	0	7	71	56	134	0
NSB/PO	2252	1,057	2,083	150	210	0	0	58	22	226	306	0
NSB	2253	112	273	5	7	0	0	7	124	39	170	0
NSB	2254	138	333	287	348	0	0	5	195	111	311	0
NSB	2255	24	58	53	76	0	0	2	119	16	137	0
NSB	2256	0	0	0	0	0	0	0	8	1	9	0
NSB	2257	875	1,632	101	148	0	0	7	144	44	195	0
NSB	2258	0	0	0	0	0	0	178	98	142	418	0
NSB	2259	1,336	2,777	550	667	0	0	19	19	181	219	0
NSB	2260	176	0	8	12	0	0	5	81	61	147	0
NSB	2261	4	11	2	4	10	9	1	4	2	7	0
NSB	2262	880	1,862	798	2,016	0	0	50	82	300	432	280
NSB	2263	30	58	225	525	0	0	36	175	524	735	0
NSB	2264	9	16	7	17	7	6	69	160	357	586	0
NSB	2265	239	463	119	276	47	41	32	83	142	257	0
NSB	2266	239	519	121	170	64	56	126	90	304	520	0
NSB	2267	231	546	52	74	33	29	15	231	127	373	0
NSB	2268	389	446	257	357	12	11	2	37	84	123	0
NSB	2269	232	505	670	922	16	13	42	311	713	1,066	0
NSB	2270	47	71	395	556	0	0	0	0	26	26	0
NSB	2271	420	619	119	167	0	0	5	274	150	429	0
NSB	2272	396	0	138	214	0	0	6	77	56	139	0
NSB	2273	54	81	206	316	0	0	0	57	14	71	0
NSB	2274	69	103	84	123	404	351	0	13	109	122	0
NSB	2275	398	606	113	164	13	11	15	110	58	183	0
NSB	2276	26	64	2	4	0	0	18	14	13	45	0
	2277	1,213	2,799	1,080	1,545	0	0	2,241	5	1,020	3,266	0
PO	2278	22	53	710	1,067	0	0	95	146	486	727	0
	2285	0	0	0	0	0	0	43	0	1	44	0
E/NSB	2286	21	53	0	0	0	0	9	4	11	24	0
E/NSB	2288	417	612	81	128	216	189	7	110	128	245	0
E/NSB	2289	1,022	1,487	371	583	123	108	7	517	601	1,125	268
NSB	2290	613	968	953	1,317	47	41	4	3	81	88	0
E/NSB	2291	0	0	0	0	25	22	0	0	0	0	0
E	2292	0	0	231	320	223	191	0	0	0	0	0
	2293	324	749	204	241	0	0	72	53	64	189	0
	2294	1	3	0	0	0	0	0	2	1	3	0
NSB	2296	103	200	60	140	0	0	16	108	325	449	0
E/NSB	2297	374	733	183	434	63	55	32	77	251	360	425
NSB	2298	156	396	208	260	0	0	9	13	268	290	5,255
NSB	2299	4	10	129	178	0	0	3	251	324	578	0
NSB	2300	360	833	315	393	0	0	23	120	144	287	0
E/NSB	2301	227	432	80	123	0	0	19	353	85	457	0
NSB	2302	276	740	155	326	0	0	29	23	58	110	0
E	2303	208	548	174	326	0	0	12	14	60	86	0
NSB	2304	88	218	102	175	0	0	308	125	275	708	0
E/NSB	2305	199	493	441	755	28	24	50	66	376	492	0
E/NSB	2306	448	1,110	119	204	42	37	20	99	302	421	0
E	2307	340	603	165	255	28	24	44	76	179	299	0
E	2308	400	957	97	147	0	0	79	77	125	281	0
E	2309	81	145	264	407	0	0	364	32	127	523	0
E	2310	217	385	655	1,013	48	43	255	263	613	1,131	1,034
E	2311	989	2,436	235	412	0	0	76	98	61	235	0
E	2312	1,317	3,313	138	284	0	0	267	76	112	455	0
E	2313	97	236	51	89	0	0	137	44	45	226	0
E	2314	76	187	339	535	0	0	42	303	74	419	0
E	2315	346	985	37	80	0	0	29	3	2	34	0
E	2316	1,528	3,893	0	0	0	0	12	14	7	33	1,296
E	2317	967	2,462	135	282	0	0	56	54	172	282	0
E	2318	1,686	4,580	0	0	0	0	15	11	36	62	0
E	2319	1,738	4,966	0	0	0	0	14	20	7	41	0
E	2320	873	2,495	90	192	0	0	11	9	14	34	0
E	2321	758	2,059	174	327	0	0	27	13	38	78	0
E	2322	1,179	2,886	425	595	0	0	124	850	252	1,226	0
E	2323	253	614	682	941	0	0	24	137	259	420	0
E	2324	31	83	17	44	110	96	4	54	259	317	955
E	2325	175	425	15	20	0	0	9	22	11	42	0
E	2326	569	1,316	2,001	2,062	0	0	121	122	148	391	0
E	2327	281	699	370	485	0	0	102	61	114	277	0
PO	2401	2,200	4,820	800	1,370	0	0	225	720	725	1,670	0
PO	2402	0	0	0	0	0	0	800	1,600	700	3,100	0
PO	2403	190	465	0	0	0	0	60	60	180	300	0
PO	2404	895	1,250	404	786	0	0	4	150	340	494	0
PO	2405	269	646	470	907	0	0	3	75	150	228	0
PO	2406	2,280	5,612	609	1,186	0	0	34	145	510	689	0
PO	2407	2,600	5,720	700	1,050	0	0	99	760	400	1,259	1,202
PO	2408	610	1,501	435	838	0	0	116	7	118	241	0
	2409	231	528	3	6	6	5	27	2	18	47	0
	2411	57	136	18	27	7	6	55	10	40	105	964
NSB	2412	746	1,451	322	418	7	6	45	18	7	70	0
NSB	2413	544	1,060	265	345	0	0	10	112	14	136	2,000
NSB	2414	0	0	0	0	0	0	12	0	0	12	0
NSB	2415	23	55	6	9	7	6	27	9	2	38	0
E/NSB	2417	139	333	20	30	7	6	23	7	13	43	0
E	2418	0	0	0	0	0	0	79	0	0	79	0
E	2423	65	156	117	178	7	6	285	2	62	349	0
NSB	2426	715	1,319	295	376	0	0	1	282	76	359	0
NSB	2427	823	1,540	291	378	0	0	0	235	0	235	0
E/NSB	2428	0	0	0	0	0	0	0	0	0	0	0
E/NSB	2429	3,783	9,036	6,083	9,124	0	0	0	2,330	2,268	4,598	1,920
E/NSB	2430	1,162	2,266	712	926	0	0	0	388	0	388	0
	Total	70,954	161,899	54,745	76,817	6,806	5,495	10,893	26,100	35,933	72,926	26,990

Source: Study Partners, 2007

IV. HORIZON YEAR (2015, 2025, AND 2030) MODEL RESULTS

TRAVEL DEMAND FORECASTING

Trip Distribution is reflected in a mathematical equation, the "gravity model," that links trip productions and trip attractions together based on the relative attractiveness of each TAZ as well as the accessibility provided by the Travel Demand Network. The number of trips produced is dependant on the population and number of dwelling units in each TAZ. The attractiveness of the destination TAZs is related to the activities taking place in each TAZ, such as the amount of employment and school enrollment. Trip Assignment determines the most likely routes through the Travel Demand Network that will be taken by a traveler going from an origin to a destination. The output of the traffic assignment process is a loaded network, meaning all links in the network have been assigned volumes of traffic. Thus, any link can be examined to determine the total number of vehicles traversing it in a 24-hour period.

MODEL VALIDATION

EXTERNAL TRIPS VALIDATION

The external trips from the most recently adopted model was reviewed for consistency with the base year counts, growth rates from the count stations, and adjacent county counts. Growth trends in the boundary areas were considered in developing future external-external (EE) trips in addition to linear projections.

TRIP GENERATION MODEL VALIDATION

Trip generation rates were considered for adjustment if they were outside the normal range of rates. Ghyabi & Associates reviewed all special generators and no changes were necessary. Ghyabi & Associates compared the productions and attractions per TAZ to ensure a correlation between land use and trip generation.

TRIP DISTRIBUTION MODEL VALIDATION

Ghyabi & Associates documented the percentage of all intra-zonal trips by trip purpose. TAZs with an unusually high single trip purpose were reviewed in detail. Trip lengths and adjustments were also documented. Trip lengths were compared with the Census data, as appropriate.

TRIP ASSIGNMENT MODEL VALIDATION

Ghyabi & Associates validated the trip assignment model using acceptable validation procedures. Model assignments were compared to base year ground counts using volume to capacity ratios. The determination of acceptable assignments was consistent with the FDOT and FHWA documented allowable percentages of deviation of assignment versus count.

2015 AND 2030 TRAVEL DEMAND ON EXISTING PLUS COMMITTED NETWORK

This portion of the report presents the results of an analysis of expected future traffic conditions under the assumption that no further improvements are made to the system other than those currently programmed. These results were used in subsequent sections to identify potential roadway improvements.

Highway supply characteristics required by the travel forecasting procedures include estimation of the Travel Demand Network facilities, highway level of service (i.e., travel speed or time), HOV and toll designations, and auto operating costs. The CFRPM model provided the highway networks for use on the SVRTS project. The networks were checked for connectivity and enhanced as necessary to provide slightly more detail in the study area. Minor enhancements were made which included adding new streets and reconnecting centroid connectors.

Impacts on the capacity of the road system were measured by the amount of travel likely in the years 2015 and 2030 on the existing plus committed (E+C) Travel Demand Network using the forecasted Zdata. The base year VCMPO 2025 LRTP highway network was used as an underlying network to develop 2011 E+C network. The E+C Travel Demand Network consisted of the existing transportation infrastructure plus all roadway projects that are committed to be built within the next five (5) years. The committed projects are programmed transportation improvements obtained from capital improvement elements, the *MPO Transportation Improvement Program* (TIP), and the *FDOT Work Program*. **Table 10** summarizes the five (5) year programmed roadway improvements for the study area. **Map 9** on the following page identifies the E+C network number of lanes.

Table 10: Existing Plus Committed (E+C) Travel Demand Network, 2011

Name	From	To	Improvement	Network Years	Source			
				2006	Port Orange	Volusia Cnty	New Smyrna	Edgewater
Hidden Lakes	Willow Run Blvd	Williamson Blvd	extension	x	x			
Oak Place	Oak	commonwealth	2 lane extension	x	x			
Tenth Street	Tatum Blvd	Myrtle Ave.	4 lanes	x		x		
Taylor Road	Summertrees	Williamson Blvd	4 lanes	x	x			
Taylor Road	Williamson Blvd	I-95	6 lanes	x	x			
Williamson Blvd	Dunn Ave	Hand Ave	4 lanes	x		x		
Williamson Blvd	Moody Bridge	Sabal Creek Blvd	4 lanes	x	x			
Williamson Blvd	Taylor Rd	Spruce Creek Brdg.	4 lanes	x	x			

This analysis produced a preliminary Needs Plan by assigning the 2015 and 2030 trip tables to this network. Volume to capacity ratios were mapped thematically to display the congested areas. Facilities that had a volume to capacity ratio greater than .85 were identified. This was the basis to develop all future networks for alternatives in this study. Although the horizon year model networks included the E+C projects, these model results were commonly referred to as the “2015 No-Build,” “2025 No-Build,” and the “2030 No-Build” model results Utilizing the travel demand software, analyses were preformed to identify existing and potential future congested roadway segments. Transportation improvement alternatives were suggested in an effort to alleviate congestion on the Travel Demand Network. The size, scope, and timing of roadway projects are then proposed based on these findings.

Map 9: Existing Plus Committed (E+C) Travel Demand Network Number of Lanes, 2011

ALTERNATIVE ANALYSES

Ghyabi & Associates prepared color-coded plots of the network showing horizon year volume to capacity ratios and levels-of-service. The plots were categorized into those links with a volume to capacity ratio less than .85, those with a volume to capacity ratio of .85 to 1.0, and those with a volume to capacity ratio greater than 1.0. A spreadsheet database for was used for all level-of-service (LOS) determinations. The model outputs and the database were linked to enable the model volumes to be imported directly to the database, thereby performing a simultaneous LOS calculation. The spreadsheet allowed the Study Partners to perform LOS analyses quickly on proposed Zdata or Travel Demand Network changes.

As used in this context, the term "future year traffic volumes" refers to those traffic conditions expected to exist during the horizon year on the programmed and planned roadway system. The future year traffic volumes were estimated using the projected land use information. *Please note: Model volumes were compared to historic growth rates of traffic counts and the greater of the model volume or a two (2) percent growth rate was used as the project volume.*

This analysis produced volume to capacity ratios mapped thematically to display the congested areas and assisted in planning for future transportation projects. Although each of the horizon year model networks includes the E+C projects, the following scenarios were modeled to detail the travel demands on each network segment at the horizon year shown in parenthesis:

SCENARIO A (2030) ROADWAY IMPROVEMENTS

- Interstate 95 from Beville Road to Maytown Road – Six-Lanes
- Interstate 95 at Madeline Avenue – Interchange
- Interstate 95 at Pioneer Trail – Interchange
- Interstate 95 at West Park Avenue – Interchange
- Business 44 from Pioneer Trail to U.S. Highway 1 – Three-Lanes
- Airport Road from State Road 44 to Indian River Boulevard – Two-Lanes
- Coraci Boulevard from Yorktowne Boulevard to Taylor Road – Two-Lanes
- Indian River Boulevard from Airport Road to Williamson Boulevard – Two-Lanes
- Indian River Boulevard from Williamson Boulevard to Interstate 95 – Four-Lanes
- Josephine Street from Old Mission Road to Tatum Boulevard – Four-Lanes
- Jungle Road from State Road 44 to Pioneer Trail – Three-Lanes
- Madeline Avenue from Tomoka Farms Road to Williamson Boulevard – Two-Lanes
- Madeline Avenue from Williamson Boulevard to Clyde Morris Boulevard – Four-Lanes
- Madeline Avenue from U.S. Highway 1 to Sauls Street – Two-Lanes
- McGinnis Avenue from Yorktowne Boulevard to Williamson Boulevard – Four-

Lanes

- Paige Avenue from South Glencoe Road to Mission Drive – Two-Lanes
- West Park Avenue from Williamson Boulevard to Old Mission Road – Two-Lanes
- Pioneer Trail from Airport Road to Turnbull Bay Road – Three-Lanes
- Pioneer Trail from Enterprise Avenue to Newcomb Street – Three-Lanes
- Spruce Creek Road from Hewitt Drive to Turnbull Bay Road – Two-Lanes
- 10th Street – U.S. Highway 1 to South Myrtle Avenue – Four-Lanes
- Town West Boulevard from Tomoka Farms Road to Williamson Boulevard – Four-Lanes
- Williams Road (Colony Park Road) from State Road 44 to Pioneer Trail – Two-Lanes
- Williamson Boulevard from Taylor Road to Indian River Boulevard – Four-Lanes
- Yorktowne Boulevard from Tomoka Farms Road to Hidden Lake Drive – Four-Lanes
- Yorktowne Boulevard from Dunlawton Avenue to Taylor Road – Two-Lanes
- "Connector A" from Airport Road to Williamson Boulevard – Two-Lanes
- "Connector B" from Airport Road to Williamson Boulevard – Two-Lanes
- "Connector C" from Airport Road to Williamson Boulevard – Two-Lanes
- "North-South Road" from Old Mission Road to Volco Road – Two-Lanes

SCENARIO B (2030) ROADWAY IMPROVEMENTS

Scenario A (2030) improvements except the following:

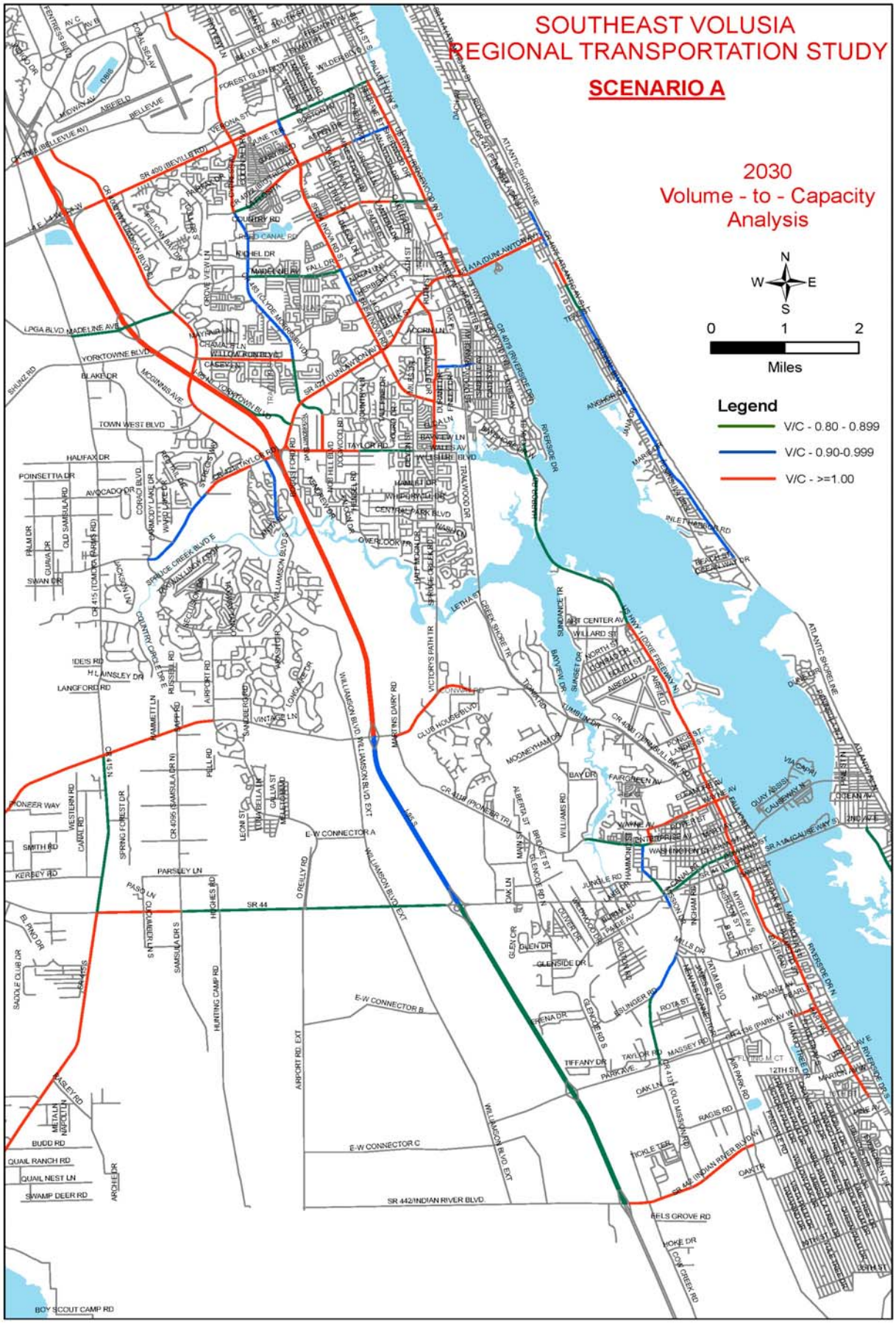
- Interstate 95 at Pioneer Trail – Interchange
- Pioneer Trail from Airport Road to Turnbull Bay Road – Three-Lanes
- Pioneer Trail from Enterprise Avenue to Newcomb Street – Three-Lanes

SCENARIO B-1 (2030) ROADWAY IMPROVEMENTS

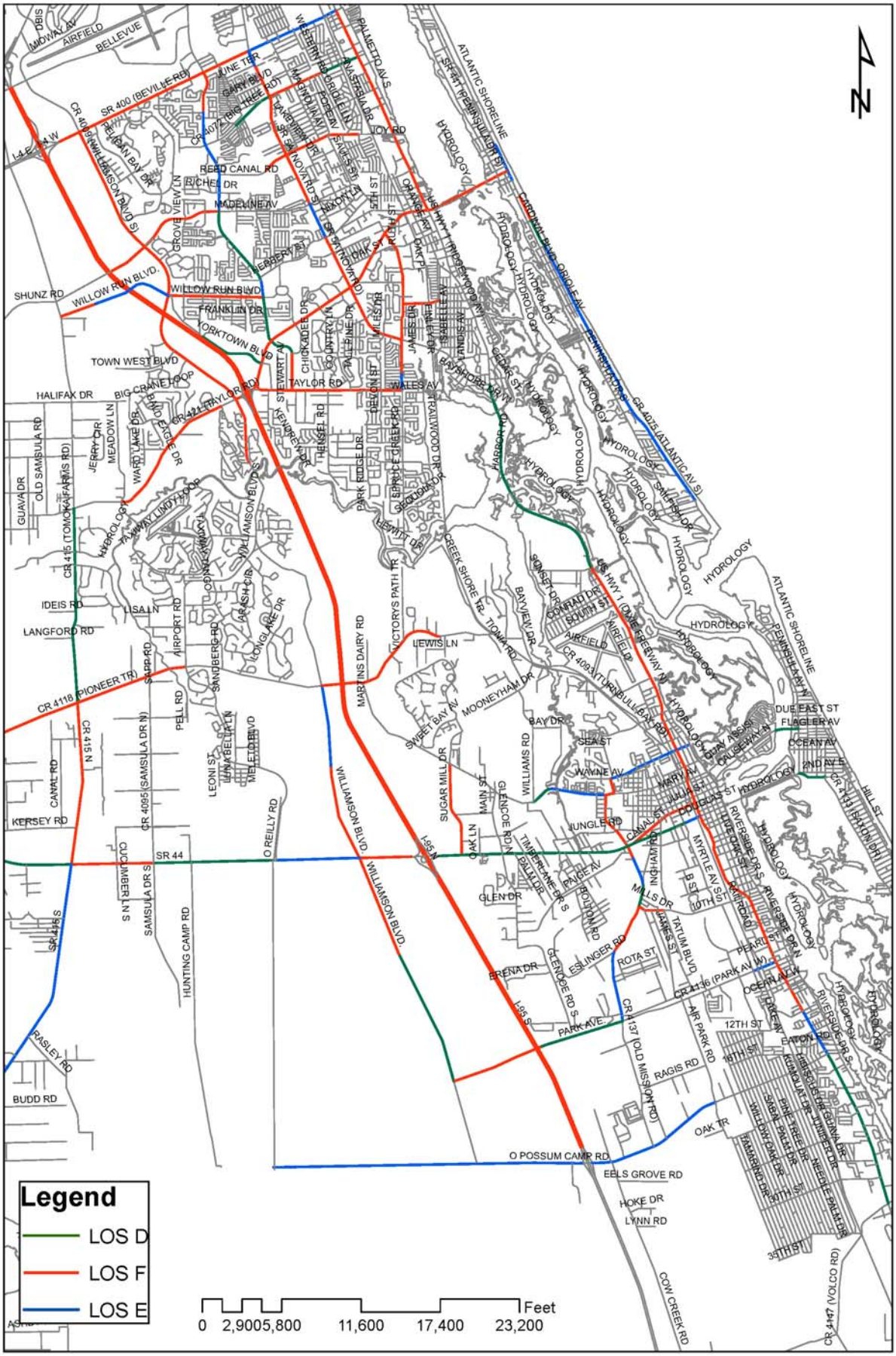
Scenario A (2030) improvements except the following:

- Paige Avenue from South Glencoe Road to Mission Drive – Two-Lanes
- Pioneer Trail from Airport Road to Turnbull Bay Road – Three-Lanes
- Pioneer Trail from Enterprise Avenue to Newcomb Street – Three-Lanes
- Spruce Creek Road from Hewitt Drive to Turnbull Bay Road – Two-Lanes

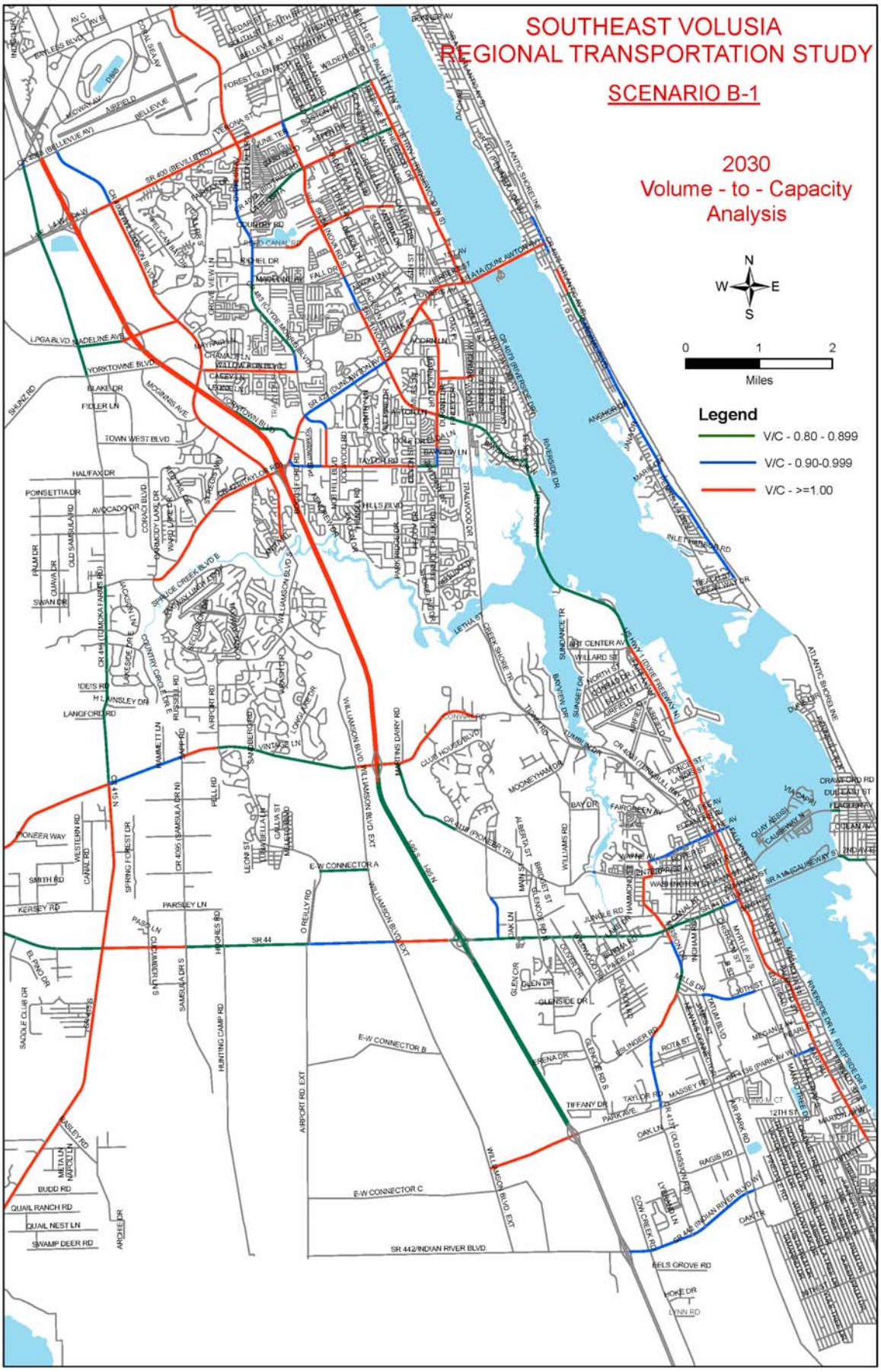
Map 10: Scenario A Roadway Volume to Capacity, 2030



Map 11: Scenario B Roadway Volume to Capacity, 2030



Map 12: Scenario B-1 Roadway Volume to Capacity, 2030



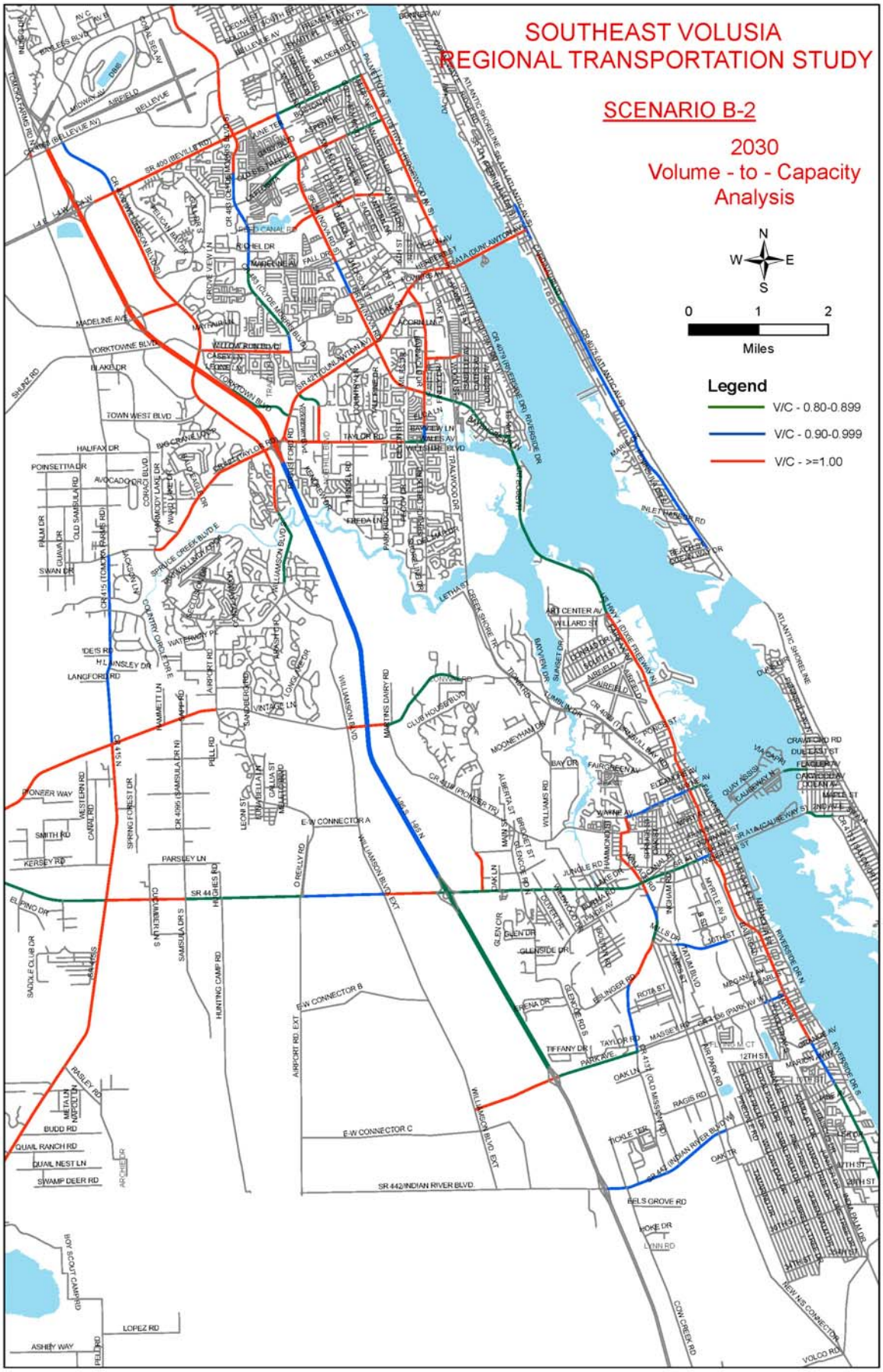
SCENARIO B-2 (2030) ROADWAY IMPROVEMENTS

Scenario B-1 (2030) improvements except Interstate 95 at Pioneer Trail – Interchange

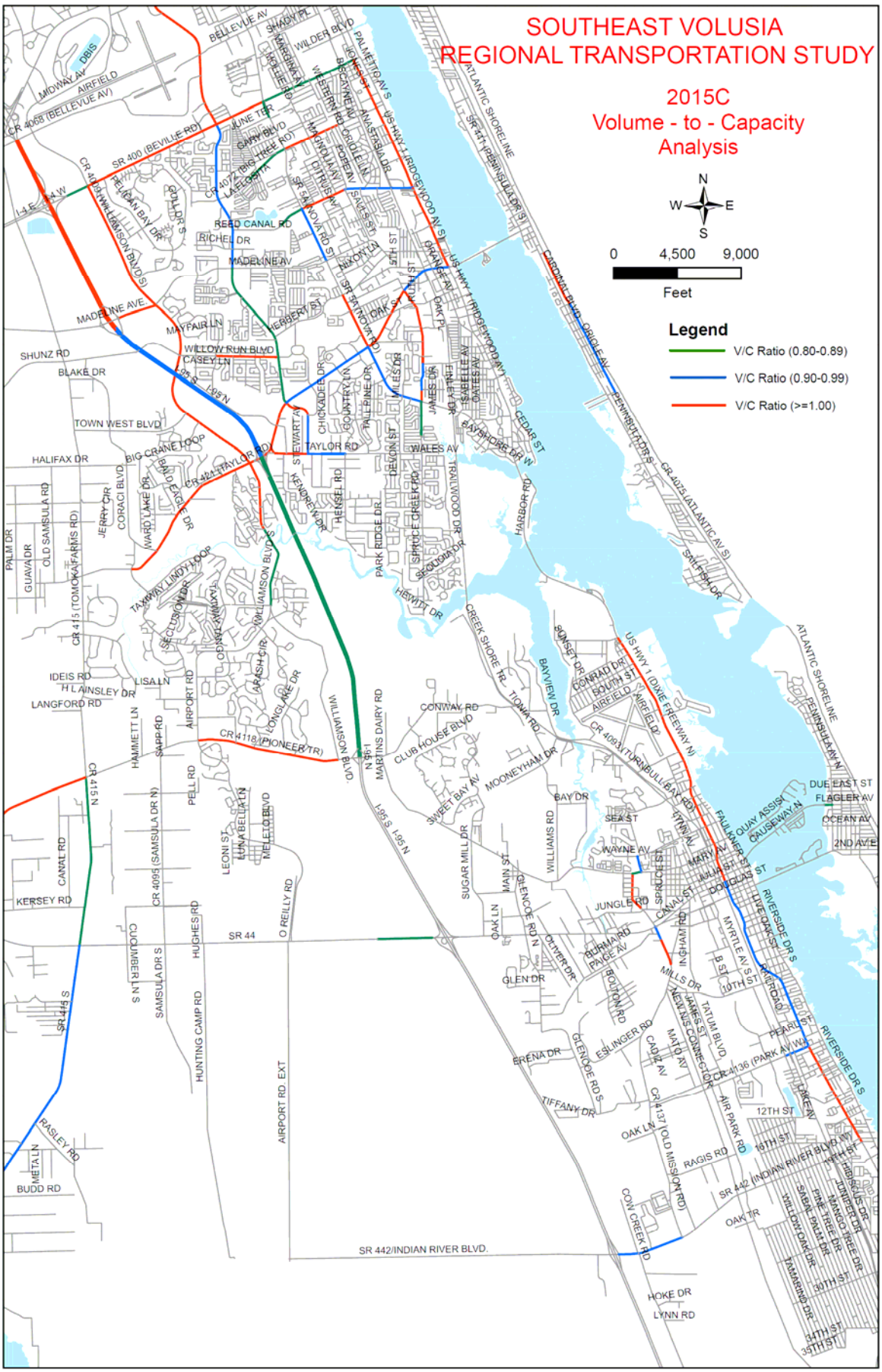
SCENARIO C (2015) ROADWAY IMPROVEMENTS

- Interstate 95 from Beville Road to Maytown Road – Six-Lanes
- Interstate 95 at Madeline Avenue – Interchange
- Interstate 95 at Pioneer Trail – Interchange
- Business 44 from Pioneer Trail to U.S. Highway 1 – Three-Lanes
- Airport Road from State Road 44 to Indian River Boulevard – Two-Lanes
- Coraci Boulevard from Yorktowne Boulevard to Taylor Road – Two-Lanes
- Indian River Boulevard from Airport Road to Williamson Boulevard – Two-Lanes
- Indian River Boulevard from Williamson Boulevard to Interstate 95 – Four-Lanes
- Josephine Street from Old Mission Road to Tatum Boulevard – Four-Lanes
- 10th Street – U.S. Highway 1 to South Myrtle Avenue – Four-Lanes
- Jungle Road from State Road 44 to Pioneer Trail – Three-Lanes
- Madeline Avenue from Tomoka Farms Road to Williamson Boulevard – Two-Lanes
- Madeline Avenue from Williamson Boulevard to Clyde Morris Boulevard – Four-Lanes
- Madeline Avenue from U.S. Highway 1 to Sauls Street – Two-Lanes
- Paige Avenue from South Glencoe Road to Mission Drive – Two-Lanes
- Pioneer Trail from Williamson Boulevard to Turnbull Bay Road – Four-Lanes
- Town West Boulevard from Tomoka Farms Road to Williamson Boulevard – Four-Lanes
- Williams Road (Colony Park Road) from State Road 44 to Pioneer Trail – Two-Lanes
- Williamson Boulevard from Taylor Road to Indian River Boulevard – Four-Lanes
- Yorktowne Boulevard from Tomoka Farms Road to Hidden Lake Drive – Four-Lanes
- Yorktowne Boulevard from Dunlawton Avenue to Taylor Road – Two-Lanes
- “Connector A” from Airport Road to Williamson Boulevard – Two-Lanes
- “Connector B” from Airport Road to Williamson Boulevard – Two-Lanes
- “Connector C” from Airport Road to Williamson Boulevard – Two-Lanes
- “North-South Road” from Old Mission Road to Volco Road – Two-Lanes

Map 13: Scenario B-2 Roadway Volume to Capacity, 2030



Map 14: Scenario C Roadway Volume to Capacity, 2015



SCENARIO D (2025) ROADWAY IMPROVEMENTS

Scenario B-1 (2030) improvements and the following:

- Pioneer Trail from Samsula Road to Turnbull Bay Road – Four-Lanes
- Pioneer Trail from Turnbull Bay Road to Business 44 – Three-Lanes

SCENARIO E (2025) ROADWAY IMPROVEMENTS

Scenario A (2030) improvements except the following:

- Interstate 95 at Pioneer Trail – Interchange
- Paige Avenue from South Glencoe Road to Mission Drive – Two-Lanes
- Spruce Creek Road from Hewitt Drive to Turnbull Bay Road – Two-Lanes

SCENARIO F (2015) ROADWAY IMPROVEMENTS

Scenario C (2015) improvements and Pioneer Trail from Airport Road to Williamson Boulevard or Turnbull Bay Road – Four-Lanes, except the following:

- Interstate 95 at Madeline Avenue – Interchange
- Interstate 95 at Pioneer Trail – Interchange

SCENARIO F-B (2015) ROADWAY IMPROVEMENTS

Scenario F (2015) improvements with Williamson Boulevard from Airport Road to Indian River Boulevard – Two-Lanes, Town West Boulevard from Tomoka Farms Road to Williamson Boulevard – Two-Lanes, and except the following:

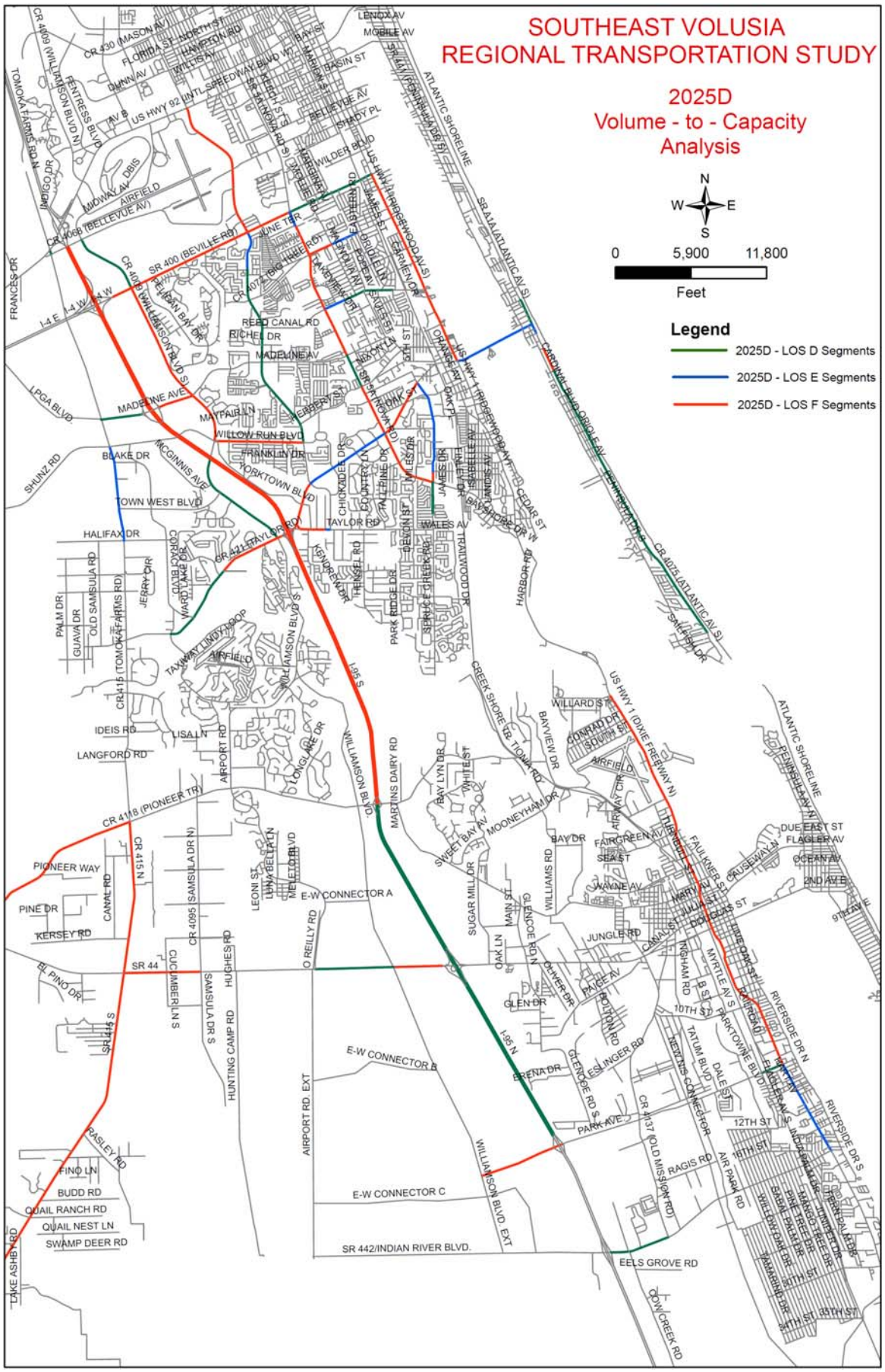
- Interstate 95 from Pioneer Trail to Maytown Road – Six-Lanes
- Pioneer Trail from Airport Road to Williamson Boulevard or Turnbull Bay Road – Four-Lanes
- Madeline Avenue from Williamson Boulevard to Clyde Morris Boulevard – Four-Lanes
- "Connector A" from Airport Road to Williamson Boulevard – Two-Lanes
- "North-South Road" from Old Mission Road to Volco Road – Two-Lanes

SCENARIO G (2025) ROADWAY IMPROVEMENTS

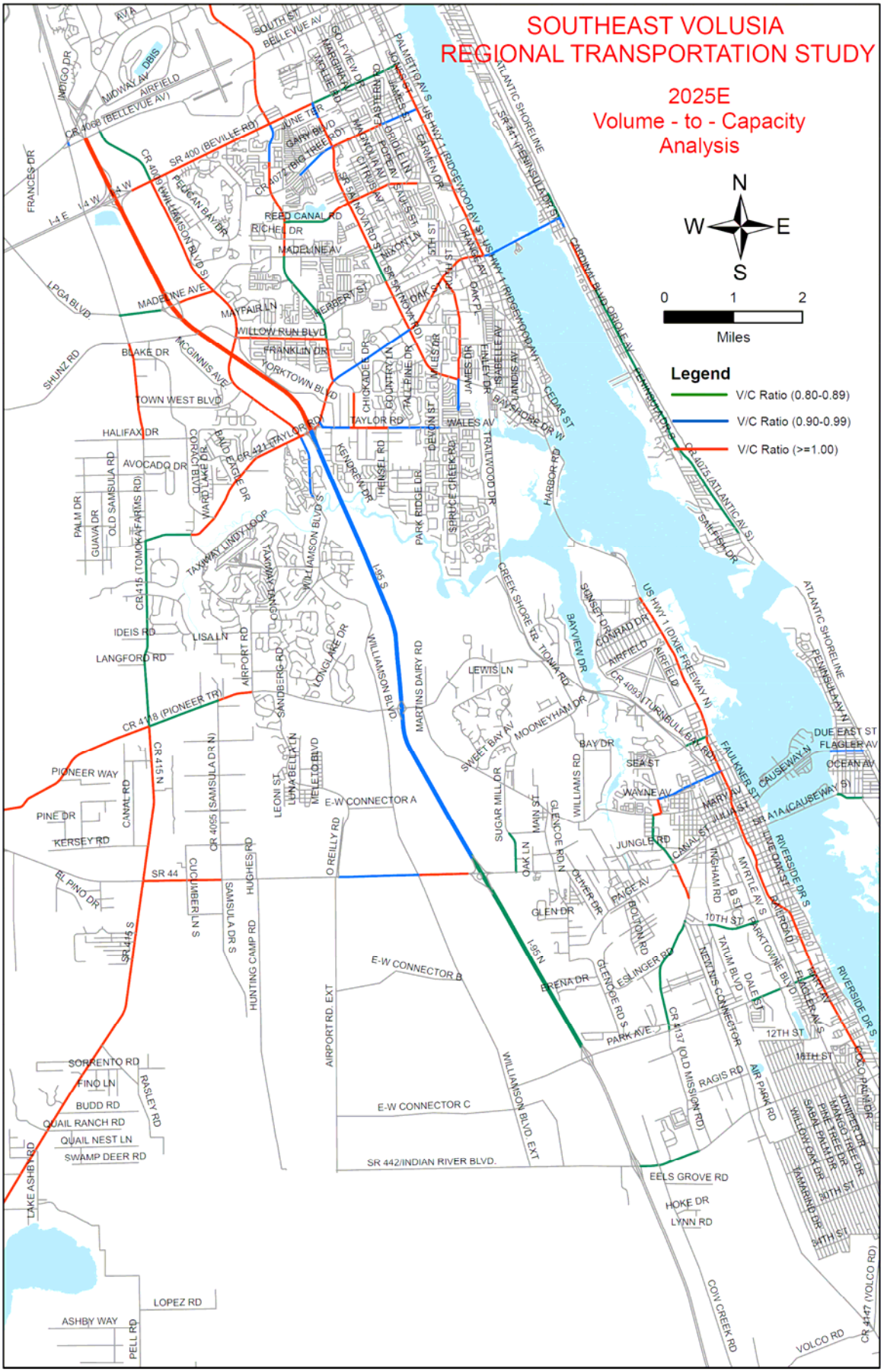
Scenario D (2025) improvements except the following:

- Interstate 95 at Madeline Avenue – Interchange
- Interstate 95 at West Park Avenue – Interchange
- Pioneer Trail from Turnbull Bay Road to Business 44 – Three-Lanes
- Williamson Boulevard from Pioneer Trail to State Road 44 – Four-Lanes

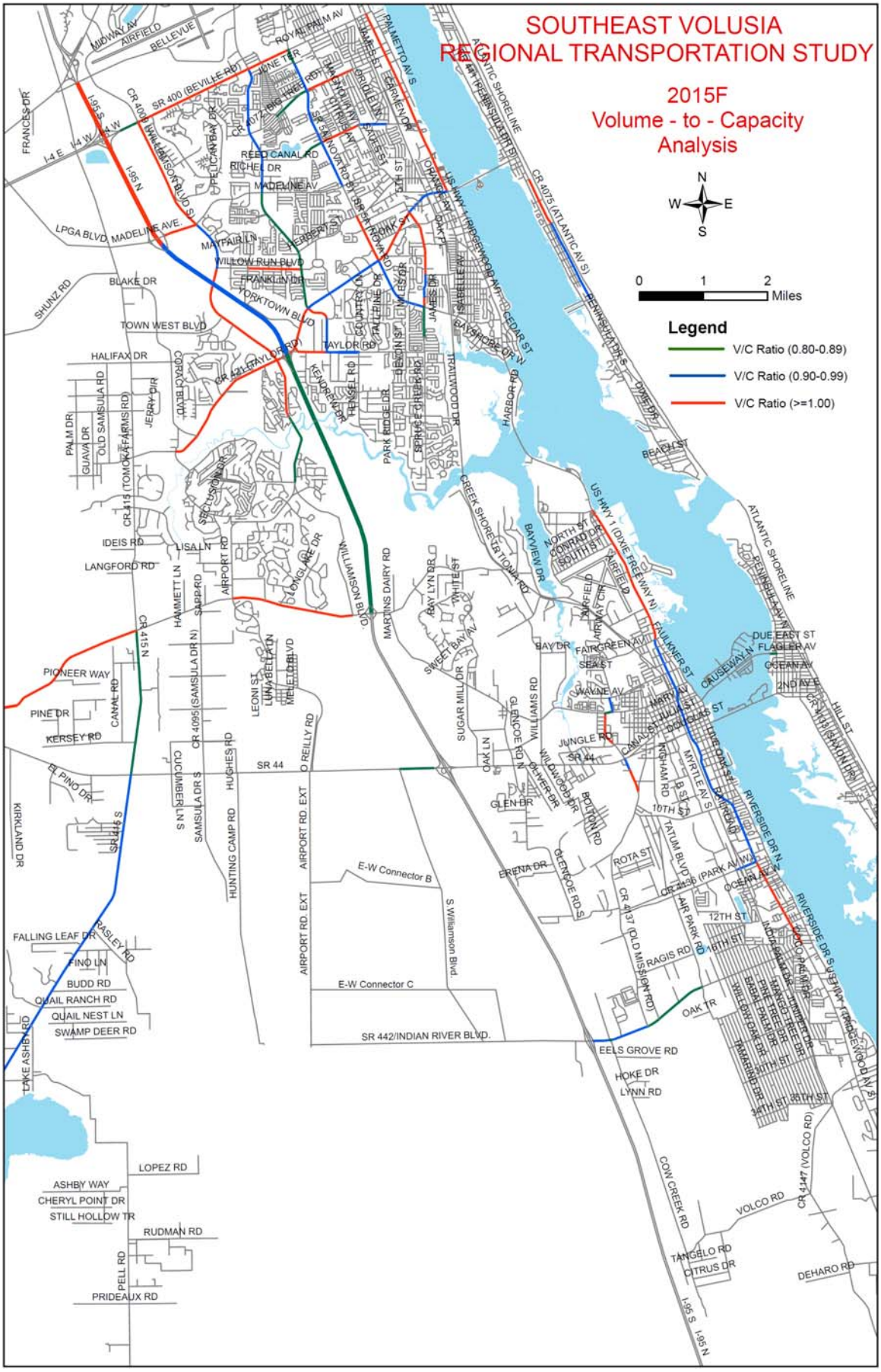
Map 15: Scenario D Roadway Volume to Capacity, 2025



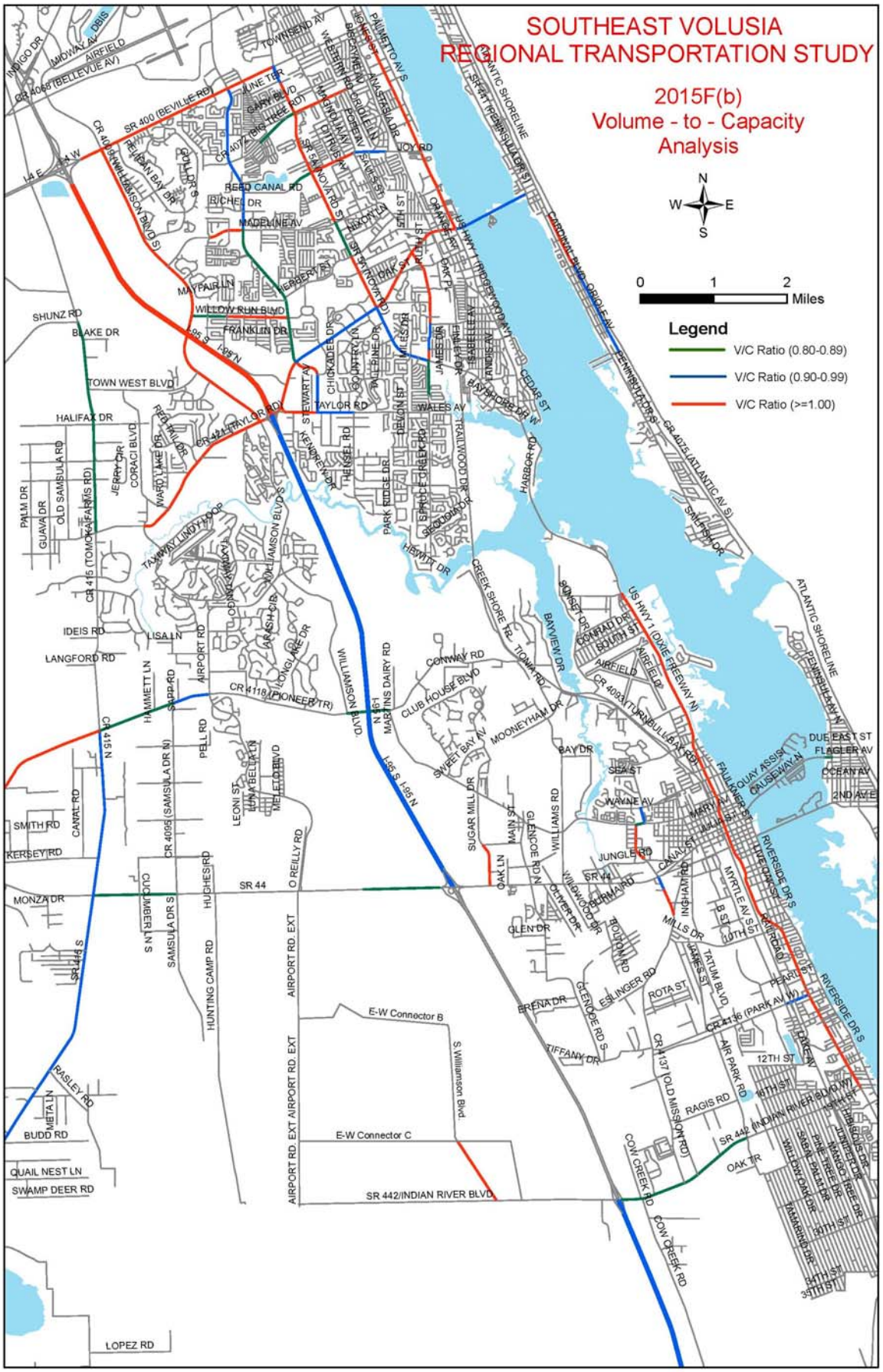
Map 16: Scenario E Roadway Volume to Capacity, 2025



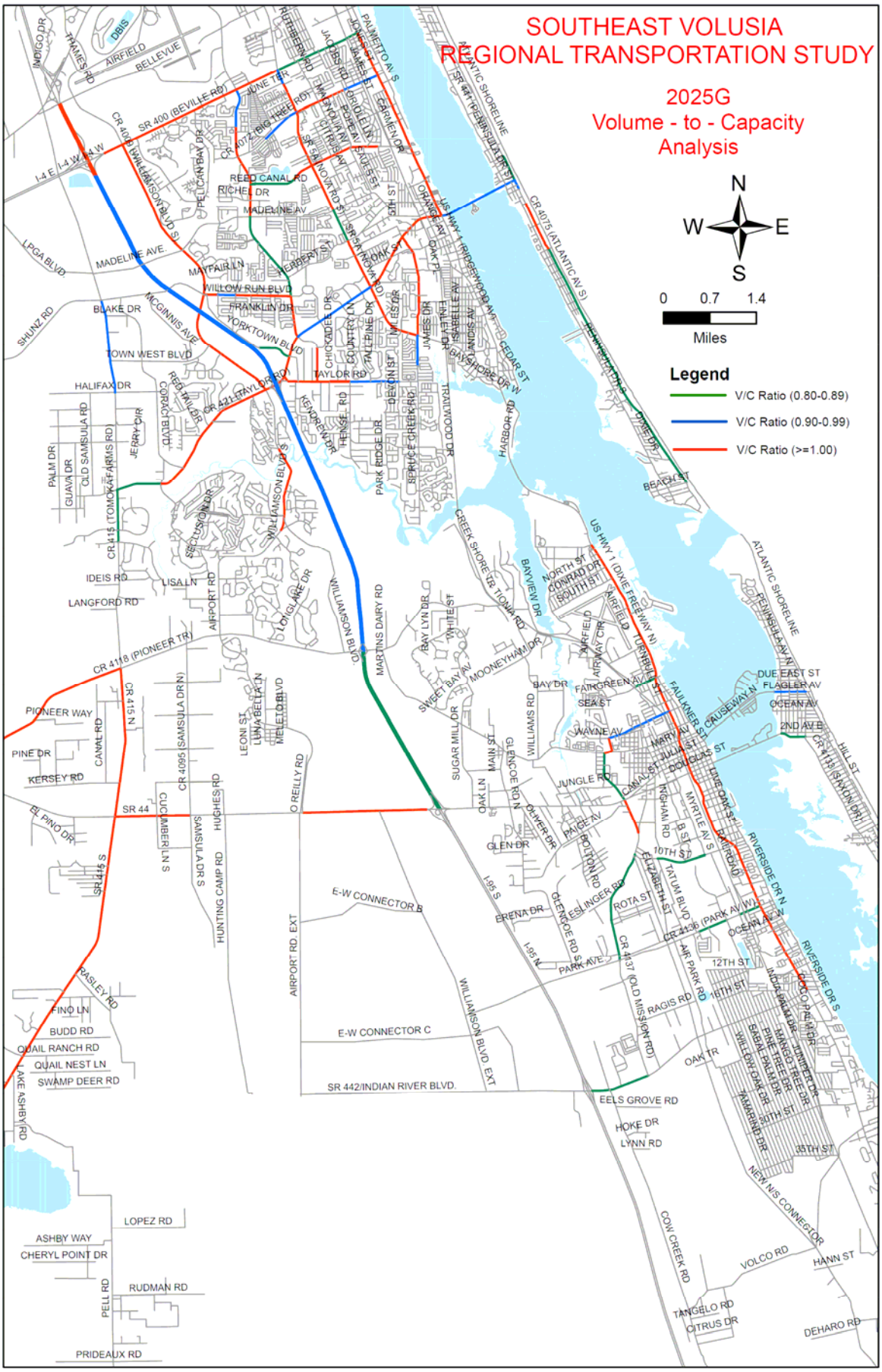
Map 17: Scenario F Roadway Volume to Capacity, 2015



Map 18: Scenario F-b Roadway Volume to Capacity, 2015



Map 19: Scenario G Roadway Volume to Capacity, 2025



SCENARIO H (2025) ROADWAY IMPROVEMENTS

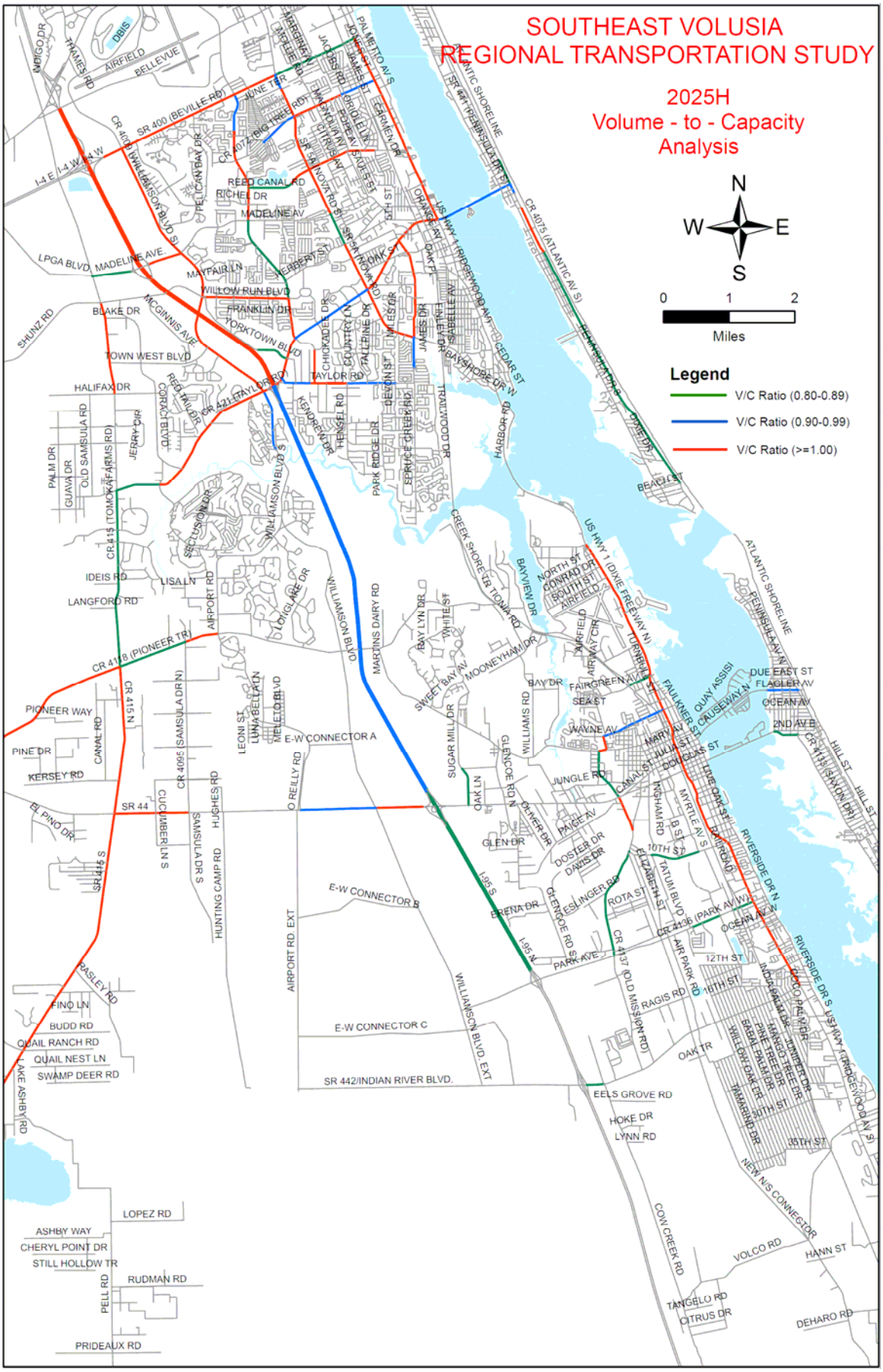
Scenario E (2025) improvements and Pioneer Trail from Turnbull Bay Road to Business 44 – Three-Lanes.

SCENARIO I (2025) ROADWAY IMPROVEMENTS

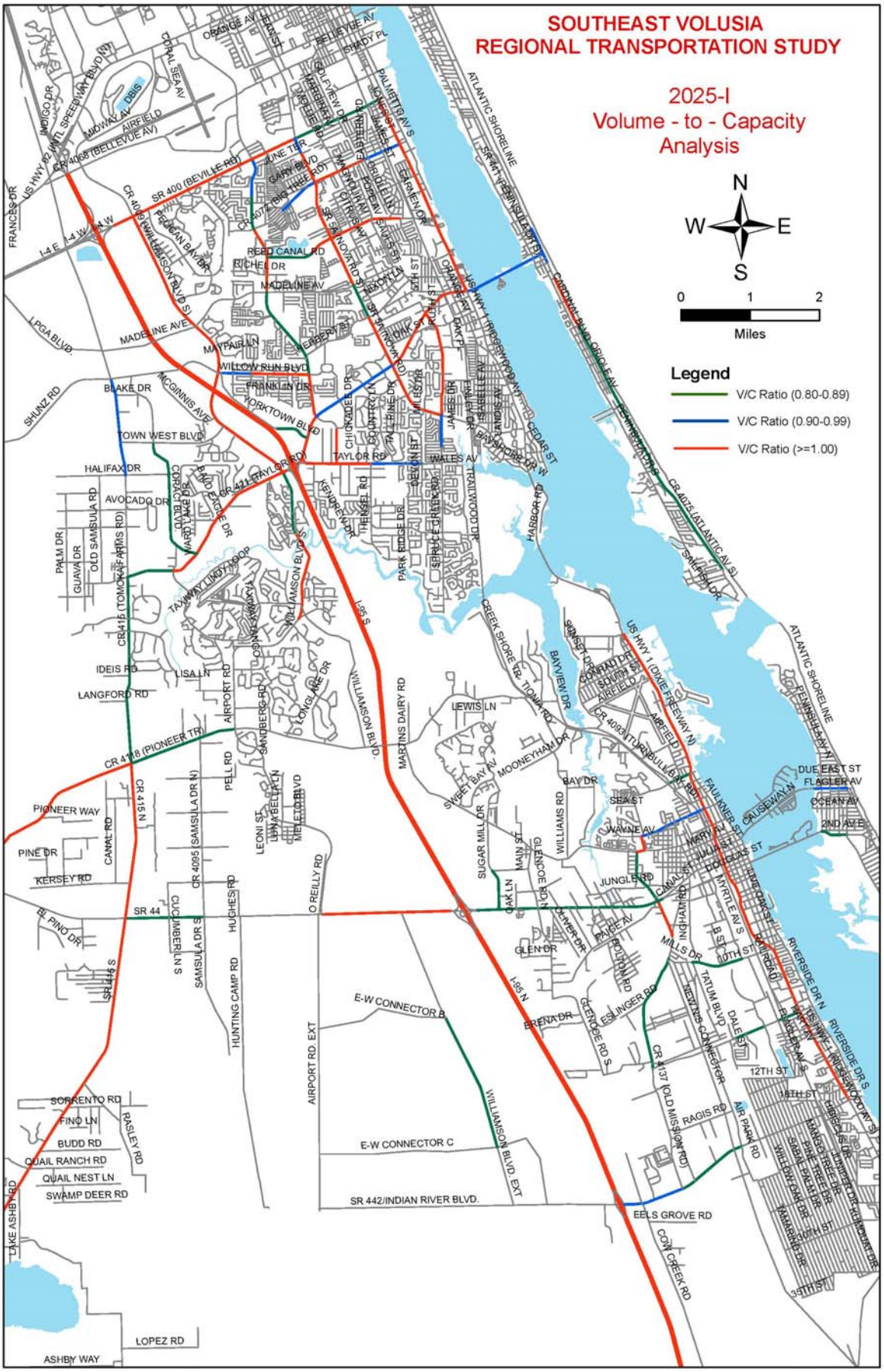
Scenario H (2025) improvements with Williamson Boulevard from "Connector B" to Indian River Boulevard – Two-Lanes and except the following

- Interstate 95 from Beville Road to Maytown Road – Six-Lanes
- Interstate 95 at Madeline Avenue – Interchange
- Interstate 95 at West Park Avenue – Interchange
- "Connector A" from Airport Road to Williamson Boulevard – Two-Lanes

Map 20: Scenario H Roadway Volume to Capacity, 2025



Map 21: Scenario I Roadway Volume to Capacity, 2025



V. PREFERRED ALTERNATIVE

Ghyabi & Associates worked with the Study Partners to prepare a methodology for ranking projects and funding programs. The evaluation provided insight into the need for various projects and funding programs that have been identified. The key items in the ranking will be the ability of the plan to meet growth management requirements. The methodology identified improvement in terms of both cost versus benefit. The ranking system was based on the following criteria:

- existing level of service
- forecast travel demand for 2015, 2025, and 2030
- cost estimates and the scheduled availability of funding

2015 ROADWAY IMPROVEMENTS

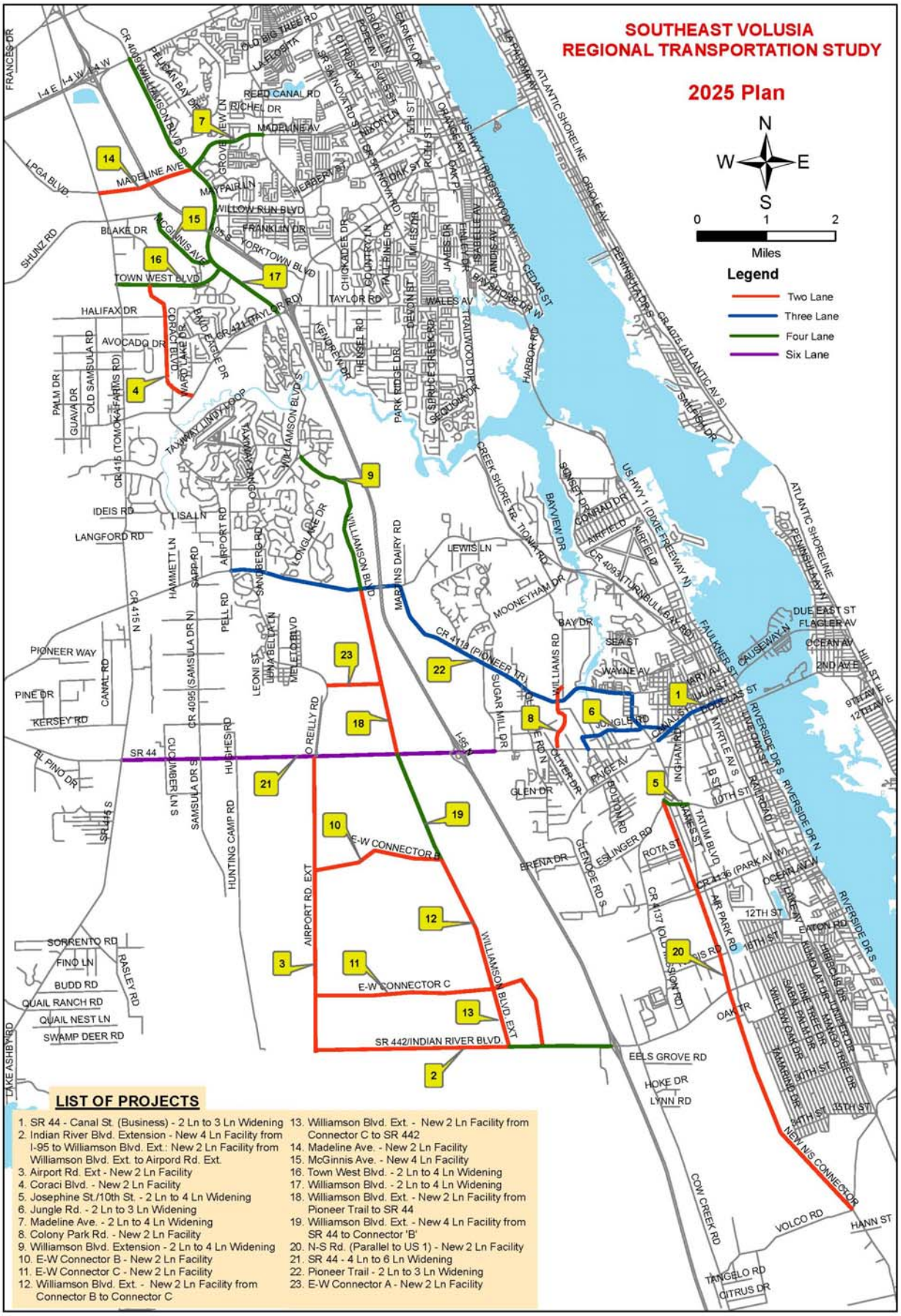
- Business 44 from Pioneer Trail to U.S. Highway 1 – Three-Lanes
- Airport Road from State Road 44 to Indian River Boulevard – Two-Lanes
- Coraci Boulevard from Town West Boulevard to Taylor Road – Two-Lanes
- Indian River Boulevard from Airport Road to Williamson Boulevard – Two-Lanes
- Indian River Boulevard from Williamson Boulevard to Interstate 95 – Four-Lanes
- Josephine Street from Old Mission Road to Tatum Boulevard – Four-Lanes
- Jungle Road from State Road 44 to Pioneer Trail – Three-Lanes
- Madeline Avenue from Williamson Boulevard to Clyde Morris Boulevard – Four-Lanes
- Madeline Avenue from U.S. Highway 1 to Sauls Street – Two-Lanes
- 10th Street – U.S. Highway 1 to South Myrtle Avenue – Four-Lanes
- Town West Boulevard from Tomoka Farms Road to Williamson Boulevard – Four-Lanes
- Williams Road (Colony Park Road) from State Road 44 to Pioneer Trail – Two-Lanes
- Williamson Boulevard from Airport Road to Pioneer Trail – Two-Lanes
- Williamson Boulevard from “Connector B” to Indian River Boulevard – Two-Lanes
- “Connector B” from Airport Road to Williamson Boulevard – Two-Lanes
- “Connector C” from Airport Road to Williamson Boulevard – Two-Lanes

2025 ROADWAY IMPROVEMENTS

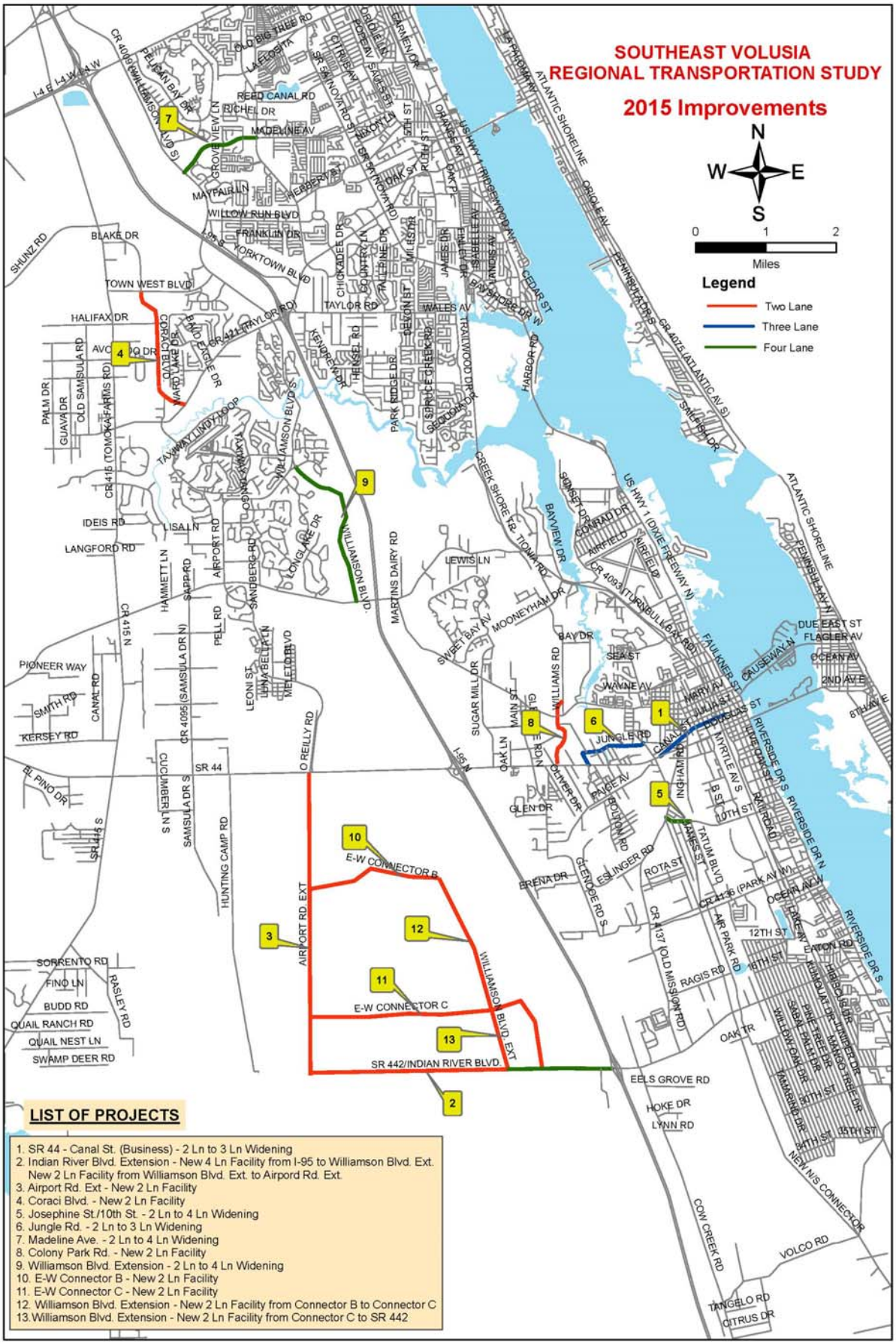
- State Road 44 from State and County Road 415 to Sugar Mill Drive – Six-Lanes
- Madeline Avenue from Tomoka Farms Road to Williamson Boulevard – Two-Lanes

- McGinnis Avenue from Yorktowne Boulevard to Williamson Boulevard – Four-Lanes
- Pioneer Trail from Airport Road to Newcomb Street – Three-Lanes
- Town West Boulevard from Tomoka Farms Road to Williamson Boulevard – Four-Lanes
- Williamson Boulevard from Pioneer Trail to State Road 44 – Two-Lanes
- Williamson Boulevard from State Road 44 to "Connector B" – Four-Lanes
- "North-South Road" from Old Mission Road to Volco Road – Two-Lanes

Map 22: Preferred Alternative Roadway Improvements and Types, 2025



Map 23: Preferred Alternative Roadway Improvements and Types, 2015



Map 24: Preferred Alternative Roadway Improvements and Types, 2015 - 2025

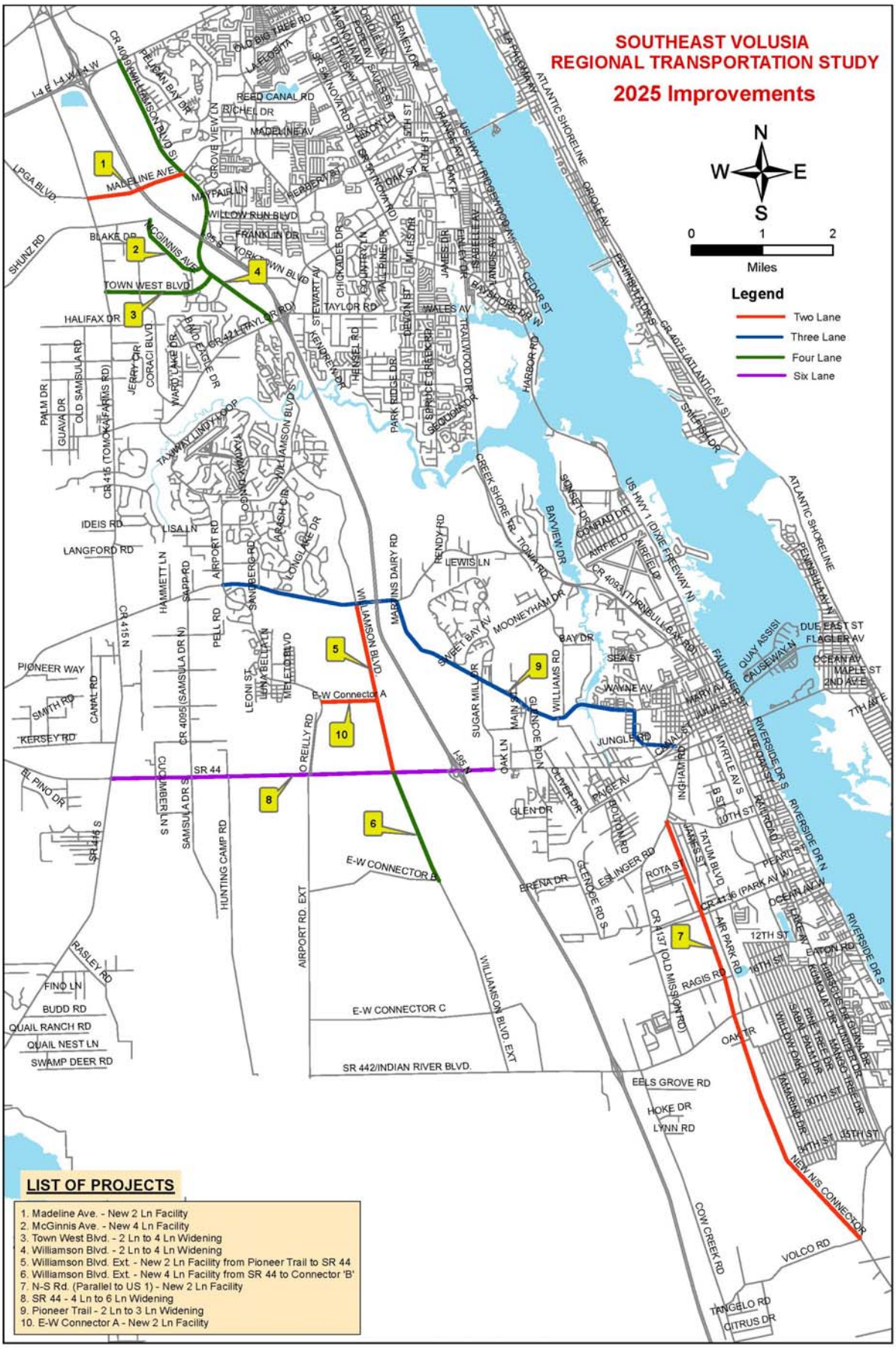


Table 11: Estimated Cost of Construction, 2015

Road Name	Limits (From - To)	2015 No. of Lanes	2006 No. of Lanes	2015 # of Add'l Lanes	Distance in Miles	Design Cost	R-O-W Cost	Constr. Ccst	CEI Cost	Total Cost
SR 44 - Canal St. (Business)	SR 44 to Pioneer Trail	3	2	1	0.20	$58,339	$171,622	$530,356	$47,732	$808,049
SR 44 - Canal St. (Business)	Pioneer Tr. to US 1	3	2	1	0.80	$233,357	$686,487	$2,121,422	$190,928	$3,232,194
Indian River Blvd. Extension	Airport Rd. Extension to Williamson Rd. Extension	2	0	2	0.09	$52,505	$154,460	$477,320	$42,959	$727,244
Indian River Blvd. Extension	Williamson Rd. Extension to I-95	4	0	4	0.40	$466,714	$1,372,974	$4,242,845	$381,856	$6,464,389
Airport Rd. Extension	SR 44 to E-W Connector "B"	2	0	2	1.57	$915,925	$2,694,462	$8,326,583	$749,392	$12,686,363
Airport Rd. Extension	E-W Connector "B" to E-W Connector "C"	2	0	2	1.57	$915,925	$2,694,462	$8,326,583	$749,392	$12,686,363
Airport Rd. Extension	E-W Connector "C" to SR 442	2	0	2	1.57	$915,925	$2,694,462	$8,326,583	$749,392	$12,686,363
Coraci Blvd.	Town West Blvd. to Taylor Rd.	2	0	2	2.00	$1,166,784	$3,432,436	$10,607,112	$954,640	$16,160,972
Josephine St./10th St.	Old Mission Rd. to Tatum Blvd.	4	2	2	0.36	$210,021	$617,838	$1,909,280	$171,835	$2,908,975
Josephine St./10th St.	Myrtle Ave. to US 1	4	2	2	0.60	$350,035	$1,029,731	$3,182,134	$286,392	$4,848,292
Jungle Rd.	SR 44 to Pioneer Trail	3	2	1	1.07	$312,115	$918,177	$2,837,402	$255,366	$4,323,060
Madeline Ave.	Williamson Blvd. to Grove View Ln.	4	2	2	0.90	$525,053	$1,544,596	$4,773,200	$429,588	$7,272,437
Madeline Ave.	Grove View Ln. to Clyde Morris Blvd.	4	2	2	0.50	$291,696	$858,109	$2,651,778	$238,660	$4,040,243
Madeline Ave.	Sauls St. to US 1	2	0	2	0.50	$291,696	$858,109	$2,651,778	$238,660	$4,040,243
Colony Park Rd.	Williams Rd. to SR 44	2	0	2	0.90	$525,053	$1,544,596	$4,773,200	$429,588	$7,272,437
Williamson Blvd. Extension	Airport Rd. to Pioneer Tr.	4	2	2	1.00	$583,392	$1,716,218	$5,303,556	$477,320	$8,080,486
Williamson Blvd. Extension	E-W Connector "B" to E-W Connector "C"	4	0	4	1.64	$1,913,526	$5,629,195	$17,395,664	$1,565,610	$26,503,994
Williamson Blvd. Extension	E-W Connector "C" to SR 442	4	0	4	1.64	$1,913,526	$5,629,195	$17,395,664	$1,565,610	$26,503,994
E-W Connector B (South of SR 44)	Airport Rd. Ext. to Williamson Rd. Ext.	2	0	2	1.50	$875,088	$2,574,327	$7,955,334	$715,980	$12,120,729
E-W Connector C	Airport Rd. Ext. to Williamson Rd. Ext.	2	0	2	1.50	$875,088	$2,574,327	$7,955,334	$715,980	$12,120,729
Grand Total										***$185,487,556***

Source: Volusia County Parks & Recreation, Fire Resue Services, and Transportation Impact Fee Update Study, Final Report; 27 July 2007.

Avg. Design Cost/mi.=	$291,696
Avg. R-O-W Cost/mi. =	$858,109
Avg. Construction Cost/mi. =	$2,651,778
Avg. C.E.I. Cost/mi. =	$238,660
Avg. Cost/mile =	**$4,040,243**

Table 12: Estimated Cost of Construction, 2015 - 2025

Road Name	Limits (From - To)	2025 "I" No. of Lanes	2015 No. of Lanes	2025 "I" # of Add'l Lanes	Distance in Miles	Design Cost	R-O-W Cost	Constr. Cost	CEI Cost	Total Cost
Madeline Ave.	Tomoka Farms/LPGA to Williamson Blvd.	2	0	2	1.22	$711,738	$2,093,786	$6,470,338	$582,330	$9,858,193
McGinnis Ave.	Yorktowne Blvd. to Williamson Blvd.	4	0	4	0.69	$805,081	$2,368,381	$7,318,907	$658,702	$11,151,071
Town West Blvd.	Tomoka Farms Rd. to Williamson Blvd.	4	2	2	3.07	$1,791,013	$5,268,789	$16,281,917	$1,465,372	$24,807,092
Williamson Blvd.	SR 400 (Beville Road) to Willow Run	4	2	2	2.68	$1,563,491	$4,599,464	$14,213,530	$1,279,218	$21,655,702
Williamson Blvd.	Willow Run to Taylor Road	4	2	2	1.94	$1,131,780	$3,329,463	$10,288,899	$926,001	$15,676,143
Williamson Blvd. Extension	Pioneer Trail to SR 44	2	0	2	2.38	$1,388,473	$4,084,599	$12,622,463	$1,136,022	$19,231,557
Williamson Blvd. Extension	SR 44 to Connector "B"	4	0	4	1.50	$1,750,176	$5,148,654	$15,910,668	$1,431,960	$24,241,458
N-S Rd. (Parallel to US 1)	Old Mission Rd. to Volco Rd.	2	0	2	5.30	$3,091,978	$9,095,955	$28,108,847	$2,529,796	$42,826,576
SR 44	SR 415 to Samsula Dr.	6	4	2	1.15	$3,692,737	$1,444,984	$8,027,690	$0	$13,165,412
SR 44	Samsula Dr. to Airport Rd.	6	4	2	1.35	$4,334,953	$1,696,286	$9,423,810	$0	$15,455,048
SR 44	Airport Rd. to Williamson Blvd. Ext.	6	4	2	1.65	$5,298,275	$2,073,238	$11,517,990	$0	$18,889,504
SR 44	Williamson Blvd. Ext. to I-95	6	4	2	0.60	$1,926,646	$753,905	$4,188,360	$0	$6,868,910
SR 44	I-95 to Sugar Mill Rd.	6	4	2	0.50	$1,605,538	$628,254	$3,490,300	$0	$5,724,092
Pioneer Tr./CR 4118	Airport Rd. to Williamson Blvd. Ext.	3	2	1	1.74	$507,551	$1,493,110	$4,614,094	$415,268	$7,030,023
Pioneer Tr./CR 4118	Turnbull Bay Rd. to Club House Blvd.	3	2	1	1.25	$364,620	$1,072,636	$3,314,723	$298,325	$5,050,304
Pioneer Tr./CR 4118	Club House Blvd. to Sugar Mill Dr.	3	2	1	0.50	$145,848	$429,055	$1,325,889	$119,330	$2,020,122
Pioneer Tr.	Sugar Mill Dr. to Congden Ln.	3	2	1	0.40	$116,678	$343,244	$1,060,711	$95,464	$1,616,097
Pioneer Tr.	Congden Ln. to Glencoe Rd.	3	2	1	0.40	$116,678	$343,244	$1,060,711	$95,464	$1,616,097
Pioneer Tr.	Glencoe Rd. to Otter Blvd.	3	2	1	0.50	$145,848	$429,055	$1,325,889	$119,330	$2,020,122
Pioneer Tr.	Otter Blvd. to Williams Rd.	3	2	1	0.15	$43,754	$128,716	$397,767	$35,799	$606,036
Pioneer Tr.	Williams Rd. to Bay Dr.	3	2	1	0.25	$72,924	$214,527	$662,945	$59,665	$1,010,061
Pioneer Tr.	Bay Dr. to Enterprise Ave.	3	2	1	0.80	$233,357	$686,487	$2,121,422	$190,928	$3,232,194
Pioneer Tr.	Enterprise Ave. to Newcomb St.	3	2	1	0.50	$145,848	$429,055	$1,325,889	$119,330	$2,020,122
Pioneer Tr.	Newcomb St. to Canal St.	3	2	1	0.25	$72,924	$214,527	$662,945	$59,665	$1,010,061
E-W Connector "A"	Airport Rd. Ext. to Williamson Rd. Ext.	2	0	2	1.50	$875,088	$2,574,327	$7,955,334	$715,980	$12,120,729
Grand Total										***$268,902,724***

Avg. Design Cost/mi.=	$291,696
Avg. R-O-W Cost/mi. =	$858,109
Avg. Construction Cost/mi. =	$2,651,778
Avg. C.E.I. Cost/mi. =	$238,660
Avg. Cost/mile =	**$4,040,243**

* SR 44 Costs were based upon data from the 2004 FDOT Transportation Cost Handbook, March 2005

Source: Volusia County Parks & Recreation, Fire Resue Services, and Transportation Impact Fee Update Study, Final Report; 27 July 2007.

VI. FINANCIAL PLAN

The analysis of financial resources is an essential part of the transportation planning process. The purpose of this report is to equip the Southeast Volusia study partners with enough information and data to prepare a Cost Feasible Plan for the year 2025 transportation plan.

Adequate funds for transportation improvements are not typically available to meet the needs of the community. The development of a Cost Feasible Plan on the basis of a realistic financial forecast is an essential part of the process of developing a long-term plan.

This chapter outlines existing State and local sources of revenue for funding transportation improvement projects, identifies alternative revenue sources that are available to local governments, and explains the procedures for forecasting revenues and the anticipated revenue amounts. By presenting a summary of existing revenue sources, alternative revenue sources, and forecast revenues anticipated for the Southeast Volusia area through the year 2025, it was possible to make an overall estimate of the probable funding that will be available for transportation improvements.

Ghyabi & Associates explored alternative funding programs that may be applicable to the Study Partners, including, MSBU, MSTU, CRA, impact fees, and fair share agreements. It is anticipated that the buildout scenarios will result in roadway deficiencies throughout the study area. The purpose of the mid-year evaluations was to understand when deficiencies are likely to occur. Funding mechanisms were explored as a means to build road programs that will avoid level-of-service (LOS) deficiencies. From this point, fair share agreements will be developed and agreed to by and between the study area partners to address those roadways that fail due to new developments coming on line during the planning period.

A summary of the available funding, assuming existing sources of revenue at constant rates, projected to be available for programming, is shown in **Table 13**. The analysis is based on constant 2008 dollars. However, the fuel tax rates are scheduled to increase on January 1, 2009 by $0.002 per gallon for gasoline and $0.003 for diesel. The tax on aviation fuel will remain at $0.069 per gallon.

SUMMARY OF EXISTING REVENUE SOURCES

FEDERAL SOURCES

Fuel Tax – The federal fuel taxes are deposited into the Federal Highway Trust Fund (FHTF). The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) distribute funds to the states from the FHTF through a system of grants and allocations. The majority of federal transportation funding supports capital projects such as new transit facilities, new highway construction and specific projects earmarked by Congress. The federal tax rate for gasoline is 18.4 cents per gallon and 24.4 cents per gallon of diesel fuel.

STATE SOURCES

Fuel Tax – The state levies fuel taxes at two levels. The first level is comprised of revenue derived from the Fuel Sales Tax and the State Comprehensive Enhanced Transportation System (SCETS) Tax. The revenue from these taxes is distributed to the Florida Department of Transportation (FDOT) who dedicates a percentage to

public transportation and the remainder is used for any state transportation purpose to include matching dollars for federal funds. For Volusia County, the Fuel Sales Tax and SCETS tax are 11.6 and 6.4 cents per gallon, respectively.

Transportation Outreach Program – The 2000 Florida Legislature created the Transportation Outreach Program to fund transportation projects of a high priority based on the principles of preserving the existing transportation infrastructure, enhancing Florida's economic growth and competitiveness, and improving choices to ensure mobility. Eligible projects include those for planning, design, acquiring right-of-way for, or constructing the following:

- Major highway improvements, including the Florida Intrastate Highway System, feeder roads that provide linkages to major highways, bridges of statewide or regional significance, trade and economic development corridors, access projects for freight and passengers and hurricane evacuation routes.
- Major public transportation projects, including seaport projects which improve cargo and passenger movements, aviation projects which increase passenger enplanements and cargo activity, transit projects which improve mobility on interstate highways, or which improve regional or localized travel, rail projects that facilitate the movement of passengers and cargo including ancillary pedestrian facilities, Spaceport Florida Authority projects which improve space transportation capacity and facilities consistent with the provisions of s. 331.360, F.S. bicycle and pedestrian facilities that add to or enhance a statewide system of public trails.
- Highway and bridge projects that facilitate retention and expansion of military installations, or that facilitate reuse and development of any military base designated for closure by the federal government.

LOCAL SOURCES

The second level of revenue derives from the Constitutional, County, and Municipal Gas Taxes that are shared between the state and local governments. They are distributed through the County and Municipal Trust Funds.

Constitutional Gas Tax – The Constitutional Gas Tax is 2 cents per gallon. The proceeds are distributed to Florida counties based on a formula contained in the Constitution of the State of Florida. The tax is collected by the Department of Revenue and is transferred monthly to the State Board of Administration (SBA) for distribution to the counties. There are no deductions from the proceeds for the General Revenue Service Charges authorized in s. 215.20, F.S. However, the SBA deducts administrative costs from the proceeds. The SBA calculates a monthly allocation for each county based on a constitutional formula comprised of three components: area, population, and collection. A distribution factor, based on these three components, is calculated annually for each county in the form of weighted county-to-state ratios. To determine each county's monthly allocation, the monthly statewide tax receipts are multiplied by each county's distribution factor. A county's monthly distribution is determined as follows:

$$\text{County's Distribution Factor} = (1/4) \times \frac{\text{County Area}}{\text{State Area}} + (1/4) \times \frac{\text{County Population}}{\text{State Population}} + (1/2) \times \frac{\text{Total tax collected Countywide during previous fiscal year}}{\text{Total tax collected Statewide during previous fiscal year}}$$

The first priority for the proceeds of the Constitutional Gas Tax is to meet the debt service requirements, if any, on local bond issues. Any remaining resources are credited to the counties' transportation trust funds. Eighty percent of the surplus may be distributed to the Department of Transportation for the construction and maintenance of state roads and bridges. The remaining twenty percent of resources may be used to aid boards of county commissioners on county road and bridge projects.

County Gas Tax – The County Gas Tax is distributed by the same formula as the Constitutional Gas Tax. The rate is set at 1 cent per gallon. The tax may be used by the county for any transportation-related expenses.

Municipality Gas Tax – Revenues from this 1 cent per gallon tax are transferred into the Revenue Sharing Trust Fund for Municipalities. Municipal Gas Tax revenues may be used for transportation-related expenditures within incorporated areas, which include the purchase of transportation facilities and road rights-of-way, construction, or maintenance of roads.

Other Fuel Taxes and Fees – There is a 2.2 cents per gallon tax that reflects the total per gallon equivalent of the following revenue sources: the Tax for Coastal Protection, the Tax for Water Quality, and the Tax for Inland Protection, pursuant to Section 206.9935, F.S. and the Inspection Fee, pursuant to Section 525.09, F.S. Other fuel taxes and fees in the Florida include the following: Aviation Fuel Tax, Fuel Use Tax, Motor Vehicle License Fee, Initial Registration Fee, Title Fee, and Rental Car Surcharge.

County Incentive Grant Program – This program provides grants to counties to improve a transportation facility which is located on the

State Highway System or which relieves traffic congestion on the State Highway System. The FDOT must consider, but is not limited to the following criteria for evaluation of projects:

- The extent to which the project will encourage, enhance, or create economic benefits.
- The likelihood that assistance would enable the project to proceed at an earlier date than the project could otherwise proceed.
- The extent to which innovative public-private partnerships could be fostered and attract private debt or equity investment.
- The extent to which the project uses new technologies, including Intelligent Transportation Systems (ITS), or enhances the efficiency of the project.
- The project helps maintain or protect the environment.
- The project includes transportation benefits for improving intermodalism and safety.

FDOT's participation provides a percentage of the project cost and the remainder of the costs is borne by the counties. Generally, the participation levels are as follows:

Type	Percentage of Project Cost
FIHS	60
State Highway System	50
Local projects which relieve traffic congestion on the State Highway System	35

Ninth-Cent Local Option Gas Taxes (LOGT) – The Ninth-Cent Fuel Tax is a tax of 1 cent on every net gallon of motor and diesel fuel sold within a county. The tax may be authorized by an ordinance adopted by an extraordinary vote of the governing body or voter approval in a countywide referendum. Generally, the proceeds may be used to fund transportation expenditures. Counties are not required to share revenue from the Ninth Cent Gas Tax with municipalities; however, the proceeds of the tax may be shared with cities in whatever proportion is mutually agreed upon, and used for county or municipal transportation purposes including capacity improvements and maintenance. The tax has no time limit imposed on it by State statutes. The Legislature has authorized the statewide equalization of local option tax rates on diesel fuel by requiring that the 1 cent Ninth-Cent Fuel Tax be levied on diesel fuel in every county even though the county government may not have imposed the tax on motor fuel. Consequently, the tax revenue on diesel fuel is distributed to local governments, regardless of whether or not the county government is levying the Ninth-Cent Fuel Tax.

First LOGT (Six Cents) – A First LOGT of up to 6 cents per gallon of fuel may now be levied for a maximum duration of 30 years. Implementation of a 1 to 6 cents per gallon tax requires only a simple majority vote of the governing body of the county. The proceeds of the tax must be shared with municipalities, either by a mutually agreed upon distribution scheme or, if agreement cannot be reached, by using a formula contained in the State Statute. The formula requires the distribution of tax proceeds to be based on the transportation expenditures of each local government for the preceding five fiscal years, as a proportion of the total of such expenditures for the county and all municipalities within the county. As with the Ninth-Cent Gas Tax, the First LOGT on diesel fuel is equalized at 6 cents per gallon throughout the State. Local governments may pledge the revenues from any portion of the First LOGT to repay State bonds issued on their behalf. A local government must use the revenues for transportation expenditures on the State or local highway systems or transit-oriented capital purchases or operations. Transportation expenditures include right-of-way activities, roadway maintenance, and road construction. Volusia County currently charges the maximum 6 cents per gallon.

Second LOGT (Five Cents) – The 1993 Florida Legislature extended the scope of the LOGT to include up to an additional 5 cents per gallon tax on gasoline. Implementation of the second tax of 1 to 5 cents per gallon requires a majority plus one vote of the governing body of the county or a referendum. The proceeds of the tax must be shared with municipalities, either by a mutually agreed upon distribution scheme, or by using the state formula. Pursuant to Section 336, *Florida Statutes*, local governments may only use revenues from the tax for transportation expenditures needed to meet the requirements of the capital improvements element of an adopted comprehensive plan. The Second LOGT cannot be imposed on diesel fuel. The full 5-cent tax was implemented in Volusia County in January 2000.

Impact Fees – Transportation impact fees and performance standards place the

burden of improvements on new development. Impact fee ordinances require the developer to pay a share of the costs of improving existing roads or constructing new roads made necessary by the development. An impact fee schedule is typically based on trip generation, the cost of construction, trip length, percent new trips, and existing lane capacity. One of the advantages of impact fees is that new developments pay in relation to their impact. In other words, the greater the impact a new development has on the roadway system, the higher the impact fee will be. Impact fees are also relatively easy to adjust. Limitations include the fact that impact fees can only be applied to new construction, roadway widening, and operational improvements; however, revenue may be insufficient for the required improvements. Volusia County has implemented impact fees that will fund a number of projects.

PRIVATE SOURCES

Private funding may be available for certain projects usually in conjunction with major developments, such as Developments of Regional Impact (DRIs). Such funding results from agreements among various governmental agencies and usually involves FDOT.

Table 13 shows the existing revenue sources and the rates currently imposed within Volusia County.

Table 13: Existing Volusia County Revenue Sources

Source	Utilized	Rate/Amount	Remaining Available
Federal Fuel Tax	Y	18.4 cents/gallon	-
Fuel Sales Tax	Y	11.6 cents/gallon	-
SCETS tax	Y	6.4 cents/gallon	-
Constitutional Gas Tax	Y	2 cents/gallon	-
County Gas Tax	Y	1 cent/gallon	-
Municipality Gas Tax	Y	1 cent/gallon	-
Other Fuel Taxes/Fees	Y	2.2 cents/gallon	-
Transportation Outreach Program	Y	$ (2008-#)	-
County Incentive Grant Program	Y	$ (2008-#)	-
Ninth-Cent Gas Tax	Y	1 cent/gallon	0
First LOGT	Y	6 cents/gallon	0
Second LOGT	Y	5 cents/gallon	0
Impact Fees(Transportation)	Y		-
Private Funding	Y		-

SUMMARY OF ALTERNATIVE REVENUE SOURCES

Local Option Sales Taxes – There are seven local option sales taxes (also known as local discretionary sales surtaxes) currently authorized in law and represent potential revenue sources. The tax applies to all purchases subject to the regular 6 percent sales tax, except for sale amount purchases exceeding $5,000.00. County governments can authorize the following six taxes: Charter County Transit System Surtax, Local Government Infrastructure Surtax, Small County Surtax, Indigent Care and Trauma Center Surtax, County Public Hospital Surtax, and Voter- Approved Indigent Care Surtax. The School Capital Outlay Surtax can be authorized by school districts. Due to separate eligibility criteria and several rate cap limitations in law, Volusia County is eligible to levy the following taxes at a maximum rate of 2.5 percent: Charter County Transit System Surtax, Local Government Infrastructure Surtax, Indigent Care and Trauma Center Surtax, Voter- Approved Indigent Care Surtax, and School Capital Outlay Surtax. Currently, only a 0.5 percent rate is levied for the School

Capital Outlay Surtax. Descriptions of the surtaxes that remain eligible for Volusia County are provided below. Theses surtaxes would require an ordinance enacted by a majority vote of the county's governing body and approved by voters in a countywide referendum.

Charter County Transit System Surtax – The Charter County Transit System Surtax may be levied at a rate of up to 1 percent. Generally, the surtax proceeds are used for the development, construction, operation, and maintenance of fixed guideway rapid transit systems, bus systems, and roads and bridges.

Local Government Infrastructure Surtax – The Local Government Infrastructure Surtax may be levied at the rate of 0.5 or 1 percent. The surtax proceeds are distributed to the county and its respective municipalities based on an interlocal agreement or the Local Government Half-cent Sales Tax Program distribution formulas provided in s. 218.62, F.S. The surtax proceeds must be expended to finance, plan, and construct infrastructure; to acquire land for public recreation or conservation or protection of natural resources; and to finance the closure of local government-owned solid waste landfills that are already closed or are required to close by order of the Department of Environment Protection. Neither the proceeds nor any accrued interest shall be used for operational expenses of any infrastructure, except that any county with a population of less than 75,000 that is required to close a landfill by order of the Department of Environmental Protection may use the proceeds or any accrued interest for long-term maintenance costs associated with landfill closure. This surtax is one of several surtaxes subject to a combined rate limitation. A county shall not levy this surtax and the Small County Surtax, Indigent Care and Trauma Center Surtax, and County Public Hospital Surtax in excess of a combined rate of 1 percent.

Tolls – Tolls may be collected on highways, bridges, and tunnels and can provide support for street and highway budgets. Revenues generated by tolls are normally sufficient to cover capital improvements and maintenance for the facilities. After bonds are retired, tolls may continue to provide funds that could be applied to other construction. In other cases, tolls are reduced to cover only the maintenance expenses of the facility. Advantages of tolls include the equitable, user-based nature of the charge and the fact that substantial revenue can be produced. Advances in technology have created additional advantages with electronic toll collection, debit toll accounts, transponders, bar code readers, etc. These innovations reduce the need for large toll collection plazas and have the ability to keep traffic moving through the toll plaza at highway speeds. However, it is sometimes thought difficult to implement tolls in urban areas because of the short intervals between access points. There are no toll facilities in Volusia County.

Bond Issues – Local governments are given the authority to issue General Obligation and Revenue Bonds. General Obligation Bonds are secured by full faith and credit of the issuer (a pledge of the issuer's ad valorem taxing power). Revenue Bonds are payable from a specific source of revenue and do not pledge the full faith of the issuer. These bonds must be approved by popular vote and can be used to fund major transportation projects. There are currently no active bond issues in either county.

Municipal Service Business / Taxing Units (MSB/TUs) – A Municipal Service Benefit Unit (MSB/TU) is a special assessment district authorized by Florida Statute 125.01 and created to fund a desired improvement or group of improvements such as roads, utilities, sidewalks, or other similar types of projects. These projects will be located within a specifically defined area of the County, called an assessment boundary, and financed by a special assessment. The assessment boundary is determined by those properties that will derive a benefit from the improvements. This

boundary by definition is called the "benefit unit". Although a MSBU and a MSTU are very similar, the difference is in the source of revenue between the two services units. Revenue for services performed in an MSBU comes from non-ad valorem (non-value) assessments. The cost of the annual work program developed by the MSBU's advisory board is divided by the total number of equivalent residential units (ERUs) resulting in an assessment per ERU. A single residential lot is often defined as one ERU. The work performed in the MSBU serves that specific area or benefit unit. Revenue for a MSTU work program is produced by ad valorem (value) taxes. The millage rate is determined by dividing the cost of the annual work program by the taxable value of all properties within the benefit unit. However, *Florida Statutes* has a millage cap of 10 that can be assessed within a MSB/TU benefit unit.[1] MSTU exemptions are the same as those for the regular ad valorem tax, including the $25,000 homestead exemption. MSTUs can be imposed by a simple majority vote of the Board of County Commissioners. The authority to levy special assessments is based primarily on county and municipal home rule powers granted in the Florida Constitution. In particular, the *Florida Statutes* explicitly authorize the levy of special assessments. Special districts must derive their authority to levy special assessments through general law or special act. Currently there are no municipal services taxing units in Volusia County for the purposes of funding road capacity-related improvements.

Community Redevelopment Areas (CRA) – A CRA is a dependent taxing district set up by the governing body (City and/or County) for the purpose of eliminating slum and blight, enhancing the tax base and encouraging both public and private improvements in the CRA Area. The CRA is governed by Chapter 163, Part III, *Florida Statutes*. The CRA's source of revenue, with which it can deploy to make public improvements, is derived from tax increment. Tax increment is the property taxes contributed by the taxing district to a CRA Trust Fund. The contribution is based upon only new values of real estate created within the CRA after its creation. For example, if a vacant piece of land is valued at $100,000 and a new building is constructed on the land and the result is that the new building including the land value is valued at $1,100,000 then the incremental difference in value is $1,000,000. Taxes collected by the contributing authorities will be distributed to the CRA according to the difference between the new taxable value and the base year value of the CRA. Typically in the early years of a CRA the tax increment is small, but as new projects are built and as existing properties make improvements the tax increment rises. Tax increment financing is the pledging of future revenues of the CRA to pay the debt service on revenue bonds. The proceeds of the bonds pay for improvements in the CRA.

PROJECTED REVENUES

This section summarizes total transportation-related revenues anticipated to be available through the period 2009-2025. **Table 14** shows the total countywide projected revenue through 2025 generated by the existing gas tax receipts is estimated at $687 million. Revenue projections were calculated assuming an average annual growth rate of 1.42 percent based on the average annual growth of fuel consumption projections. As shown in **Table 15**, the total gas tax revenue estimates for Edgewater, New Smyrna Beach, and Port Orange is at $69.9 million.

Table 14: Gas Tax Revenue Estimates, FY 2009 - 2025

[1] Ft. Pierce Florida, MSBU Program, November 2006

Gas Tax Revenue Estimates

Volusia County

FY 2009- 2025

(in 1,000s)

FY	Constitutional	County	Municipal	Ninth-Cent	1st. LOGT	2nd LOGT	Total
2009	4,900	2,235	2,235	2,450	13,885	10,186	35,891
2010	4,977	2,270	2,270	2,489	14,104	10,347	36,458
2011	5,055	2,306	2,306	2,527	14,324	10,508	37,026
2012	5,133	2,341	2,341	2,566	14,544	10,669	37,594
2013	5,210	2,376	2,376	2,605	14,763	10,830	38,161
2014	5,287	2,412	2,412	2,644	14,983	10,991	38,729
2015	5,365	2,447	2,447	2,682	15,202	11,152	39,296
2016	5,442	2,482	2,482	2,721	15,422	11,313	39,863
2017	5,520	2,518	2,518	2,760	15,641	11,474	40,431
2018	5,597	2,553	2,553	2,799	15,861	11,636	40,999
2019	5,675	2,588	2,588	2,837	16,081	11,797	41,566
2020	5,752	2,624	2,624	2,876	16,300	11,958	42,134
2021	5,830	2,659	2,659	2,915	16,520	12,119	42,701
2022	5,907	2,694	2,694	2,954	16,739	12,280	43,269
2023	5,985	2,730	2,730	2,992	16,959	12,441	43,837
2024	6,062	2,765	2,765	3,031	17,178	12,602	44,404
2025	6,140	2,800	2,800	3,070	17,398	12,763	44,972
Grand Total	**93,837**	**42,801**	**42,801**	**46,919**	**265,905**	**195,067**	**687,331**

Note: The estimates are in 2008 constant dollars.

Table 15: Gas Tax Revenue Estimates, FY 2009 - 2025

Gas Tax Revenue Estimates

Selected Areas Volusia County

FY 2009- 2025

Local Government	Distribution %	Combined Gas Tax
Volusia County, Uninc.	57.2390000	393,421,326
Edgewater	1.8470000	12,695,001
New Smyrna Beach	3.3200000	22,819,385
Port Orange	5.0170000	34,483,391
Total	**100.0000000**	**$ 463,419,103**

Notes:

- The estimates are in 2008 constant dollars.
- The distribution percentages are based on the statutory default formula for LOGT, as contained in the 2008 Local Government Financial Information Handbook.

If a ½ cent (up to 1.0 percent) rate was levied and dedicated for transportation purposes, the tax would generate an average of $32.5 million per year. Approximately 13% ($4.2 million per year) of the proceeds would be distributed to Edgewater, New Smyrna Beach, and Port Orange. Revenue estimates from the sales tax levy were

estimated using the base projections of sales tax revenues for FY 2001-2009 from the Local Government Financial Information Handbook. **Table 16** displays the possible revenues of implementing a local option sales tax in Volusia County, assuming a rate of both 0.5 percent and 1.0 percent.

Table 16: Local Discretionary Sales Surtax, FY 2009 - 2025

Local Discretionary Sales Surtax					
	Distribution	1% Tax Rate		0.5% Tax Rate	
Local Government	Percentage	2009-15	2016-25	2009-15	2016-25
Volusia County, Uninc.	48.963126	222,782,223	318,260,319	111,391,112	159,130,160
Edgewater	2.838149	12,913,578	18,447,969	6,456,789	9,223,984
New Smyrna Beach	3.036441	13,815,807	19,736,867	6,907,903	9,868,433
Port Orange	7.414777	33,737,235	48,196,051	16,868,618	24,098,025
Countywide Total	**100.000000**	**64,935,871**	**649,999,987**	**227,499,995**	**324,999,994**

Notes:

- The 2010-2025 projections are based on an average of $65 million per year (calculated using the countywide estimates for 2001-2009 in the Local Government Financial Information Handbook).
- The distribution percentages are based on the statutory default formula for LOGT, as contained in the 2008 Local Government Financial Information Handbook.

If a MSTU was setup using a 1.000 mill assessment, a resident with a home valued at $200,000 and a homestead exemption of $25,000, would pay approximately $ 175 per year. Therefore, if the Southeast Volusia area has a taxable assessed value of $6 billion, a 1.000 mill assessment would generate approximately $ 6 million in annual revenue.

Table 17: Total Revenues Available

FY	Combined Gas Taxes	Impact Fees	Non-Traditional Revenues	Committed Projects	Total Revenues Available
2009 - 2015	$263,155,229	$72,563,303		$33,666,263	$302,052,269
2016 - 2025	$424,175,658	$112,710,925		$53,742,748	$483,143,835
TOTAL	**$687,330,887**	**$185,274,228**	**$0**	**$87,409,011**	**$785,196,104**

VII. APPENDIX

SCENARIO A (2030)

SCENARIO B (2030)

SCENARIO B-1 (2030)

SCENARIO B-2 (2030)

SCENARIO C (2015)

SCENARIO D (2025)

SCENARIO E (2025)

SCENARIO F (2015)

SCENARIO F-B (2015)

SCENARIO G (2025)

SCENARIO H (2025)

SCENARIO I (2025)