VOLUSIA COUNTY

PARKS & RECREATION, FIRE RESCUE SERVICES, AND TRANSPORTATION IMPACT FEE UPDATE STUDY

FINAL REPORT

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Volusia County
Impact Fee Update Study

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I. Introduction

To address recent cost increases along with new infrastructure required to support continuing growth, Volusia County has retained Tindale-Oliver & Associates (TOA) to update the impact fee schedules for the Parks and Recreation, Fire Services, and Transportation impact fee program areas. The parks and recreation and fire services impact fee program areas were last updated by Volusia County in 2001, while the Transportation impact fee program was last updated by Volusia County in 2003.

An impact fee is a one-time capital charge levied against new development and is designed to cover the cost of the capital infrastructure consumed by new development. The net impact fee is calculated as the total capital cost of providing the necessary infrastructure or services, less any additional revenue generated by new development that also will be used to pay for the additional infrastructure or services necessitated by new growth. This study utilizes a consumption-driven impact fee methodology based on the actual level of service standards being achieved. New development is charged based on the value of the current infrastructure or roadway system that they will consume less any applicable revenue credits. Under the consumption-driven approach, new development is not charged for capital expansion to the system for reasons other than those necessitated by new growth and does not pay to improve the level of service above the existing achieved standard.

The principal purpose of an impact fee is to maintain the current level of service standard for the respective impact fee program areas established by the County, as well as to assist in funding the implementation of projects that have been or will be identified in Volusia County's Capital Improvements Program or other master planning documents for the respective impact fee service categories.

The impact fees recommended in this technical study must pass a dual rational-nexus test by demonstrating that the need for capital facilities created by new development is proportionate to the amount of the fee charged, and the expenditure of impact fee funds creates a reasonable benefit to the new development paying the fees.

The purpose of this study is to create a legally defensible and technically supportable set of impact fees for these three impact fee program areas. It is important to note that, whenever possible, the most current and local data available at the time the study was utilized, pursuant to State legislature.

The remainder of this report is organized in the following sections:

Section	*Title*
II	Current and Projected Population
III	Parks and Recreation
IV	Fire Services
V	Transportation
VI	Indexing

Appendix A – Population Estimate & Functional Population - Supplemental Information
Appendix B – Land Value Analysis – Supplemental Information
Appendix C – Florida Trip Characteristics Study Database
Appendix D – Cost Component Calculations
Appendix E – Credit Component Calculations
Appendix F – Analysis of the Travel Behavior of Low-Income Households
Appendix G – Proposed Volusia County Transportation Impact Fee Schedule

Sections III and IV present the methodology upon which the parks and recreation and fire services impact fees will be based and are organized in the following manner:

- Inventory
- Population
- Level of Service
- Cost Component
- Credit Component
- Net Impact Fee Cost
- Proposed Impact Fee Schedule
- Impact Fee Schedule Comparison
- Future Demand Analysis
- Revenue Estimates

Section V, Transportation, is organized in a slightly different manner because of the nature of the methodology. Section VI, Indexing, outlines the methodology for indexing, as well as the application of indexing to each of the proposed impact fee schedules presented in Sections III through V.

II. Current & Projected Population

This section identifies the assumptions and resulting population estimates and projections for Volusia County and the corresponding impact fee service areas. Population estimates for 2007 and projections through the year 2025 (in five-year increments) are presented and summarized in this section for use within each of the impact fee program areas, as appropriate. Functional population estimates, as well as the definition of functional population, also are provided in this section.

Population Assumptions

All program areas, with the exception of transportation, require the use of population data in calculating several of the impact fee components, including the demand component, levels of service standards, and future demand for capital facilities. In addition, all program areas use population data for estimating revenue projections. With this in mind, a consistent approach to developing population estimates and projections is an important component of the data compilation process. To accurately determine the demand for services, seasonal residents and visitors should be considered in addition to the resident, or permanent population of the county. **Therefore, for purposes of this technical analysis, the weighted average seasonal population will be used in all population estimates and projections with the exception of revenue projections in the Transportation section. References to population contained in subsequent chapters of this report pertain to the weighted average seasonal population, unless otherwise noted.** Detailed calculations of the City's weighted average seasonal population are included in Appendix A, Tables A-1 through A-3.

Table II-1 summarizes the current and projected weighted average seasonal population for Volusia County, unincorporated Volusia County, and unincorporated Volusia County plus the cities of DeBary, Lake Helen, Oak Hill, and Pierson. The various population categories included in Table II-1 are needed to support the impact fee program areas being updated

The population category selected for a given impact fee analysis is consistent with the service area of that service/facility category. The countywide and the unincorporated populations are used in the calculation of the parks and recreation impact fees. A population comprised of unincorporated Volusia County plus the cities of DeBary, Lake Helen, Oak Hill, and Pierson is consistent with the service area of the Volusia County Fire Services Division and is used in the calculation of the fire service impact fee.

Table II-1
Volusia County Population Estimates and Projections

Geographic Area	2000	2001	2002	2003	2004	2005	2006	2007	2010	2015	2020	2025
Volusia County	457,707	466,669	474,605	485,995	499,922	510,646	520,138	530,230	561,593	608,152	650,787	688,674
Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, and Pierson	133,584	135,299	137,145	140,510	143,627	145,427	146,808	149,655	158,509	171,651	183,685	194,376
Unincorporated Volusia County	110,916	111,995	113,324	116,008	117,975	119,306	120,094	122,424	129,666	140,415	150,260	159,007

Source: Appendix A, Table A-3

Apportionment of Demand by Residential Unit Type

The Volusia County residential land uses to be used for the impact fee calculations are the following:

- Single Family Detached
- Multi Family
- Mobile Home
- Retirement Community/Age-Restricted Single Family

Tables II-2 through Table II-4 present the number of residents per housing unit, adjusted to account for seasonal residents, for the residential categories identified above for each of the impact fee program areas.

Table II-2
Residents per Housing Unit - Volusia County

Housing Type	Population[(1)]	Housing Units[(2)]	Ratio[(3)]	Residents / Housing Unit
Single Family Detached	325,088	131,875		2.47
- 0 to 1,500 sf			91%	2.25
- 1,501 to 2,499 sf			100%	2.47
- 2,500 sf or greater			110%	2.72
Multi Family	77,689	54,882		1.42
Mobile Home	38,786	24,272		1.60
Retirement Community/ Age-Restricted Single Family[(4)]				1.46

(1) Source: 2000 Census, Table H-33. Population adjusted for seasonal residents by increasing the population by the ratio of seasonal to permanent residents (3.2%).
(2) Source: 2000 Census, Table H-30
(3) Ratios developed based on the national persons-per-household data derived from the 2005 American Housing Survey
(4) Residents per unit for Retirement Community/Age-Restricted Single Family land use adjusts the residents per unit for the single family land use for the 1,501 to 2,499 square feet category, based on ratio of the national average persons per household over 55 years of age to the national average persons per household, based on data from the 2001 National Household Travel Survey.

Note: Excludes boats, RVs, vans, etc.

Table II-3
Residents per Housing Unit - Unincorporated Volusia County

Housing Type	Population[(1)]	Housing Units[(2)]	Ratio[(3)]	Residents / Housing Units
Single Family Detached	81,402	33,561		2.43
- 0 to 1,500 sf			91%	2.21
- 1,501 to 2,499 sf			100%	2.43
- 2,500 sf or greater			110%	2.67
Multi Family	7,126	6,261		1.14
Mobile Home	17,803	10,348		1.72
Retirement Community/ Age-Restricted Single Family[(4)]				1.43

(1) Source: 2000 Census, Table H-33. Population adjusted for seasonal residents by increasing the population by the ratio of seasonal to permanent residents (3.8%).
(2) Source: 2000 Census, Table H-30
(3) Ratios developed based on the national persons-per-household data derived from the 2005 American Housing Survey
(4) Residents per unit for Retirement Community/Age-Restricted Single Family land use adjusts the residents per unit for the single family land use for the 1,501 to 2,499 square feet category, based on ratio of the national average persons per household over 55 years of age to the national average persons per household, based on data from the 2001 National Household Travel Survey.

Note: Excludes boats, RVs, vans, etc.

Table II-4
Residents per Housing Unit
Unincorporated Volusia County,
DeBary, Lake Helen, Oak Hill, and Pierson

Housing Type	Population[(1)]	Housing Units[(2)]	Ratio[(3)]	Residents / Housing Units
Single Family Detached	98,901	40,806		2.42
- 0 to 1,500 sf			91%	2.20
- 1,501 to 2,499 sf			100%	2.42
- 2,500 sf or greater			110%	2.66
Multi Family	8,160	6,731		1.21
Mobile Home	20,727	12,075		1.72
Retirement Community/ Age-Restricted Single Family[(4)]				1.43

(1) Source: 2000 Census, Table H-33. Population adjusted for seasonal residents by increasing the population by the ratio of seasonal to permanent residents (3.4%).
(2) Source: 2000 Census, Table H-30
(3) Ratios developed based on the national persons-per-household data derived from the 2005 American Housing Survey
(4) Residents per unit for Retirement Community/Age-Restricted Single Family land use adjusts the residents per unit for the single family land use for the 1,501 to 2,499 square feet category, based on ratio of the national average persons per household over 55 years of age to the national average persons per household, based on data from the 2001 National Household Travel Survey.

Note: Excludes boats, RVs, vans, etc.

Functional Population

Introduction

Because the Fire Services impact fee schedule includes both residential and non-residential land uses, it is appropriate to apply a concept referred to as "functional population." For the Transportation Impact Fee Program, although both residential and non-residential land uses are charged an impact fee, it is more appropriate to determine the demand based on the vehicle miles of travel (VMT) for each land use instead of either resident or functional population.

The Concept and Calculation of Functional Residents

As Volusia County grows, it will need to expand its inventory of public facilities to accommodate the additional residents and visitors. The traditional method for estimating the current and future demand for certain facilities is to use the population as the basis.

For example, the State of Florida established a statewide minimum standard of 0.6 square feet of library space per capita based on the resident population of communities meeting minimum thresholds. Yet, communities with high volumes of nonresidents who use library services may need more than 0.6 square feet per resident to effectively meet this standard. In the case of fire, the higher the nonresident daytime population, the greater the need is for service relative to the resident population. Moreover, it is not enough to simply add resident population to the number of employees, since the service-demand characteristics of employees can vary considerably by type of industry. Using unweighted population and employment data to estimate facility needs may result in substantial error.

For many facilities, there is a convenient way to rationally attribute demand by land use and to estimate aggregate demand for a community. This method is called "functional population." Functional population is the equivalent number of people occupying space within a community 24-hours-per-day, 7-days-per-week.

A person living and working in the community will have a functional population coefficient of 1.0. A person living in the community but working elsewhere may spend only 16 hours per day in the community on weekdays and 24 hours per day on weekends for a functional population coefficient of 0.76 (128-hour presence divided by 168 hours in one week). A person commuting into the community to work five days per week would have a functional population coefficient of 0.27 (45-hour presence divided by 168 hours in one week). Similarly, a person traveling into the community to shop at stores, perhaps averaging 8 hours per week, would have a functional population coefficient of 0.05.

Functional population thus tries to capture the presence of all people within the community, whether residents, workers, or visitors, to arrive at a total estimate of effective population needing to be served. Functional population measures are important to gauge the demand for facilities serving the community.

This form of adjusting population to help measure facility needs replaces the popular approach of merely weighting residents two-thirds and workers one-third.[1] By estimating the functional and weighted population per unit of land use across all major land uses in a community, an estimate of the demand for certain facilities and services in the present and in a future year can be calculated. The following paragraphs explain how functional population is calculated.

[1] Arthur C. Nelson and James C. Nicholas, "Estimating Functional Population for Facility Planning," *Journal of Urban Planning and Development* 118(2): 45-58 (1992).

Residential Functional Population

It is generally assumed that people spend one-half to three-fourths of their time at home and the rest of each 24-hour day away from their place of residence. In developing the residential component of Volusia County's functional population, an analysis of the county's population and employment characteristics was conducted. Based on this analysis, it was estimated that people, on average, spend 16.1 hours, or 67 percent, of each 24-hour day at their place of residence and the remaining 33 percent away from home. This analysis is presented in Appendix A, Tables A-4 and A-5, and the resulting residential functional population coefficients are displayed in Table II-5.

Nonresidential Functional Population

Developing estimates of functional residents for nonresidential land uses is more complicated than developing estimates of functional residents for residential land uses, given the varying characteristics of non-residential land uses. Nelson and Nicholas originally introduced a method for estimating functional resident population, now used internationally. This method uses trip generation data from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, information on passengers per vehicle, workers per vehicle, length of time spent at the land use, and other variables. Specific calculations include:

- Total one-way trips per employee (ITE trips multiplied by 50 percent to avoid double counting entering and exiting trips as two trips).
- Visitors per impact unit based on occupants per vehicle (trips multiplied by occupants per vehicle less employees).
- Worker hours per week per impact unit (such as nine worker hours per day multiplied by five days in a work week).
- Visitor hours per week per impact unit (visitors multiplied by number of hours per day times relevant days in week such as five for offices and seven for retail shopping).
- Functional population coefficients per employee developed by considering time spent by employees and visitors at each land use.

Table II-5
General Functional Population Coefficients

Population/ Employment Category	ITE	Employee Hours In-Place[1]	Trips per Employee[2]	One-Way Trips per Employee[3]	Journey-to-Work Occupants per Trip[4]	Daily Occupants per Trip[5]	Visitors per Employee[6]	Visitor Hours per Trip[1]	Days per Week[7]	Functional Population Coefficient[8]
Population										0.67
Natural Resources	N/A	9.00	3.02	1.51	1.32	1.38	0.09	1.00	7.00	0.38
Construction	110	9.00	3.02	1.51	1.32	1.38	0.09	1.00	7.00	0.38
Manufacturing	140	9.00	2.13	1.07	1.32	1.38	0.06	1.00	5.00	0.27
Transportation, Communitcation, Utilities	110	9.00	3.02	1.51	1.32	1.38	0.09	1.00	5.00	0.27
Wholesale Trade	150	9.00	3.89	1.95	1.32	1.38	0.12	1.00	5.00	0.27
Retail Trade	820	9.00	70.36	35.18	1.24	1.73	17.24	1.50	7.00	1.45
Finance, Insurance, Real Estate	710	9.00	3.32	1.66	1.24	1.73	0.81	1.00	5.00	0.29
Services[9]	N/A	9.00	27.35	13.68	1.24	1.73	6.70	1.00	6.00	0.56
Government[10]	730	9.00	11.95	5.98	1.24	1.73	2.93	1.00	7.00	0.50

(1) Assumed

(2) Trips per employee based on Trip Generation Seventh Edition (Institute of Transportation Engineers 2004) as follows:
ITE Code 110 at 3.02 weekday trips per employee, page 90.
ITE Code 140 at 2.13 weekday trips per employee, page 161.
ITE Code 150 at 3.89 weekday trips per employee, page 190.
ITE Code 730 at 11.95 weekday trips per employee, page 1200.
ITE Code 820 based on blended average of trips by retail center size calculated below, adapted from page 1451.
Trips per retail employee from the following table:

Retail Scale	*Assumed Center Size*	*Trip Rate*	*Share*	*Weighted Trips*
Neighborhood <50k sq.ft.	25	110.32	40.0%	44.13
Community 50k - 250k sq.ft.	150	58.93	45.0%	26.52
Regional 250k - 500k sq.ft.	375	42.76	15.0%	6.41
Super Reg. 500k-1000k sq.ft.	750	33.55	0.0%	0.00
Sum of Weighted Trips/1k sq.ft.				77.06
One-Way Trip Adjustment (@ 50%)				38.53
Square Feet per Retail Employee[11]				913
Employees per 1,000 sq.ft.				1.095
Trips per employee				70.36

(3) Trip per employee (Item 2) multiplied by 0.5.

(4) Journey-to-Work Occupants per Trip from 2001 Nationwide Household Travel Survey (FHWA 2001) as follows:
1.32 occupants per Construction, Manufacturing, TCU, and Wholesale trip
1.24 occupants per Retail Trade, FIRE, and Services trip

(5) Daily Occupants per Trip from 2001 Nationwide Household Travel Survey (FHWA 2001) as follows:
1.38 occupants per Construction, Manufacturing, TCU, and Wholesale trip
1.73 occupants per Retail Trade, FIRE, and Services trip

(6) [Daily occupants per trip (Item 5) multiplied by one-way trips per employee (Item 3)] - [(Journey-to-Work occupants per trip (Item 4) multiplied by one-way trips per employee (Item 3)]

(7) Typical number of days per week that a government building is open and operating.

(8) The equation to determine the Functional Population Coefficient per Employee for all land-use categories except residential includes the following:

$$\frac{(\text{Days per Week} \times \text{Employee Hours in Place}) + (\text{Visitors per Employee} \times \text{Visitor Hours per Trip} \times \text{Days per Week})}{(24 \text{ Hours per Day} \times 7 \text{ Days per Week})}$$

(9) Trips per employee for the services category is the average trips per employee for the following service related land use categories: quality restaurant, high-turnover restaurant, supermarket, hotel, motel, elementary school, middle school, high school, hospital, medical office, and church. Source for the trips per employee figure from ITE, 7th ed., when available, or else derived from the square feet per employee for the appropriate land use category from the Energy Information Administration (2002) from Table B-1 of the Commercial Energy Building Survey (1999).

(10) Includes Federal Civilian Government, Federal Military Government, and State and Local Government categories.

(11) Square feet per retail employee from the Energy Information Administration (2002) from Table B-1 of the Commercial Energy Building Survey, 1999

Table II-5 also presents the functional population coefficients for nonresidential uses/categories for Volusia County that will be utilized to calculate the functional population figure in Table II-6 for the fire services impact fee service area of unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, and Pierson. The functional population figure in Table II-6 indicates that the ratio of functional population to resident population for the fire services service area for the year 2007 is 92 percent. This ratio suggests that more people are leaving the area for work or other activities during the indicated time periods than people entering from other jurisdictions. The worker flow in and out of Volusia County, which is presented in Appendix A, Table A-4, supports the fact that more workers are leaving the county for employment than are entering.

Table II-6
Functional Population
Unincorporated Volusia County,
DeBary, Lake Helen, Oak Hill, Pierson

Population Category	Year 2007 Weighted Population and Employment[(1)]	Functional Resident Coefficient[(2)]	Functional Residents 2007[(3)]
Total Weighted Population	149,655	0.67	100,269
Employment by Category			
Natural Resources	4,484	0.38	1,704
Construction	4,704	0.38	1,788
Manufacturing	3,653	0.27	986
Transportation, Communications, & Utilities	2,232	0.27	603
Wholesale Trade	2,317	0.27	626
Retail Trade	10,932	1.45	15,851
Finance, Insurance, & Real Estate	2,992	0.29	868
Services	20,735	0.56	11,612
Government Services	7,002	0.50	3,501
Total 2007 Functional Population[(4)]			**137,808**
Ratio of Functional Population to Residential Population			92.1%

(1) Source: Table II-1 for 2007 population figure and 2006 Woods and Poole Economics for Volusia County for employment population
(2) Source: Table II-5
(3) Year 2007 population and employment (Item 1) multiplied by the functional resident coefficient (Item 2) for each category
(4) The total functional population is the sum of the weighted population and total employment by category

Functional Residents by Specific Land Use Category

When a wide range of land uses impact services, an estimate of that impact is needed for each land use. This section presents functional population estimates by residential and non-residential land uses.

Residential Land Uses

As previously presented in Tables II-2 through II-4, the average number of residents per housing unit was calculated for single family detached, multi family, mobile homes, and retirement community/age-restricted single family land uses, based on information obtained from the 2000 Census. Besides those uses, residential-type land uses also include hotels and motels. Secondary sources, such as ITE's *Trip Generation* (Seventh Edition), are used to determine the persons per unit for hotels, motels, nursing homes, and adult living facility (ALF) land uses. As mentioned before, different functional population coefficients must be developed for each land use based on the presence of people at that particular land use throughout the day. For residential land uses, the functional population coefficients are displayed in Table II-7.

Nonresidential Land Uses

A similar approach is used to estimate functional residents for nonresidential land uses. Table II-8 reports basic assumptions and calculations, such as trips per unit, trips per employee, employees per impact unit, one-way trips per impact unit, worker hours, occupants per vehicle trip, visitors (patrons, etc.) per impact unit, visitor hours per trip, and days per week for nonresidential land uses. The final column in this table shows the functional resident coefficient for each land use. These coefficients for each nonresidential land use, as well as the coefficients for the residential land uses in Table II-7, create the demand component for the fire services impact fee and will be used in the calculation of the impact cost per unit for each land use category in the fee schedule.

Table II-7
Functional Residents for Residential Land Uses
Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill and Pierson

Residential Land Use	Impact Unit	ITE Code	Residents Per Unit[1]	Occupancy Rate[2]	Adjusted Residents Per Unit[3]	Hours at Place[2]	Workers Per Unit[4]	Work Day Hours[2]	Days Per Week	Work Week Residents Per Unit[5]
Residential										
Single Family Detached	du	210								
- 0 to 1,500 sf	du	210	2.20							1.47
- 1,501 to 2,499 sf	du	210	2.42							1.62
- 2,500 sf or greater	du	210	2.66							1.78
Multi Family	du	0	1.21							0.81
Mobile Home Park	du	240	1.72							1.15
Retirement Community/Age-Restricted Single Family	du	250	1.43							0.96
Transient, Assisted, Group										
Hotel / Motel	room	310 / 320	1.62	62%	1.00	12	0.5	9	7	0.69
Nursing Home/Adult Living Facility	bed	620 / 252	1.25	95%	1.19	16	0.5	9	7	0.98

(1) Source: Table II-3 for residential land uses.
(2) State average occupancy rates for hotel/motel land use. Source: Visit Florida 2002 Lodging Forecast, Ernst & Young LLP.
(3) Residents per unit times occupancy rate.
(4) Adapted from ITE Trip Generation, Seventh Edition.
(5) For residential this is Adjusted Residents Per Unit times 0.67. For Transient, Assisted, and Group it is:

$$\frac{[(\text{Adjusted Residents} \times \text{Hours at Place} \times \text{Days per Week}) + (\text{Workers Per Unit} \times \text{Work Hours Per Day} \times \text{Days per Week})]}{(24 \text{ Hours per Day} \times 7 \text{ Days per Week})}$$

Table II-8
Functional Residents for Non-Residential Land Uses

Land Use	Impact Unit	ITE Code / Page (1)	Trips Per Unit (2)	Trips Per Employee (3)	Employees Per Unit (4)	One-Way Factor @ 50%	Worker Hours	Occupants Per Trip (5)	Visitors (6)	Visitor Hours Per Trip (7)	Days Per Week	Functional Resident Coefficient (8)
Recreational												
Arena (Major Sports Facility)	acre	460	33.33	10.00	3.33	16.67	9	2.39	36.51	1.50	7	3.53
City Park (Local Park)	acre	411	1.59	N/A	0.10	0.80	9	2.39	1.81	1.50	7	0.15
County Park (District Park)	acre	412	2.28	N/A	0.10	1.14	9	2.39	2.62	1.50	7	0.20
Miscellaneous												
Church	1,000 sf	560	9.11	N/A	0.63	4.56	9	1.90	8.03	1.00	7	0.57
Day Care Center	1,000 sf	565	75.07	28.13	2.67	37.54	9	1.11	39.00	0.15	5	0.89
Movie Theater	screen	444	96.39	53.12	1.81	48.2	9	2.39	113.39	1.00	7	5.40
Office												
Office 50,000 SF or less[9]	1,000 sf	710	15.65	3.32	4.71	7.83	9	1.28	5.31	1.00	5	1.42
Office 50,001 - 100,000 SF[10]	1,000 sf	710	14.25	3.32	4.29	7.13	9	1.28	4.84	1.00	5	1.29
Office 100,001 - 200,000 SF[11]	1,000 sf	710	12.15	3.32	3.66	6.08	9	1.28	4.12	1.00	5	1.10
Office 200,001 - 400,000 SF[12]	1,000 sf	710	10.36	3.32	3.12	5.18	9	1.28	3.51	1.00	5	0.94
Office greater than 400,000 SF[13]	1,000 sf	710	8.83	3.32	2.66	4.42	9	1.28	3.00	1.00	5	0.80
Hospital	1,000 sf	610	17.57	5.20	3.38	8.79	9	1.42	9.10	1.00	7	1.65
Corporate Headquarters Building	1,000 sf	714	7.98	2.33	3.42	3.99	9	1.28	1.69	1.00	7	1.35
Medical Office/Clinic	1,000 sf	720	36.00	8.91	4.04	18.00	9	1.42	21.52	1.00	5	1.72
Bank/Savings with Drive-Thru	1,000 sf	912	281.55	72.79	3.87	140.78	9	1.52	210.12	0.15	6	2.37
Bank/Savings with no DriveThru	1,000 sf	911	156.48	44.47	3.52	78.24	9	1.52	115.40	0.35	6	2.57

Table II-8 (continued)
Functional Residents for Non-Residential Land Uses

Land Use	Impact Unit	ITE Code / Page (1)	Trips Per Unit (2)	Trips Per Employee (3)	Employees Per Unit (4)	One-Way Factor @ 50%	Worker Hours	Occupants Per Trip (5)	Visitors (6)	Visitor Hours Per Trip (7)	Days Per Week	Functional Resident Coefficient (8)
Retail, Gross Square Feet												
Retail 50,000 GSF or less[9]	1,000 sf	820	86.56	N/A	2.50	43.28	9	1.73	72.37	0.50	7	2.45
Retail 50,001 GSF to 200,000 GSF[14]	1,000 sf	820	62.81	N/A	2.50	31.41	9	1.73	51.84	0.65	7	2.34
Retail 200,001 GSF to 400,000 GSF[12]	1,000 sf	820	46.23	N/A	2.50	23.12	9	1.73	37.50	1.00	7	2.50
Retail 400,001 GSF to 600,000 GSF[15]	1,000 sf	820	38.66	N/A	2.50	19.33	9	1.73	30.94	1.00	7	2.23
Retail 600,001 GSF to 800,000 GSF[16]	1,000 sf	820	34.37	N/A	2.50	17.19	9	1.73	27.24	1.15	7	2.24
Retail greater than 800,000 GSF[17]	1,000 sf	820	28.46	N/A	2.50	14.23	9	1.73	22.12	1.25	7	2.09
Pharmacy/Drug Store w/Drive-Thru	1,000 sf	881	95.21	N/A	2.50	47.61	9	1.52	69.87	0.35	7	1.96
Home Improvement Superstore	1,000 sf	862	29.80	N/A	2.50	14.90	9	1.73	23.28	1.00	7	1.91
Quality Restaurant	1,000 sf	931	91.10	N/A	9.92	45.55	9	1.85	74.35	1.00	7	6.82
High-Turnover Restaurant	1,000 sf	932	123.91	N/A	9.92	61.96	9	1.85	104.71	0.75	7	6.99
Fast Food Restuarant w/ Drive-Thru	1,000 sf	934	519.58	N/A	10.90	259.79	9	1.85	469.71	0.25	7	8.98
Quick Lube	bay	941	43.39	N/A	1.50	21.70	9	1.52	31.48	0.50	7	1.22
Supermarket	1,000 sf	850	103.38	87.82	1.18	51.69	9	1.52	77.39	0.50	7	2.05
Convenience Store w/Gas Pumps	1,000 sf	853	775.14	N/A	2.50	387.57	9	1.52	586.61	0.20	7	5.83
Tire Store	bay	848	36.16	3.24	11.16	18.08	9	1.73	20.12	1.00	7	5.02
Auto Repair or Body Shop	1,000 sf	848	34.12	N/A	6.00	17.06	9	1.52	19.93	1.00	7	3.08
New and Used Car Sales	1,000 sf	943	32.93	21.14	1.56	16.47	9	1.73	26.93	1.00	7	1.71
Furniture Store	1,000 sf	890	5.06	12.19	0.42	2.53	9	1.73	3.96	1.00	7	0.32
CBD Sandwhich Shop	1,000 sf	N/A	19.30	N/A	2.50	9.65	9	1.85	15.35	0.50	7	1.26
Convenience/Gas/Fast Food	1,000 sf	N/A	984.59	N/A	2.50	492.3	9	1.52	745.80	0.20	7	7.15

Table II-8 (continued)
Functional Residents for Non-Residential Land Uses

Land Use	Impact Unit	ITE Code / Page (1)	Trips Per Unit (2)	Trips Per Employee (3)	Employees Per Unit (4)	One-Way Factor @ 50%	Worker Hours	Occupants Per Trip (5)	Visitors (6)	Visitor Hours Per Trip (7)	Days Per Week	Functional Resident Coefficient (8)
Industrial												
General Industrial/Industrial Park	1,000 sf	110	6.97	3.02	2.31	3.49	9	1.38	2.51	1.00	5	0.69
Manufacturing	1,000 sf	140	3.82	2.13	1.79	1.91	9	1.38	0.85	1.00	5	0.50
Warehouse	1,000 sf	150	4.96	3.89	1.28	2.48	9	1.38	2.14	0.75	5	0.39
Mini-Warehouse	1,000 sf	151	2.50	56.28	0.04	1.25	9	1.38	1.69	0.75	7	0.07

Sources:
(1) Based on ITE or blend of ITE and Florida studies data.
(2) Source: ITE's Trip Generation, Seventh Edition, or FL Studies
(3) Trips per worker from ITE's Trip Generation, Seventh Edition for page reported.
(4) Trips per impact unit divided by trips per person (usually employee).
(5) Nationwide Personal Transportation Survey
(6) [(One-way Trips/Unit X Occupants/Trip) - Employees].
7) Assumed.
(8) [(Workers X Hours/Day X Days/Week) + (Visitors X Hours/Visit X Days/Week)]/(24 Hours x 7 Days)
(9) Trip rate is for 25,000 sfgla.
(10) Trip rate is for 75,000 sfgla.
(11) Trip rate is for 150,000 sfgla.
(12) Trip rate is for 300,000 sfgla.
(13) Trip rate is for 600,000 sfgla.
(14) Trip rate is for 125,000 sfgla.
(15) Trip rate is for 500,000 sfgla.
(16) Trip rate is for 700,000 sfgla.
(17) Trip rate is for 1,200,000 sfgla.

III. Parks and Recreation

This section summarizes the analysis used to update the parks and recreation impact fee program for Volusia County. Volusia County's Leisure Services Department provides parks and recreation services to Volusia County residents via a system of parks, related facilities, and recreation programs that showcase the County's scenic and natural beauty. As such, this analysis will include parks and recreation facilities located within Volusia County that are owned and maintained by the County. This section consists of the following subsections:

- Inventory
- Population
- Level of Service
- Cost Component
- Credit Component
- Net Parks and Recreation Impact Cost
- Proposed Parks and Recreation Impact Fee Schedule
- Parks and Recreation Impact Fee Schedule Comparison
- Future Demand Analysis
- Revenue Estimates

These 10 elements are summarized in the remainder of this section, with the result being the proposed parks and recreation impact fee schedule.

Inventory

Table III-1 includes the inventory of all Volusia County owned and operated parks. This inventory also includes parks located at public school facilities which the County uses in its Comprehensive Plan level of service calculation. These parks are not used as part of the calculation of the update to the County's impact fee since only park acreage where it is clearly established that the County owns the land is used in the calculations. However, the County may desire to continue to use this inventory as part of the level of service evaluation as it relates to Comprehensive Plan standards and service delivery requirements per agreements made with the Volusia County School District.

Table III-1
Volusia County – Inventory of All Parks

Name of Facility	County Park Acres Located in Unincorporated County	County Park Acres Located Within a Municipality	County-Owned Passive Acres	City/Other Owned Acres	Volusia County Park Classification	Impact Fee Zone (Local Parks Only)
District and Local Parks:						
27th Avenue Park				2.30	District Park	
Barkley Square Dog Park	15.00				District Park	
Beck Ranch Phase I	30.00		220.00		District Park & Misc Land Holding	
Bicentenniel Park	40.00				District Park	
Blue Lake Boat Ramp	0.25				District Park	
Candace R. Strawn - Lake Dias Park	28.00				District Park	
Chuck Lennon Park	136.00				District Park	
DeBary Hall				3.00	District Park	
Ed Stone Park	7.00				District Park	
Flagler Avenue				2.50	District Park	
Frank Rendon Park		2.25			District Park	
Gemini Springs Park		221.00			District Park	
Green Spring Park	14.00				District Park	
Happy Whale Park	3.00				District Park	
Highbanks Boat Ramp		1.00			District Park	
Highbridge Park	6.00				District Park	
Hiles Boat Ramp	1.00				District Park	
Hiles (Off-Beach Parking)	1.50				District Park	
Lake Ashby Boat Ramp	1.00				District Park	
Lake Ashby Park	64.00				District Park	
Lake Beresford Park	210.00				District Park	
Lake Colby/Royal Park	124.00				District Park	
Lake George Fishing Pier	20.00		7,850.00		District Park & Misc Land Holding	
Lake Monroe Park		42.00			District Park	
Lemon Bluff Boat Ramp	0.25				District Park	
Lighthouse Point Park				55.00	District Park	
Mariner's Cove Park	47.00				District Park	
Mary McLeod Bethune Beach Park	6.00				District Park	
PFC Emory L. Bennett Veteran's Memorial Park		205.00			District Park	
Pierson Town Park-Chipper Jones Family Sports Complex				16.00	District Park	
Plymouth Avenue Multi-Purpose District Park	20.00				District Park	
River Breeze Park	37.00				District Park	
Robert Strickland Park	30.00	5.00			District Park	
Rockefeller Drive (Off-Beach Parking)	0.64				District Park	
Smyrna Dunes Park				73.00	District Park	
Spruce Creek Park and Preserve	43.00			1,875.00	District Park & Misc Land Holding	
Strickland Shooting Range		11.43			District Park	
Sugar Mill Gardens		12.00			District Park	
Sugar Mill Ruins				17.00	District Park	
Sun Splash Park		3.40			District Park	
Tom Renick (Ormond-by-the-Sea Park)	1.25				District Park	
Tomoka Boat Ramp	0.25				District Park	
Toronita (Off-Beach Parking)	2.00				District Park	
Winterhaven Park		1.30			District Park	

Table III-1 (continued)
Volusia County – Inventory of All Parks

Name of Facility	County Park Acres Located in Unincorporated County	County Park Acres Located Within a Municipality	County-Owned Passive Acres	City/Other Owned Acres	Volusia County Park Classification	Impact Fee Zone (Local Parks Only)
District and Local Parks (continued):						
Briggs Drive Fishing Dock	0.25				Local Park	1
Ormond Tomb Park	13.00				Local Park	1
Riv-Ocean Drive Fishing Dock	0.25				Local Park	1
Roberta Drive Fishing Dock	0.25				Local Park	1
San Jose Fishing Dock	0.25				Local Park	1
Seabridge Riverfront Park	3.00				Local Park	1
Wilbur Boathouse	5.00				Local Park	1
Mary Dewees Park				5.00	Local Park	2
Nancy Cummings Park				9.00	Local Park	2
Sunrise Park		0.50			Local Park	2
Pooser Park		6.00			Local Park	3
Cypress Lakes Park	9.00				Local Park	4
Hester Park	5.00				Local Park	4
Seville Village Park	2.00				Local Park	4
Spring Hill Park		5.00			Local Park	4
Sylvester B. Bruten Park		1.50			Local Park	4
North Peninsula Recreation Area				26.00	Misc Land Holding	
Parks Located at School Facilities:						
Holly Hill Middle School				10.00	School - Local Park	1
Palm Terrace Elementary School				8.00	School - Local Park	1
Pathway Elementary School				4.00	School - Local Park	1
Pine Trail Elementary School				4.00	School - Local Park	1
South Daytona Elementary School				3.00	School - Local Park	1
Walter A. Hurst Elementary School				6.00	School - Local Park	1
Westside Elementary School				6.00	School - Local Park	1
Chisholm Elementary School				6.00	School - Local Park	2
New Smyrna Beach Middle School				15.00	School - Local Park	2
Read-Patillo Elementary School				4.00	School - Local Park	2
Samsula Elementary School				3.00	School - Local Park	2
W.F. Burns Oak Hill Elementary School				6.00	School - Local Park	2
Enterprise Elementary School				8.00	School - Local Park	3
Forest Lakes Elementary School				9.00	School - Local Park	3
Orange City Elementary School				3.00	School - Local Park	3
Osteen Elementary School				8.00	School - Local Park	3
Volusia Pines Elementary School				8.00	School - Local Park	3
Blue Lake Elementary School				10.00	School - Local Park	4
DeLand Middle School				14.00	School - Local Park	4
Edith I. Starke Elementary School				6.00	School - Local Park	4
Euclid Avenue Learning Center				3.00	School - Local Park	4
Freedom Elementary School				6.00	School - Local Park	4
George W. Marks Elementary School				11.00	School - Local Park	4
Louise S. McGinnis Elementary				10.00	School - Local Park	4
Pierson Elementary School				4.00	School - Local Park	4
Seville Public School				2.00	School - Local Park	4
Southwestern Middle School				8.00	School - Local Park	4
T. Dewitt Taylor Middle/High Schools				22.00	School - Local Park	4
Woodward Avenue Elementary School				5.00	School - Local Park	4
Total - All Parks	**926.14**	**517.38**	**8,070.00**	**2,295.80**		

Sources: 2007 Leisurely Times, Ordinance No. 2001-17 and Volusia County Leisure Services Department

For purposes of calculating the impact fee, the County's park facilities are classified as either district or local parks, and a corresponding impact fee is calculated for each park classification. New development located in unincorporated County is required to pay a

parks and recreation impact fee that is comprised of a district park fee and a local park fee. Fees collected from the district park impact fee can be spent on parks and facilities throughout the county. Fees collected from the local park impact fee must be spent in the impact fee benefit district that corresponds to the location of the development being assessed the fee. The County also has passive park land in its inventory which is referred to as miscellaneous land holdings. Some of this land is currently in the process of or will eventually be developed as active park land, while some of this land will be maintained in perpetuity as conservation land.

The inventory of all Volusia County parks provided in Table III-1 is then used to create the inventory of parks upon which the updated parks and recreation impact fee is based. This inventory is presented in Table III-2. The acreage used to calculate the County's updated impact fee for district parks includes those acres that are county-owned active park land. For local parks, the acreage used to calculate the impact fee consists of all county-owned park land that is located in unincorporated Volusia County. This includes approximately 1,393 acres of countywide district parks and 38 acres of local parks located within the unincorporated county.

Table III-2
Inventory of Parks Used in the Impact Fee Update[(1)]

Name of Facility	County Park Acres Located in Unincorporated County	County Park Acres Located within a Municipality	County-Owned Passive Acres	City/Other Owned Acres	Volusia County Park Classification
District Parks:					
27th Avenue Park				2.30	District Park
Barkley Square Dog Park	15.00				District Park
Beck Ranch Phase I	30.00		220.00		District Park & Miscellaneous Land Holding
Bicentenniel Park	40.00				District Park
Blue Lake Boat Ramp	0.25				District Park
Candace R. Strawn - Lake Dias Park	28.00				District Park
Chuck Lennon Park	136.00				District Park
DeBary Hall				3.00	District Park
Ed Stone Park	7.00				District Park
Flagler Avenue				2.50	District Park
Frank Rendon Park		2.25			District Park
Gemini Springs Park		221.00			District Park
Green Spring Park	14.00				District Park
Happy Whale Park	3.00				District Park
Highbanks Boat Ramp		1.00			District Park
Highbridge Park	6.00				District Park
Hiles (Off-Beach Parking)	1.50				District Park
Hiles Boat Ramp	1.00				District Park
Lake Ashby Boat Ramp	1.00				District Park
Lake Ashby Park	64.00				District Park
Lake Beresford Park	210.00				District Park
Lake Colby/Royal Park	124.00				District Park
Lake George Fishing Pier	20.00		7,850.00		District Park & Miscellaneous Land Holding
Lake Monroe Park		42.00			District Park
Lemon Bluff Boat Ramp	0.25				District Park
Lighthouse Point Park				55.00	District Park
Mariner's Cove Park	47.00				District Park
Mary McLeod Bethune Beach Park	6.00				District Park
PFC Emory L. Bennett Veteran's Memorial Park		205.00			District Park
Pierson Town Park-Chipper Jones Family Sports Complex				16.00	District Park
Plymouth Avenue Multi-Purpose District Park	20.00				District
River Breeze Park	37.00				District Park
Robert Strickland Park	30.00	5.00			District Park
Rockefeller Drive (Off-Beach Parking)	0.64				District Park
Smyrna Dunes Park				73.00	District Park
Spruce Creek Park and Preserve	43.00			1,875.00	District Park & Miscellaneous Land Holding
Strickland Shooting Range		11.43			District Park
Sugar Mill Gardens		12.00			District Park
Sugar Mill Ruins				17.00	District Park
Sun Splash Park		3.40			District Park
Tom Renick (Ormond-by-the-Sea Park)	1.25				District Park
Tomoka Boat Ramp	0.25				District Park
Toronita (Off-Beach Parking)	2.00				District Park
Winterhaven Park		1.30			District Park
Total District Park Acreage Used in the Impact Fee Calculation[(2)]	**1,392.52**				

Table III-2 (continued)
Inventory of Parks Used in the Impact Fee Update[1]

Name of Facility	County Park Acres Located in Unincorporated County	County Park Acres Located within a Municipality	County-Owned Passive Acres	City/Other Owned Acres	Volusia County Park Classification
Local Parks:					
Briggs Drive Fishing Dock	0.25				Local Park
Cypress Lakes Park	9.00				Local Park
Hester Park	5.00				Local Park
Ormond Tomb Park	13.00				Local Park
Riv-Ocean Drive Fishing Dock	0.25				Local Park
Roberta Drive Fishing Dock	0.25				Local Park
San Jose Fishing Dock	0.25				Local Park
Seabridge Riverfront Park	3.00				Local Park
Seville Village Park	2.00				Local Park
Wilbur Boathouse	5.00				Local Park
Total Local Park Acreage Used in the Impact Fee Calculation[3]	**38.00**				

(1) Source: Table III-1
(2) Sum of the district park acreage located in unincorporated county plus the district park acreage located within a municipality
(3) Sum of the local park acreage located in unincorporated county

Population

As previously mentioned, Volusia County provides parks and recreation facilities and services countywide through the district parks and to unincorporated county through the local parks. Therefore, for purposes of calculating the updated parks and recreation impact fee schedule, the average weighted seasonal countywide population is used to calculate the district park portion of the impact fee, while the weighted seasonal population for unincorporated Volusia County is used to calculate the local park portion of the impact fee.

Level of Service

Table III-3 presents the level of service (LOS) calculations for both district and local parks, based on the park acreage in Table III-2 and the 2007 weighted population figures for the respective service areas. In addition, this table presents the countywide LOS, which is based on the total park acreage for both district and local parks, as well as the 2007 countywide population figure. The adopted LOS standards in the Volusia County Comprehensive Plan for district and local parks are also shown in the following table. As previously mentioned, the County includes additional parks facilities, such as those located at school facilities, that are not included in the inventory used to calculate the current LOS for the impact fee. Given the disparity between the level of service being

provided and the adopted LOS standards, the County may consider amending the LOS standards in its Comprehensive Plan. Alternatively, the County may also consider using a different measure (e.g., asset value per person) for establishing its Comprehensive Plan LOS. The County's current measure for evaluating LOS, acres per 1,000 population, is a generally accepted method for calculating Comprehensive Plan level of service; however, it does provide a true measure of the full park asset that is being provided to the public because it only considers park acreage and not all the assets that are part of the park inventory.

Table III-3
Current Level of Service Summary

Calculation Step	Countywide (District & Local Parks)	District Parks	Local Parks
2007 Population[(1)]	530,230	530,230	122,424
Total Number of Acres[(2)]	1,430.52	1,392.52	38.00
Parks Level of Service Component (Acres per 1,000 Residents)[(3)]	**2.70**	**2.63**	**0.31**
Adopted Comprehensive Plan LOS per 1,000 Residents[(4)]	**N/A**	**5.00**	**2.00**

(1) Source: Section II, Table II-1. For the countywide and district park population, the average weighted seasonal population for Volusia County is used; for the local park population, the average weighted seasonal population for unincorporated Volusia County is used.
(2) Source: Table III-2
(3) Park acreage (Item 2) divided by population (Item 1), multiplied by 1,000 residents
(4) Source: Volusia County Comprehensive Plan, Chapter 13 Recreation and Open Space Element, Policy 13.1.5.1

Cost Component

The total cost per resident for parks and recreation facilities consists of two components: the cost of the equipment and facilities in the parks and the cost to purchase land for the parks.

Equipment and Facilities

In order to calculate the value of all equipment and facilities at the County's district and local parks, detailed lists of park assets were compiled and verified by Leisure Services staff. It is important to note that Volusia County owns assets and maintains the facilities

of parks that are not owned by the County. These assets were valued and included in the impact fee calculation. Tables III-4 and III-5 contain an inventory of all park facility and equipment assets located at district and local parks, respectively. It should be noted that Volusia County's parks and recreation assets located on miscellaneous land holdings and on the off-beach parking facilities were included in the district park inventory. (Off-beach parking facilities are being developed by Volusia County for public use as parking for the beaches.)

Tables III-6 and III-7 present the cost of the parks and recreation assets for district and local parks, respectively, based on the inventory of assets provided in Tables III-4 and III-5. As presented in Table III-6, the total facility and equipment cost for district parks is $53.2 million, or $38,199 per acre. As presented in Table III-7, the total facility and equipment cost for local parks is $1.1 million, or $28,509 per acre.

Table III-4
Inventory of Equipment and Facility Assets for District Parks, Miscellaneous Land Holdings, and Off-Beach Parking Facilities

Name of Facility	10' Multi-Use Trails (mile)	12' Multi-Use Trails (mile)	Baseball Fields	Baseball Fields w/ Lighting	Basketball Courts	BBQ Grills	Benches	Bike Racks	BMX	Boardwalks (linear ft)	Camp Sites	Canoe Launches	Community Buildings	Concrete Benches	Concrete Tables
27th Avenue Park					2		7			181					
Barkley Square Dog Park							10								
Beck Ranch Phase I															
Bicentenniel Park					2	3	7			258		1	1		
Blue Lake Boat Ramp							2								
Candace R. Strawn - Lake Dias Park						10	8				4				
Chuck Lennon Park			2	4	3	8	7								
DeBary Hall							1						1		
Ed Stone Park						4	5			293					
Flagler Avenue															
Frank Rendon Park						6				291					
Gemini Springs Park						38	64	2		170	19	1	1		
Green Spring Park						6	9			60					
Happy Whale Park										60					
Highbanks Boat Ramp							1					1			
Highbridge Park						3	2			230					
Hiles (Off-Beach Parking)															
Hiles Boat Ramp												1			
Lake Ashby Boat Ramp															
Lake Ashby Park						25	8			3,355	11	1			
Lake Beresford Park							3								
Lake Colby/Royal Park						4	3					1			
Lake George Fishing Pier						6				410		1			
Lake Monroe Park						33	15			469	25	1			
Lemon Bluff Boat Ramp												1			
Lighthouse Point Park						20	7			5,287					
Mariner's Cove Park					2	5	2					1			
Mary McLeod Bethune Beach Park					2					98		1	1		
North Peninsula Recreation Area						13	6								
PFC Emory L. Bennett Veteran's Memorial Park				6			8								
Pierson Town Park-Chipper Jones Family Sports Complex			3												
Plymouth Avenue Multi-Purpose District Park															
River Breeze Park						25	22				16	1			
Robert Strickland Park				2		3	4		1						
Rockefeller Drive (Off-Beach Parking)															
Smyrna Dunes Park						16	5			10,702					
Spruce Creek Park and Preserve						26	4			425	17	1			
Strickland Shooting Range													1		
Sugar Mill Gardens							14						1		
Sugar Mill Ruins						1	3								
Sun Splash Park						3	20			482					
Tom Renick (Ormond-by-the-Sea Park)						4	2			112					
Tomoka Boat Ramp															
Toronita Avenue (Off-Beach Parking)															
Winterhaven Park						5	1			173					
Boardwalk w/o Park										12,303					
Total - District Parks	**10.60**	**4.30**	**5**	**12**	**11**	**267**	**250**	**2**	**1**	**35,359**	**92**	**13**	**6**	**4**	**32**

Table III-4 (continued)
Inventory of Equipment and Facility Assets for District Parks, Miscellaneous Land Holdings, and Off-Beach Parking Facilities

Name of Facility	Decks or Docks (sq ft)	Dog Bag Stations	Fencing (linear ft)	Horseshoes	Houses	Kiosks/ Signage	Life Guard Stations	Nature Trails (mile)	Observation Decks	Parking Spaces[(2)]	Paved Access (sq yd)	Pavilions	Picnic Tables	Playgrounds
27th Avenue Park			435			1				16		11	15	1
Barkley Square Dog Park		16	4,300							40				
Beck Ranch Phase I														
Bicentenniel Park			1,149			3				293	9,333	6	9	1
Blue Lake Boat Ramp														
Candace R. Strawn - Lake Dias Park						2				57	10,560	1	16	1
Chuck Lennon Park			8,647			2				5	3,829	2	17	2
DeBary Hall			1,380			1		0.80		23	8,872	1	22	
Ed Stone Park						2				47	15,167	1	12	
Flagler Avenue							1							
Frank Rendon Park	8,125					1				375		4	15	1
Gemini Springs Park			9,355			6		1.23		9	5,800	7	137	2
Green Spring Park								0.27	3	56		1	8	1
Happy Whale Park										50		2		
Highbanks Boat Ramp						1							1	
Highbridge Park						2				4	24			
Hiles (Off-Beach Parking)						1				328				
Hiles Boat Ramp														
Lake Ashby Boat Ramp														
Lake Ashby Park				1		3						2	42	1
Lake Beresford Park												2	8	2
Lake Colby/Royal Park						2					1,167	1	12	1
Lake George Fishing Pier						1				2		1	12	
Lake Monroe Park						3				22	28,667	5	76	1
Lemon Bluff Boat Ramp														
Lighthouse Point Park						2		1.02		221	19,960	11	20	
Mariner's Cove Park	400		366			3				22		3	12	1
Mary McLeod Bethune Beach Park												5	37	2
North Peninsula Recreation Area			565			4								
PFC Emory L. Bennett Veteran's Memorial Park			5,500			2		1.70		21	33,000	1	4	1
Pierson Town Park-Chipper Jones Family Sports Complex			6,588			1								
Plymouth Avenue Multi-Purpose District Park														
River Breeze Park	850					2				66	28,000	6	45	1
Robert Strickland Park			9,682										18	
Rockefeller Drive (Off-Beach Parking)										50				
Smyrna Dunes Park			50			2				158	2,500	8	22	
Spruce Creek Park and Preserve				1		3				2		1	33	1
Strickland Shooting Range	3,408		1,570			1				231	975		1	
Sugar Mill Gardens			520			1						1	3	
Sugar Mill Ruins						1							2	
Sun Splash Park	21,160					2				391	1,520	3	30	1
Tom Renick (Ormond-by-the-Sea Park)	6,860					1				167		3	11	1
Tomoka Boat Ramp														
Toronita Avenue (Off-Beach Parking)					1					293				
Winterhaven Park						1				16	4,648		6	
Boardwalk w/o Park														
Total - District Parks	**40,803**	**16**	**50,107**	**2**	**1**	**57**	**1**	**5.02**	**3**	**2,964**	**174,021**	**89**	**646**	**22**

Table III-4 (continued)
Inventory of Equipment and Facility Assets for District Parks, Miscellaneous Land Holdings, and Off-Beach Parking Facilities

Name of Facility	Racquetball Courts	Restrooms	Shooting Ranges	Showers	Shuffleboard Courts	Sidewalk Access (sq yd)	Soccer/ Football Fields	Tennis Courts	Trash Cans	Volleyball Courts	Water (Drinking) Fountains	Wishing Wells
27th Avenue Park	3	8				475			16			
Barkley Square Dog Park		2									1	1
Beck Ranch Phase I									2			
Bicentenniel Park	1	4			1	1,083		4	10	1		
Blue Lake Boat Ramp									1			
Candace R. Strawn - Lake Dias Park		2				154			14			
Chuck Lennon Park	2	6				2,262	2	2	33			
DeBary Hall		6				961			12			
Ed Stone Park		2				712			7			
Flagler Avenue		2							11			
Frank Rendon Park						500			12			
Gemini Springs Park		12				5,766			35			
Green Spring Park		2				3,720			15		2	
Happy Whale Park		4										
Highbanks Boat Ramp									2			
Highbridge Park						245			8			
Hiles (Off-Beach Parking)									8			
Hiles Boat Ramp									1			
Lake Ashby Boat Ramp									4			
Lake Ashby Park		2							28	1		
Lake Beresford Park		4				2,490			6			
Lake Colby/Royal Park									8			
Lake George Fishing Pier						388			5			
Lake Monroe Park		19				340			22			
Lemon Bluff Boat Ramp									3			
Lighthouse Point Park		8							30			
Mariner's Cove Park		4				676	1	1	10			
Mary McLeod Bethune Beach Park		4										
North Peninsula Recreation Area						2,417		1	36	1		
PFC Emory L. Bennett Veteran's Memorial Park		4				11,000	2		50			
Pierson Town Park-Chipper Jones Family Sports Complex									16			
Plymouth Avenue Multi-Purpose District Park												
River Breeze Park		2				7,667			31			
Robert Strickland Park		2							14			
Rockefeller Drive (Off-Beach Parking)												
Smyrna Dunes Park		2				180			17			
Spruce Creek Park and Preserve		4				1,080			32			
Strickland Shooting Range		2	1			556			5			
Sugar Mill Gardens		2							2			
Sugar Mill Ruins		2				988			2			
Sun Splash Park		7				3,472			17			
Tom Renick (Ormond-by-the-Sea Park)	8								6			
Tomoka Boat Ramp									1			
Toronita Avenue (Off-Beach Parking)									8			
Winterhaven Park		4				840			4			
Boardwalk w/o Park												
Total - District Parks	**14**	**122**	**1**	**56**	**1**	**47,971**	**5**	**8**	**544**	**3**	**3**	**1**

Source: Volusia County Leisure Services Department, March 2007

Table III–5
Inventory of Equipment and Facility Assets for Local Parks

Name of Facility	Basketball Courts	BBQ Grills	Benches	Boardwalks (linear ft)	Canoe Launches	Community Buildings	Fencing	Kiosks/ Signage	Parking Spaces	Pavilions	Picnic Tables	Playgrounds	Restrooms	Sidewalk Access (sq yd)	Tennis Courts	Trash Cans
Briggs Drive Fishing Dock				20												
Cypress Lakes Park	1	2	2		1		288	1	4	1	6	1		194		2
Hester Park							1,498								1	1
Ormond Tomb Park		3	2						2	1	6	1	2	175		2
Riv-Ocean Drive Fishing Dock			2	134												1
Roberta Drive Fishing Dock			2	78												1
San Jose Fishing Dock			2	12												1
Seabridge Riverfront Park			8	395				1		1						1
Seville Village Park	1	3	3					1		1	6	1				4
Wilbur Boathouse					1	1		1	26							2
Boardwalk w/o Park				358												
Total - Local Parks	**2**	**8**	**21**	**997**	**2**	**1**	**1,786**	**4**	**32**	**4**	**18**	**3**	**2**	**369**	**1**	**15**

Source: Volusia County Leisure Services Department, March 2007

Table III–6
Equipment/Facilities Value for District Park Assets

Facility					Cost per
Description	Number	Unit	Unit Cost	Total Cost	Resident
10' Multi-Use Trails	10.60	mile	$123,200	$1,305,920	$2.46
12' Multi-Use Trails	4.30	mile	$147,840	$635,712	$1.20
Baseball Fields	5	ball field	$125,000	$625,000	$1.18
Baseball Fields with Lighting	12	ball field w/lighting	$325,000	$3,900,000	$7.36
Basketball Courts	11	court	$50,000	$550,000	$1.04
BBQ Grills	267	grill	$290	$77,430	$0.15
Benches	250	bench	$455	$113,750	$0.21
Bike Racks	2	rack	$620	$1,240	$0.00
BMX	1	bmx track	$50,000	$50,000	$0.09
Boardwalks	35,359	linear feet	$115	$4,066,288	$7.67
Campsites	92	site	$1,100	$101,200	$0.19
Canoe Launches	13	launch	$1,500	$19,500	$0.04
Community Buildings	6	building	$200,000	$1,200,000	$2.26
Concrete Benches	4	bench	$1,200	$4,800	$0.01
Concrete Tables	32	table	$1,200	$38,400	$0.07
Decks or Docks	40,803	square foot	$200	$8,160,600	$15.39
Dog Bag Stations	16	station	$100	$1,600	$0.00
Fencing	50,107	linear feet	$11	$551,177	$1.04
Horseshoes	2	court	$800	$1,600	$0.00
Houses	1	house	$500,000	$500,000	$0.94
Kiosks/Signage	57	kiosk/sign	$500	$28,500	$0.05
Life Guard Stations	1	station	$300,000	$300,000	$0.57
Nature Trails	5.02	mile	$105,600	$530,140	$1.00
Observation Decks	3	deck	$7,140	$21,420	$0.04
Parking Spaces	2,964	parking space	$1,500	$4,446,038	$8.39
Paved Access	174,021	square yard	$32	$5,568,683	$10.50
Pavilions	89	pavilion	$61,000	$5,429,000	$10.24
Picnic Tables	646	table	$710	$458,660	$0.87
Playgrounds	22	playground	$48,000	$1,056,000	$1.99
Racquetball Courts	14	court	$30,000	$420,000	$0.79
Restrooms	122	restroom	$60,000	$7,320,000	$13.81
Shooting Ranges	1	shooting range	$1,700,000	$1,700,000	$3.21
Showers (Beachside)	56	shower	$1,200	$67,200	$0.13
Shuffleboard Courts	1	court	$3,500	$3,500	$0.01
Sidewalk Access	47,971	square yard	$50	$2,398,567	$4.52
Soccer/Football Fields	5	field	$200,000	$1,000,000	$1.89
Tennis Courts	8	court	$40,000	$320,000	$0.60
Trash Cans	544	trash can	$360	$195,840	$0.37
Volleyball Courts	3	net	$1,000	$3,000	$0.01
Water (Drinking) Fountains	3	fountain	$4,900	$14,700	$0.03
Wishing Wells	1	well	$7,000	$7,000	$0.01
Total Equipment Cost				**$53,192,465**	
2007 Volusia County Population					**530,230**
Total Equipment Cost per Resident					**$100.33**
Total Park District Acreage					**1,392.52**
Total Equipment Cost per Acre					**$38,199**

Source: Volusia County Leisure Services Department, March 2007

Table III–7
Equipment/Facilities Value for Local Park Assets

Facility					Cost per
Description	Number	Unit	Unit Cost	Total Cost	Resident
Basketball Courts	2	court	$50,000	$100,000	$0.82
BBQ Grills	8	grill	$290	$2,320	$0.02
Benches	21	bench	$455	$9,555	$0.08
Boardwalks	997	linear feet	$115	$114,652	$0.94
Canoe Launches	2	launch	$1,500	$3,000	$0.02
Community Buildings	1	building	$200,000	$200,000	$1.63
Fencing	1,786	linear feet	$11	$19,646	$0.16
Kiosks/Signage	4	kiosk/sign	$500	$2,000	$0.02
Parking Spaces	32	parking space	$1,500	$47,522	$0.39
Pavilions	4	pavilion	$61,000	$244,000	$1.99
Picnic Tables	18	table	$710	$12,780	$0.10
Playgrounds	3	playground	$48,000	$144,000	$1.18
Restrooms	2	restroom	$60,000	$120,000	$0.98
Sidewalk Access	369	square yard	$50	$18,450	$0.15
Tennis Courts	1	court	$40,000	$40,000	$0.33
Trash Cans	15	trash can	$360	$5,400	$0.04
Total Equipment Cost				**$1,083,325**	
2007 Unincorporated Volusia County Population					**122,424**
Total Equipment Cost per Resident					**$8.85**
Total Park Local Acreage					**38.00**
Total Equipment Cost per Acre					**$28,509**

Source: Volusia County Leisure Services Department, March 2007

Land

The land replacement cost per acre for Volusia County's district and local parks is calculated based on information provided by the Volusia County Property Appraiser's database regarding vacant land sales since 2005. This analysis includes vacant land sales of less than 5 acres and 5 to 25 acres in size for both the countywide and unincorporated service areas. This analysis excluded outlier sales of less than $10,000 and greater than $1 million per acre. Refer to Appendix B, Tables B-1 through B-4 for a summary of the countywide analysis conducted for district parks and Tables B-5 through B-8 for a summary of the unincorporated county analysis for local parks. The weighted average cost per acre figures for district and local parks resulting from this analysis are then distributed according to the inventory of parkland of less than 5 acres and 5 to 25 acres. For district parks, this analysis also takes into account where the parks acreage is located (countywide versus unincorporated county). Based on this analysis, the result is a land replacement value of $70,000 per acre for district parks and $66,000 per acre for local parks.

The cost of land for parks and recreation facilities includes more than just the cost to purchase the land. Costs for landscaping and site improvements, as well as architecture and engineering (A&E) also are included in the total cost for acquiring land for parks. Recent bid sheet information for Green Spring Park in Volusia County was used to estimate information on landscaping and site improvement costs per acre of park land. For both district and local parks, an average site development cost of $31,761 per acre was used. A&E costs per acre are estimated to be 13 percent of the site development cost per acre based upon the cost information provided by the Volusia County Leisure Services Department. The resulting total land and equipment/building cost per acre for district parks is $144,089 and for local parks is $130,398 per acre. Based on the current LOS calculated for each type of park, the result is a total impact cost of $379 per resident for district parks and $40 per resident for local parks.

Table III–8
Total Impact Cost per Resident for District and Local Parks

Facility/Calculation Step	District Parks Cost Component	Local Parks Cost Component
Total Land Cost per Acre(1)	$70,000	$66,000
Site Development Cost per Acre(2)	$31,761	$31,761
Architecture, Engineering, and Inspection at 13%(3)	$4,129	$4,129
Total Equipment/Building Cost Per Acre(4)	$38,199	$28,509
Total Land and Equipment/Building Cost per Acre	**$144,089**	**$130,399**
Parks LOS (acres per 1,000 Residents)(5)	2.63	0.31
Parks and Recreation Total Impact Cost per Resident(6)	**$378.95**	**$40.42**

(1) Cost per acre based on vacant land sales analysis of parcels less than 5 acres and 5-25 acres for sales both countywide and in unincorporated county. For both park types, the cost per acre is based on the distribution of parks acreage from Table III-2 according to the number of acres (less than 5 acres and 5 to 25 acres) for both district and local parks, as well as and location for district parks (countywide versus unincorporated). Refer to Appendix B for information on the vacant land sales analysis.
(2) Source: Volusia County Leisure Services Department Green Spring Bid Sheet, March 26, 2007
(3) Site development cost per acre (Item 2) multiplied by 13 percent, as provided by Volusia County Leisure Services Department
(4) Source: Tables III-6 for district parks and III-7 for local parks
(5) Source: Table III-3
(6) Total Land and equipment/building cost per acre multiplied by the respective park LOS divided by 1000 residents

Credit Component

To avoid overcharging development for the impact fee, a review of the capital financing program for parks and recreation services was completed. The purpose of this review is to determine any potential revenue credits generated by new development that could be used for the expansion of capital facilities, land, and equipment for the parks and recreation program. Revenue credits are then applied against the total cost per resident so that new development is not charged twice for capital revenue contributions used to expand the parks and recreation program.

Revenue Sources for Capital Expansion Expenditures

Historically, Volusia County has used a combination of general fund (which includes ad valorem taxes), occasional bond issues, the Volusia ECHO (Environmental Cultural Historical Outdoor) program funds, and other grants to fund capital expansion projects for parks. The current 10-year capital improvement program (CIP) was reviewed for all capital expansion projects for district and local parks; however it was determined that the CIP does not contain any capital expansion projects for local parks other than routine maintenance activities and renovation of existing facilities. Table III-9 summarizes the current 10-Year CIP for all capital expansion projects for district parks facilities and presents the average capital expenditure per resident. The result is an average annual amount of $4 per resident for capital expansion expenditures.

In addition to the capital expenditures identified in the ten-year CIP, Volusia County currently has one bond issued for the expansion of parks capital infrastructure, which is the 1996 Sales Tax Bond and it is being used to finance the purchase of beachfront property for Winterhaven Park, a district park facility. The debt service credit is determined by calculating the present value of the total remaining payments of the bond issue and then dividing that figure by the average annual population over the remaining life of the bond issue. The result is a debt service credit per resident of $0.40, which is presented in Table III-10.

Table III-9
Programmed Capital Improvement Expenditures for District Parks

Project Description	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	Ten-Year Total
County Capital Improvements											
Dunlawton Sugar Mill Ruins		$425,000									$425,000
Emory L. Bennett Veterens Memorial Park		$250,000	$1,250,000								$1,500,000
Spruce Creek Mound Archeological - Phase II		$75,000									$75,000
Beachfront Parks		$1,560,000	$2,700,000	$60,000	$1,200,000						$5,520,000
Lake Beresford Loop Park				$100,000	$1,000,000						$1,100,000
Hiles Restroom		$160,000									$160,000
Happy Whale Site		$750,000									$750,000
Ed Stone Park		$125,000									$125,000
Beck Ranch		$1,700,000	$500,000	$1,000,000							$3,200,000
Beach Ramp Walkover Improvements		$73,000	$73,000	$73,000	$73,000	$73,000					$365,000
Lake Colby Park - Phase I		$838,000		$800,000							$1,638,000
Kaye Property		$125,000	$1,000,000								$1,125,000
Strickland New Sports Complex		$150,000	$1,700,000								$1,850,000
27th Avenue Beach Front Park Concession		$50,000									$50,000
Lake Monroe Park - Phase II			$400,000								$400,000
Marine Science Center		$223,614									$223,614
Mariner's Cove Park				$174,568							$174,568
Lake Dias Park			$432,250	$87,364							$519,614
Chuck Lennon Park				$610,000							$610,000
Trails Program		$3,126,500	$27,850	$28,500	$29,800						$3,212,650
Total	**$0**	**$9,631,114**	**$8,083,100**	**$2,933,432**	**$2,302,800**	**$73,000**	**$0**	**$0**	**$0**	**$0**	**$23,023,446**
Volusia County Population[2]	**520,138**	**530,230**	**540,516**	**551,002**	**561,593**	**570,634**	**579,821**	**589,156**	**598,641**	**608,152**	
Average Annual Population											**564,988**
Average Annual Expenditures											**$2,302,345**
Capital Expenditures per Resident[3]											**$4.08**
Percent of Capital Expansion Ependitures Funded with Ad Valorem											**7.1%**

(1) Source: Volusia County Finance Department
(2) Source: Section II, Table II-1
(3) Average annual expenditures divided by average annual population

Table III–10
Parks Capital Infrastructure Debt Service

Description	Number of Years Issued	Years Remaining	Interest Rate[(1)]	Total Amount Borrowed	Present Value of Payments Remaining[(2)]	Average Annual Population During Remaining Bond Issue Period[(3)]	Credit per Resident[(4)]
Beachfront Parcels (1996 Sales Tax Bond)	20	9.5	4.00%	$400,000	$234,105	588,169	$0.40
Total Debt Service per Resident							**$0.40**

(1) The current interest rate of the bond issue
(2) The present value in 2007 dollars of the remaining debt service payments
(3) Source: Section II, Table II-1
(4) The present value of payments remaining (Item 2) divided by the average annual functional population (Item 3) for that same period
Note: Source for number of years issued, interest rate, and amount borrowed is the Volusia County Budget Department

Past Property Tax Credit per Resident

Another credit component considered is for revenue generated from past payments of property taxes on vacant land that are used to fund capital expansion projects. As indicated in Table III-9, general fund revenues are used to fund some of the capital expansion expenditures for district parks identified in the CIP. Therefore, it is appropriate to give credit for the portion of general funds paid for by past ad valorem taxes contributed by vacant land. In addition, a vacant land credit also was calculated for local parks. This calculation is a three-step process and is presented in Table III-11.

First, the percentage of the total value of vacant land to the total property value for the County is calculated, and is 10.2 percent countywide (used for district parks) and 16.1 for unincorporated Volusia County (used for local parks). Since Volusia County ad valorem revenues are included in the general fund are used to fund projects in the CIP for district parks, the second calculation considers the portion of the general fund that is composed of ad valorem tax revenues. Based on a review of general fund revenue sources over the last five fiscal years, this figure is 77.5 percent. Third, the vacant land value as a percentage of total property value is determined as a percentage of total property value multiplied by the percent of the general fund funded with ad valorem revenue. Therefore, the effective percent of past property tax payments on vacant land is 7.9 percent for district parks and 12.5 percent for local parks.

Table III–11
Percent of Past Property Tax Payments on Vacant Land

Component	Countywide - District Parks	Unincorporated Co - Local Parks
2006 Taxable Value of Vacant Land[(1)]	$3,893,682,684	$1,403,812,426
2006 Total Taxable Value[(2)]	$38,237,895,648	$8,709,221,798
Vacant Land Value as a Percentage of Total Property Value[(3)]	10.2%	16.1%
Percent of the General Fund Funded with Ad Valorem Revenue[(4)]	77.5%	
Effective Vacant Land Percentage[(5)]	**7.9%**	**12.5%**

(1), (2) Source: Volusia County Property Appraiser
(3) 2006 taxable value of vacant land (Item 1) divided by the 2006 total taxable value (Item 2)
(4) Source: Volusia County Annual Budgets
(5) Vacant land value as a percentage of total property value (Item 3) multiplied by the percent of the general fund funded with ad valorem revenue (Item 4)

Net Parks and Recreation Impact Cost

The net parks and recreation impact fee per resident is the difference between the total impact cost per resident and the total credit per resident and is presented in Table III-12.

The first section of Table III-12 identifies the total impact cost as $379 per resident for district parks and $40 per resident for local parks. The second section of the table identifies the revenue credits for the parks and recreation impact fee for both district and local parks. The credit calculation includes credits totaling approximately $65 for the single family detached land use and $63 for all other residential land uses for district parks and $5 per resident for local parks for all land uses. In calculating the capital expansion expenditures revenue credit (applicable only to district parks), the portion of the average annual capital expansion expenditures per resident funded with ad valorem is separated from the portion funded with other revenue sources. The portion of the credit funded with ad valorem is increased by 108 percent in calculating the credit for single family homes. This is because a comparison of the new home sales and the value of existing homes indicate that new home taxable values are 108 percent higher than the taxable value of an existing home. This step ensures that new homes receive the appropriate credit since they will be assessed at a higher value than the existing homes due to the homestead exemption and "save our homes" law that caps the annual increase in the taxable value of a home. The adjusted ad valorem credit is added back to the non-ad valorem portion of the capital expenditure credit to determine the full credit for single family homes. Since other residential land uses are not afforded the same type of cap on their taxable property value, such an adjustment is not necessary.

The net impact cost per resident is the difference between the total impact cost and the total revenue credit per resident. For district parks, this results in a net impact cost of $314 per resident for the single family detached land use and a net impact cost of approximately $316 per resident for all other residential land uses. For local parks, this results in a net impact cost of $35 per resident for all residential land uses.

Table III–12
Net Impact Cost per Resident

Calculation Step	Impact Cost		Revenue Credits	
	District Parks	Local Parks	District Parks	Local Parks
Impact Cost				
Total Impact Cost per Resident[1]	**$378.95**	**$40.42**		
Capital Expansion Expenditure Credit				
Average Annual Capital Expansion Credit per Resident[2]			($4.08)	N/A
Capitalization Rate[3]			4%	N/A
Capitalization Period (in years)[4]			10	N/A
Capital Expansion Credit per Resident[5]			($33.09)	N/A
Percent of Capital Expansion Expenditures Funded with General Fund[6]			7.1%	N/A
Percent of General Fund Funded with Ad Valorem[7]			77.5%	N/A
Portion of Capital Expansion Credit Funded with Ad Valorem per Resident[8]			($1.82)	N/A
Adjusted Ad Valorem Funded Capital Expansion Credit per Resident[9]			($3.79)	N/A
Non-Ad Valorem Funded Capital Expansion Credit per Resident[10]			($31.27)	N/A
Debt Service Credit - Public Improvement Fund				
Debt Service Credit per Resident [11]			($0.40)	N/A
Vacant Land Credit				
Effective Vacant Land Value Percentage[12]			7.9%	12.5%
Effective Vacant Land Credit per Resident[13]			($29.94)	($5.05)
Total Credit per Resident				
Total Credit per Resident -- Single Family Land Use[14]			**($65.40)**	**($5.05)**
Total Credit per Resident -- All Other Residential Land Uses[15]			**($63.43)**	**($5.05)**
Net Impact Cost				
Net Impact Cost per Resident - Single Family Land Use[16]	**$313.55**	**$35.37**		
Net Impact Cost per Resident - All Other Residential Land Uses[17]	**$315.52**	**$35.37**		

(1) Source: Table III-8

(2), (4), (6) Source: Table III-9

(3) Consistent with interest rates for recent bond issues for Volusia County

(5) The present value of the average annual capital expansion credit per resident (Item 2) as a capitalization rate of 4 percent with a capitalization period of 10 years

(7), (12) Source: Table III-11

(8) The capital expansion credit per resident (Item 5) multiplied by the percent of capital expansion expenditures funded with general fund (Item 6) multiplied by the percent of general fund funded with ad valorem (Item 7)

(9) The portion of the capital expansion credit funded with ad valorem per resident (Item 8) multiplied by the ratio of the value of new home sales to the taxable value of existing homes (2.08)

(10) The capital expansion credit per resident (Item 5) less the portion of the capital expansion credit funded with ad valorem per resident (Item 8)

(11) Source: Table III-10
(13) The total impact cost per resident (Item 1) multiplied by the effective vacant land value percentage (Item 12)
(14) The summation of the adjusted ad valorem funded with capital expansion credit per resident (Item 9), non-ad valorem funded with capital expansion credit per resident (Item 10), debt service credit per resident (Item 11), and effective vacant land credit per resident (Item 13)
(15) The summation of the capital expansion credit per resident (Item 5), debt service credit per resident (Item 11), and effective vacant land credit per resident (Item 13)
(16) The total impact cost per resident (Item 1) less the total credit per resident – single family land use (Item 14)
(17) The total impact cost per resident (Item 1) less total credit per resident – all other residential land uses (Item 15)

Proposed Parks and Recreation Impact Fee Schedule

Tables III-13 and III-14 summarizes the calculation of the parks and recreation impact fee for district and local parks for residential land uses, based upon the net impact cost per resident figures presented in Table III-12.

Table III–13
Proposed Parks & Recreation Impact Fee Schedule - District Parks

Land Use	Residents per Unit[1]	Net Cost per Resident[2]	Net Impact Fee[3]	Administrative Fee[4]	Total Impact Fee[5]
Single Family Detached					
0 to 1,500 sf	2.25	$313.55	$705.49	$21.16	$726.65
1,501 to 2,499 sf	2.47	$313.55	$774.47	$23.23	$797.70
2,500 sf or greater	2.72	$313.55	$852.86	$25.59	$878.45
Mobile Home	1.60	$315.52	$504.83	$15.14	$519.97
Multi Family/Accessory Single Family	1.42	$315.52	$448.04	$13.44	$461.48
Retirement Community/ Age-Restricted Single Family	1.46	$313.55	$457.78	$13.73	$471.51

(1) Source: Section II, Table II-2
(2) Source: Table III-12
(3) Residents per unit (Item 1) for each land use category multiplied by net cost per resident (Item 2)
(4) Volusia County charges a 3 percent administrative fee of the net impact fee for each land use
(5) Summation of the net impact fee (Item 3) and the administrative fee (Item 4) for each land use

Table III–14
Proposed Parks & Recreation Impact Fee Schedule - Local Parks

Land Use	Residents per Unit[1]	Net Cost per Resident[2]	Net Impact Fee[3]	Administrative Fee[4]	Total Impact Fee[5]
Single Family Detached					
0 to 1,500 sf	2.21	$35.37	$78.17	$2.35	$80.52
1,501 to 2,499 sf	2.43	$35.37	$85.95	$2.58	$88.53
2,500 sf or greater	2.67	$35.37	$94.44	$2.83	$97.27
Mobile Home	1.72	$35.37	$60.84	$1.83	$62.67
Multi Family/Accessory Single Family	1.14	$35.37	$40.32	$1.21	$41.53
Retirement Community/Age-Restricted Single Family	1.43	$35.37	$50.58	$1.52	$52.10

(1) Source: Section II, Table II-3
(2) Source: Table III-12
(3) Residents per unit (Item 1) for each land use category multiplied by net cost per resident (Item 2)
(4) Volusia County charges a 3 percent administrative fee of the net impact fee for each land use
(5) Summation of the net impact fee (Item 3) and the administrative fee (Item 4) for each land use

The total impact fee for each land use equals the sum of the district impact fee from Table III-13 and the local impact fee from Table III-14, and is presented in Table III-15.

Table III–15
Proposed Parks and Recreation Impact Fee Schedule

Land Use	District Parks Impact Fee[1]	Local Parks Impact Fee[2]	Total Impact Fee[3]
Single Family Detached			
0 to 1,500 sf	$726.65	$80.52	$807.17
1,501 to 2,499 sf	$797.70	$88.53	$886.23
2,500 sf or greater	$878.45	$97.27	$975.72
Mobile Home	$519.97	$62.67	$582.64
Multi Family/Accessory Single Family	$461.48	$41.53	$503.01
Retirement Community/ Age-Restricted Single Family	$471.51	$52.10	$523.61

(1) Source: Table III-13
(2) Source: Table III-14
(3) Sum of the proposed districts park impact fee (Item 1) and the proposed local parks impact fee (Item 2)

Parks and Recreation Impact Fee Schedule Comparison

The parks and recreation impact fees for other jurisdictions have been compiled and summarized in Table III-16 for comparison purposes. This summary includes three municipalities located in Volusia County, four Florida counties, and Volusia County's existing and proposed fees by residential land use.

Table III-16
Parks and Recreation Impact Fee Comparison[1]

Land Use	unit	Volusia County Existing	Volusia County Proposed[2]	Citrus County	Collier County	Lake County[3]	Pasco County
Date of Last Update		2001	N/A	2007	2006	Proposed	2004
Single Family Detached (2,000 sf)	du	$581	$886	$723	$3,299	$991	$892
Single Family Attached	du	$581	$503	$473	$2,409	$704	$627
Mobile Home	du	$581	$583	$594	$2,969	$709	$627
Multi-Family	du	$581	$503	$473	$2,409	$704	$627

(1) Source: Impact Fee Comparison Tables, Tindale-Oliver & Associates, Inc.
(2) Source: Table III-15
(3) Lake County's parks and recreation impact fee is in the process of being updated. These figures are preliminary and subject to change.
Note: Brevard, Marion, and Seminole counties do not currently have parks and recreation impact fees

Future Demand Analysis

Future demand projections have been developed based on the current LOS, cost estimates previously calculated as part of the impact fee analysis, and population projections included in Section II, Table II-1. Table III-17 presents the parks and recreation facilities demand forecast and associated cost estimates.

As presented in Table III-17, the County will need 1,811 acres of district parks and 49 acres of local parks by 2025 to maintain the current LOS for each park classification. As presented, this would require an estimated investment of $63.3 million for district parks and $1.5 million for local parks, or a total of $64.7 million by 2025.

Table III-17
Year 2025 Demand and Cost Forecast

Calculation Component	Forecasted Demand for District Parks	Forecasted Demand for Local Parks	Total
Year 2025 Population[(1)]	688,674	159,007	
Current LOS Standard (Acres per 1,000 Residents)[(2)]	2.63	0.31	
2025 Required Acreage[(3)]	1,811.21	49.29	**1,860.50**
Existing Acreage[(4)]	1,392.52	38.00	**1,430.52**
Additional Regional Park Acreage Needed[(5)]	418.69	11.29	**429.98**
Land and Equipment/Building Historical Cost per Acre[(6)]	$151,073	$130,398	
Total Cost for Parks[(7)]	**$63,252,754**	**$1,472,193**	**$64,724,947**

(1) Source: Section II, Table II-1
(2) Source: Table III-3
(3) Required park acreage, based on existing LOS and 2025 population
(4) Source: III-2
(5) 2025 required additional park acreage (Item 3) less existing park acreage (Item 4)
(6) Source: Table III-8
(7) Total cost per acre (Item 6) multiplied by additional acreage needed (Item 5).

Revenue Estimates

Based on the population projections provided in Section II, Table II-1, it is estimated that the parks and recreation impact fee revenues for both district and local parks will generate a total of approximately $12.8 million or an average of $709,000 annually, through 2025. These projections are in 2007 dollars and do not take into account indexing of the fee schedule. A summary of the revenue estimates is provided in Table III-18.

As mentioned previously, the impact fee revenue projections are based on population growth estimates. For impact fee purposes, revenue projections serve only as an overall guideline in planning future infrastructure needs. In their simplest form, impact fees charge each unit of new growth for the net cost (total cost less credits) of infrastructure needed to serve that unit of growth. If the growth rates remain high, the County will have more impact fee revenues to fund growth related projects sooner rather than later. If the growth rate slows down, less revenue will be generated, and the timing and need for future infrastructure improvements will be later rather than sooner.

Table III–18
Annual Impact Fee Revenue Estimates for District and Local Park Impact Fees

Year	Volusia County Unincorporated Population[1]	New Population[2]	Estimated Revenues for District Parks[3]	Estimated Revenues for Local Parks[4]	Total Estimated Impact Fee Revenues[5]
2007	122,424				
2008	124,800	2,376	$744,995	$84,039	$829,034
2009	127,221	2,421	$759,105	$85,631	$844,736
2010	129,666	2,445	$766,630	$86,480	$853,110
2011	131,753	2,087	$654,379	$73,817	$728,196
2012	133,874	2,121	$665,040	$75,020	$740,060
2013	136,030	2,156	$676,014	$76,258	$752,272
2014	138,220	2,190	$686,675	$77,460	$764,135
2015	140,415	2,195	$688,242	$77,637	$765,879
2016	142,325	1,910	$598,881	$67,557	$666,438
2017	144,261	1,936	$607,033	$68,476	$675,509
2018	146,223	1,962	$615,185	$69,396	$684,581
2019	148,211	1,988	$623,337	$70,316	$693,653
2020	150,260	2,049	$642,464	$72,473	$714,937
2021	151,972	1,712	$536,798	$60,553	$597,351
2022	153,706	1,734	$543,696	$61,332	$605,028
2023	155,457	1,751	$549,026	$61,933	$610,959
2024	157,230	1,773	$555,924	$62,711	$618,635
2025	159,007	1,777	$557,178	$62,852	$620,030
Net Impact Cost per Resident (single family land use) - Distric Parks[6]		**$313.55**			
Net Impact Cost per Resident (single family land use) - Local Parks[7]		**$35.37**			
Total Estimated Revenue			**$11,470,602**	**$1,293,941**	**$12,764,543**
Average Annual Revenue			**$637,256**	**$71,886**	**$709,141**

(1) Source: Section II, Table II-1. Note: Some of the years are not shown in Table II-1. Refer to Table A-3 for interim year figures.
(2) Additional population per year
(3), (4) New population (Item 2) multiplied by the respective cost per resident (Items 6 and 7) for each type of park
(5) Sum of the estimated revenues for district parks (Item 3) and local parks (Item 4)
(6), (7) Source: Table III-12

IV. Fire Services

This section summarizes the analysis used to update the Volusia County Fire Services impact fee schedule. The Volusia County Fire Services Division provides fire services to the residents of unincorporated Volusia County and the cities of DeBary, Lake Helen, Oak Hill, and Pierson. As such, this analysis will include all County-owned fire-related facilities providing fire services within these boundaries. This section consists of the following subsections:

- Inventory
- Population
- Level of Service
- Cost Component
- Credit Component
- Net Fire Services Impact Cost
- Proposed Fire Services Impact Fee Schedule
- Fire Impact Fee Schedule Comparison
- Future Demand Analysis
- Revenue Estimates

These ten elements are summarized in the remainder of this section, with the result being the proposed fire services impact fee schedule.

Inventory

Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, and Pierson are currently served by 24 fire stations and 1 training facility consisting of several support buildings, all of which are owned and operated by the Volusia County Fire Services Division. Table IV-1 presents the inventory of the County's fire-related facilities, as well as the land and building replacement value for each and the average replacement value per station.

Land value for fire stations is estimated at $82,500 per acre, based on vacant land sales over the past three years in unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, and Pierson for parcels of 1 to 3 acres in size. A summary of this analysis can be found in Appendix B, Tables B-9 through B-12. This range in acreage is used since the average acreage of fire stations included in the inventory is 2 acres and the acreage of the majority of stations falls within this range. In addition, future land purchases for fire stations are anticipated to be approximately 2 acres.

Table IV-1
Fire Services Land & Buildings Inventory[1]

Facility Description	Location	Year Acquired/ Built	Number of Acres	Square Feet	Land Replacement Cost[2]	Building Replacement Cost[3]	Total Replacement Value[4]
Fire Station 11-460	1590 Derbyshire, Holly Hill	1965	1.08	4,550	$89,100	$1,314,950	$1,404,050
Fire Station 12-687	1979 Taylor Road, Port Orange	1975	1.33	4,354	$109,725	$1,258,306	$1,368,031
Fire Station 13-461	15 Southland Rd, Ormond Beach	1981	2.00	2,880	$165,000	$832,320	$997,320
Fire Station 14-613	1716 Atlantic Ave, Ormond Beach	2006	0.69	4,443	$56,925	$1,348,276	$1,405,201
Fire Station 15-510	3889 Tiger Bay Rd, Daytona Beach	1992	16.76	6,042	$1,382,700	$1,746,138	$3,128,838
Fire Services Institute (Training Facility)	3890 Tiger Bay Rd, Daytona Beach	1992	N/A	2,009	N/A	$301,350	$301,350
	Burn Building	1995	N/A	2,200	N/A	$330,000	$330,000
	Rehab Building	1997	N/A	864	N/A	$129,600	$129,600
	Tower	1988	N/A	4,461	N/A	$669,150	$669,150
	TRT Training Prop	2006	N/A	3,652	N/A	$547,800	$547,800
Fire Station 16-907	3935 Old Dixie Highway, Ormond Beach	2005	2.30	6,275	$189,750	$1,813,475	$2,003,225
Fire Station 17-357	2316 Bellvue Avenue, Daytona Beach	1982	2.00	8,123	$165,000	$2,347,547	$2,512,547
Fire Station 21-689	4840 S Atlantic Ave, New Smyrna Beach	1987	1.21	4,321	$99,825	$1,248,769	$1,348,594
Fire Station 22-610	213 N US Hwy 1, Oak Hill	1990	1.43	3,250	$117,975	$939,250	$1,057,225
Fire Station 23-551	1850 Pioneer Trail, New Smyrna Beach	1972	2.80	6,625	$231,000	$1,914,625	$2,145,625
Fire Station 31-685	1970 S Volusia Avenue, Orange City	1972	0.63	5,407	$51,975	$1,562,623	$1,614,598
Fire Station 32-693	2850 Firehouse Road, DeLand	1982	0.97	4,960	$80,025	$1,433,440	$1,513,465
Fire Station 33-306	93 Hwy 17-92/Naranja Road, DeBary	1975	2.65	5,530	$218,625	$1,598,170	$1,816,795
Fire Station 34-609	1700 Enterprise/Osteen Road, Enterprise	1989	2.00	3,350	$165,000	$968,150	$1,133,150

Table IV-1 (continued)
Fire Services Land & Buildings Inventory[1]

Facility Description	Location	Year Acquired/ Built	Number of Acres	Square Feet	Land Replacement Cost[2]	Building Replacement Cost[3]	Total Replacement Value[4]
Fire Station 35-307	360 W Main Street, Lake Helen	2002	1.10	5,828	$90,750	$1,684,292	$1,775,042
Fire Station 36-612	180 SR 415, Osteen	1989	1.00	3,794	$82,500	$1,096,466	$1,178,966
Fire Station 37-324	740 Lake Harney Woods, Mims	1994	1.25	1,890	$103,125	$546,210	$649,335
Fire Station 41-686	5007 Central Avenue, DeLeon Springs	1976	1.38	6,560	$113,850	$1,895,840	$2,009,690
Fire Station 42-694	1885 Kepler Road, DeLand	1987	0.74	4,774	$61,050	$1,379,686	$1,440,736
Fire Station 43-311	1580 SR 17, Seville	1968	0.42	3,207	$34,650	$926,823	$961,473
Fire Station 43 (New)	CR 305 & Cowart Road, Seville	2006	2.00	1,440	$165,000	$416,160	$581,160
Fire Station 44-313	132 N. Fountain Drive, Pierson	1988	0.48	5,605	$39,600	$1,619,845	$1,659,445
Fire Station 45-614	2580 W Hwy 44, DeLand	1986	1.52	4,020	$125,400	$1,161,780	$1,287,180
Fire Station 46-696	920 Glenwood Road, DeLand	1991	2.48	3,570	$204,600	$1,031,730	$1,236,330
Total			**50.22**	**123,984**	**$4,143,150**	**$34,062,771**	**$38,205,921**
Number of Stations							**24**
Total Building and Land Replacement Cost per Station[5]							**$1,591,913**
Weighted Average Building Replacement Cost per Square Foot						**$274.74**	
Weighted Average Land Replacement Cost per Acre					**$82,500**		

(1) Source: Volusia County Fire Division

(2) Replacement cost is based on a cost per acre of $82,500 provided by an analysis of vacant land parcels of 1 to 3 acres sold within the fire service area in the last three years, excluding parcels below $10,000 and above $1 million per acre. Refer to Appendix B, Tables B-9 through B-12 for more information.

(3) Based on a cost per square foot of $289 for architectural estimates of future stations #14 and #43. Cost for training facility and support buildings are based on a replacement cost of $150 per square foot, which is similar to costs for support buildings observed in similar jurisdictions.

(4) Sum of the land replacement cost (Item 2) and building replacement cost (Item 3) for each facility

(5) Total replacement value for all stations and the training facility divided by the number of stations listed in the inventory

The construction cost estimate of $289 per square foot for fire stations is based on architectural estimates for construction costs of two future stations (#14 and #43) provided by Fire Services Division staff. This cost per square foot includes construction and "soft-costs" (e.g. architecture & engineering, sitework, furniture, fixtures, and equipment, etc.) that are also included in the cost of constructing a fire station. This cost per square foot is consistent with the total construction costs for fire stations observed in other jurisdictions.

In addition to land and buildings, the Volusia County Fire Services Division's inventory includes the necessary vehicles and equipment to perform their duties. As presented in Table IV-2, the total replacement value of fire vehicles and equipment is approximately $23.4 million. Volusia County was able to provide data regarding the current value of vehicles and equipment, but these purchase prices do not reflect the cost to purchase this equipment today and therefore, would greatly underestimate the actual replacement cost of these items. Therefore, recent unit cost information from other jurisdictions was used to estimate vehicle replacement costs. It should be noted that a capital asset has a minimum value of $1,000 and at least a one-year useful life.

Table IV-2
Fire Vehicle and Equipment Inventory[1]

Description [1]	Units	Unit Cost [2]	Total Replacement Cost
Vehicles			
Aerial	1	500,000	$500,000
Military Brush Truck	6	8,000	$48,000
Brush Truck	7	65,000	$455,000
Command Trailer	1	66,000	$66,000
Engine	33	318,000	$10,494,000
Rescue Truck	13	125,000	$1,625,000
Service Truck	8	35,000	$280,000
Staff Vehicle	51	30,000	$1,530,000
Tanker	15	150,000	$2,250,000
Tractor	1	42,000	$42,000
Truck Equipment	N/A	$1,206,101	$1,206,101
Subtotal - Vehicles	136		*$18,496,101*
Equipment			
Generator	61	6,300	$384,300
Radios	503	2,200	$1,106,600
Proximity Suits	21	1,400	$29,400
Computer Equipment	261	1,800	$469,800
Scuba Equipment	80	1,600	$128,000
Medical Equipment	327	3,900	$1,275,300
Weather Equipment	4	8,200	$32,800
Building Equipment [3]	74	1,400	$103,600
Uniforms [4]	199	7,000	$1,393,000
Subtotal - Equipment	1,530		*$4,922,800*
Total			**$23,418,901**
Number of Stations[5]			24
Total Vehicle & Equipment Cost per Station[6]			**$975,788**

(1), (2) Source: Volusia County Fire Services
(3) Includes exercise, housing, and office equipment
(4) Based on average cost to completely equip a new employee
(5) Source: Table VI-1 inventory of total number of stations
(6) Vehicle and equipment replacement costs totals divided by number of stations (Item 5)

Population

As previously mentioned, Volusia County Fire Services Division provides services to the residents, workers, and visitors in unincorporated Volusia County, DeBary, Lake Helen, Oak Hill and Pierson. Because simply using population does not fully address all of the benefactors of services, the "functional" weekly population approach is used to establish a common unit of demand across different land uses.[2]

The 2007 functional population estimate for the Fire Services service area used in the analysis are provided in Section II, Table II-6.

The number of fire service-related service calls since 2000 is presented in Table IV-3, along with population for the corresponding service area for each year. In addition, a three-year average is calculated to account for random fluctuations in the number of incidents from one year to another. As shown in the following table, as population increases, the number of incidents tends to increase also. This relationship suggests that with new growth, the demand for fire services will also continue to increase. Population growth influences the need for and location of future fire stations and related equipment.

Table IV-3
Service Area Population and Incidents

Year	Population(1)	Number of Incidents(2)	Three-Year Average
2000	133,584	14,534	
2001	135,299	15,055	
2002	137,145	15,062	14,884
2003	140,510	14,348	14,822
2004	143,627	17,124	15,511
2005	145,427	15,716	15,729

(1) Source: Section II, Table II-1. Service area for fire services is unincorporated Volusia County, and the Cities of DeBary, Lake Helen, Oak Hill, and Pierson.
(2) Source: Volusia County Fire Services Division

[2] Arthur C. Nelson, Estimating Land-Use and Facility Needs for Comprehensive Plans, American Planning Association, 2003.

Level of Service

Typically, level of service (LOS) for capital facilities that support fire services is expressed in terms of stations per 1,000 residents. Using this method, Volusia County's current LOS is 1 station per 6,236 weighted seasonal residents or 0.160 stations per 1,000 residents. This includes only stations owned by the County. Station 18 is a facility that is utilized by Volusia County Fire Services through lease and therefore it is not included in the inventory or as a capital asset owned by the County. As mentioned in the previous section, for impact fee calculations, LOS is measured using functional population. This results in an impact fee that reflects the total demand for fire services created by workers, visitors, and residents. In terms of functional population, the current LOS is 0.174 stations per 1,000 functional residents. Table IV-4 summarizes the calculation of Volusia County's 2007 LOS using both weighted and functional population.

Table IV-4
Current Level of Service (2007)

Calculation Step	Year 2007	
	Weighted Population	Functional Population
Population[(1)]	149,655	137,808
Number of Stations[(2)]	24	24
Population/Functional Residents per Station[(3)]	6,236	5,742
LOS (Stations per 1,000 Residents)[(4)]	**0.160**	**0.174**

(1) Source: Section II, Table II-1 for weighted population figure and Table II-6 for functional population figure
(2) Source: Table IV-1
(3) 2007 population figure (Item 1) divided by number of stations (Item 2) for weighted and functional population, respectively
(4) Number of stations (Item 2) divided by 2007 population (Item 1), multiplied by 1,000 for both weighted and functional population, respectively

The County's Comprehensive Plan currently includes an adopted call-based LOS for fire services. A call-based LOS is a common measure for the operational delivery of fire service. The outcome of the Fire Services' Safety Assessment will assess whether other measures are needed to determine the operating level of service. However, for the purposes of an impact fee the level of service is measured in terms of stations per 1,000 residents. This capital facility based level of service for fire impact fees should be included in the Comprehensive Plan as well as the call based level of service.

Table IV-5 summarizes a LOS comparison of Volusia County and other selected counties. The LOS is displayed in terms of permanent population for 2006 for all entities. As presented in this table, Volusia County's LOS is higher than the LOS of all these peer counties and the State average.

Table IV-5
2006 Level of Service Comparison

LOS Measure	Population[(1)]	Number of Stations[(2)]	Residents per Station	LOS (Stations per 1,000 Residents)
Flagler County	89,075	4	22,269	0.045
Pasco County[(3)]	391,926	22	17,815	0.056
Brevard County	543,050	34	15,972	0.063
Seminole County[(4)]	207,594	16	12,975	0.077
Marion County[(5)]	261,207	27	9,674	0.103
Collier County	326,658	11	29,696	0.034
Lake County	163,445	18	9,080	0.110
Citrus County[(6)]	133,012	22	6,046	0.165
Volusia County[(7)]	**141,920**	**24**	**5,913**	**0.169**
Florida	18,349,132	1,598	11,483	0.087

(1) University of Florida, Bureau of Business and Economic Research 2006 population estimates
(2) Source: United States Fire Administration, National Fire Department Census Database for fire stations
(3) Pasco County Fire Department serves the entire county excluding New Port Richey, Port Richey, and Zephyrhills
(4) Seminole County Fire Department serves unincorporated county only
(5) Marion County Fire Department serves the entire county excluding Ocala and Dunnellon
(6) Citrus County Fire Department serves the entire county excluding Crystal River
(7) Source: Table VI-1 for number of stations and Appendix A, Table A-1 for 2006 population

Cost Component

Table IV-6 summarizes the total impact cost per functional resident, which is calculated using capital replacement costs for land, buildings, and vehicles/equipment for fire services. Volusia County Fire Services Division owns 24 stations with an average total land, building, and vehicle and equipment cost of replacement cost of $2.6 million per station. The total impact cost per functional resident for fire services is calculated by multiplying the total cost per station by the LOS (stations per 1,000 functional residents) and dividing that figure by 1,000 residents. The total cost impact for fire services in Volusia County is $447 per functional resident.

Table IV-6
Total Impact Cost per Functional Resident

Component	Figure
Total Land Replacement Cost[(1)]	$4,143,150
Total Building Replacement Cost[(2)]	$34,062,771
Total Vehicle and Equipment Replacement Cost[(3)]	$23,418,901
Total Replacement Cost[(4)]	**$61,624,822**
Number of Stations[(5)]	24
Total Replacement Cost per Station	$2,567,701
LOS (Stations/1,000 Functional Residents)[(6)]	0.174
Total Impact Cost per Functional Resident[(7)]	**$446.78**

(1), (2), and (5) Source: Table IV-1
(3) Source: Table IV-2
(4) Sum of the land, building, and vehicle/equipment replacement cost (Items 1-3)
(6) Source: Table IV-4
(7) Total cost per replacement cost per station multiplied by the LOS (Item 6) and divided by 1,000

Credit Component

To avoid overcharging new development for the fire impact fee, a review of the capital financing program for fire services was completed. The purpose of this review was to determine any potential revenue credits generated by new development that could be used for capital facilities, land, and equipment expansion of the fire program. Revenue credits are then applied against the total cost per functional resident so that new development is not charged twice for capital revenue contributions used to expand the fire services program.

Capital Expansion Expenditures Credit

The capital expenditures credit per functional resident was calculated based on the planned capital expansion expenditures to be funded with non-impact fee revenues budgeted in the County's Capital Improvement Program (CIP) for the next five years. The average annual capital expansion expenditure amount, less the amount to be funded with impact fee revenue, was divided by the average functional residents for the same period in order to calculate the average capital expansion credit per functional resident. Planned capital expenditures fore fire services identified in Volusia County's Five Year CIP is presented in Table IV-7. As presented in the following table, the result is an annual average capital expansion expenditure of $7 per functional resident for fire services.

Table IV-7
Five-Year Capital Expenditures[1]

Expenditure	Expansion/ Replacement	Fiscal Year 2006/07	Fiscal Year 2007/08	Fiscal Year 2008/09	Fiscal Year 2009/10	Fiscal Year 2010/11	Five-Year Total
Classroom Training Additions	Expansion					$1,000,000	$1,000,000
Construction and Relocation of Resource Center	Expansion				$650,000		$650,000
Multipurpose Storage Facility	Expansion		$170,000				$170,000
New Construction of Station #47	Expansion			$120,000			$120,000
Overflow parking at FSI	Expansion	$50,000					$50,000
Station #15 Replacement	Replacement		$945,000				$945,000
Station #15 Expansion	Expansion		$555,000				$555,000
Station #13 - Land Purchase	Replacement		$100,000				$100,000
Road network for FSI	Expansion	$150,000					$150,000
Special Operations Training Facility	Expansion	$329,000					$329,000
Squad 23	Replacement	$381,000					$381,000
Station #11 Renovation	Replacement	$75,000					$75,000
Station #12 Addition	Expansion	$175,000					$175,000
Station #22 Addition	Expansion			$175,000			$175,000
Station #23 Renovation	Replacement	$125,000					$125,000
Station #24/38	Expansion	$140,000					$140,000
Station #31 Renovation	Replacement		$200,000				$200,000
Station #34 Addition	Expansion	$250,000					$250,000
Station #43 Replacement	Replacement			$442,000			$442,000
Station #43 Expansion	Expansion			$858,000			$858,000
Station #46 Addition	Expansion	$250,000					$250,000
Water/Sewer System for FSI	Expansion		$420,000	$420,000	$420,000		$1,260,000
Total Capital Expenditures		**$1,925,000**	**$2,390,000**	**$2,015,000**	**$1,070,000**	**$1,000,000**	**$8,400,000**
Total Capital Expansion Expenditures[2]		**$1,344,000**	**$1,145,000**	**$1,573,000**	**$1,070,000**	**$1,000,000**	**$6,132,000**
Total Impact Fee Revenue for Expansion[3]		**$725,000**	**$325,000**	**$50,000**	**$0**	**$0**	**$1,100,000**
Total Expansion Expenditures Less Impact Fees[4]		**$619,000**	**$820,000**	**$1,523,000**	**$1,070,000**	**$1,000,000**	**$5,032,000**
Average Annual Expansion Expenditures Less Impact Fees							**$1,006,400**
Annual Functional Population[5]		**137,808**	**140,481**	**143,206**	**145,984**	**148,334**	
Average Annual Functional Population							**143,163**
Average Annual Expansion Expenditure (Less Impact Fees) per Functional Resident[6]							**$7.03**
Percent of Capital Expenditures Funded with Fire Services Fund[7]							39.6%

(1) Source: Volusia County Finance Department

(2) Sum of the capital expenditures identified for expansion of fire rescue services
(3) Total impact fee revenue identified for funding planned fire services capital improvement projects
(4) Total capital expansion expenditures (Item 2) less impact fee revenue for expansion (Item 3)
(5) Source: Appendix A, Table A-6
(6) Average annual expansion expenditures (less impact fees) divided by the average annual functional population figure
(7) Source: Fire Services Capital Improvement Projects Summary

Capital Expansion Expenditures Debt Service Credit

Any outstanding bond issues related to the capital expansion of the County's fire services program also will result in a credit to the impact fee. Volusia County funded the construction of Station #14 and Station #16 with bond issues. The debt service for these bond issues is being repaid with revenues from the fire services fund which is composed primarily of general fund revenue.

The debt service credit is calculated by determining the present value of the total remaining payments of the bond issue and then dividing that figure by the average annual functional population over the remaining life of the bond issue. As presented in Table IV-8, the resulting credit for fire services-related debt is $9 per functional resident.

Past Property Tax Credit per Resident

Another credit component considered is revenue generated from past payments of property taxes on vacant land that are used to fund fire services capital expansion projects. Fire services fund revenues are used to fund a portion of the fire service-related capital expansion expenditures identified in the CIP. The fire services fund is comprised largely of general fund revenues. These revenues are generated primarily through the fire fund millage portion of the ad valorem property tax. Therefore, it is appropriate to give credit for the portion of the fire services fund paid for by past ad valorem taxes from the general fund, that were used toward the fire services capital expansion expenditures contributed by vacant land. This calculation is a five-step process and is presented in Table IV-9.

First, the percentage of the total value of vacant land to the total property value for the County is calculated, which is 14.8 percent. Volusia County uses general fund revenues to fund the majority of the fire services fund; revenues from which a portion of the capital expansion projects in the CIP are funded. Therefore, the second calculation considers the percent of capital expenditures funded with revenues from the fire services fund (39.6%). Third, the portion of the fire services fund that is composed of general fund revenues is determined (94.0%). Fourth, the percentage of the general fund comprised of ad valorem revenues is calculated, based on a review of the County's budgets for the past five years (77.5%). Finally, the effective vacant land percentage is calculated by multiplying the vacant land value as a percentage of total property value by the percent of the fire services capital expansion expenditures funded by the fire services fund, multiplied by the portion of the fire services fund funded with general fund, multiplied by portion of the general fund funded with the ad valorem revenue. The resulting effective percent of past property tax payments on vacant land is 4.3 percent.

Table IV-8
Bond Debt Credit Analysis

Bond Issue	Total Number of Years of Debt Issue[1]	Years Remaining[2]	Interest Rate[3]	Total Remaining Debt Service[4]	Present Value of Remaining Payments	Average Annual Functional Population During Remaining Bond Issue Period[5]	Credit per Functional Resident[6]
Fire Station #14	5	3	Variable	$957,654.69	$873,241.83	141,870	$6.16
Fire Station #16	5	2.25	Variable	$381,000.55	$363,812.75	140,498	$2.59
Total Debt Service Credit per Functional Resident							**$8.75**

(1), (2), and (4) Source: Volusia County Finance Department

(3) Bond payments are calculated using a variable interest rate. To calculate the impact fee credit, an interest rate of 4 percent is used, based on discussions with County finance staff.

(5) Source: Appendix A, Table A-6

(6) Present value of remaining payments divided by the average annual functional population during the remaining bond issue period (Item 5)

Table IV-9
Percent of Past Property Tax Payments on Vacant Land

Component	Taxable Value
2006 Taxable Value of Vacant Land[(1)]	$1,624,959,504
2006 Total Taxable Value[(2)]	$10,971,662,479
Vacant Land Value as a Percentage of Total Property Value[(3)]	14.8%
Percent of Capital Expenditures Funded with Fire Services Fund[(4)]	39.6%
Percent of the Fire Services Fund Funded with General Fund Revenue[(5)]	94.0%
Percent of the General Fund Funded with Ad Valorem Revenue[(6)]	77.5%
Effective Vacant Land Percentage[(7)]	**4.3%**

(1), (2) Source: Volusia County Property Appraiser
(3) 2006 taxable value of vacant land (Item 1) divided by the 2006 total taxable value (Item 2)
(4) Source: Fire Services Capital Improvement Projects Summary
(5), (6) Source: Volusia County Annual Budgets (FY 2002 - FY 2007)
(7) Percent vacant land of total property value (Item 3) multiplied by percent fire services fund capital expenditures (Item 4) multiplied by percent of fire services fund from general fund (Item 5) multiplied by ad valorem revenue percent of general fund (Item 6)

Net Fire Services Impact Cost

The net impact fee per functional resident is the difference between the Cost Component and the Credit Component. Table IV-10 summarizes the calculation of the net impact cost per functional resident for fire services.

The first section of Table IV-10 identifies the total impact cost as $447 per functional resident. The second section of the table identifies the revenue credits for the fire impact fee, which total $76 per functional resident for the single family land use and $59 per functional resident for all other land uses. In calculating the capital expansion expenditures revenue credit, the portion of the average annual capital expansion expenditures per functional resident funded with ad valorem is separated from the portion funded with other revenue sources. The portion of the credit funded with ad valorem is increased by 108 percent in calculating the credit for single family homes. This is because a comparison of the new home sales and the value of existing homes indicate that new home taxable values are 108 percent higher than the taxable value of an existing home. This step ensures that new homes receive the appropriate credit since they will be assessed at a higher value than the existing homes due to the homestead exemption and "save our homes" law that caps the annual increase in the taxable value of a home. The adjusted ad valorem credit is added back to the non-ad valorem portion of the capital expenditure credit to determine the full credit for single family homes. Since other land

uses are not afforded the same type of cap on their taxable property value, such an adjustment is not necessary.

The third section of the table presents the net impact cost per functional resident as the difference between the total impact cost and the total revenue credit. This results in a net impact cost of $371 per functional resident for the single family land use and $388 for all other land uses.

Table IV-10
Net Impact Cost per Functional Resident

Calculation Step	Impact Cost	Revenue Credits
Impact Cost		
Total Impact Cost per Functional Resident[(1)]	**$446.78**	
Impact Credit		
Capital Expansion Expenditure Credit		
Average Annual Capital Expansion Credit per Functional Resident[(2)]		($7.03)
Capitalization Rate		4%
Capitalization Period (in years)		5
Capital Expansion Credit per Functional Resident[(3)]		($31.30)
Percent of Capital Expansion Expenditures Funded with Fire Services Fund[(4)]		39.6%
Percentage of the Fire Services Fund Funded with General Fund[(5)]		94.0%
Percentage of the General Fund Funded with Ad Valorem Revenue[(6)]		77.5%
Ad Valorem Portion of Capital Expansion Credit per Functional Resident[(7)]		($9.03)
Adjusted Ad Valorem Funded Portion of Capital Expansion Credit per Functional Resident[(8)]		($18.78)
Non-Ad Valorem Funded Portion of Capital Expansion Credit per Functional Resident[(9)]		($22.27)
Debt Service Credit		
Debt Service Credit per Functional Resident[(10)]		($8.75)
Ad Valorem Portion of Debt Service Credit per Functional Resident[(11)]		($6.37)
Adjusted Ad Valorem Funded Portion of Debt Service per Functional Resident[(12)]		($13.25)
Non-Ad Valorem Funded Portion of Debt Service per Functional Resident[(13)]		($2.38)
Vacant Land Credit		
Effective Vacant Land Value Percentage[(14)]		4.3%
Effective Vacant Land Credit per Functional Resident[(15)]		($19.21)
Total Credit per Resident		
Total Credit per Resident -- Single Family Land Use[(16)]		**($75.89)**
Total Credit per Resident -- All Other Residential Land Uses[(17)]		**($59.26)**
Net Impact Cost		
Net Impact Cost per Resident - Single Family Land Use[(18)]	**$370.89**	
Net Impact Cost per Resident - All Other Residential Land Uses[(19)]	**$387.52**	

(1) Source: Table IV-6
(2), (4) Source: Table IV-7
(3) The present value of the capital expansion credit per functional resident (Item 2) at a capitalization rate of 4 percent, the average interest rate of fire service related bond issues, for a capitalization period of 5 years
(5), (6), and (14) Source: Table IV-9
(7) Capital expansion credit per functional resident (Item 3) multiplied by the percent funded with fire services fund revenue (Item 4) multiplied by the portion of the fire services fund

funded with general fund revenue (Item 5) multiplied by the portion of the general fund made up of ad valorem revenue

(8) The portion of capital expansion credit funded with ad valorem per functional resident (Item 7) multiplied by the ratio of the value of new home sales to the taxable value of existing homes (2.08)

(9) The capital expansion credit per functional resident (Item 3) less the portion of the capital expansion credit funded with ad valorem per functional resident (Item 7)

(10) Source: Table IV-8

(11) Debt service credit per functional resident (Item 10) multiplied by the portion of the fire services fund funded with general fund revenue (Item 5) multiplied by the portion of the general fund made up of ad valorem (Item 6)

(12) Portion of the debt service funded with ad valorem (Item 11) multiplied by the ratio of the taxable value of new homes sales to the taxable value of existing homes (2.08)

(13) The debt service credit per functional resident (Item 10) less the portion of the debt service credit funded with ad valorem per functional resident (Item 11)

(15) Effective vacant land value percentage (Item 14) multiplied by the total impact cost per functional resident (Item 1)

(16) Summation of the portion of the adjusted ad valorem funded capital expansion credit per functional resident (Item 8), non-ad valorem funded capital expansion credit per functional resident (Item 9), adjusted ad valorem funded portion of the debt service credit per functional resident (Item 12), non adjusted ad valorem funded portion of the debt service credit per functional resident (Item 13), and effective vacant land credit per functional resident (Item 15)

(17) Summation of the capital expansion credit per functional resident (Item 3), debt service credit per functional resident (Item 10), and effective vacant land credit per functional resident (Item 15)

(18) Total impact cost per functional resident (Item 1) less the total revenue credit per functional resident (Item 16)

(19) Total impact cost per functional resident (Item 1) less the total revenue credit per functional resident (Item 17)

Proposed Fire Services Impact Fee Schedule

Table IV-11 presents the proposed fire services impact fee schedule developed for Volusia County for both residential and non-residential land uses, based on the respective net impact costs per functional resident presented in Table IV-10.

Table IV-11
Proposed Fire Services Impact Fee Schedule

Land Use	Impact Unit	Functional Resident Coefficient[1]	Net Impact Cost per Functional Resident[2]	Administrative Fee[3]	Total Impact Fee[4]
Residential					
Single Family Detached					
- 0 to 1,500 sf	du	1.47	$544.55	$16.34	$560.89
- 1,501 to 2,499 sf	du	1.62	$600.11	$18.00	$618.11
- 2,500 sf or greater	du	1.78	$659.38	$19.78	$679.16
Multi Family	du	0.81	$313.53	$9.41	$322.94
Mobile Home Park	du	1.15	$445.13	$13.35	$458.48
Retirement Community/Age-Restricted Single Family	du	0.96	$355.62	$10.67	$366.29
Transient, Assisted, Group					
Hotel / Motel	Room	0.69	$267.08	$8.01	$275.09
Nursing Home/Adult Living Facility	Bed	0.98	$379.33	$11.38	$390.71
Recreational					
Arena (Major Sports Facility)	acre	3.53	$1,366.36	$40.99	$1,407.35
City Park (Local Park)	acre	0.15	$58.06	$1.74	$59.80
County Park (District Park)	acre	0.20	$77.41	$2.32	$79.73
Miscellaneous					
Church	1,000 sf	0.57	$220.63	$6.62	$227.25
Day Care Center	1,000 sf	0.89	$344.49	$10.33	$354.82
Movie Theater	screen	5.40	$2,090.18	$62.71	$2,152.89

Table IV-11 (continued)
Proposed Fire Services Impact Fee Schedule

Land Use	Impact Unit	Functional Resident Coefficient[1]	Net Impact Cost per Functional Resident[2]	Administrative Fee[3]	Total Impact Fee[4]
Office					
Office 50,000 SF or less	1,000 sf	1.42	$549.64	$16.49	$566.13
Office 50,001 - 100,000 SF	1,000 sf	1.29	$499.32	$14.98	$514.30
Office 100,001 - 200,000 SF	1,000 sf	1.10	$425.78	$12.77	$438.55
Office 200,001 - 400,000 SF	1,000 sf	0.94	$363.85	$10.92	$374.77
Office greater than 400,000 SF	1,000 sf	0.80	$309.66	$9.29	$318.95
Hospital	1,000 sf	1.65	$638.67	$19.16	$657.83
Corporate Headquarters Building	1,000 sf	1.35	$522.54	$15.68	$538.22
Medical Office/Clinic	1,000 sf	1.72	$665.76	$19.97	$685.73
Bank/Savings with Drive-Thru	1,000 sf	2.37	$917.36	$27.52	$944.88
Bank/Savings with no DriveThru	1,000 sf	2.57	$994.77	$29.84	$1,024.61
Retail, Gross Square Feet					
Retail 50,000 GSF or less	1,000 sf	2.45	$948.32	$28.45	$976.77
Retail 50,001 GSF to 200,000 GSF	1,000 sf	2.34	$905.74	$27.17	$932.91
Retail 200,001 GSF to 400,000 GSF	1,000 sf	2.50	$967.68	$29.03	$996.71
Retail 400,001 GSF to 600,000 GSF	1,000 sf	2.23	$863.17	$25.90	$889.07
Retail 600,001 GSF to 800,000 GSF	1,000 sf	2.24	$867.04	$26.01	$893.05
Retail greater than 800,000 GSF	1,000 sf	2.09	$808.98	$24.27	$833.25
Pharmacy/Drug Store w/Drive-Thru	1,000 sf	1.96	$758.66	$22.76	$781.42
Home Improvement Superstore	1,000 sf	1.91	$739.30	$22.18	$761.48
Quality Restaurant	1,000 sf	6.82	$2,639.82	$79.19	$2,719.01
High-Turnover Restaurant	1,000 sf	6.99	$2,705.62	$81.17	$2,786.79

Table IV-11 (continued)
Proposed Fire Services Impact Fee Schedule

Land Use	Impact Unit	Functional Resident Coefficient[(1)]	Net Impact Cost per Functional Resident[(2)]	Administrative Fee[(3)]	Total Impact Fee[(4)]
Retail, Gross Square Feet (continued)					
Fast Food Restuarant w/ Drive-Thru	1,000 sf	8.98	$3,475.89	$104.28	$3,580.17
Quick Lube	bay	1.22	$472.23	$14.17	$486.40
Supermarket	1,000 sf	2.05	$793.49	$23.80	$817.29
Convenience Store w/Gas Pumps	1,000 sf	5.83	$2,256.62	$67.70	$2,324.32
Tire Store	bay	5.02	$1,943.09	$58.29	$2,001.38
Auto Repair or Body Shop	1,000 sf	3.08	$1,192.18	$35.77	$1,227.95
New and Used Car Sales	1,000 sf	1.71	$661.89	$19.86	$681.75
Furniture Store	1,000 sf	0.32	$123.86	$3.72	$127.58
CBD Sandwhich Shop	1,000 sf	1.26	$487.71	$14.63	$502.34
Convenience/Gas/Fast Food	1,000 sf	7.15	$2,767.55	$83.03	$2,850.58
Industrial					
General Industrial/Industrial Park	1,000 sf	0.69	$267.08	$8.01	$275.09
Manufacturing	1,000 sf	0.50	$193.54	$5.81	$199.35
Warehouse	1,000 sf	0.39	$150.96	$4.53	$155.49
Mini-Warehouse	1,000 sf	0.07	$27.09	$0.81	$27.90

Note: GSF = gross square feet

(1) Source: Section II, Table II-7 for residential land uses and Table II-8 for non-residential land uses

(2) Proposed impact fee determined by multiplying the net impact cost per functional resident from Table IV-10 by the functional resident coefficient (Item 1) for each land use

(3) Volusia County charges a 3 percent administrative fee for on each impact fee assessed

(4) Sum of the net impact cost per functional resident (Item 2) and the administrative fee (Item 3) for each land use

Fire Impact Fee Schedule Comparison

As part of the effort in updating the Volusia County Fire Services Impact Fee Program, a comparison of fire impact fee schedules was completed for selected jurisdictions. Table IV-12 presents the comparison of fire impact fees in Volusia County and the other jurisdictions. Note that any fee that is over 2 years old is significantly undervalued because of recent construction and land value increases.

Future Demand Analysis

Future demand projections are based on the current LOS and the capital replacement cost per station, as well as the population projections for 2025 included in Section II, Table II-1. Table IV-13 presents the demand forecast and cost estimates for fire services in the year 2025, assuming that the current LOS becomes the adopted standard.

As presented in Table IV-13, the County is projected to need 7 additional fire stations by 2025. This would require an investment of $18.0 million. The anticipated funding source for additional fire stations is primarily impact fee revenues, estimates for which are provided in Table IV-14.

Table IV-12
Fire Services Impact Fee Schedule Comparison[1]

Land Use	Unit	Volusia County (Proposed)[1]	Volusia County (Existing)	Brevard County[2]	Citrus County	Collier County[3]	Lake County[4]	Marion County	Pasco County	Seminole County
Date of Original Study	N/A	2007	2001	2000	2007	2005	2003	2005	2003	1992
Residential:										
Single Family Detached (2,000 sf)	du	$640.59	$286.52	$54.08	$433.00	$1,080.00	$369.00	$261.00	$248.00	$172.00
Non-residential:										
General Light Industrial	1,000 sf	$281.82	$150.00	N/A	$205.00	$700.00	$99.00	$108.00	$324.00	$13.00
Office (50,000 sf)	1,000 sf	$579.98	$150.00	$26.00	$482.00	$700.00	$1,233.00	$190.00	$324.00	$72.00
High Turnover Restaurant	1,000 sf	$2,854.96	$150.00	$325.00	$2,042.00	$700.00	$1,233.00	$1,419.00	$324.00	$320.00
Retail (100,000 sf)	1,000 sf	$955.74	$150.00	$121.00	$676.00	$700.00	$1,233.00	$503.00	$324.00	$160.00
Bank/Savings Drive-In	1,000 sf	$967.99	$150.00	$61.00	$685.00	$700.00	$1,233.00	$338.00	$324.00	$72.00

(1) Source: Table IV-11 for Volusia County proposed and impact fee schedules for all other figures

(2) Brevard County does not charge a fire impact fee for industrial land uses

(3) Collier County's average fire impact fee is $.54 per square foot for residential, based on the fee for all seven fire service areas. The average non-residential fee is $0.70 per square foot based on all seven fire service areas.

(4) Lake County is currently updating the fire rescue impact fee

Table IV-13
2025 Demand and Cost Forecast

Calculation Component	Figure
2025 Population (Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, and Pierson)[(1)]	194,376
Current LOS (Stations per 1,000 Residents)[(2)]	0.16
2025 Required Stations[(3)]	31
Existing Number of Stations[(4)]	24
Additional Stations Needed[(5)]	7
Total Cost per Station[(6)]	$2,567,701
Total Cost for Fire Services[(7)]	**$17,973,907**

(1) Source: Section II, Table II-1
(2) Source: Table IV-4
(3) 2025 population (Item 1) multiplied by the current LOS (Item 2) divided by 1,000
(4) Source: Table IV-1
(5) 2025 required number of stations (Item 3) less existing number of stations (Item 4)
(6) Source: Table IV-6
(7) The number of additional stations needed by 2025 (Item 5) multiplied by the total cost per station (Item 6)

Revenue Estimates

Revenue estimates are calculated both based on the population projections provided in Section II, Table II-1. Based on this analysis, it is estimated that the fire services impact fees will generate a total of $15.3 million, or an average of $849,000 annually through 2025. These figures are in 2007 dollars and do not take into account indexing or possible future updates of the fees.

For impact fee purposes, revenue projections serve only as an overall guideline in planning future infrastructure needs. In their simplest form, impact fees charge each unit of new growth for the net cost (total cost less credits) of infrastructure needed to serve that unit of growth. If the growth rates remain high, the County will have more impact fee revenues to fund growth related projects sooner rather than later. If the growth rate slows down, less revenue will be generated, and the timing and need for future infrastructure improvements will be later rather than sooner.

Table IV-14
Revenue Estimates

Year	Population[(1)]	New Population[(2)]	Estimated Revenues[(3)]
2007	149,655		
2008	152,560	2,905	$990,954
2009	155,520	2,960	$1,009,715
2010	158,509	2,989	$1,019,608
2011	161,060	2,551	$870,197
2012	163,654	2,594	$884,865
2013	166,288	2,634	$898,510
2014	168,964	2,676	$912,837
2015	171,651	2,687	$916,589
2016	173,985	2,334	$796,174
2017	176,349	2,364	$806,408
2018	178,749	2,400	$818,688
2019	181,178	2,429	$828,580
2020	183,685	2,507	$855,188
2021	185,777	2,092	$713,623
2022	187,895	2,118	$722,492
2023	190,037	2,142	$730,679
2024	192,205	2,168	$739,548
2025	194,376	2,171	$740,572
Total Estimated Revenue			**$15,255,227**
Average Annual Revenue			**$847,513**
Fee per resident[(4)]			**$341.12**

(1) Source: Section II, Table II-1 for unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, and Pierson. (Some of the years are not shown in Table II-1. Refer to Appendix A, Table A-3 for populations for interim years)
(2) Additional population per year
(3) New population (Item 2) multiplied by fee per resident (Item 4)
(4) The net impact cost per functional resident (for the single family land use) from Table IV-10 is converted to the net fee per resident by multiplying this figure by the ratio of the functional population to the weighted population, both from Table IV-4

V. Transportation

This section summarizes the analysis used to develop the Volusia County updated transportation impact fee schedule. This section consists of the following subsections:

- Demand Component
- Cost Component
- Credit Component
- Proposed Transportation Impact Fee Schedule
- Impact Fee Schedule Comparison
- Revenue Estimates
- Impact Fee Zones

These subsections are summarized in detail in the remainder of this section, resulting in the proposed updated transportation impact fee schedule.

Similar to the other fee areas presented in this study, the transportation impact fee study follows a standards-driven approach. Volusia County is experiencing an influx of new development and future growth is expected to continue. In order to get people to and from work and other community services, significant additions to the existing roadway network will be necessary. To develop potential revenue sources to pay for the capacity that new growth will consume on the transportation network, an update study for the transportation impact fee program has been developed.

Included in this document is the necessary support material utilized in the calculation of the transportation impact fee. The general equation used to compute the impact fee for a given land use is:

(Demand x Cost) - Credit = Fee

The demand for travel placed on the transportation system (daily trip generation rate times the trip length times the percent of new trips) is expressed in units of vehicle miles of travel for each land use contained in the impact fee schedule. It should be noted that trip generation is expressed in average daily rates since new development produces and consumes trips on a daily basis. The cost of building new capacity is typically expressed in units of dollars per vehicle mile or lane mile of roadway capacity. The credit is an estimate of the non-impact fee revenues generated by a unit of each land use of new development that are allocated to roadway construction or transportation system capacity expansion. Thus, the impact fee is an "up front" payment for a portion of the cost of building a lane

mile of capacity directly related to the amount of capacity consumed by each unit of land use contained in the impact fee schedule.

The general topics addressed in this transportation impact fee study are as follows:

- Demand Component
    - Individual land use trip characteristics
- Cost Component
    - County's roadway improvement cost estimates
    - State's roadway improvement cost estimates
- Credit Component
    - Gasoline tax distributions and allocations
- Other variables used in the impact fee formula

These items are all discussed in subsequent subsections of this particular section. It should be noted that the information used to develop the impact fee schedule was based upon the best, most recent and localized data available.

There are 12 input variables used in the fee equation:

- Number of daily trips generated
- Length of those trips
- Proportion of travel that is new travel
- Cost per lane mile
- Equivalent gas tax credit (pennies)
- Facility life
- Interest rate
- Fuel efficiency
- Effective days per year
- Capacity per lane mile
- Interstate/toll facility adjustment factor
- City collector adjustment factor

A review of these variables and corresponding recommendations are presented in the following sections.

Demand Component

Individual Land Use Trip Characteristics

The amount of road system consumed by a new development is calculated using the following units of measure:

- Number of daily trips generated;
- Length of those trips; and
- Proportion of travel that is new travel, rather than travel that is estimated to have already been on the road system.

For the purpose of this Update Study, the trip characteristic variables have been obtained primarily from two sources: previous similar studies conducted throughout Florida, including Volusia County, and from the Institute of Transportation Engineers' (ITE) *Trip Generation* reference report (7th edition). However, it is important to note that this information also has been supplemented with trip characteristic studies that were conducted in Volusia County as part of the 1997 Update Study. These studies include a survey and review of travel characteristics for the following land uses:

- Single Family Residential;
- High Rise Apartments;
- Mobile Home Park;
- Hotel/Motel;
- Movie Theater with Matinee;
- Medical-Dental Office;
- Business Park;
- Shopping Center;
- Quality Restaurant;
- High-Turnover Restaurant;
- Fast-Food Restaurant;
- Wholesale Tire Store;
- Automobile Care Center; and
- Quick Lubrication Vehicle Shop.

City Collector Adjustment Factor

This variable is used to recognize the portion of travel on the city maintained collector road system. The projected roadway volumes from the Volusia County MPO 2025 Long Range Transportation Plan (LRTP) were used to determine the percentage of vehicle miles of travel (VMT) under the non-thoroughfare roadway system. The County is developing a thoroughfare roadway network that excludes city collector roadways countywide since more and more cities within Volusia County are developing their own transportation impact fee programs. As such, the city collector adjustment factor is used to discount this travel from the impact fee calculations.

Table V-1 presents the distribution of VMT by roadway type on the County thoroughfare roadway system. As indicated in the table, the proportion of VMT on the non-thoroughfare roadway network (i.e. City roads) is six percent. This proportional value was used to develop the city collector adjustment factor, which represents the percentage of travel occurring on the city collector road network.

Table V-1
City Collector Adjustment Factor

	2025	
Roadway Type	**VMT**	**% VMT**
City Roads	765,363	**6%**
State Roads	7,898,354	64%
County Roads	3,691,702	30%
Total	**12,355,419**	**100%**

Source: Volusia County MPO 2025 LRTP
Existing and Future Volumes

Cost Component

The cost of providing transportation system capacity has increased in recent years. Certain phases of lane widening projects have seen significant cost increases recently. For example, construction costs have increased significantly in the past 6 to 24 months. Appreciation in land values has resulted in higher right-of-way costs over the last several years. Information from Volusia County and the Florida Department of Transportation (FDOT) regarding recent road construction costs was used to develop a unit cost for all

phases involved in the addition of one lane mile of roadway capacity. The following sub-sections detail the analyses that were undertaken to review the different costs associated with the construction of county and state roads. Appendix D provides the data and other support information utilized in these analyses.

It should be noted that the current cost component development methodology utilized by TOA includes one additional cost that is added to the calculation of an updated cost per lane mile. This cost, carrying cost per lane mile, is intended to estimate the part of the cost for building a lane mile of roadway that pertains to the fact that it takes six to eight years to construct the roadway. However, due to the significant increase in the per-lane-mile construction cost noted for Volusia County and to remain consistent with the methodology used in the previous update, TOA has elected not to incorporate this cost into the impact fee calculation at this time. Incorporation of this cost element into the cost component would increase the overall cost per lane mile by approximately 12 percent.

County Costs

This section examines the construction costs of transportation capacity improvements associated with county roads in Volusia County. For this purpose, recent engineer cost estimates of future projects that are in the County's 2007-2011 Capital Improvement Program (CIP) were used to identify and provide supporting cost data for roadway improvements. The cost for each roadway capacity project was separated into four phases: design, right-of-way (ROW), construction, and construction engineering/inspection (CEI) costs.

Based on discussion with County staff, design costs were estimated at 11 percent and CEI costs were estimated at 9 percent of construction costs. This percentage is based on construction costs from recently completed County projects. The weighted average ROW cost per lane mile was developed based on a review of recently bid and future CIP projects presented in Appendix D, Table D-1. The weighted average ROW cost per lane mile is approximately $860,000 for county roads. This cost includes both land and non-land acquisition costs (i.e., business damages, appraisal fees, legal fees). County staff confirmed that these projects are typical of future roadway corridors.

The construction cost per lane mile was developed based on a review of recent engineer's estimates for roadway improvement projects in the Volusia County FY 2007-2011 CIP. County staff confirmed that the projects used to develop the construction cost are typical of the type of roadway project that the County intends to construct in the future. It should be

noted that unit prices and quantities included in the bid tabulations from recent bids and future cost estimates in Volusia County and other counties in the state were reviewed to determine the reasonableness of the construction cost used. These estimates were determined to be consistent with the unit prices being used for all components (i.e., roadway, signal, drainage, and lighting) in other counties in the state. The resulting construction cost per lane mile is approximately $2.65 million. The projects used to develop the construction cost will be built of urban cross-section design and are consistent with FDOT and County design standards. County staff also indicated that it is anticipated that a majority of future county roadway projects will be built utilizing an urban cross-section design.

Based on an analysis of the project cost information for county roadway capacity-adding projects, the total cost per lane mile is estimated at approximately $4.04 million. Table V-2 presents the breakdown of the estimated average cost for each phase of a typical roadway capacity-expansion project in Volusia County.

Table V-2
Estimated Cost per Lane Mile
by County Project Phase

Cost Phase	Cost Per Lane Mile
Design[(1)]	$291,696
Right-of-Way[(2)]	$858,109
Construction[(3)]	$2,651,778
CEI[(4)]	$238,660
Total Cost	**$4,040,243**

(1-4) Source: Appendix D, Table D-6 for County Design

State Costs

A similar review also was completed for state roadway projects in order to estimate the typical phase and total costs for capacity-adding projects. A total of 20 state projects were identified that were either completed, under construction, or the full project cost was programmed in the FY 2007-2011 Transportation Improvement Plan (TIP).

Based on discussion with FDOT District 5 staff, design costs were estimated at 10 and CEI costs were estimated at 10 percent of construction costs. This percentage is based on

construction costs from recently completed County projects. FDOT has not recently (in the last 24 months) bid any state projects in Volusia County. Based on discussions with FDOT District 5 staff, the construction cost estimates in the FY 2007-2011 TIP were developed in early 2006. Based on the dated nature of these cost estimates, recently bid projects in District 5 were reviewed to develop the construction cost per lane mile. As shown in Appendix D, Table D-3, the construction cost per lane mile was estimated based on three recent bids projects from peer counties (Seminole, Osceola, and Marion) in FDOT District 5. It should be noted that the design characteristics of these projects (urban cross- section) are typical of future state projects in Volusia County based on a review of the Volusia County 2025 LRTP and discussion with FDOT District 5 staff. As shown in that table, the state construction cost per lane mile for urban design arterial roadways is approximately $3.10 million.

Since the FDOT has not purchased any ROW since 2002, historical ROW cost figures are not reflective of current acquisition costs. As such, the ROW cost is based on the SR 15/600 (from SR 472 to SR 15A) project programmed in the County's FY 2007-2011 TIP. FDOT District 5 staff confirmed that this improvement is typical of future state roadway improvements and that the cost estimates have been updated to reflect the recent increase in land values.

Table V-3 summarizes the estimated average cost per lane mile for state roads. As shown in the table, the average cost per lane mile for state roads is approximately $4.67 million. This figure is consistent with other recent transportation impact fees studies conducted in the state, such as Citrus, Pasco, Lake, and Collier Counties (with a range of $4.7 million to $5.8 million). State projects included in the analysis are presented in Appendix D, Table D-2.

Table V-3
Estimated Cost per Lane Mile
by State Project Phase

Cost Phase	Cost Per Lane Mile
Design[(1)]	$309,526
Right-of-Way[(2)]	$954,543
Construction[(3)]	$3,095,258
CEI[(4)]	$309,526
Total Cost	**$4,668,853**

(1-4) Source: Appendix D, Table D-6 for County Design

Summary of Costs (Blended Cost Analysis)

The weighted average cost per lane mile for the projects included in Tables V-2 and V-3 is calculated and presented in Table V-4. The resulting weighted average cost of approximately $4.31 million per lane mile will be utilized as the cost input in the calculation of the impact fee schedule. This weighted average cost per lane mile includes county and state projects and is based on weighting that utilizes the distribution of lane miles of roadway by jurisdiction being added in the 2025 Long Range Transportation Plan. As noted previously, the project information and methodology used in these calculations is included in Appendix D, Tables D-1 through D-6

Table V-4
Estimated Adjusted Cost per Lane Mile
County & State Roadway Capital Projects in Volusia County

Cost Type	County Roads[(1)]	State Roads[(2)]	County and State Roads[(3)]
Design	$291,696	$309,526	$299,363
ROW	$858,109	$954,543	$899,576
Construction	$2,651,778	$3,095,258	$2,842,474
CEI	$238,660	$309,526	$269,132
Total	**$4,040,243**	**$4,668,853**	**$4,310,545**
Lane Miles Added[(4)]	57%	43%	100%

(1) Source: Table V-1
(2) Source: Table V-2
(3) Source: Table D-6 for blend of county and state roads
(4) VMT distribution from Appendix D, Table D-5, multiplied by the design, construction, CEI, and ROW phase costs by jurisdiction to develop a weighted average cost per lane mile.

Credit Component

Gasoline Tax Credit (Equivalent)

The present value of gasoline taxes generated by a new development over a 25-year period is credited against the cost of the system consumed by travel associated with new development. This is because travel from new development generates gasoline tax revenues, a portion of which is typically allocated to expansion of the transportation system.

Appendix E provides a detailed discussion of the County's financing of transportation capital projects utilizing gas tax revenues. A review of the County roadway financing program shows that a combination of impact fees, state grants, and gas tax revenues are being used to fund capacity expansion projects. Volusia County has adopted the 2nd Local Option Gas Tax (LOGT) and by policy allocates 100 percent of the gas tax revenues it received from this funding source to fund capacity expansion projects. As such, the County's portion of the gas tax revenues is an equivalent to a credit of 2.5 pennies out of the total of 5 pennies. It should be noted that the remainder of the gas tax allocation (2.5 pennies) of the 2nd LOGT is allocated to the cities in Volusia County. The cities utilize their allocation of local gas taxes to finance capital maintenance-related improvements

(resurfacing, paving, street lighting etc.) and capital expenditures on the non-thoroughfare roadway network.

In addition, state expenditures on county roads were reviewed and a credit for the capacity expansion portion attributable to state projects was provided. The equivalent number of pennies allocated to fund state projects was determined using information for a 15-year period of the FDOT Work Program (1997 through 2011). A list of capacity-adding roadway projects was developed, including lane additions, new road construction, intersection improvements, traffic signal projects, and other capacity-addition projects. This review (which is summarized in Appendix E, Table E-3) indicates that FDOT spending generates an equivalent gas tax credit of 10.8 pennies of gas tax revenue annually.

Table V-5 provides a summary of the results of the gas tax credit analysis. In addition, for comparison purposes, the table shows the equivalent pennies of gas tax credit that were used in the 2003 Study

Table V-5
Gas Tax Equivalent Pennies

Credit	Equivalent Pennies per Gallon	Equivalent Pennies per Gallon (2003)
State Gas Tax Credit(1)	$0.108	N/A
County Gas Tax Credit(2)	$0.025	N/A
Total	**$0.133**	**$0.139**

(1) Source: Appendix E, Table E-3
(2) Source: Appendix E, Table E-2

Facility Life

The roadway facility life used in the impact fee analysis is 25 years, which represents the reasonable life of the roadway.

Interest Rate

This is the discount rate at which gasoline tax revenues might be bonded. It is used to compute the present value of the gasoline taxes generated by new development. The

discount rate of five (5) percent is determined based on discussions with County staff and reflects the rate at which the County is likely to borrow in the future.

Fuel Efficiency

The fuel efficiency (i.e., the average miles traveled per gallon of fuel consumed) of the fleet of motor vehicles was estimated using the quantity of gasoline consumed by travel associated with a particular land use.

Appendix E documents the calculation for the new fuel efficiency value (Table E-9), based on the following equation, where "VMT" is vehicle miles of travel and "MPG" is fuel efficiency in terms of miles per gallon.

$$Fuel\ Efficiency = \sum VMT_{Roadway\ Type} \div \sum \left(\frac{VMT_{Vehicle\ Type}}{MPG_{Vehicle\ Type}} \right)_{Roadway\ Type}$$

The methodology utilizes non-interstate VMT and average fuel efficiency data for passenger vehicles (i.e., passenger cars and other 2-axle, 4-tire vehicles, such as vans, pickups, and SUVs) and large trucks (i.e., single-unit, 2-axle, 6-tire or more trucks and combination trucks) to calculate the total gallons of fuel utilized by each of these vehicle types.

The combined total VMT for the vehicle types is then divided by the combined total gallons of fuel consumed to calculate, in effect, a "weighted" fuel efficiency value that appropriately accounts for the existing fleet mix of traffic on non-interstate roadways. The VMT and average fuel efficiency data were obtained from the most recent Federal Highway Administration's *Highway Statistics 2005*.[1] Based on the calculation completed in Table E-8 of Appendix E, the fuel efficiency rate to be used in the updated impact fee equation is 17.70 miles per gallon.

Effective Days per Year

An effective 365 days per year of operation was assumed for all land uses in the proposed fee. While not all land uses operate 365 days per year (e.g., office buildings and seasonal

[1] The data used in Table E-9 in Appendix F were compiled from Table VM-1 (Section V) of the document, *Highway Statistics 2005*, Office of Highway Policy Information, Federal Highway Administration, Washington, D.C (see Table E-9). The document can be accessed on-line at http://www.fhwa.dot.gov/policy/ohim/hs05/re.htm.

land uses such as schools), the use of 365 days per year provides a "conservative" estimate of the amount of gas consumed annually, ensuring that gasoline taxes are adequately credited against the fee.

Capacity per Lane Mile

An additional component of the impact fee equation is the capacity added per lane mile of roadway constructed. The current impact fee schedule applies 8,233 vehicle miles of average daily capacity added for each new lane mile of roadway constructed. It should be noted that historical state projects used in the 2003 Update Study yielded a weighted average capacity of 12,739 due to many uninterrupted flow highway segments along SR 15A and SR 5A included in the 2020 Cost Feasible Plan. In this Update Study, this figure is updated based on a review of the capacity of current and future roadway projects.

Appendix D (Tables D-1, D-2, D-3, and D-4) provides the listing of projects and methodology used to calculate the daily capacity added per lane mile for roadways constructed in Volusia County. The distribution of vehicle miles of capacity added by jurisdiction in the 2025 LRTP Cost Affordable Plan was used to develop a weighted average capacity figure. Based on the analysis of county and state projects, an average of 8,233 vehicle miles of daily capacity added was calculated for the impact fee update that takes into account all of the included roadway categories. In this update study, as shown in Appendix D, Table D-4 all of the state roadway improvements in the 2025 LRTP are interrupted flow highways with a weighted average capacity of 8,812. These projects are primarily urban section designs with interrupted flow highway capacities. Thus, the 20-percent reduction in capacity can be attributed to the mix of future state improvements. Roadway improvements on rural design roadways with uninterrupted flow highway segments have higher average capacity added per lane mile than urban design roadways. As such, since the mix of projects for state roadways has changed since the last update study, the decline in capacity reflects this shift. Table V-6 provides a summary of this analysis.

Table V-6
Weighted Average Capacity per Lane Mile

Source	2025 Lane Mile Distribution [1]	Average Capacity Added Per Lane Mile[2]
County	57%	7,797
State	43%	8,812
Total	100%	
Weighted Average Capacity Added[3]		**8,233**

(1) Source: Appendix D, Table D-5
(2) Source: Appendix D, Table D-1 (Item c), for county projects; Table D-4 for state projects
(3) Item (2) for county and state projects weighted by lane mile distributions in Item (1)

Cost per Vehicle Mile of Capacity

The impact fee cost per unit of development is assessed based on the cost per vehicle mile of capacity (VMC). As shown in Tables V-2, V-3, and V-6, the cost and capacity for county and state roads have been calculated based on typical roadway improvements. In order to estimate the weighted average cost per vehicle mile of capacity, the cost per vehicle mile of capacity for county and state roads was weighted by the lane mile distribution of future roadway improvements by jurisdiction in the 2025 Volusia County MPO LRTP Cost Feasible Plan. As shown in Table V-7, the cost per vehicle mile of capacity for travel on all roads within Volusia County is $523.57. This weighted average cost per vehicle mile of capacity figure is used on the impact fee calculation to determine the total impact cost per unit of development based on the vehicle miles of travel consumed.

Table V-7
Weighted Average Cost per Vehicle Mile of Capacity
County and State Roadways in Hernando County

Source	Cost per Lane Mile[(1)]	Average Capacity Added per Lane Mile[(2)]	Cost per VMC[(3)]
County	$4,040,243	7,797	$518.18
State	$4,668,853	8,812	$529.83
Weighted Average	**$4,310,545**	**8,233**	**$523.57**

(1) Source: Table V-2 for county roads and Table V-3 for state roads
(2) Source: Table V-6
(3) Cost per lane mile (Item 2) divided by average capacity added per lane mile (Item 3) for county roads and state roads respectively

Interstate and Toll Facility Adjustment Factor

This variable is used to recognize that interstate highway improvements are funded by the state using earmarked State and Federal funds. Typically, impact fees are not used to pay for these improvements and the portion of travel occurring on the Interstate System is usually eliminated from the total travel for each use.

Volusia County has no toll facilities within the county boundaries. There are, however, two major interstate facilities (I-4 and I-95) that are identified as the only part of the State Intermodal System (SIS) that impacts Volusia County. Therefore, the amount of vehicle miles of travel applicable to the interstate roadway facilities has been calculated as a percentage of total VMT, and this percentage was used to reduce the total VMT to adjust for the portion of the County's travel occurring on the Interstate System. The discount serves as part of the demand component used in the fee calculation. Based on the data from the Volusia County MPO 2025 LRTP Cost Feasible Plan Model Volumes Spreadsheet, a factor of approximately 31 percent is incorporated into the impact fee calculations. It should be noted that the calculation excludes external-to-external trips, which represent traffic that goes through Volusia County, but does not necessarily stop in the county. This traffic is excluded from the calculations since it does not travel on the state and county road system for which impact fees are allocated. Table V-8 shows the calculation of this figure. This factor is used to reduce the vehicle miles of travel that the impact fee charges for each land use.

Table V-8
Toll/Interstate Facility Adjustment Factor [(1)]

Roadway Type	2004		2007		2025	
	VMT	% VMT	VMT	% VMT	VMT	% VMT
Interstate Roads	3,739,895	32.0%	3,964,826	**31.0%**	5,314,410	31.0%
State Roads	5,068,900	43.0%	5,471,853	43.0%	7,889,574	46.0%
County Roads	3,027,166	26.0%	3,185,344	25.0%	4,134,414	24.0%
Total	**11,835,961**	**100%**	**12,622,023**	**100%**	**17,338,398**	**100%**

Source: Volusia County MPO 2025 LRTP Cost Feasible Plan Model Volumes

Proposed Transportation Impact Fee Schedule

The impact fee calculations for each land use are included in Appendix G. This Appendix includes the major land use categories and the impact fees for the individual land uses contained in each of the major categories. In addition, based on discussion with County representatives, the land use schedule was updated to reflect current permit activity and development trends in Volusia County.

For each land use, this Appendix illustrates the impact fee demand component variables (trip rate, trip length, and percent of new trips), the total impact fee cost, the annual gas tax credit and present value of the gas tax credit, the net impact fee, the current Volusia County impact fee, and the percent difference between the potential impact fee and the current impact fee. It should be noted that the net impact fee illustrated in this Appendix is not necessarily a recommended fee, but instead it represents the most reasonable and legally defensible impact fee per unit of land use that could be charged in Volusia County. As discussed throughout this report, the impact fee analysis has been completed using a conservative approach to develop the impact fee per unit of land use. As mentioned previously, a city collector adjustment factor has been incorporated into the impact fee equation. This factor is used to discount travel on the non-thoroughfare roadway network. This adjustment factor has been applied based on the fact that more and more cities have elected to develop their own respective impact fee programs.

There are a number of reasons why the impact fees presented in the 2007 Transportation Impact Fee Update Study (2007 Study) changed so dramatically from the fees calculated in the 2003 Transportation Impact Fee Update Study (2003 Study). Perhaps the most significant are the changes to the cost and credit components of the impact fee equation. For example, considering only the changes to the cost and credit components, the

resulting percentage increase from the 2003 Study to the fees presented in the 2007 Study is approximately 300 percent.

However, the demand component (trip rate, trip length and percent new trips) was also updated in the 2007 Study. For land uses where the demand component showed an increase in the vehicle miles of travel per unit of land use (trip rate times the trip length times the percent new trips), the total percent increase between the fees calculated in the 2007 Study and the 2003 Study will be higher than 300 percent. Table V-8 provides documentation for all land uses that had increases greater than 300 percent. It should be noted that the 2007 Study contains some land uses that had a reduction in vehicle miles of travel from that calculated in 2003. These land uses will have a percent increase of less than 300 percent.

Finally, when reviewing the explanations for the changes in the demand component provided in Table V-9, it is also important to note that the individual percent increases or decreases in demand component input variables (trip rate, trip length, and percent new trips) are used individually in the impact fee equation and cannot simply be added or subtracted to the 300 percent increase to the cost and credit component changes discussed above. The percent change column indicated in Table V-9 represents the percent net increase between the fees (including the administrative fee) calculated in the 2007 Study and the fees (including the administrative fee) calculated in the 2003 Study.

Table V-9
Percent Fee Changes for Selected Impact Fee Categories

ITE LUC	Land Use	Unit	% Change	Explanation
	TRANSIENT, ASSISTED, GROUP:			
310	Hotel	room	307%	TGR increased by 1% due to blending analysis of ITE and Florida Studies data. TL decreased by 2% due to blending of local data with Florida Studies data.
320	Motel	room	320%	TL increased 1% due to blending of local data with Florida Studies data. Percent NT increased by 1 percent due to other Florida Studies.

Table V-9 (continued)
Percent Fee Changes for Selected Impact Fee Categories

ITE LUC	Land Use	Unit	% Change	Explanation
	OFFICE AND FINANCIAL:			
710	50,000 sf or less[1]	1,000 sf	N/A[2]	TGR and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
710	50,001-100,000 sf[3]	1,000 sf	N/A[2]	TGR and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
710	100,001-200,000 sf[3]	1,000 sf	N/A[2]	TGR and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
710	200,001-400,000 sf[3]	1,000 sf	N/A[2]	TGR and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
710	greater than 400,000 sf[3]	1,000 sf	N/A[2]	TGR and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
610	Hospital	1,000 sf	324%	TGR increased by 5% due to ITE update from 6th to 7th edition.
720	Medical Office	1,000 sf	340%	TL increased by 3% due to the use of the office land use trip length. Percent NT increased by 3 % due to blending of Florida Studies and local data.
912	Bank/Savings Drive-in	1,000 sf	339%	TGR increased by 6% due to blending analysis of ITE and Florida Studies data. TL increased by 3% due to updates to the Florida Studies Database. Percent NT increased by 2% due to updates to the Florida Studies Database.
911	Bank w/no Drive-thru	1,000 sf	487%	TL increased by 3% due to the use of LUC 912 as a proxy. Percent NT increased by 44% due to the use of LUC 912 as a proxy.
	RETAIL:			
820	under 50,000 GSF[1]	1,000 sf	N/A[2]	TGR, TL, and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
820	50,001-200,000 GSF[3]	1,000 sf	N/A[2]	TGR, TL, and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
820	200,001-400,000 GSF[3]	1,000 sf	N/A[2]	TGR, TL, and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
820	401,000-600,000 GSF[3]	1,000 sf	N/A[2]	TGR, TL, and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
820	600,001-800,000 GSF[3]	1,000 sf	N/A[2]	TGR, TL, and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
820	greater than 800,000 GSF[3]	1,000 sf	N/A[2]	TGR, TL, and Percent NT decreased due to the use of mid-point versus end-points in calculation of the tiered impact fee.
931	Quality Restaurant	1,000 sf	313%	TGR increased by 1% due to blending analysis of ITE and Florida Studies data.
934	Fast Food Rest w/ Drive-Thru	1,000 sf	336%	TGR increased by 5% due to blending analysis of ITE, Florida Studies, and local data. TL increased by 7% due to blending of Florida Studies and local data. Percent NT decreased by 3% due to blending of Florida Studies and local data.
943	Auto Repair or Body Shop	1,000 sf	390%	TGR decreased by 9% due to blending analysis of ITE and Florida Studies data.
N/A	Conv'ce/Gasoline/Fast Food Store	1,000 sf	359%	previously used ITE. TL increased by 10% due to updates to Florida Studies data. Percent NT decreased by 3% due to updates to Florida Studies data.
	INDUSTRIAL:			
150	Warehouse	1,000 sf	314%	TL increased by 2% due to updates to Florida Studies data.

(1) The trip generation rate recommended for the office and retail less than 50,000 sf categories used the end-point of the size range

(2) Tiers were updated for the office and retail land uses, percent change comparison is not applicable

(3) The trip generation rate recommended for all other office and retail tiered categories used the mid-point of each size range

Note: TGR = Trip Generation Rate, TL = Trip Length, and NT = Percent New Trips

For clarification purposes, it may be useful to walk through the calculation of an impact fee for one of the land use categories. In the following example, the net impact fee is calculated for the Single-Family Detached Residential (1,500-2,499 s.f.) land use category (ITE LUC 210), using information from the proposed impact fee schedule included in Appendix G (Table G-1). For each land use category, the following equations are utilized to calculate the net impact fee:

Net Impact Fee = Total Impact Cost – Gas Tax Credit

Where:

Total Impact Cost *= ((Trip Rate × Recommended Trip Length × % New Trips) / 2) × (1 – Interstate/Toll Facility Adj. Factor) × (1 – City Collector Adj. Factor) × (Cost per Lane Mile / Avg. Capacity Added per Lane Mile)*

Gas Tax Credit *= Present Value (Annual Gas Tax), given 5% interest rate & 25-year facility life*

Annual Gas Tax *= (((Trip Rate × Assessable Trip Length × % New Trips) / 2) × Effective Days per Year × $/Gallon to Capital) / Fuel Efficiency*

Each of the inputs have been discussed previously in this document; however, for purposes of this example, brief definitions for each are provided below, along with the actual inputs for the single-family detached residential (1,500 -2,499 s.f.) land use category.

- *Trip Rate* = the average daily trip generation rate, in vehicle-trips/day (7.53)
- *Assessable Trip Length* = the actual average trip length for the category, in vehicle-miles (6.24)
- *Total Trip Length* = the assessable trip length plus an adjustment factor of half a mile is added to the trip length to account for the fact that gas taxes are collected for travel on all roads including local roads (6.24 + 0.50 = 6.74)
- *% New Trips* = adjustment factor to account for trips that are already on the roadway (100%)
- The total daily miles of travel generated by a particular category (i.e., rate*length*% new trips) is divided by two to prevent the double-counting of travel generated among land use codes since every trip has an origin and a destination.
- *Interstate/Toll Facility Adjustment Factor* = adjustment factor to account for the travel demand occurring on interstate highways and/or toll facilities (31%)
- *City Collector Adjustment Factor* = adjustment factor to account for the travel demand occurring on city collector roads (6%)
- *Cost per Lane Mile* = unit cost to construct one lane mile of roadway, in $/lane-mile ($4,310,545)
- *Average Capacity Added per Lane Mile* = represents the average daily traffic on one travel lane at capacity for one lane mile of roadway, in vehicles/lane-mile/day (8,233)

- *Present Value* = calculation of the present value of a uniform series of cash flows, gas tax payments in this case, given an interest rate, "i," and a number of periods, "n;" for 5% interest and a 25-year facility life, the uniform series present worth factor is 14.0952
- *Effective Days per Year* = 365 days
- *$/Gallon to Capital* = the amount of gas tax revenue per gallon of fuel that is used for capital improvements, in $/gallon ($0.133)
- *Fuel Efficiency* = average fuel efficiency of vehicles, in vehicle-miles/gallon (17.70)
- *Administrative Fee* = estimated at 3 percent of the net impact fee (3%)

Using these inputs, a net impact fee can be calculated for the single-family residential (1,500 -2,499 s.f.) land use category as follows.

Total Impact Cost = ((7.53*6.24*1.0) /2)*(1-0.31)*(1-.06)*($4,310,545/8,233) = $7,978
Annual Gas Tax = (((7.53*6.74*1.0) /2)*365*$0.133) / 17.70 = $70
Gas Tax Credit = $70*14.0952 = $987
Net Impact Fee = $7,978 - $987 = $6,991
Administrative Fee = $6,991*0.03 = $210
Total Impact Fee = $6,991 + $210 = $7,201

As discussed previously, including the carrying cost in the calculation of the net impact fee would result in the proposed single family detached (1,500-2,499 s.f.) impact fee of $8,103.

Transportation Impact Fee Schedule Comparison

As part of the work effort in developing the Volusia County transportation impact fee program, a comparison of transportation impact fee schedules of surrounding jurisdictions was completed. Table V-10 presents the comparison of transportation impact fees in the surrounding jurisdictions.

Table V-10
Transportation Impact Fee Schedule Comparison [1]

Land Use	Unit	County Studies									
		Volusia (Proposed)[2]	Volusia	Lake (Proposed)	Pasco[3]	Citrus	Marion[4]	Brevard[5]	Flagler (Proposed)	Seminole[6]	Collier[7]
Date of Last Update		2007	2003	2007	2007	2007	2006	2000	2007	1992	2006
Adoption Percentage		100%	68%	100%	100%	50%	100%	100%	100%	100%	100%
Residential:											
Single Family Detached (2,000 sq ft)	du	$7,201	$2,174	$11,352	$9,528	$4,853	$5,462	$4,353	$6,893	$1,025	$8,884
Non-residential:											
General Light Industrial	1,000 sf	$4,945	$1,220	$11,093	$2,956	$2,909	$3,294	N/A	$4,243	$762	$7,075
Office (50,000 sf)	1,000 sf	$11,341	$3,315	$15,370	$4,482	$6,322	$8,883	$5,058	$9,616	$2,247	$15,478
High Turnover Restaurant	1,000 sf	$38,667	$10,590	$58,284	$26,452	$23,992	$27,807	$16,898	$34,947	$10,546	$55,735
Retail (100,000 sf)	1,000 sf	$14,826	$3,275	$19,815	$8,328	$5,847	$7,055	$5,270	$12,392	$2,741	$13,198
Bank w/Drive-In	1,000 sf	$48,085	$10,960	$65,357	$34,752	$26,800	$31,371	$23,331	$40,872	$8,372	$83,690

(1) Source: Impact fee schedules
(2) Source: Table Appendix G-1, total impact fee including a 3 percent administrative fee
(3) The retail impact fee rate is based on the 125,000 sf tier
(4) For Marion County, the restaurant fee was used for the high turnover restaurant fee comparison
(5) The fees shown have been phased to 100 percent of the original adoption level of 30 percent
(6) Average of the four impact fee districts shown for comparison purposes. Manufacturing fee used for general light industrial fee comparison and sit-down restaurant used for the high turnover restaurant comparison
(7) Collier County's fee is currently in the process of being updated

Revenues Estimates

Revenue estimates are based on a review of building permit activity and future population growth estimates. The impact fee schedule by land use presented in Appendix G, Table G-1, provides the basis for this analysis. Table V-11 presents the projected residential units per year through 2025. The following assumptions were made for projecting the transportation impact fee revenues.

- Based on the trends in other jurisdictions, impact fee revenues from residential land uses represent 80 percent of total collections and non-residential land uses represent 20 percent.
- Residential building permits are estimated to be generated by single family units (67 percent), multi-family (12 percent), and mobile home parks (21 percent).
- The natural rate of growth of building permits is estimated to remain constant through 2025 based on a review of historical residential building permit activity. The average annual number of new homes constructed between 2002 and 2006 was 4,502. Based on projected population, approximately 3,622 new homes will be constructed annually as the county approaches its build-out population in 2025.
- To be conservative, the projection of revenues will be based on an average of 3,622 new homes per year between now and 2025. This conservative estimate is supported by the recent decline in building permit activity.

Table V-11
Residential Units per Year (2007-2025)

Year	Population	Item
2007	530,230	
2025	688,674	
Population Growth (2007-2025)(1)		158,444
Residents Per Dwelling Unit(2)		2.43
New Homes (2007-2025)(3)		65,203
New Homes per Year(4)		3,622

(1) Source: Section II, Table II-1
(2) Source: Section II, Table II-2
(3) Population growth (Item 1) divided by residents per dwelling unit (Item 2)
(4) New homes (2007-2025) (Item 3) divided by 18 years

As shown in Table V-12, the transportation impact fee program will generate a total of approximately $498.4 million, generating an average of approximately $27.7 million annually through 2025. These estimates are based on using the population growth approach. It should be noted that these projections are in 2007 dollars and do not account for inflation effects.

Table V-12
Projected Transportation Impact Fee Revenues
(2007-2025)

Land Use	Distribution[(1)]	Permits[(2)]	Impact Fee[(3)]	Total Revenues[(4)]
Single Family	67%	43,617	$7,201	$314,086,017
Multi-Family	12%	8,137	$5,379	$43,768,923
Mobile Home	21%	13,449	$3,039	$40,871,511
Total Residential Revenues	**100%**	**65,203**	**N/A**	**$398,726,451**
Non-Residential Impact Fee Revenues[(5)]				**$99,681,613**
Total Residential and Non-residential Impact Fee Revenues[(6)]				**$498,408,064**

(1) Source: Table II-2
(2) Source: Table V-11 for total permits; permits distributed for residential uses by estimated percentages in (Item 1)
(3) Source: Appendix G, Table G-1
(4) Permits (Item 2) multiplied by impact fee (Item 3)
(5) Non-residential revenues are estimated to be 20 percent of total collections
(6) Sum of total residential impact fees and total non-residential impact fee revenues (Item 5)

It should be noted that, for impact fee purposes, revenue projections serve only as an overall guideline in planning future infrastructure needs. In their simplest form, impact fees charge each unit of new growth for the net cost (total cost less credits) of infrastructure needed to serve that unit of growth. If the growth rates remain high, the County will have more impact fee revenues to fund growth-related projects sooner rather than later. If the growth rate slows down, less revenue will be generated, and the timing and need for future infrastructure improvements will be later rather than sooner.

Impact Fee Zones

In order to demonstrate proof of benefit and need to those paying the transportation impact fee, countywide transportation impact fees generally require the establishment of more than one impact fee zone to establish benefit. More recently, this trend has been changing toward establishing fewer transportation impact fee zones to achieve a greater efficiency in coordinating regional transportation projects, while still meeting the dual rational nexus test of proof of benefit and need for the feepayer.

The four existing transportation impact fee zones in Volusia County were reviewed to determine if the number or geographic boundaries of the districts should be changed. Part of this analysis involved a review of historical and projected revenues and expenditures to determine if there are enough projects in each impact fee zone to expend the transportation impact fees collected. The results of this review indicate a potential shortage of projects on which to expend funds collected in impact fee zone two.

One way of resolving this potential issue is to revise the transportation impact fee ordinance to allow impact fee revenues collected in one zone to be spent in an adjacent zone as long as both zones benefit from the improvement. This would be allowed when an analysis is completed that demonstrates that expenditure of funds for a road in an adjacent zone provides benefit to the donating zone. Several counties in Florida (i.e., Collier, Highlands, Indian River, Marion, etc.) include such language in their impact fee ordinance. The County Engineer would provide documentation that the donating zone would receive benefit from the construction of the road project in an adjacent impact fee zone. This documentation would then be reviewed and approved by the governing body.

VI. Indexing

In many cases, impact fees are reviewed periodically (every three to five years, etc.) as opposed to on an annual basis. If no adjustment to the impact fee schedule is made during this period, a situation can be created where major adjustments to the impact fee schedule become likely to be required due to the time between the adjustments. The need for significant adjustments also creates major concerns in the development community. To address this issue, the proposed impact fees in Section III through Section V could be indexed annually for land, equipment and construction cost increases, as appropriate.

Methodology

Land Cost

As shown in Table VI-1, just property values for Volusia County as a whole, unincorporated Volusia County, and unincorporated Volusia County plus the cities of DeBary, Lake Helen, Oak Hill, and Pierson increased an average of 13.6 percent, 14.1 percent, and 14.1 percent annually over the last ten years, from 1996 to 2006. It is important to note that the annual just property value from 1996 to 2002, for unincorporated Volusia County and the cities of DeBary, Lake Helen, Oak Hill, and Pierson, was estimated (based on available data) using the relationship between the countywide just value and each respective jurisdiction during the time from 1996 to 2006.

Building Construction Cost

For building construction costs, it is recommended that the building cost index provided by Engineering-News Record be used for indexing purposes. Over the last several years, there have been rapid increases in construction costs. Therefore, for purposes of indexing, and to capture the recent increases, the building cost indexed is based on the last three years. Even with a three-year average, the national average cost increases does not capture the increase in construction cost in Florida. Therefore, the County may choose to conduct a detailed local study of construction cost increases. However, in the absence of such a study, Table VI-2 presents a conservative estimate of the annual construction cost increase over the past three years, which indicated an annual increase of 4.7 percent.

Table VI-1
Volusia County Just Property Value Increase

Year	Countywide Just Property Value[(1)]	Percent Change - Countywide	Unincorporated County Just Property Value[(2)]	Percent Change - Unincorporated	Unincorporated Including DeBary, Lake Helen, Oak Hill, Pierson Just Property Value[(2)]	Percent Change - Unincorporated Including DeBary, Lake Helen, Oak Hill, Pierson Just Property Value
1996	$16,196,094,618	N/A	$4,058,741,311	N/A	$4,760,032,208	N/A
1997	$16,856,382,576	4.1%	$4,224,209,474	4.1%	$4,954,090,839	4.1%
1998	$17,616,840,923	4.5%	$4,414,780,335	4.5%	$5,177,589,547	4.5%
1999	$18,533,950,799	5.2%	$4,644,608,070	5.2%	$5,447,128,140	5.2%
2000	$20,071,660,851	8.3%	$5,029,958,209	8.3%	$5,899,061,124	8.3%
2001	$21,778,671,870	8.5%	$5,457,735,171	8.5%	$6,400,751,663	8.5%
2002	$24,399,828,471	12.0%	$6,114,597,015	12.0%	$7,171,109,588	12.0%
2003	$27,988,693,341	14.7%	$6,829,179,678	11.7%	$8,061,113,004	12.4%
2004	$32,848,427,751	17.4%	$8,154,532,889	19.4%	$9,584,596,671	18.9%
2005	$40,950,203,731	24.7%	$10,238,619,937	25.6%	$11,969,228,405	24.9%
2006	$55,873,967,198	36.4%	$14,539,217,162	42.0%	$16,956,552,682	41.7%
Average		**13.6%**		**14.1%**		**14.1%**

(1) Source: Volusia County Property Appraiser (2003 to 2006); Florida Property and Valuations Tax Databook (1996 to 2002)

(2) Source: The unincorporated and city just property values for 1996 to 2002 were estimated using the relationship between the countywide just value and each respective jurisdiction

Table VI-2
Building Construction Cost Index

Year	Annual Avg	Percent Change
2004	3,984	N/A
2005	4,205	5.5%
2006	4,369	3.9%
Average		**4.7%**

Source: *Engineering News-Record*, Building Cost Index

Equipment Cost

For vehicle and equipment costs, it is recommended that the Consumer Price Index (CPI) provided by the US Department of Labor, Bureau of Labor Statistics be used for indexing purposes. Table VI-3 presents the annual CPI over the last five years, which averages to an increase of 2.9 percent annually.

Table VI-3
Equipment Cost Index
(South Region – Class Size B/C)

Year	Annual Index	Percent Change
2002	110.8	N/A
2003	113.1	2.1%
2004	116.2	2.7%
2005	120.0	3.3%
2006	123.9	3.3%
Average		**2.9%**

Source: US Department of Labor, Bureau of Labor Statistics (www.bls.gov)

Roadway Construction Cost

Table VI-4 presents the annual increase in construction costs for state roadway projects (including urban and rural cross section design) in Florida between 2000 and 2006. As shown in this table, the cost per lane mile of urban design projects increased by an average of approximately 20 percent annually and rural design projects increased by 15 percent annually during the same time period.

Given the recent increase in construction costs, the County may consider reviewing annual increases in the construction cost per lane mile figures from local projects and information provided by FDOT, and consider adjusting the index annually.

Table VI-4
Annual Increase in Construction Costs (2000 – 2006)[1]

Year	Cost per Lane Mile		Annual Percent	
	Urban	Rural	Urban	Rural
2000	$1,138,288	$839,731	N/A	N/A
2001	$1,248,607	$973,925	9.7%	16.0%
2002	$1,358,925	$1,108,119	8.8%	13.8%
2003	$1,437,025	$1,181,479	5.8%	6.6%
2004	$1,515,125	$1,254,838	5.4%	6.2%
2005	$2,318,054	$1,600,256	53.0%	27.5%
2006	$3,120,983	$1,945,673	34.6%	21.6%
Average (2000-2004)			**7.4%**	**10.6%**
Average (2004-2006)			**31.0%**	**18.4%**
Average (2000-2006)			**19.6%**	**15.3%**

(1) Source: FDOT Transportation Costs Publication (2000, 2002, 2004, and 2006)

The Florida Department of Transportation (FDOT) provides projected inflation rates for transportation costs, which are presented in Table VI-5. It is recommended that these inflation rates be used for design, CEI, and construction components of the transportation impact fee indexing. This provides a conservative index compared to the recent increases in construction costs from 2000 to 2006 discussed above. As shown in the table, over the next four years the average annual index is 4.8 percent.

Table VI-5
FDOT Project Cost Inflation Index[1]

Fiscal Year	Inflation Rate
2008	7.0%
2009	4.5%
2010	4.0%
2011	3.5%
Annual Average	**4.8%**

(1) Source: FDOT Office of Financial Planning, 2004

Application

To index the impact fee schedules previously presented in Sections III through V of this report, the combined index for each fee area must first be calculated. The calculation of the index is presented in the following four tables. The parks and recreation impact fee includes two separate index calculations; one for the district parks portion of the impact fee, which is calculated countywide, and a second index for the local parks portion of the impact fee, which is assessed only in the unincorporated county. In each of these tables, the second column includes the distribution of the land, buildings, and facilities/vehicles/equipment costs, where appropriate, for the impact fee program's inventory. The third column presents the percent of the total cost each of these components. The fourth column summarizes the average cost increases presented previously in Tables VI-1 through VI-5, which are then multiplied with the percent of total cost to create the index.

Table VI-6
Parks and Recreation Indexing Application – District Parks

Calculation Step	Distribution of Inventory[(1)]	Percent of Total Cost[(2)]	Annual Increase[(3)]	Index[(4)]
Land Replacement Value	$97,476,400	48.6%	13.6%	6.6%
Facility/Equipment Replacement Value	$103,170,008	51.4%	4.7%	2.4%
Total Cost	$200,646,408			
Total Applicable Index[(5)]				**9.0%**

(1) Source: Land replacement is calculated by multiplying the total district parks acreage from Section III, Table III-2 by the land purchase cost per acre for district parks from Table III-8. The facility/equipment replacement value is calculated by multiplying the total district parks acreage from Table III-2 by the site preparation and A&E cost per acre for district parks from Table III-8 and adding that figure to the total facility/equipment replacement cost for district parks from Table III-6.
(2) Land and facility/equipment cost divided by total cost
(3) Source: Tables VI-1 and VI-2
(4) Percent of total cost (Item 2) for each cost component multiplied by annual increase of each cost component (Item 3)
(5) Sum of index components for land and facilities/equipment

Table VI-7
Parks and Recreation Indexing Application – Local Parks

Calculation Step	Distribution of Inventory[(1)]	Percent of Total Cost[(2)]	Annual Increase[(3)]	Index[(4)]
Land Replacement Value	$2,508,000	50.6%	14.1%	7.1%
Facility/Equipment Replacement Value	$2,447,145	49.4%	4.7%	2.3%
Total Cost	$4,955,145			
Total Applicable Index[(5)]				**9.4%**

(1) Source: Land replacement is calculated by multiplying the total local parks acreage from Section III, Table III-2 by the land purchase cost per acre for local parks from Table III-8. The facility/equipment replacement value is calculated by multiplying the total local parks acreage from Table III-2 by the site preparation and A&E cost per acre for local parks from Table III-8 and adding that figure to the total facility/equipment replacement cost for local parks from Table III-7.
(2) Land and facility/equipment cost divided by total cost
(3) Source: Tables VI-1 and VI-2
(4) Percent of total cost (Item 2) for each cost component multiplied by annual increase of each cost component (Item 3)
(5) Sum of index components for land and facilities/equipment

Table VI-8
Fire Rescue Indexing Application

Calculation Step	Distribution of Inventory[(1)]	Percent of Total Cost[(2)]	Annual Increase[(3)]	Index[(4)]
Land Replacement Value	$4,143,150	6.7%	14.1%	0.9%
Building Replacement Value	$33,998,522	55.2%	4.7%	2.6%
Vehicle/Equipment Replacement Value	$23,418,901	38.0%	2.9%	1.1%
Total Replacement Value	$61,560,573			
Total Applicable Index[(5)]				**4.6%**

(1) Source: Section VI, Table IV-1 for land and building replacement values and Table IV-2 for vehicle/equipment replacement value
(2) Land, building, and vehicle/equipment cost divided by total cost
(3) Source: Tables VI-1 through VI-3
(4) Percent of total cost (Item 2) for each cost component multiplied by annual increase of each cost component (Item 3)
(5) Sum of index components for land buildings, and vehicles/equipment

Table VI-9
Transportation Indexing Application

Phase	Cost per Lane Mile[(1)]	Percent of Total Cost[(2)]	Annual Increase[(3)]	Index[(4)]
Design	$299,363	6.9%	4.8%	0.3%
Right-of-Way	$899,576	20.9%	13.6%	2.8%
Construction/CEI	$3,111,606	72.2%	4.8%	3.4%
Total Cost	$4,310,545			
Total Applicable Index[(5)]				**6.5%**

(1) Source: Section V, Table V-4
(2) Design, right-of-way, and construction/CEI cost divided by total cost
(3) Source: Tables VI-1 and VI-5
(4) Percent of total cost (Item 2) for each cost component multiplied by annual increase of each cost component (Item 3)
(5) Sum of index components for design, right-of-way, and construction/CEI

Indexed Impact Fee Schedule

The following table presents an example indexed fee schedule for the three impact fee program areas carried out for four years for the single family residential land use of 1,500 to 2,499 square feet.

There are two different approaches that can be implemented when indexing the impact fee. These include fixed rate indexing or variable rate indexing. The benefit of fixed rate indexing at a specific level over a given period of time is that the fee schedule can increase at a consistent rate over the next 3 to 4 years until the next update of the impact fee occurs. Under this scenario, the fee schedule for each time period can be calculated

and included in the ordinance. The development community knows exactly when and by what amount the fees will increase.

The variable rate indexing approach requires the index to be calculated and approved each year along with a new fee schedule. This approach creates an opportunity to base the index on more current data.

Table VI-10
Sample Indexed Fee Schedule
(Single Family Land Use - 1,500 to 2,499 sq ft)

Index / Year	Impact Fee Area				
	District Parks[1]	Local Parks[2]	Parks - Total [3]	Fire Services[4]	Transportation[5]
Index	9.0%	9.4%	N/A	4.6%	6.5%
Year 1 Single Family Fee (1,500-2,499 sq ft)[2]	$797.70	$88.53	$886.23	$640.59	$7,201
Year 2 Single Family Fee (1,500-2,499 sq ft)[3]	$869.50	$96.85	$966.35	$670.06	$7,668
Year 3 Single Family Fee (1,500-2,499 sq ft)[4]	$947.75	$105.96	$1,053.71	$700.88	$8,167
Year 4 Single Family Fee (1,500-2,499 sq ft)[5]	$1,033.05	$115.92	$1,148.97	$733.12	$8,697

(1) Source: Table VI-6 for the district parks index and Section III, Table III-13 for the Year 1 single family fee (includes 3% administrative fee)
(2) Source: Table VI-7 for the local parks index and Section III, Table III-14 for the Year 1 single family fee (includes 3% administrative fee)
(3) Sum of the district parks impact fee (Item 1) and local parks impact fee (Item 2) for each year (includes 3% administrative fee)
(4) Source: Table VI-8 for the fire services index and Section IV, Table IV-11 for the Year 1 single family fee (includes 3% administrative fee)
(5) Source: Table VI-9 for the transportation index and Appendix G, Table G-1 for the single family fee (includes 3% administrative fee)
(6) To calculate the indexed fee for each fee area, the base Year 1 fee (excluding 3 percent administrative fee) is multiplied by (1+ the index) to calculate the indexed base fee. This figure is then multiplied by 1.03 to include the administrative fee.
(7) To calculate the indexed fee for each fee area, the base Year 2 fee (excluding 3 percent administrative fee) is multiplied by (1+ the index) to calculate the indexed base fee. This figure is then multiplied by 1.03 to include the administrative fee.
(8) To calculate the indexed fee for each fee area, the base Year 3 fee (excluding 3 percent administrative fee) is multiplied by (1+ the index) to calculate the indexed base fee. This figure is then multiplied by 1.03 to include the administrative fee.

APPENDIX A
Population Estimate& Functional Population – Supplemental Information

Table A-1
Volusia County Permanent Population Projections

Geographic Area	2000	2001	2002	2003	2004	2005	2006	2007	2010	2015	2020	2025
Volusia County	443,343	452,050	459,737	470,770	484,261	494,649	503,844	513,619	544,000	589,100	630,400	667,100
Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, Pierson	129,156	130,794	132,579	135,832	138,845	140,585	141,920	144,673	153,232	165,936	177,569	187,905
Unincorporated Volusia County	106,880	107,916	109,196	111,783	113,678	114,961	115,720	117,965	124,943	135,301	144,787	153,216

Notes:

(1) Years 2000 to 2006 provided by the University of Florida Bureau of Economic and Business Research (BEBR).

(2) Volusia County Years 2010, 2015, 2020, and 2025 are from BEBR medium population estimates

(3) Countywide population projections for interim years based on an annual average growth rate between the major years (2006, 2010, 2015, 2020, and 2025).

(4) Population projections for unincorporated Volusia County only and unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, and Pierson for years 2007 through 2025 are calculated by multiplying the ratio of the respective population to the total Volusia County population in 2006 by the annual Volusia County population figure for each year thereafter.

Table A-2
Volusia County Seasonal Population Projections

Geographic Area	2000	2001	2002	2003	2004	2005	2006	2007	2010	2015	2020	2025
Volusia County	34,201	34,808	35,400	36,249	37,288	38,088	38,796	39,549	41,888	45,361	48,541	51,367
Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, Pierson	10,543	10,725	10,871	11,138	11,385	11,528	11,637	11,863	12,565	13,607	14,561	15,408
Unincorporated Volusia County	9,610	9,712	9,828	10,060	10,231	10,346	10,415	10,617	11,245	12,177	13,031	13,789

Notes:

(1) Seasonal population projections for each category for the Year 2000 were estimated by multiplying the Year 2000 population estimate by the average vacancy rate for housing units in Volusia County.

(2) Source of data is the US 2000 Census

(3) Seasonal population for subsequent years calculated by multiplying the permanent population by the ratio of seasonal to permanent residents in 2000

Table A-3
Volusia County Weighted Average Population Projections

Geographic Area	2000	2001	2002	2003	2004	2005	2006	2007	2010	2015	2020	2025
Volusia County	457,707	466,669	474,605	485,995	499,922	510,646	520,138	530,230	561,593	608,152	650,787	688,674
Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, Pierson	133,584	135,299	137,145	140,510	143,627	145,427	146,808	149,655	158,509	171,651	183,685	194,376
Unincorporated Volusia County	110,916	111,995	113,324	116,008	117,975	119,306	120,094	122,424	129,666	140,415	150,260	159,007

Note: For each population category, the weighted seasonal population is the sum of the number of permanent residents per year fro Table A-1, multiplied by a weighting factor of 1.0, or 12 months per year and the seasonal residents per year from Table A-2, multiplied by a weighting factor of 0.42, or 5 months per year.

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Table A-4
Population and Employment Characteristics

Item/Calculation Step	Figure
Workers who live and work in Volusia County[(1)]	149,832
Workers who live elsewhere but work in Volusia County[(2)]	13,446
Total workers in Volusia County[(3)]	163,278
Workers who live in Volusia County but work elsewhere[(4)]	36,083
Weighted average worker population for workers who move between jurisdictions[(5)]	26,651
Total effective workers[(6)]	176,483
Population[(7)]	443,343
Total effective workers as a percent of population[(8)]	40%
School age population (5-17 years)[(9)]	67,666
Percent of total population[(10)]	15%
Population net of workers & school age population[(11)]	189,762
Percent of total population[(12)]	43%

(1), (2), (4) Source: Bureau of Transportation Statistics, Census Transportation Planning Package (CTPP) 2000 Part 3.

(3) Sum of workers who live and work in Volusia County (Item 1) and workers who live elsewhere but work in Volusia County

(5) Weighted average is calculated by using the assumption that workers who do not reside in Volusia County (Item 2) are in the county for 10 hours per day while workers who are Volusia County residents but work outside the county (Item 4) are in the county for 14 hours per day

(6) Sum of workers who live and work in Volusia County (Item 1) and weighted average worker population (Item 5)

(7), (9) Source: US Census Bureau, 2000 Census

(8) Total effective workers (Item 6) divided by population (Item 7)

(10) School age population (Item 9) divided by population (Item 7)

(11) Population (Item 7) less workers who live and work in Volusia County (Item 1), workers who live in the county and work elsewhere (Item 4), and school age population (Item 9).

(12) Population net of workers and school age population (Item 11) divided by total population (Item 7)

Table A-5
Residential Coefficient for Functional Population

Population Group	Hours at Residence[1]	Percent of Population[2]	Effective Hours[3]
Workers	13.0	40%	5.2
Students	15.0	15%	2.3
Other	20.0	43%	8.6
Total Hours at Residence[4]			16.1
Residential Functional Population Coefficient[5]			**67%**

(1) Assumed
(2) Source: Table A-4
(3) Hours at residence (Item 1) multiplied by percent of population (Item 2)
(4) Sum of effective hours
(5) Sum of effective hours (Item 4) divided by 24 hours

Table A-6
Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill and Pierson
Annual Functional Population

Year	Unincorporated Volusia County, DeBary, Lake Helen, Oak Hill, Pierson Functional Population[(1)]
2000	123,036
2001	124,599
2002	126,294
2003	129,388
2004	132,260
2005	133,913
2006	135,185
2007	137,808
2008	140,481
2009	143,206
2010	145,984
2011	148,334
2012	150,722
2013	153,149
2014	155,615
2015	158,120
2016	160,270
2017	162,450
2018	164,659
2019	166,898
2020	169,168
2021	171,097
2022	173,048
2023	175,021
2024	177,016
2025	179,034

(1) Based on growth rates for the population from Table A-1

APPENDIX B
Vacant Value Analysis – Supplemental Information

Vacant Land Value Analysis

In an effort to determine whether land replacement values used in the parks and recreation and fire services impact fee program areas were reasonably indicative of what the County would purchase land for, a review of vacant land sales from 2005 to 2007 was completed. To obtain cost per acre values for both the parks and fire impact fee calculations, three analyses were completed based on the different areas that pertain to each study. Specifically, parkland will be acquired countywide for district parks and in the unincorporated county local parks. Similarly, fire stations will be built on land of 1 to 3 acres in the unincorporated area, as well as the cities of DeBary, Lake Helen, Oak Hill, and Pierson. The following tables present the results of these analyses for vacant land parcels sold countywide (Tables B-1 through B-4), in unincorporated Volusia County (Tables B-5 through B-8), and in unincorporated Volusia County plus the four cities (Tables B-9 through B-12) . The three-year average cost per acre figures presented in Table B-4 for Volusia County as a whole, and Table B-8 for unincorporated Volusia County are utilized in the parks and recreation impact fee analysis to determine the land replacement cost per acre for district and local parks, respectively. The three year average cost per acre figure presented in Table B-12 for unincorporated Volusia County, plus the four cities served by the Volusia County Fire Services Division is utilized in the fire impact fee analysis in terms of the land replacement cost per acre.

Table B-1
2005 Volusia County Vacant Land Sales Summary
Countywide Vacant Land Sales

2005 - All Vacant Parcels 0-5.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$1,400	0.06	$10,000
Max	$2,800,000	5.00	$960,000
Median	$95,000	1.25	$53,400
Weighted Average			$100,079
Parcel Count			2,182

2005 - All Vacant Parcels 5.01-25.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$55,000	5.01	$10,000
Max	$14,852,000	25.00	$990,133
Median	$271,810	9.95	$33,019
Weighted Average			$87,678
Parcel Count			248

Source: Volusia County Property Appraiser database

Table B-2
2006 Volusia County Vacant Land Sales Summary
Countywide Vacant Land Sales

2006 - All Vacant Parcels 0 - 5.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$1,000	0.02	$10,000
Max	$4,795,295	5.00	$1,000,000
Median	$66,000	1.25	$40,200
Weighted Average			$75,292
Parcel Count			993

2006 - All Vacant Parcels 5.00 - 25.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$60,000	5.01	$10,117
Max	$8,480,000	24.69	$973,174
Median	$250,000	10.00	$30,319
Weighted Average			$118,276
Parcel Count			107

Source: Volusia County Property Appraiser database

Table B-3
2007 Volusia County Vacant Land Sales Summary
Countywide Vacant Land Sales

2007 - All Vacant Parcels 0 - 5.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$10,400	0.15	$10,000
Max	$1,550,000	5.00	$934,300
Median	$70,000	1.25	$57,692
Weighted Average			$83,049
Parcel Count			143

2007 - All Vacant Parcels 5.00 - 25.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$106,000	5.27	$11,099
Max	$2,800,000	15.71	$397,727
Median	$434,900	7.44	$59,505
Weighted Average			$92,071
Parcel Count			18

Source: Volusia County Property Appraiser database

Table B-4
3-Year Countywide Average Cost per Acre

0-5 Acres		
Year	Weighted Average[(1)]	3-Year Average
2005	$100,079	-
2006	$75,292	-
2007	$83,049	$86,140

0-25 Acres		
Year	Weighted Average[(2)]	3-Year Average
2005	$87,678	-
2006	$118,276	-
2007	$92,071	$99,342

(1), (2) Source: Appendix B, Table B-1 through Table B-3 for 2005 through 2007 weighted average cost per acre figures

Table B-5
2005 Volusia County Vacant Land Sales Summary
Unincorporated Vacant Land Sales

2005 - All Vacant Parcels 0-5.00 Acres			
Stat	Sale Amt	Acreage	Cost/AC
Min	$1,000	0.02	$10,000
Max	$2,800,000	5.00	$913,462
Median	$90,000	1.25	$52,632
Weighted Average			$96,622
Parcel Count			2,053

2005 - All Vacant Parcels 5.01-25.00 Acres			
Stat	Sale Amt	Acreage	Cost/AC
Min	$55,000	5.01	$10,000
Max	$2,080,000	22.03	$402,390
Median	$190,000	9.70	$23,333
Weighted Average			$57,074
Parcel Count			189

Source: Volusia County Property Appraiser database

Table B-6
2006 Volusia County Vacant Land Sales Summary
Unincorporated Vacant Land Sales

2006 - All Vacant Parcels 0 - 5.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$1,500	0.02	$10,000
Max	$4,795,295	5.00	$997,162
Median	$68,900	1.25	$38,150
Weighted Average			$65,545
Parcel Count			906

2006 - All Vacant Parcels 5.00 - 25.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$60,000	5.01	$10,117
Max	$9,000,000	20.17	$901,860
Median	$218,500	10.00	$24,000
Weighted Average			$45,518
Parcel Count			82

Source: Volusia County Property Appraiser database

Table B-7
2007 Volusia County Vacant Land Sales Summary
Unincorporated Vacant Land Sales

2007 - All Vacant Parcels 0 - 5.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$8,000	0.02	$10,000
Max	$1,790,000	5.00	$906,433
Median	$75,000	1.25	$60,702
Weighted Average			$88,926
Parcel Count			140

2007 - All Vacant Parcels 5.00 - 25.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$106,000	5.27	$11,099
Max	$1,690,000	15.71	$169,000
Median	$417,500	7.93	$50,059
Weighted Average			$60,555
Parcel Count			16

Source: Volusia County Property Appraiser database

Table B-8
3-Year Unincorporated Volusia County
Average Cost per Acre

0-5 Acres		
Year	Weighted Average[(1)]	3-Year Average
2005	$96,622	-
2006	$65,545	-
2007	$88,926	$83,698

0-25 Acres		
Year	Weighted Average[(2)]	3-Year Average
2005	$57,074	-
2006	$45,518	-
2007	$60,555	$54,382

(1), (2) Source: Appendix B, Table B-5 through Table B-7 for 2005 through 2007 weighted average cost per acre figures

Table B-9
2005 Unincorporated Volusia,
DeBary, Lake Helen, Oak Hill, and Pierson Vacant Land Sales

2005 - All Vacant Parcels 1.0 - 3.00 Acres			
Stat	Sale Amt	Acreage	Cost/AC
Min	$12,500	1.00	$10,000
Max	$2,020,000	3.00	$913,462
Median	$90,000	1.25	$52,400
Weighted Average			$99,167
Parcel Count			1,667

Source: Volusia County Property Appraiser database

Table B-10
2006 Unincorporated Volusia,
DeBary, Lake Helen, Oak Hill, and Pierson Vacant Land Sales

2006 - All Vacant Parcels 1.0 - 3.00 Acres			
Stat	Sale Amt	Acreage	Cost/AC
Min	$1,500	1.00	$10,000
Max	$2,353,400	3.00	$956,667
Median	$51,000	1.25	$35,280
Weighted Average			$63,107
Parcel Count			687

Source: Volusia County Property Appraiser database

Table B-11
2007 Unincorporated Volusia, DeBary, Lake Helen, Oak Hill, and Pierson Vacant Land Sales

2007 - All Vacant Parcels 1.0 - 3.00 Acres			
Stat	**Sale Amt**	**Acreage**	**Cost/AC**
Min	$12,500	1.00	$10,000
Max	$1,550,000	3.00	$906,433
Median	$75,000	1.50	$41,353
Weighted Average			$85,444
Parcel Count			97

Source: Volusia County Property Appraiser database

Table B-12
3-Year Unincorporated Volusia, DeBary, Lake Helen, Oak Hill, and Pierson Average Cost per Acre

1-3 Acres		
Year	**Weighted Average**	**3-Year Average**
2005	$99,167	-
2006	$63,107	-
2007	$85,444	$82,573

Source: Appendix B, Table B-9 through Table B-11 for 2005 through 2007 weighted average cost per acre respectively

APPENDIX C
Florida Studies Trip Characteristics Database

Florida Studies Trip Characteristics Database

Single-Family Detached Housing (ITE LUC 210)

General Development	Size units	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Single Family	-	Gwinnett Co., GA	12/13-18/92	-	-	5.80	-	5.40	N/A	31.3	Street Smarts
Single Family	-	Gwinnett Co., GA	12/13-18/92	-	-	5.40	-	6.10	N/A	32.9	Street Smarts
Single Family	76	Hernando Co., FL	5/24/96	148	148	10.01	9a-6p	4.85	N/A	48.5	Tindale-Oliver & Associates
Single Family	301	Hernando Co., FL	5/24/96	264	264	8.93	9a-6p	3.28	N/A	29.3	Tindale-Oliver & Associates
Single Family	232	Hernando Co., FL	5/24/96	182	182	7.24	9a-6p	5.04	N/A	36.5	Tindale-Oliver & Associates
Single Family	128	Hernando Co., FL	5/24/96	205	205	8.17	9a-6p	6.03	N/A	49.3	Tindale-Oliver & Associates
Single Family	76	Sarasota Co, FL	Jun-93	70	70	10.03	-	6.00	N/A	60.2	Sarasota County
Single Family	79	Sarasota Co, FL	Jun-93	86	86	9.77	-	4.40	N/A	43.0	Sarasota County
Single Family	282	Sarasota Co, FL	Jun-93	146	146	6.61	-	8.40	N/A	55.5	Sarasota County
Single Family	393	Sarasota Co, FL	Jun-93	207	207	7.76	-	5.40	N/A	41.9	Sarasota County
Single Family	97	Sarasota Co, FL	Jun-93	33	33	13.20	-	3.00	N/A	39.6	Sarasota County
Single Family	193	Sarasota Co, FL	Jun-93	123	123	6.85	-	4.60	N/A	31.5	Sarasota County
Single Family	135	Sarasota Co, FL	Jun-93	75	75	8.05	-	5.90	N/A	47.5	Sarasota County
Single Family	152	Sarasota Co, FL	Jun-93	63	63	8.55	-	7.30	N/A	62.4	Sarasota County
Single Family	220	Volusia Co, Fl	Sep-97	174		6.80		4.80	N/A	32.6	Tindale-Oliver & Associates
Single Family	69	Volusia Co, Fl	Sep-97	70		13.10		4.00	N/A	52.4	Tindale-Oliver & Associates
Single Family	137	Volusia Co, Fl	Sep-97	48		14.40		2.70	N/A	38.9	Tindale-Oliver & Associates
Single Family	215	Charlotte Co, FL	Oct-97	158		7.60	9a-5p	4.60	N/A	35.0	Tindale-Oliver & Associates
Single Family	142	Charlotte Co, FL	Oct-97	245		5.20	9a-5p	4.10	N/A	21.3	Tindale-Oliver & Associates
Single Family	383	Charlotte Co, FL	Oct-97	516		8.40	9a-5p	5.00	N/A	42.0	Tindale-Oliver & Associates
Single Family	257	Charlotte Co, FL	Oct-97	225		7.60	9a-5p	7.40	N/A	56.2	Tindale-Oliver & Associates
Single Family	345	Charlotte Co, FL	Oct-97	161		7.00	9a-5p	6.60	N/A	46.2	Tindale-Oliver & Associates
Single Family	1169	Charlotte Co, FL	Oct-97	348		6.10	9a-5p	8.00	N/A	48.8	Tindale-Oliver & Associates
Single Family	441	Charlotte Co, FL	Oct-97	195		8.20	9a-5p	4.70	N/A	38.5	Tindale-Oliver & Associates
Single Family	150	Charlotte Co, FL	Oct-97	160		5.00	9a-5p	10.80	N/A	54.0	Tindale-Oliver & Associates
Single Family	135	Charlotte Co, FL	Oct-97	230		5.30	9a-5p	7.90	N/A	41.9	Tindale-Oliver & Associates
Single Family	368	Charlotte Co, FL	Oct-97	152		6.60	9a-5p	5.70	N/A	37.6	Tindale-Oliver & Associates
Single Family	52	Lake Co, FL	Apr-02	212		10.00	7a-6p	7.60	N/A	76.0	Tindale-Oliver & Associates
Single Family	49	Lake Co, FL	Apr-02	170		6.70	7a-6p	10.20	N/A	68.3	Tindale-Oliver & Associates
Single Family	126	Lake Co, FL	Apr-02	217		8.50	7a-6p	8.30	N/A	70.6	Tindale-Oliver & Associates
Single Family	770	Collier Co, FL	Dec-99	175		4.32	8a-6p	4.96	N/A	21.4	Tindale-Oliver & Associates
Single Family	400	Collier Co, FL	Dec-99	389		7.80	8a-6p	6.40	N/A	49.9	Tindale-Oliver & Associates
Single Family	90	Collier Co, FL	Dec-99	91		12.80	8a-6p	11.40	N/A	145.9	Tindale-Oliver & Associates
Single Family	132	Marion Co, FL	Apr-02	171		7.87	7a-6p	7.00	N/A	55.1	Kimley-Horn & Associates
Single Family	105	Marion Co, FL	Apr-02	169		7.23	7a-6p	7.22	N/A	52.2	Kimley-Horn & Associates
Single Family	133	Marion Co, FL	Apr-02	209		8.04	7a-6p	4.92	N/A	39.6	Kimley-Horn & Associates
Single Family	102	Marion Co, FL	Apr-02	167		8.02	7a-6p	5.10	N/A	40.9	Kimley-Horn & Associates
Single Family	124	Marion Co, FL	Apr-02	170		6.04	7a-6p	7.29	N/A	44.0	Kimley-Horn & Associates
Single Family	189	Pasco Co, FL	Apr-02	261		7.46	8a-6p	8.99	N/A	67.1	Tindale-Oliver & Associates
Single Family	74	Pasco Co, FL	Apr-02	188		8.18	8a-6p	5.95	N/A	48.7	Tindale-Oliver & Associates
Single Family	55	Pasco Co, FL	Apr-02	133		6.80	8a-6p	8.12	N/A	55.2	Tindale-Oliver & Associates
Single Family	60	Pasco Co, FL	Apr-02	106		7.73	8a-6p	8.75	N/A	67.6	Tindale-Oliver & Associates
Single Family	70	Pasco Co, FL	Apr-02	188		7.80	8a-6p	6.03	N/A	47.0	Tindale-Oliver & Associates
Single Family	364	Citrus Co, FL	Oct-03	345		7.20	7a-6p	9.14	N/A	65.8	Tindale-Oliver & Associates
Single Family	374	Citrus Co, FL	Oct-03	248		12.30	7a-6p	6.88	N/A	84.6	Tindale-Oliver & Associates
Single Family	306	Citrus Co, FL	Oct-03	146		8.40	7a-6p	3.94	N/A	33.1	Tindale-Oliver & Associates
Single Family	111	Citrus Co, FL	Oct-03	273		8.66	7a-6p	7.70	N/A	66.7	Tindale-Oliver & Associates
Single Family	231	Citrus Co, FL	Oct-03	155		5.71	7a-6p	4.82	N/A	27.5	Tindale-Oliver & Associates
Total Size	10,092.0					**Average Trip Length:**		**6.33**			
						Weighted Average Trip Length:		**6.24**			

Note: Georgia studies are excluded from all calculations.

Weighted Average Trip Generation Rate: 7.53
ITE Average Trip Generation Rate: 9.57

Apartment (ITE LUC 220)

General Development	Size units	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Apartment	243.0	Sarasota Co, FL	Jun-93	36	36	5.84	-	11.50	-	67.2	Sarasota County
Apartment	212.0	Sarasota Co, FL	Jun-93	42	42	5.78	-	5.20	-	30.1	Sarasota County
Apartment	500.0	Marion Co, FL	Apr-02	170	170	5.46		5.94		32.4	Kimley-Horn & Associates
Apartment	214.0	Marion Co, FL	Apr-02	175	175	6.84		4.61		31.5	Kimley-Horn & Associates
Apartment	240.0	Marion Co, FL	Apr-02	174	174	6.96		3.43		23.9	Kimley-Horn & Associates
Apartment	288.0	Marion Co, FL	Apr-02	175	175	5.66		5.55		31.4	Kimley-Horn & Associates
Apartment	480.0	Marion Co, FL	Apr-02	175	175	5.73		6.88		39.4	Kimley-Horn & Associates
Total Size	1934.0					**Average Trip Length:**		**5.27**			
ITE	1696.0					**Weighted Average Trip Length:**		**5.58**			
	3,630										

Weighted Average Trip Generation Rate: 5.93
ITE Average Trip Generation Rate: 6.72
Blend of FL Studies and ITE Average Trip Generation Rate: 6.30

Residential Condominium/Townhouse (ITE LUC 230)

General Development	Size units	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Condominium	128.0	Hernando Co., FL	May-96	198	198	6.47	9a-6p	5.18	N/A	33.5	Tindale-Oliver & Associates
Condominium	31.0	Hernando Co., FL	May-96	31	31	6.12	9a-6p	4.98	N/A	30.5	Tindale-Oliver & Associates
Condominium	248.0	Pasco Co, FL	Apr-02	353	353	4.24	9a-6p	3.53	N/A	15.0	Tindale-Oliver & Associates
Condominium	229	Pasco Co, FL	Apr-02	198	198	4.77	9a-6p	12.09	N/A	57.7	Tindale-Oliver & Associates
Total Size	636.0					**Average Trip Length:**		**N/A**			
ITE	9882.0					**Weighted Average Trip Length:**		**N/A**			
	10518.0										

Weighted Average Trip Generation Rate: 4.97
ITE Average Trip Generation Rate: 5.86
Blending of FL Studies & ITE - Average Trip Generation Rate: 5.81

Mobile Home Park (ITE LUC 240)

General Development	Size units	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Mobile Home Park	1892.0	Hernando Co., FL	May-96	425	425	4.13	9a-6p	4.13	N/A	17.1	Tindale-Oliver & Associates
Mobile Home Park	227	Marion Co, FL	Apr-02	173	-	2.76	24hr.	8.80	N/A	24.3	Kimley-Horn & Associates
Mobile Home Park	297	Marion Co, FL	Apr-02	175	-	4.78	24hr.	4.76	N/A	22.8	Kimley-Horn & Associates
Mobile Home Park	188	Marion Co, FL	Apr-02	147	-	3.51	24hr.	5.48	N/A	19.2	Kimley-Horn & Associates
Mobile Home Park	82.0	Marion County, FL	Jul-91	58	58	10.80	24hr.	3.72	N/A	40.2	Tindale-Oliver & Associates
Mobile Home Park	67.0	Marion County, FL	Jul-91	22	22	5.40	48hrs.	2.29	N/A	12.4	Tindale-Oliver & Associates
Mobile Home Park	137.0	Marion County, FL	Jul-91	22	22	3.10	24hr.	4.88	N/A	15.1	Tindale-Oliver & Associates
Mobile Home Park	235	Sarasota Co, FL	Jun-93	100	100	3.51	-	5.10	N/A	17.9	Sarasota County
Mobile Home Park	996	Sarasota Co, FL	Jun-93	181	181	4.19	-	4.40	N/A	18.4	Sarasota County
Mobile Home Park	482	Volusia, FL	Sep-97	174		3.01		4.21	N/A	12.7	Tindale-Oliver & Associates
Mobile Home Park	599	Volusia, FL	Sep-97	70		3.81		3.03	N/A	11.5	Tindale-Oliver & Associates
Mobile Home Park	400	Volusia, FL	Sep-97	48		6.74		3.03	N/A	20.4	Tindale-Oliver & Associates

Total Size 5602.0 — **Average Trip Length: 4.49**
ITE 6580.0 — **Weighted Average Trip Length: 4.29**
Blended total 12182.0

Weighted Average Trip Generation Rate: 4.22
ITE Average Trip Generation Rate: 4.99
Blending of FL Studies & ITE - Average Trip Generation Rate: 4.63

Retirement Community/Senior Adult Housing-Detached (ITE LUC 251)

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Lakeland, FL	67	3/28-4/2/90	26	24	3.50	9a-4p	2.44	92.0	7.86	Tindale-Oliver & Associates
Marion Co, FL	778	Apr-02	175		2.96	24hr.	3.49	N/A	10.34	Kimley-Horn & Associates
Marion Co, FL	877	Apr-02	209		2.91	24hr.	5.90	N/A	14.77	Kimley-Horn & Associates
Marion Co, FL	1,054	Apr-02	173		3.65	24hr.	6.00	N/A	21.91	Kimley-Horn & Associates
Marion Co, FL	3,076	Apr-02	198		2.63	24hr.	5.16	N/A	13.55	Kimley-Horn & Associates
Marion Co, FL	3,625	Apr-02	164		2.50	24hr.	5.83	N/A	16.95	Kimley-Horn & Associates

Total Size 9,477 — **Average Trip Length: 4.80**
ITE 6,034 — **Weighted Average Trip Length: 5.42**
Blended total 15,511

Weighted Percent New Trip Average: 92.0
Weighted Average Trip Generation Rate: 2.75
ITE Average Trip Generation Rate: 3.71
Blend of FL Studies and ITE Average Trip Generation Rate: 3.13
Average VMT: 14.23

Hotel (ITE LUC 310)

General Development	Size rooms	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Hotel	174.0	Pinellas Co.,FL	Aug-89	134	106	12.50	7-11a/3-7p	6.30	79.0	62.2	Tindale-Oliver & Associates
Hotel	114.0	Pinellas Co.,FL	Oct-89	30	14	7.30	12-7:30p	6.20	47.0	21.3	Tindale-Oliver & Associates
Hotel	40.0	Volusia, FL	Sep-97			8.71		5.30	N/A	0.0	Tindale-Oliver & Associates

Total Size 328.0 — **Average Trip Length: 5.93**
ITE 4760.0 — **Weighted Average Trip Length: 6.14**
Blend 5088.0

Weighted Percent New Trip Average[1]: 66.3
Weighted Average Trip Generation Rate: 10.23
ITE Average Trip Generation Rate: 8.17
Blend of ITE & FL Studies - Average Trip Generation Rate: 8.30

(1) The calculation for Weighted Percent New Trip Average excludes the Volusia study due to the inconsistency of the data.

Motel (ITE LUC 320)

General Development	Size rooms	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Motel	54	Pinellas Co.,FL	Oct-89	32	22	-	12p-7p	3.80	69.0	-	Tindale-Oliver & Associates
Motel	48	Pinellas Co.,FL	Oct-89	46	24	-	10a-2:20p	2.80	65.0	-	Tindale-Oliver & Associates
Motel	120	Pinellas Co.,FL	Oct-89	26	22	-	2p-7p	5.20	84.6	-	Tindale-Oliver & Associates

Total Size 222.0 — **Average Trip Length: 3.93**
Weighted Average Trip Length: 4.34

Weighted Percent New Trip Average: 76.6
Weighted Average Trip Generation Rate: -
ITE Average Trip Generation Rate: 5.63

Movie Theater with Matinee (ITE LUC 444)

General Development	Size screens	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Movie Theater	8.0	Pinellas Co.,FL	Oct-89	151	116	113.10	2p-8p	2.70	77.0	235.1	Tindale-Oliver & Associates
Movie Theater	12.0	Pinellas Co.,FL	Sep-89	122	116	63.40	2p-8p	1.90	95.0	114.4	Tindale-Oliver & Associates
Movie Theater	12.0	Volusia, FL	Sep-97			70.80		3.60	67.0	170.8	Tindale-Oliver & Associates

Total Size 32.0 — **Average Trip Length: 2.73**
ITE 10.0 assumed — **Weighted Average Trip Length: 2.74**
42.0

Weighted Percent New Trip Average: 80.0
Weighted Average Trip Generation Rate: 78.60
ITE Average Trip Generation Rate: 153.33
Blend of ITE & FL Studies w/Volusia - Average Trip Generation Rate: 96.39

Day Care Center (ITE LUC 565)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Day Care Center	5.6	Pinellas Co.	Aug-89	94	66	67.00	7a-6p	1.90	70.0	89.1	Tindale-Oliver & Associates
Day Care Center	10.0	Pinellas Co.	Sep-89	179	134	67.00	7a-6p	2.10	75.0	105.5	Tindale-Oliver & Associates
Day Care Center	-	Tampa, FL	Mar-86	28	25	-	-	2.60	89.0	-	Kimley-Horn & Associates

Total Size 15.6 — **Average Trip Length: 2.20**
ITE 30.0 — **Weighted Average Trip Length: 2.03**
45.6

Weighted Percent New Trip Average: 73.2
Weighted Average Trip Generation Rate: 66.99
ITE Average Trip Generation Rate: **79.26**
Blend of ITE & FL Studies - Average Trip Generation Rate: 75.07

Nursing Home (ITE LUC 620)

General Development	Size beds	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Nursing Home	120	Lakeland, FL	Mar-90	74	66	2.86	11a-4p	2.59	89.0	6.6	Tindale-Oliver & Associates

Total Size 120 — **Average Trip Length: 2.59**

ITE 415 — **Weighted Average Trip Length: 2.59**

535.0

Weighted Percent New Trip Average: 89.0

Weighted Average Trip Generation Rate: 2.86

ITE Average Trip Generation Rate: 2.37

Blend of ITE & FL Studies - Average Trip Generation Rate: 2.48

General Office Building (ITE LUC 710)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
General Office	98.0	Gwinnett Co., GA	12/13-18/92	-	-	4.30	-	5.40	-	-	Street Smarts
General Office	180.0	Gwinnett Co., GA	12/13-18/92	-	-	3.60	-	5.90	-	-	Street Smarts
General Office	262.8	St. Petersburg, FL	Sep-89	291	274	-	7a-5p	3.40	94.0	-	Tindale-Oliver & Associates
General Office	187.0	Pinellas Co.	Oct-89	431	388	18.49	7a-5p	6.30	90.0	104.8	Tindale-Oliver & Associates
General Office	14.3	Sarasota Co, FL	Jun-93	14	14	46.85	-	11.30	-	529.4	Sarasota County

Total Size 742.1 — **Average Trip Length: 6.46**

Weighted Average Trip Length: 5.15

Weighted Percent New Trip Average: 92.3

Weighted Average Trip Generation Rate: N/A

ITE Average Trip Generation Rate: N/A

Medical-Dental Office Building (ITE LUC 720)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Medical Office	28.0	Hernando Co., FL	May-96	202	189	49.75	9a-6p	6.06	93.8	282.6	Tindale-Oliver & Associates
Medical Office	58.4	Hernando Co., FL	May-96	390	349	28.52	9a-6p	6.47	89.5	165.1	Tindale-Oliver & Associates
Medical Office	-	St. Petersburg, FL	Nov-89	34	30	57.20	9a-4p	1.20	88.0	-	Tindale-Oliver & Associates
Medical Office	14.6	Palm Harbor, FL	Oct-89	104	76	33.98	9a-5p	6.30	73.0	156.3	Tindale-Oliver & Associates
Medical Office	-	Tampa, FL	Mar-86	33	26	-	-	6.00	79.0	-	Kimley-Horn & Associates
Medical Office	15.1	Volusia, FL	Sep-97	53		38.30		5.70	75.0	163.7	Tindale-Oliver & Associates
Medical Office	74.0	Volusia, FL	Sep-97	48		N/A		3.90	79.0	0.0	Tindale-Oliver & Associates
Medical Office	30.4	Charlotte Co, FL	Oct-97		324	39.80	9a-5p	3.30	83.5	109.7	Tindale-Oliver & Associates
Medical Office	28.0	Charlotte Co, FL	Oct-97		186	31.00	9a-5p	3.60	81.6	91.0	Tindale-Oliver & Associates
Medical Office	11.0	Charlotte Co, FL	Oct-97		186	49.50	9a-5p	4.60	92.1	209.7	Tindale-Oliver & Associates
Medical Office	38.9	Citrus Co, FL	Oct-03		168	32.26	8-6p	6.80	97.1	213.0	Tindale-Oliver & Associates
Medical Office	10.0	Citrus Co, FL	Nov-03		340	40.56	8-630p	6.20	92.4	232.3	Tindale-Oliver & Associates
Medical Office	5.3	Citrus Co, FL	Dec-03		20	29.36	8-5p	5.25	95.2	146.8	Tindale-Oliver & Associates

Total Size 239.6 — **Average Trip Length: 5.03**

ITE 450.0 — **Weighted Average Trip Length: 5.16**

Blend 689.6

Weighted Percent New Trip Average: 86.0

Average Trip Generation Rate[(1)]: 35.76

ITE Average Trip Generation Rate: 36.13

Blend of ITE & FL Studies - Average Trip Generation Rate[(1)]: 36.00

(1) The calculation for Average Trip Generation Rate and the Blend calculation excludes the Volusia study due to the inconsistency of the data from one site because there were part-time doctors at the location.

Free-Standing Discount Superstore (ITE LUC 813)

General Development	Land use Code	Size (1000 Ft^2./units)	Location		Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	ADT	VMT
Discount Superstore	814	203.6	Citrus Co, FL	1		236	55.0	8a-6p	5.9	N/A	298.5

Total Size 203.6 — **Average Trip Length: 5.91**

ITE 1600.0 — **Weighted Average Trip Length: 5.91**

1803.6

Weighted Percent New Trip Average: N/A

Weighted Average Trip Generation Rate: 55.01

ITE Average Trip Generation Rate: 49.21

Blend of ITE & FL Studies - Average Trip Generation Rate: 49.86

New Car Sales (ITE LUC 841)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Car Dealership	43.0	St.Petersburg, FL	Oct-89	152	120	-	9am-5pm	4.70	79.0	-	Tindale-Oliver & Associates
Car Dealership	43.0	Clearwater, FL	Oct-89	136	106	29.40	9am-5pm	4.50	78.0	103.2	Tindale-Oliver & Associates

Total Size 43.0 — **Average Trip Length: 4.60**

ITE 374.0 — **Weighted Average Trip Length: 4.60**

Blend 417.0

Weighted Percent New Trip Average: 78.5

Weighted Average Trip Generation Rate: 29.40

ITE Average Trip Generation Rate: 33.34

Blend of ITE & FL Studies - Average Trip Generation Rate: 32.93

Tire Store (ITE LUC 848)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Tire Store	8.0	Volusia, FL	Sep-97	-	-	42.1	-	-	-	-	Tindale-Oliver & Associates
Tire Store	10.0	Volusia, FL	Sep-97	19	-	20.2	-	2.4	68.0	33.5	Tindale-Oliver & Associates

Total Size 18.0 — **Average Trip Length: 2.44**

ITE 64.0 — **Weighted Average Trip Length: 2.44**

Blend 82.0

Weighted Percent New Trip Average: 68.0

Weighted Average Trip Generation Rate: 29.93

ITE Average Trip Generation Rate: 37.90

Blend of ITE & FL Studies - Average Trip Generation Rate: 36.16

Supermarket (ITE LUC 850)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Supermarket	62.0	Palm Harbor, FL	Aug-89	163	62	106.26	9am-4pm	2.08	56.0	123.8	Tindale-Oliver & Associates

Total Size 62.0 — **Average Trip Length: 2.08**

ITE 156.0 — **Weighted Average Trip Length: 2.08**

218.0

Weighted Percent New Trip Average: 56.0

Weighted Average Trip Generation Rate: 106.26

ITE Average Trip Generation Rate: 102.24

Blend of ITE & FL Studies - Average Trip Generation Rate: 103.38

Service Station w/Convenience Market (ITE LUC 853)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Service Sation w/ Store	4.4	Marion County, FL	Jun-91	85	25	486.70	48hrs.	1.06	29.4	151.7	Tindale-Oliver & Associates
Service Sation w/ Store	1.1	Marion County, FL	Jun-91	77	20	544.80	24hr.	0.89	26.0	126.1	Tindale-Oliver & Associates
Service Sation w/ Store	2.1	Marion County, FL	Jun-91	66	24	997.60	24hr.	1.67	36.4	606.4	Tindale-Oliver & Associates
Service Sation w/ Store	-	Collier County, FL	Aug-91	96	38	-	-	1.19	39.6	-	Tindale-Oliver & Associates
Service Sation w/ Store	-	Collier County, FL	Aug-91	78	16	-	-	1.06	20.5	-	Tindale-Oliver & Associates
Service Sation w/ Store	3.3	Ellenton, FL	10/20-22/92	124	44	-	24hr.	0.96	35.3	-	Tindale-Oliver & Associates
Service Sation w/ Store	2.3	Tampa, FL	10/13-15/92	239	74	-	24hr.	1.06	31.1	-	Tindale-Oliver & Associates
Service Sation w/ Store	3.8	Tampa, FL	11/10-12/92	142	23	-	24hr.	3.13	16.4	-	Tindale-Oliver & Associates
Service Sation w/ Store	-	Tampa, FL	Mar-86	72	-	-	-	2.00	-	-	Kimley-Horn & Associates
Service Sation w/ Store	2.5	Marion County, FL	Apr-02	23	-	610.46	24hr.	1.77	11.7	126.6	Kimley-Horn & Associates
Service Sation w/ Store	2.5	Marion County, FL	Apr-02	87	-	719.79	24hr.	1.62	32.8	322.2	Kimley-Horn & Associates
Service Sation w/ Store	3.0	Marion County, FL	Apr-02	59	-	606.02	24hr.	0.83	32.6	195.0	Kimley-Horn & Associates
Total Size	25.1	15.6					**Average Trip Length:**	**1.44**			
ITE	30.0	30.0					**Weighted Average Trip Length:**	**1.51**			
Blend	55.1	45.6					Weighted Percent New Trip Average:		28.0		

Weighted Average Trip Generation Rate: 639.68
ITE Average Trip Generation Rate: 845.60
Blend of ITE & FL Studies - Average Trip Generation Rate: 775.14

Pharmacy/Drugstore with Drive-Through Window (ITE LUC 881)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Drugstore	12.0	Pasco Co, Fl	Apr-02	212	90	122.16		2.04	42.5	105.8	Tindale-Oliver & Associates
Drugstore	15.1	Pasco Co, Fl	Apr-02	1192	54	97.96		2.13	28.1	58.7	Tindale-Oliver & Associates
Drugstore	11.1	Pasco Co, Fl	Apr-02	138	38	88.97		2.05	27.5	50.2	Tindale-Oliver & Associates
Total Size	38.2						**Average Trip Length:**	**2.07**			
ITE	42.0						**Weighted Average Trip Length:**	**2.08**			
	80.2						Weighted Percent New Trip Average:		32.5		

Average Trip Generation Rate: 103.03
ITE Average Trip Generation Rate: 88.16
Blend of ITE & FL Studies - Average Trip Generation Rate: 95.21

Furniture Store (ITE LUC 890)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Furniture Store	16.9	Tampa, FL	Jul-92	68	39	-	-	7.38	55.7	-	Tindale-Oliver & Associates
Furniture Store	15.0	Largo, FL	7/28-30/92	64	34	-	-	4.63	52.5	-	Tindale-Oliver & Associates
Total Size	31.9						**Average Trip Length:**	**6.01**			
							Weighted Average Trip Length:	**6.09**			
							Weighted Percent New Trip Average:		54.2		

Average Trip Generation Rate: -
ITE Average Trip Generation Rate: 5.06

Drive-In Bank (ITE LUC 912)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Bank	5.4	Hernando Co., FL	May-96	164	41	364.72	9a-6p	2.77	24.7	249.5	Tindale-Oliver & Associates
Bank	-	Tampa, FL	Mar-86	77	-	-	-	2.40	-	-	Kimley-Horn & Associates
Bank	-	Tampa, FL	Mar-86	211	-	-	-	-	54.0	-	Kimley-Horn & Associates
Bank	0.4	Clearwater, FL	Aug-89	113	52	-	9am-6pm	5.20	46.0	-	Tindale-Oliver & Associates
Bank	2.0	Largo, FL	Sep-89	129	94	192.50	-	1.60	73.0	224.8	Tindale-Oliver & Associates
Bank	4.5	Seminole, FL	10/89	-	-	201.78	-	-	-	-	Tindale-Oliver & Associates
Bank	2.3	Marion County, FL	Jun-91	69	29	680.00	24hr.	1.33	42.0	379.8	Tindale-Oliver & Associates
Bank	2.5	Marion County, FL	Jul-91	57	26	386.00	48hrs.	2.70	45.6	475.2	Tindale-Oliver & Associates
Bank	-	Collier County, FL	Aug-91	162	96	-	24hr.	0.88	59.3	-	Tindale-Oliver & Associates
Bank	-	Collier County, FL	Aug-91	116	54	-	-	1.58	46.6	-	Tindale-Oliver & Associates
Bank	-	Collier County, FL	Aug-91	142	68	-	-	2.08	47.9	-	Tindale-Oliver & Associates
Bank	3.1	Marion County, FL	Jun-91	47	32	580.80	24hr.	1.75	68.1	692.2	Tindale-Oliver & Associates
Bank	2.4	Marion County, FL	Apr-02	70	-	642.00	24hr.	3.55	54.6	1245.3	Kimley-Horn & Associates
Bank	2.7	Marion County, FL	May-02	50	-	246.66	24hr.	2.66	40.5	265.4	Kimley-Horn & Associates
Total Size	25.2						**Average Trip Length:**	**2.38**			
ITE	76.0						**Weighted Average Trip Length:**	**2.46**			
	101.2						Weighted Percent New Trip Average:		46.2		

Weighted Average Trip Generation Rate: 393.10
ITE Average Trip Generation Rate: 246.49
Blend of ITE & FL Studies - Average Trip Generation Rate: 281.55

Quality Restaurant (ITE LUC 931)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Quality Restaurant	7.5	St. Petersburg, FL	Oct-89	177	154	-	1130-230/430-830	3.50	87.0	-	Tindale-Oliver & Associates
Quality Restaurant	8.0	Clearwater, FL	Oct-89	60	40	110.60	10-230/5-830	2.80	67.0	207.5	Tindale-Oliver & Associates
Quality Restaurant	-	Tampa, FL	Mar-86	76	62	-	-	2.10	82.0	-	Kimley-Horn & Associates
Total Size	15.5	8.0					**Average Trip Length:**	**2.80**			
ITE	135.0	135.0					**Weighted Average Trip Length:**	**3.14**			
	150.5	143.0					Weighted Percent New Trip Average:		76.7		

Weighted Average Trip Generation Rate: 110.63
ITE Average Trip Generation Rate: 89.95
Blend of ITE & FL Studies - Average Trip Generation Rate: 91.10

High-Turnover Restaurant (ITE LUC 932)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Restaurant	5.0	St. Petersburg, FL	Oct-89	74	68	132.60	1130-7p	2.00	92.0	244.0	Tindale-Oliver & Associates
Restaurant	5.2	Kenneth City, FL	Oct-89	236	176	127.88	4p-730p	2.30	75.0	220.6	Tindale-Oliver & Associates
Restaurant	6.2	Hernando Co., FL	May-96	242	175	187.51	9a-6p	2.76	72.5	375.0	Tindale-Oliver & Associates
Restaurant	8.2	Hernando Co., FL	May-96	154	93	102.71	9a-6p	4.15	60.2	256.4	Tindale-Oliver & Associates
Restaurant	6.0	Volusia, FL	Sep-97			110.02		1.83	60.0	120.8	Tindale-Oliver & Associates
Restaurant	6.0	Volusia, FL	Sep-97			105.62		3.29	64.0	222.4	Tindale-Oliver & Associates
Restaurant	5.6	Volusia, FL	Sep-97			-		3.29	79.0	0.0	Tindale-Oliver & Associates
Restaurant	5.6	Volusia, FL	Sep-97			-		1.54	79.0	0.0	Tindale-Oliver & Associates
Restaurant	5.9	Volusia, FL	Sep-97			98.14		-	-	0.0	Tindale-Oliver & Associates
Restaurant	5.2	Pasco Co, Fl	Apr-02	114	88	82.47	9a-6p	3.72	77.2	236.8	Tindale-Oliver & Associates
Restaurant	5.8	Pasco Co, Fl	Apr-02	182	102	116.97	9a-6p	3.49	56.0	228.8	Tindale-Oliver & Associates

Total Size 64.7 — **Average Trip Length: 2.84**
ITE 98.0 — **Weighted Average Trip Length: 2.90**
Blend 151.5 — Weighted Percent New Trip Average: 70.5

Weighted Average Trip Generation Rate: 117.98
ITE Average Trip Generation Rate: 127.15
Blend of ITE & FL Studies - Average Trip Generation Rate: 123.91

Fast Food Restaurant w/Drive Thru (ITE LUC 934)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Fast Food w/ Drive Thru	5.4	Hernando Co., FL	May-96	136	82	311.83	9a-6p	1.68	60.2	315.3	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	3.1	Hernando Co., FL	May-96	168	82	547.34	9a-6p	1.59	48.8	425.0	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	4.3	Pinellas Co.	Oct-89	456	260	660.40	1 day	2.30	57.0	865.8	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	2.2	Pinellas Co.	Aug-89	81	48	502.80	11am-2pm	1.70	59.0	504.3	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	-	Tarpon Springs,FL	Oct-89	233	114	-	7am-7pm	3.60	49.0	-	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	4.0	Marion County, FL	Jun-91	75	46	625.00	48hrs.	1.54	61.3	590.0	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	1.6	Marion County, FL	Jun-91	60	32	962.50	48hrs.	0.91	53.3	466.8	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	-	Collier County, FL	Aug-91	66	44	-	-	1.91	66.7	-	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	-	Collier County, FL	Aug-91	118	40	-	-	1.17	33.9	-	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	-	Tampa, FL	Mar-86	61	-	-	-	2.70	-	-	Kimley-Horn & Associates
Fast Food w/ Drive Thru	-	Tampa, FL	Mar-86	306	-	-	-	-	65.0	-	Kimley-Horn & Associates
Fast Food w/ Drive Thru	3.2	Volusia, FL	Sep-97	108		497.00		3.30	60.0	984.1	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	2.6	Volusia, FL	Sep-97			486.10		2.50	50.0	607.6	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	2.9	Volusia, FL	Sep-97	14		466.60		2.60	70.0	849.2	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	2.2	Lake Co, FL	Apr-01	376	252	934.30		2.50	74.6	1742.5	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	3.2	Lake Co, FL	Apr-01	171	182	654.90		4.10	47.8	1283.5	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	3.8	Lake Co, FL	Apr-01	188	137	353.70		3.30	70.8	826.4	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	3.0	Pasco Co, Fl	Apr-02	486	164	515.32	9a-6p	2.72	33.7	472.9	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	4.4	Pasco Co, Fl	Apr-02	168	120	759.24	9a-6p	1.89	71.4	1025.0	Tindale-Oliver & Associates
Fast Food w/ Drive Thru	2.7	Pasco Co, Fl	Apr-02	100	46	283.12	9a-6p	5.10	46.0	664.2	Tindale-Oliver & Associates

Total Size 48.6 — **Average Trip Length: 2.48**
ITE 63.0 — **Weighted Average Trip Length[(1)]: 2.21**
111.6 — Weighted Percent New Trip Average: 58.3

Weighted Average Trip Generation Rate: 549.98
ITE Average Trip Generation Rate: 496.12
Blend of ITE & FL Studies - Average Trip Generation Rate: 519.58

(1) The calculation for Weighted Average Trip Length excludes the Pasco (TL=5.1) and Lake (TL=4.1) studies because they are outliers.

Quick Lube (ITE LUC 941)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Quick Lube	4.0	Volusia, FL	Sep-97	10	-	45.08		1.97	100.0	-	Tindale-Oliver & Associates

Total Size 4.0 — **Average Trip Length: 1.97**
ITE 2.0 — **Weighted Average Trip Length: 1.97**
Blend 6.0 — Weighted Percent New Trip Average: N/A

Weighted Average Trip Generation Rate: 45.08
ITE Average Trip Generation Rate: 40.00
Blend of ITE & FL Studies - Average Trip Generation Rate: 43.39

Automobile Repair Shop (ITE LUC 943)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Auto Repair Shop	5.2	Lakeland, FL	Mar-90	24	14	-	9a-4p	1.36	59.0	-	Tindale-Oliver & Associates
Auto Repair Shop	-	Lakeland, FL	Mar-90	54	42	-	9a-4p	2.44	78.0	-	Tindale-Oliver & Associates
Auto Repair Shop	25.0	Orange Co, FL	Nov-92	41	39	-	2-6pm	4.60	-	-	LCE, Inc. *
Auto Repair Shop	2.3	Jacksonville, FL	2/3-4/90	124	94	-	9a-5p	3.07	76.0	-	Tindale-Oliver & Associates
Auto Repair Shop	2.3	Jacksonville, FL	2/3-4/90	110	74	-	9a-5p	2.96	67.0	-	Tindale-Oliver & Associates
Auto Repair Shop	2.4	Jacksonville, FL	2/3-4/90	132	87	-	9a-5p	2.32	66.0	-	Tindale-Oliver & Associates
Auto Repair Shop	5.5	Largo, FL	Sep-89	34	30	37.64	9a-5p	2.40	88.0	79.5	Tindale-Oliver & Associates

Total Size 42.6 — **Average Trip Length: 2.74**
ITE 60.0 — **Weighted Average Trip Length: 3.62**
Blend 65.5 — Weighted Percent New Trip Average: 72.2

Weighted Average Trip Generation Rate: 37.64
ITE Average Trip Generation Rate: 33.80
Blend of ITE & FL Studies - Average Trip Generation Rate: 34.12

Gasoline/Fast Food/Convenience Store (ITE LUC -)

General Development	Size (1000 Ft^2./units)	Location	Date	Total No. Interviews	# Trip Length Interviews	Trip Gen. Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
		Volusia Co., FL				918.00		2.40	33.0	727	Tindale-Oliver & Associates
Mobil	3.0	Indian River Co., FL	Mar-98	107	84	563.10	8a-6p	2.00	39.3	443	Tindale-Oliver & Associates
Amoco	3.1	Indian River Co., FL	Mar-98	132	110	1396.00	8a-6p	1.80	41.7	1048	Tindale-Oliver & Associates
Mobil	2.5	Indian River Co., FL	Mar-98	132	52	748.30	8a-6p	3.70	19.7	545	Tindale-Oliver & Associates
Vineyards Mobil	2.4	Collier Co., FL	Nov-99		128	1399.58	8a-6p	4.10	13.3	763	Tindale-Oliver & Associates
Curt's Mobil	3.3	Collier Co., FL	Nov-99		144	862.56	8a-6p	2.20	39.6	751	Tindale-Oliver & Associates

Total Size 14.3 — **Average Trip Length: 2.70**
Weighted Average Trip Length: 2.65
Weighted Percent New Trip Average: 32.1

Weighted Average Trip Generation Rate: 984.59
ITE Average Trip Generation Rate: N/A

APPENDIX D
Cost Component Calculations

Cost Component Calculations

All information used to compute a typical cost per lane mile and a typical average daily capacity added per lane mile in Volusia County is presented in this Appendix. As noted, the primary sources for the county project data are recent engineer estimates and FY 2007-2011 CIP projects. In the case of the state projects data, the sources are recently bid projects in FDOT District 5 (Seminole, Osceola, and Marion Counties) and fully programmed capacity expansion projects in Volusia County.

As mentioned previously, the cost calculations are based on county and state projects in Volusia County (presented in Tables D-1, D-2, and D-3). These projects were utilized to determine the average cost per lane mile in Volusia County.

ROW Cost

County

The ROW cost was developed based on a review of the FY 2007-2011 CIP projects. These projects are representative of the type of lane acquisition that is likely to continue into the future. The ROW cost estimates include land acquisition for cross-section width needs and retention ponds, where applicable, along respective roadway corridors. The ROW cost estimates also include non-land acquisition costs (condemnation, litigation, appraisal fees, etc.). The weighted average ROW cost per lane mile is presented in Table D-1. The weighted average ROW cost per lane mile is approximately $0.86 million for county roads.

State

Since the FDOT has not purchased any ROW since 2002, historical ROW cost figures are not reflective of current acquisition costs. As such, the ROW cost is based on the SR 15/600 (from SR 472 to SR 15A) project programmed in the County's FY 2007-2011 TIP. FDOT District 5 staff confirmed that this improvement is typical of future state roadway improvements and that the cost estimates have been updated to reflect the recent increase in land values. The weighted average cost per lane mile is approximately $0.95 million. Table D-2 presents this calculation.

Table D-1
Volusia County FY 2007-2011 CIP Roadway Projects [1]

CIP Project Number	Description	From	To	Feature	Project Status	Section Design	Length	Lanes Added	Total Lane Miles	Initial Capacity	Final Capacity	Added Capacity	VMC Added	ROW Cost	ROW Cost per Lane Mile	Construction Cost	CST Cost per Lane Mile
4949	Saxon Boulevard	US 17	Existing 4- Lanes	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Rural	0.35	2	0.70	15,600	32,900	17,300	6,055	$0	$0	$573,124	$818,749
4896	CR 92	SR 15/600	SR 15A	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Rural	1.45	2	2.90	15,600	32,900	17,300	25,085	$0	$0	$2,210,173	$762,129
4112	Howland Boulevard	High School	Providence Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.85	2	3.70	15,600	32,900	17,300	32,005	$811,194	$219,242	$3,911,830	$1,057,251
4358-2	Saxon Boulevard	Sumatra	Tivoli Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	0.72	2	1.44	15,600	32,900	17,300	12,456	$2,129,197	$1,478,609	$2,207,046	$1,532,671
1502/1502A	Enterprise Road	Saxon Boulevard	Deltona Boulevard	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.96	2	3.92	15,600	32,900	17,300	33,908	$3,205,230	$817,661	$3,735,000	$952,806
5015	SR 472 Access Road	Howland Boulevard	N/A	New Road Construction - 0 to 2/4 Lanes	Completed	Urban	0.25	2	0.50	0	15,600	15,600	3,900	$607,054	$1,214,108	$581,542	$1,163,084
4906	Tenth Street	Tatum Road	Myrtle Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Recent Bid	Urban	0.77	2	1.54	10,080	25,200	15,120	11,642	$2,615,549	$1,698,408	$4,768,638	$3,096,518
4739	Williamson Boulevard	US 92	Dunn Avenue	Add Lanes and Reconstruct - 2 to 4 Lanes	Recent Bid	Rural	1.57	2	3.14	15,600	32,900	17,300	27,161	$1,315,676	$419,005	$5,388,603	$1,716,116
4833-1	Clyde Morris Boulevard	LPGA Boulevard	Aberdeen	Add Lanes and Reconstruct - 2 to 4 Lanes	Recent Bid	Urban	1.88	2	3.76	15,600	32,900	17,300	32,489	$1,537,700	$408,963	$6,877,172	$1,829,035
4910	Howland Boulevard	Elkcam Boulevard	Courtland Boulevard	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Urban	2.34	2	4.68	15,600	32,900	17,300	40,482	$652,473	$139,417	$11,185,557	$2,390,076
1180	LPGA Boulevard	Jimmy Ann Drive	Nova Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Urban	0.98	2	1.96	15,600	32,900	17,300	16,954	$3,102,742	$1,583,032	$4,905,835	$2,502,977
5244-1	Tymber Creek Rd.	SR 40	Peruvian Lane	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Urban	0.81	2	1.62	12,600	25,200	12,600	10,206	$0	$0	$4,620,000	$2,851,852
4988	Williamson Blvd	South of Florida Hospital	Hand Ave	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Rural	0.46	2	0.92	15,600	32,900	17,300	7,958	$0	$0	$2,800,000	$3,043,478
4740-1	Williamson Blvd	Spruce Cr. Br.	Taylor Rd	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Urban	1.34	2	2.68	15,600	32,900	17,300	23,182	$3,280,000	$1,223,881	$7,940,000	$2,962,687
5061	Tenth St. (Phase 2)	Myrtle Road	US 1	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Urban	0.50	2	1.00	10,080	25,200	15,120	7,560	$710,000	$710,000	$4,825,000	$4,825,000
4351	Debary Ave	Deltona Blvd	Providence Blvd	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Urban	1.84	2	3.68	15,600	31,100	15,500	28,520	$2,885,000	$783,967	$10,956,107	$2,977,203
4836	Howland Blvd	Courtland	SR 415	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Urban	1.99	2	3.98	15,600	32,900	17,300	34,427	$505,000	$126,884	$11,365,000	$2,855,528
4904	Rhode Island East Phase 1	Veteran's Memorial Parkway	Partnership Center	New Road Construction- 2 Lanes	Future Estimate	Rural	0.44	2	0.88	0	12,600	12,600	5,544	$0	$0	$2,480,000	$2,818,182
4758	Rhode Island West	Westside Parkway	US 17/92	New Road Construction- 2 Lanes	Future Estimate	Rural	1.41	2	2.82	0	12,600	12,600	17,766	$1,080,000	$382,979	$8,488,685	$3,010,172
1358-1	Beresford Ave Phase 1	Blue Lake Road	Kepler Road	New Road Construction- 2 Lanes	Future Estimate	Rural	1.19	2	2.38	0	10,080	10,080	11,995	$1,402,000	$589,076	$3,722,000	$1,563,866
1358-2	Beresford Ave Phase 2	Kepler Road	SR 44	New Road Construction- 2 Lanes	Future Estimate	Urban	0.75	2	1.50	0	10,080	10,080	7,560	$0	$0	$3,400,000	$2,266,667
	Total (including designated outliers)								**49.70**				**396,855**	**$25,838,815**	**$519,896**	**$106,941,312**	**$2,151,737**
	Total (excluding designated outliers)								**36.98**	**(a)**		**(b)**	**288,342**	**$21,740,951**	**$794,045**	**$91,104,643**	**$2,463,619**
	Total (Future Estimates excluding outliers)								**27.10**				**204,594**	**$12,459,742**	**$858,109**	**$71,863,184**	**$2,651,778**
	Weighted Average Capacity Added per Lane Mile											**(c)**	**7,797**				

(1) Source: Volusia County Construction Engineering Department

Table D-2
Volusia County FY 2007-2011 TIP Roadway Projects [1]

FM Number	Description	From	To	Feature	Project Status	Section Design	Length	Lanes Added	Total Lane Miles	ROW Cost	ROW Cost per Lane Mile
2408871	SR 15/600 (US 17/92)	SR 472	SR 15A	Add Lanes and Reconstruct - 4 to 6 Lanes	Future Estimate	Urban	1.92	2	3.84	$3,665,445	$954,543
2407931	SR 15/600 (US 17/92)	Old DeLand Road	Plantation Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Rural	2.29	2	4.58	$3,817,000	$833,406
2408561	SR 15A	Greens Dairy Road	SR 15/US 17	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.78	2	3.56	$2,707,000	$760,393
2408551	SR 15A	Plymouth Avenue	Greens Dairy Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.02	2	2.04	$40,000	$19,608
2408221	SR 15A	US 17/92	Beresford Avenue	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.75	2	3.50	$2,343,000	$669,429
2410091	SR 40	Cone Road	0.38 miles West of Tymbercreek Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Recent Bid	Urban	5.56	2	11.12	$1,315,000	$118,255
4073554	SR 415	Reed Ellis Road	0.3 miles N. of Acorn Lake	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Rural	5.07	2	10.14	$13,148,000	$1,296,647
4073553	SR 415	Seminole County Line	Reed Ellis Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Future Estimate	Rural	2.26	2	4.52	$842,502	$186,394
2409981	SR 44	W. of CR 4139	W. of Ramps of I-4	New Road Construction - 0 to 2 Lanes	Completed	Rural	1.09	2	2.18	$4,329,000	$1,985,780
2408053	SR 44	CR 4118/Pioneer Trail	SR 415	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Rural	3.96	2	7.92	$0	$0
2408041	SR 44	SR 415	I-95	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	4.95	2	9.90	$912,000	$92,121
2408052	SR 44	W of Ramps I-4	CR 4118/Pioneer Trail	Add Lanes and Reconstruct - 2 to 4 Lanes	Recent Bid	Rural	6.20	2	12.40	$0	$0
2408111	SR 442	Air Park Road	SR 5/US 1	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.72	2	3.44	$6,696,000	$1,946,512
2408121	SR 442	I-95	Air Park Road	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.88	2	3.76	$1,825,000	$485,372
2407191	SR 5A/Nova Road	Flomich Avenue	Wilmette Avenue	Add Lanes and Reconstruct - 2 to 6 Lanes	Completed	Urban	2.99	4	11.96	$2,641,000	$220,819
2407571	SR 5A/Nova Road	SR 5/US 1	Village Trail	Add Lanes and Reconstruct - 2 to 6 Lanes	Completed	Urban	2.25	4	9.00	$2,853,000	$317,000
2407201	SR 5A/Nova Road	Village Trail	Herbert Street	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.01	2	2.02	$2,075,000	$1,027,228
2407581	SR 5A/Nova Road	Wilmette Avenue	SR 5/US 1	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.20	2	2.40	$710,000	$295,833
2407051	SR 5A/Nova Road	Herber Street	SR 400/Beville Road	Add Lanes and Reconstruct - 4 to 6 Lanes	Completed	Urban	2.88	2	5.76	$4,356,000	$756,250
2408431	SR 40	W. of Tymber Creek Road	West of I-95	Add Lanes and Reconstruct - 2 to 4 Lanes	Completed	Urban	1.30	2	2.60	$1,000	$385
	Total (including designated outliers)								**116.64**	**$54,275,947**	**$465,329**
	Total (excluding designated outliers)								**80.12**	**$21,498,445**	**$730,743**
	Total (Completed excluding outliers)								**52.76**	**$17,833,000**	**$697,146**
	Total (Future Estimates excluding outliers)								**3.84**	**$3,665,445**	**$954,543**

(1) Source: FDOT District 5 Gaming Reports

Table D-3
State Construction Cost – Recent Peer County Bids [1]

Description	From	To	Feature	County	Project Letting Date	Section Design	Length	Lanes Added	Total Lane Miles	Construction Cost	CST Cost per Lane Mile
SR 426	Mitchell Hammock Road	Pine Avenue	Add Lanes and Reconstruct - 2 to 4 Lanes	Seminole	7/26/2006	Urban	1.06	2	2.12	$8,714,690	$4,110,703
CR 484	S.E. 47th Avenue	SR 500 (US 441)	Add Lanes and Reconstruct - 2 to 4 Lanes	Marion	7/26/2006	Urban	2.60	2	5.20	$21,733,917	$4,179,599
SR 500 (US 192)	CR 534A	N. of CR 534	Add Lanes and Reconstruct - 2 to 4 Lanes	Osceola	6/21/2006	Urban	5.64	2	11.28	$27,123,200	$2,404,539
Total									**18.6**	**$57,571,807**	**$3,095,258**

(1) Source: FDOT District 5 Gaming Reports

Table D-4
2025 Cost Feasible Plan State Projects [1]

Description	From	To	Feature	Length	Lanes Added	Total Lane Miles	Initial Capacity	Final Capacity	Added Capacity	VMC Added	Weighted Average Capacity per Lane Mile
US 17/92	SR 15A/Taylor	SR 472	Add Lanes and Reconstruct - 4 to 6 Lanes	1.85	2	3.70	34,700	52,100	17,400	32,190	8,700
US 92	I-4 EB Ramp	Tomoka Farms Rd	Add Lanes and Reconstruct - 4 to 6 Lanes	2.35	2	4.70	35,700	53,500	17,800	41,830	8,900
Total						**8.40**				**74,020**	**8,812**

(1) Source: FDOT District 5 Gaming Reports

Based on a review of Volusia County's 2025 Cost Affordable Plan projects and consultation with County staff, it is anticipated that most of the lane miles that the County will build in the future will consist of urban design cross-sections. Also, based on the Cost Affordable Plan, it is estimated that most of the lane miles for state roads will be urban design-based. It should be noted that design costs are estimated to be 11 percent of construction costs for county roads and 10 percent for state roads, based on discussions with the County Construction Engineering Department and FDOT District 5 staff, respectively. Also, construction engineering inspection (CEI) costs are estimated to be 9 percent of construction costs for county roads and 10 percent for state roads, based on discussions with the County Construction Engineering Department and FDOT District 5 staff, respectively. These estimates are consistent with current design and CEI cost percentages on recently bid county and state projects.

Table D-5
Lane Mile Distribution

Jurisdiction	Lane Mile Distribution[(1)]
County	57%
State	43%

(1) Source: 2025 Volusia County MPO LRTP Cost Feasible Plan

Table D-6
Adjusted Total Cost per Lane Mile

Cost Type	County Roads	State Roads	County and State Roads[5]
Design [1]	$291,696	$309,526	$299,363
Right-of-Way[2]	$858,109	$954,543	$899,576
Construction[3]	$2,651,778	$3,095,258	$2,842,474
CEI[4]	$238,660	$309,526	$269,132
Total	**$4,040,243**	**$4,668,853**	**$4,310,545**

(1) Source: Estimated at 11 percent of construction costs for county roads and 10 percent of state construction costs for State roads.
(2) Source: Table D-1 for County Roads, Table D-2 for State Roads
(3) Source: Table D-1 for County Roads, Table D-3 for State Roads
(4) Source: Estimated at 9 percent of construction costs for county roads and 10 percent of state construction costs for State roads.
(5) Lane Mile distribution from Table D-5, multiplied by the design, construction, CEI, and ROW phase costs by jurisdiction to develop a weighted average cost per lane mile.

APPENDIX E
Credit Component Calculations

Credit Component

This appendix presents the detailed calculations for the credit component. Currently, in addition to the capital support that ultimately results from State Fuel Tax revenues, Volusia County also receives financial benefit from several other funding sources. Listed below are the various fuel taxes along with the policy direction on how Volusia County allocates these funds between maintenance and capital expansion.

1. Constitutional Fuel Tax (2¢/gallon)

- Tax applies to every net gallon of motor and diesel fuel sold within a county. Collected in accordance with Article XII, Section 9 (c) of the Florida Constitution.
- The state allocates 80 percent of this tax to counties after first withholding amounts pledged for debt service on bonds issued pursuant to provisions of the State Constitution for road and bridge purposes.
- The 20 percent surplus can be used to support the road construction program within the county.
- Volusia County dedicates 100 percent of these funds to the roadway maintenance program.

2. County Fuel Tax (1¢/gallon)

- Tax applies to every net gallon of motor and diesel fuel sold within a county.
- Primary purpose of these funds is to help reduce a county's reliance on ad valorem taxes.
- Proceeds are to be used for transportation-related expenses, including the reduction of bond indebtness incurred for transportation purposes. Authorized uses include acquisition of rights-of-way; the construction, reconstruction, operation, maintenance and repair of transportation facilities, roads, bridges, bicycle paths, and pedestrian pathways; or the reduction of bond indebtedness incurred for transportation purposes.
- Volusia County dedicates 100 percent of these funds to the roadway maintenance program.

3. 1st Local Option Tax (6¢/gallon)

- Tax applies to every net gallon of motor and diesel fuel sold within a county.
- Proceeds may be used to fund transportation expenditures.

- To accommodate statewide equalization, all six cents are automatically levied on diesel fuel in every county, regardless of whether a county is levying the tax on motor fuel at all or at the maximum rate.
- Proceeds are distributed to the county and its municipalities according to distribution factors determined at the local level by interlocal agreement.
- Volusia County dedicates 100 percent of the funds to the roadway capacity expansion program.

4. 2nd Local Option Tax (2¢/gallon)

- Tax applies to every net gallon of motor fuel sold within a county.
- Proceeds may be used to fund transportation expenditures needed to meet the requirements of the capital improvements element of an adopted local government comprehensive plan.
- Proceeds are distributed to the county and its municipalities according to distribution factors determined at the local level by interlocal agreement.
- Volusia County dedicates 100 percent of these funds to the roadway capacity expansion program.

5. Ninth-Cent Fuel Tax (1¢/gallon)

- Tax is on every net gallon of motor fuel sold within a county.
- Proceeds may be used to fund transportation expenditures.
- To accommodate statewide equalization, this tax is automatically levied on diesel fuel in every county, regardless of whether a county is levying the tax on motor fuel at all.
- Counties are not required to share the proceeds of this tax with their municipalities.
- Volusia County dedicates 100 percent of these funds to the roadway maintenance program.

Each year, the Florida Legislative Committee on Intergovernmental Relations (LCIR) produces a document, the *Local Government Financial Information Handbook*, which details the estimated local government revenues for the upcoming fiscal year. Included in this document are the estimated distributions of the various fuel tax revenues for each county in the state. Based on data provided by the Volusia County Public Works Department, these estimates were refined to reflect projected gas tax revenues included in the County Transportation Trust Fund. Included in this Appendix is Table E-1, which utilizes this information for the 2007-08 fiscal year. In the table, the fuel tax revenue data are utilized to calculate the value per penny (per gallon of fuel) that should be used

to estimate the "equivalent pennies" of other revenue sources, and the number of pennies that should be applied to the credit variable in the impact fee calculation.

Tables E-1 shows the distribution per penny for each of the fuel levies, as well as the weighted average for the value of a penny of fuel tax that was calculated. A weighting procedure was used to calculate the mean to account for the varying levies per gallon of fuel. The weighted average figure of approximately $2.19 million is used in the value per penny calculations.

Table E-1
Estimated Fuel Tax Distribution Allocated to Capital Program for Volusia County & Municipalities, FY 2007-08[1]

Tax	Amount of Levy per Gallon	Total Distribution	Distribution Per Penny
Constitutional Fuel Tax	$0.02	$5,199,277	$2,599,639
County Fuel Tax	$0.01	$2,295,000	$2,295,000
1st Local Option (1-6 cents)	$0.06	$13,365,013	$2,227,502
2nd Local Option (1-5 cents)	$0.05	$9,533,710	$1,906,742
Ninth-Cent Fuel Tax	$0.01	$2,499,000	$2,499,000
Total	**$0.15**	**$32,892,000**	
Weighted Average[2]			**$2,192,800**

(1) Source: Volusia County Public Works Administration, County Transportation Trust (Fund 103)
(2) The weighed average distribution per penny is calculated by taking the sum of total distribution and dividing that value by the sum of total levies per gallon multiplied by 100

Gas Tax Credit

County Portion

A review of the County's 2002-2011 roadway projects and its funding sources reveals that the capacity expansion projects in the CIP are built with impact fees, grants, and gas taxes. As shown in Table E-4, the County used a total of approximately $17.1 million ($3.4 million per year) of the annual allocation gas tax revenues to fund capacity expansion projects between 2002 and 2006. The County has recently adopted the 2nd Local Option Gas Tax and by policy, allocates 100 percent of the gas tax revenues it receives from this funding source to fund capacity expansion projects. It is anticipated that the County will continue to dedicate all revenues from the 2nd LOGT for capacity expansion projects. As such, a credit is given of 2.5 pennies for the County's portion of this annual revenue source that is eddicated to capacity expansion projects. Table E-2 presents the total pennies of gas tax revenues allocated to Volusia County.

Table E-2
County Equivalent Pennies

Allocation	Revenue from 1 penny	Annual Revenue(1)	Equivalent Pennies
County CIP- Gas Tax Expenditures	$2,192,800	$5,457,000	$0.025

(1) Source: Volusia County Public Works Administration, County Transportation Trust (Fund 103)

State Portion

In the calculation of the equivalent pennies of gas tax from the State, the FDOT Work Program was reviewed for capacity expansion projects in Volusia County for the 15-year period from 1997 to 2011. The five years of "future" roadway projects from the currently adopted 2007-2011 Work Program indicate a total state expenditure of over $90.1 million for capacity-adding projects in the County. On an annual basis, this level of expenditure is equivalent to 8.2 pennies of gas tax revenue. Comparatively, the total cost of the capacity-adding projects for the five-year "historical" period from 2002 to 2006 equates to 13.1 pennies and that for the period from 1997 to 2001 equates to 10.9 pennies. The combined weighted average over the 15-year total of state expenditures in the County for capacity-adding roadway projects results in a total equivalency of 10.8 pennies. Table E-3 documents this calculation.

Table E-3
Equivalent Penny Calculation for State Portion

Allocation	Cost of Projects	Number of Years	Revenue from 1 penny	Annual Revenue	Equivalent Pennies
Future Work Program (2007-2011)[1]	$90,124,821	5	$2,192,800	$18,024,964	$0.082
Historical Work Program (2002-2006)[2]	$143,668,000	5	$2,192,800	$28,733,600	$0.131
Historical Work Program (1997-2001)[3]	$119,939,000	5	$2,192,800	$23,987,800	$0.109
Total	**$353,731,821**	**15**	**$2,192,800**	**$23,582,121**	**$0.108**

(1) Source: Table E-5, Total Cost of Expansion Projects
(2) Source: Table E-6, Total Cost of Expansion Projects
(3) Source: Table E-7, Total Cost of Expansion Projects

The specific State projects that were utilized in the equivalent penny calculations are summarized in Tables E-5 through E-7.

Table E-4
Volusia County FY 2002 - 2006 Gas Tax Expenditures - Expansion Projects [1]

Phase Org#	Impact Fee Zone	Description	Roadway	From/To	FY 2001/2002	FY 2002/2003	FY 2003/2004	FY 2004/2005	FY 2005/2006	Total
E-9108	1	Add Lanes & Reconstruct	LPGA Boulevard	Jimmy Ann Drive to Nova Road	$1,328	$0	$83	$453,765	$82,619	$537,795
E-9107	1	Alignment Study	LPGA Boulevard	Madeline Avenue Extension	$46,873	$31,506	$1,623	$1,675	$522	$82,199
E-4022	1	Add Lanes & Reconstruct	Tomoka Farms Road	SR 44 to US 92	$0	$193	$70,931	$21,722	$177,900	$270,746
E-4014	1	Add Lanes & Reconstruct	Williamson Boulevard	Spruce Creek Road to Taylor Road	$54,193	$104,127	$273,216	$97,534	$19,927	$548,997
E-9140	2	Add Lanes & Reconstruct	Old Mission Road	Park to Eslinger Road	$0	$25,070	$31,996	$8,520	$4,778	$70,364
R-9111	2	Add Lanes & Reconstruct	Tenth Street	Myrtle Road to US 1	$0	$350,000	$0	$0	$0	$350,000
E-9119	3	Add Lanes & Reconstruct	Enterprise Road	Saxon Road to Deltona Road	$516,968	$295,284	$125,046	$3,365,595	$864,970	$5,167,863
R-9120	3	Add Lanes & Reconstruct	Howland Boulevard	High School to Providence Boulevard	$403,700	$659,307	$1,993,470	$73,694	$163,220	$3,293,391
E-9150	3	New Road Construction	Rhode Island Road	Veteran's Memorial Parkway to Normandy Boulevard	$5,065	$49,711	$263,143	$108,886	$309,851	$736,656
C-9121	3	Add Lanes & Reconstruct	Saxon Boulevard	Sumatra Road to Tivoli Road	$0	$0	$421,697	$1,290,052	$1,313,074	$3,024,823
E-9148	3	Add Lanes & Reconstruct	Saxon Boulevard	US 17/92 to Existing 4 Lane	$196,829	$241,912	$0	$0	$0	$438,741
E-4012	3	New Road Construction	SR 472 Access Road		$0	$607,054	$4,144	$10,510	$614,428	$1,236,136
E-4028	3	New Road Construction	Westside Parkway	Don Smith Road to French Road	$0	$0	$0	$111,694	$86,000	$197,694
E-9145	4	Add Lanes & Reconstruct	I-4 Frontage Road	SR 472 to Orange Camp Road	$5,466	$439,763	$94,532	$41,027	$13,192	$593,980
E-4024	4	Add Lanes & Reconstruct	I-4 Frontage Road	Orange Camp Road	$0	$105,116	$434,206	$18,024	$4,033	$561,379
Total					**$1,230,422**	**$2,909,043**	**$3,714,087**	**$5,602,698**	**$3,654,514**	**$17,110,764**

(1) Source: Volusia County Construction Engineering Department

Table E-5
FDOT FY 2007 - 2011 Work Program – Volusia County Expansion Projects [1]

Proj #	Description	Roadway	From/To	FY 2006/2007	FY 2007/2008	FY 2008/2009	FY 2009/2010	FY 2010/2011	Total
240887-1	Add Lanes & Reconstruct - 4 to 6 Lanes	State Road (SR 15/600)	From SR 472 to SR 15A	$11,471,797	$0	$372,120	$0	$0	$11,843,917
240992-1	Intersection Improvements (Major)	State Road (SR 5)	At US1/SR430 (Mason Ave.) and US1/SR40 (Granada)	$961,749	$2,316,788	$754,067	$0	$0	$4,032,604
240992-3	Intersection (Major)	State Road (SR 5)	At Mason Ave.	$0	$0	$0	$2,113,039	$0	$2,113,039
240992-4	Intersection (Major)	State Road (SR 5)	At SR 40 (Granada Blvd.)	$0	$0	$0	$2,085,519	$0	$2,085,519
407355-3	Add Lanes & Reconstruct - 2 to 4 Lanes	State Road (SR 415)	From Seminole County Line to Reed Ellis Road	$2,448,680	$299,686	$291,498	$213,948	$0	$3,253,812
407355-4	Add Lanes & Reconstruct - 2 to 4 Lanes	State Road (SR 415)	From Reed Ellis Road to 0.3 Miles North of Acorn Lake	$623,935	$2,424,711	$6,136,859	$4,225,676	$0	$13,411,181
410082-1	Traffic Ops Improvement	State Road (SR 483)	From Mayberry to Dunn	$0	$925,817	$0	$0	$0	$925,817
410251-1	PD&E/EMO Study	State Road (SR 15)	From Deleon Springs Blvd. to SR 40	$6,264,379	$0	$0	$0	$0	$6,264,379
413019-9	Traffic Signals	Volusia Traffic Engineering Contracts	In Volusia County	$384,437	$395,973	$407,762	$419,975	$432,578	$2,040,725
416194-1	Add Right Turn Lanes	State Road (SR 483)	South of SR 430	$65,787	$206,946	$0	$0	$0	$272,733
416219-1	Add Left Turn Lanes	State Road (SR 430)	SR 5A Eastward	$745,690	$53,369	$130,343	$310,815	$0	$1,240,217
417068-1	Traffic Signals	State Road (SR 421)	From Taylor Road to US 1	$612,568	$0	$0	$0	$0	$612,568
417127-1	Interchange (Minor)	State Road (SR 421)	From Williamson Blvd. to 259' East of NB I-95 Off-Ramp	$0	$1,000,000	$0	$0	$0	$1,000,000
417734-1	Reserve Future Funding for Construction	State Road (SR 415)	Reed Ellis Road to Seminole County Line (FM#4073553)	$0	$0	$0	$20,000,000	$15,000,000	$35,000,000
418019-1	Traffic Signals	State Road (SR 40)	From Williamson Blvd. to US 1	$0	$0	$687,008	$0	$0	$687,008
418020-1	Traffic Signals	State Road (SR 44)	From Eddie Road to 3rd Avenue	$0	$0	$1,129,778	$0	$0	$1,129,778
418021-1	Traffic Signals	State Road (SR 600)	From I-95 to US 1	$0	$0	$0	$2,575,915	$0	$2,575,915
420654-1	New Road Construction - 2 Lanes	Saxon Blvd. Ext.	From US 17/92 to Proposed Commuter Rail Station (CSX Rail Line)	$1,635,609	$0	$0	$0	$0	$1,635,609
Total				**$25,214,631**	**$7,623,290**	**$9,909,435**	**$31,944,887**	**$15,432,578**	**$90,124,821**

(1) Source: FDOT District 5 Gaming Reports

Table E-6
FDOT FY 2002 - 2006 Work Program - Volusia County Expansion Projects [1]

Proj #	Description	On/From/To	FY 2001/2002	FY 2002/2003	FY 2003/2004	FY 2004/2005	FY 2005/2006	Total
240493-1	Add Lanes & Reconstruct	SR 15/600 US 17/92 from Plantation Rd. to Highbanks Rd.	$2,000	$0	$0	$0	$0	$2,000
240705-1	Add Lanes & Reconstruct	SR 5A/Nova Rd. from Herbert St. to SR 400/Beville Rd.	$3,000	$19,000	$0	$0	$0	$22,000
240719-1	Add Lanes & Reconstruct	SR 5A Nova Rd. from Flomich Ave. to Wilmette Ave.	$1,758,000	$43,000	$308,000	$309,000	$0	$2,418,000
240720-1	Add Lanes & Reconstruct	SR 5A/Nova Rd. from Village Tr. To Herbert St.	$851,000	$21,000	$206,000	$178,000	$2,000	$1,258,000
240757-1	Add Lanes & Reconstruct	SR 5A Nova Rd. from SR 5/US 1 to Village Tr.	$2,736,000	$271,000	$535,000	$355,000	$1,000	$3,898,000
240758-1	Add Lanes & Reconstruct	SR 5A/Nova Rd. from Wilmette Ave. To SR 5/US 1 (Ormond)	$740,000	$568,000	$217,000	$75,000	$0	$1,600,000
240792-1	Add Lanes & Reconstruct	SR 15/600 US 17/92 from Highbanks Rd. to Enterprise Rd.	$258,000	$342,000	$0	$1,000	$0	$601,000
240793-1	Add Lanes & Reconstruct	SR 15/600 US 17/97 from Old Deland Rd. to Plantation Rd.	$256,000	$0	$0	$0	$0	$256,000
240804-1	Add Lanes & Reconstruct	SR 44 from SR 415 to I-95	$321,000	$0	$0	$0	$0	$321,000
240805-1	ROW	SR 44 from West Ramps of I-4 to SR 415	$2,797,000	$5,075,000	$852,000	$71,000	$1,001,000	$9,796,000
240805-2	Add Lanes & Reconstruct	SR 44 from West Ramps of I-4 to CR 4118 Pioneer Tr.	$0	$0	$25,949,000	$567,000	$1,776,000	$28,292,000
240805-3	Add Lanes & Reconstruct	SR 44 from CR 4118/Pioneer Tr. to SR 415	$10,374,000	$229,000	$605,000	$435,000	$37,000	$11,680,000
240811-1	Add Lanes & Reconstruct	SR 442 Indian River Blvd. from Air Park Rd. to SR 5/US 1	$10,307,000	$2,048,000	$579,000	$93,000	$0	$13,027,000
240812-1	Add Lanes & Reconstruct	SR 442 Indian River Blvd. from I-95 to Air Park Rd.	$4,642,000	$542,000	$182,000	$21,000	$76,000	$5,463,000
240822-1	Add Lanes & Reconstruct	SR 15A from SR 15/600 US 17/92 to Beresford Ave	$596,000	$1,567,000	$4,683,000	$143,000	$0	$6,989,000
240855-1	Add Lanes & Reconstruct	SR 15A from Plymouth Ave to Greens Dairy Rd	$2,922,000	$263,000	$56,000	$0	$0	$3,241,000
240856-1	Add Lanes & Reconstruct	SR 15A from Greens Dairy Rd. to SR 15 US 17	$326,000	$1,522,000	$887,000	$7,412,000	$468,000	$10,615,000
240887-1	Add Lanes & Reconstruct	SR 15/600 (US 17/92) from SR 472 to SR 15A	$4,000	$22,000	$121,000	$825,000	$1,766,000	$2,738,000
240948-2	Traffic Control Devices/System	Volusia County ITS Integration	$131,000	$514,000	$0	$0	$0	$645,000
240992-1	Intersection (major)	SR 5 (US1) at US1/SR430 (Mason Ave.) and US1/SR40 (Granada)	$0	$0	$0	$1,342,000	$22,000	$1,364,000
240998-1	New Road Construction	SR 44 from 0.25 mi. West of CR 4139 to West of Ramps of I-4	$367,000	$2,621,000	$36,000	$0	$0	$3,024,000
240998-2	New Road Construction	SR 44 from 0.25 mi. West of CR 4139 to West of Ramps of I-4	$0	$0	$1,891,000	$0	$2,000	$1,893,000
241009-1	Add Lanes & Reconstruct	SR 40 from Cone Rd. to 0.38 mi. West of Tymbercreek Rd.	$927,000	$132,000	$1,417,000	$14,484,000	$519,000	$17,479,000
404312-1	Add Turn Lanes	SR 415 @ 4 locations	$0	$883,000	$172,000	$0	$0	$1,055,000
404646-1	PD&E/EMO Study	SR 44 from CR 42 to West Ramps of I-4	$15,000	$8,000	$9,000	$1,000	$0	$33,000
406306-1	Add Turn Lanes	Lake Helen-Osteen Rd. and Catalina Blvd.	$20,000	$160,000	$0	$0	$0	$180,000
406704-1	Traffic Signals	SR 44 at Alabama Ave	$118,000	$0	$0	$0	$0	$118,000
406778-1	Traffic Signals	Doyle Rd. and Courtland Blvd. Intersection	$14,000	$81,000	$0	$0	$0	$95,000
407355-2	PD&E/EMO Study	SR 415 from Seminole County Line to SR 44	$17,000	$1,340,000	$26,000	$40,000	$5,000	$1,428,000
407355-3	Add Lanes & Reconstruct	SR 415 from Seminole County Line to Reed Ellis Rd.	$0	$0	$0	$664,000	$1,946,000	$2,610,000
407355-4	Add Lanes & Reconstruct	SR 415 from Reed Ellis Rd. to 0.3 Mi. North of Acorn Lake	$0	$0	$0	$4,000	$2,229,000	$2,233,000
408154-1	PD&E/EMO Study	LPGA Blvd from SR 5A (Nova Rd) to SR5 US 1	$0	$0	$0	$126,000	$2,000	$128,000
408178-1	PD&E/EMO Study	SR 483 (Clyde Morris) from SR 400 (Beville Rd) to SR 600 US 92	$0	$0	$0	$797,000	$14,000	$811,000
408723-1	Add Left Turn Lane	Elkcam Blvd and Lake Helen-Osteen Rd. Intersection	$0	$23,000	$151,000	$0	$0	$174,000
410251-1	PD&E/EMO Study	SR15 (US 17/92) from Deleon Springs Blvd to SR 40	$0	$0	$0	$702,000	$52,000	$754,000
410252-1	PD&E/EMO Study	LPGA Blvd Extension from CR 415 Landfill to SR 600/US 92	$0	$1,000	$725,000	$106,000	$13,000	$845,000
410524-1	Add Lanes & Reconstruct	CR 92 from SR 15A to Existing 4 lane section	$618,000	$0	$0	$0	$0	$618,000
410526-1	Add Lanes & Reconstruct	Saxon Blvd. from SR 15/600, US 17/92 to Existing 4 LN section	$214,000	$0	$0	$0	$0	$214,000
410676-1	PD&E/EMO Study	SR 40 Lake Co Line to SR 15 US 17	$0	$0	$0	$0	$542,000	$542,000
411462-1	Intersection (minor)	Clyde Morris Blvd and Herbert St.	$0	$15,000	$123,000	$0	$0	$138,000
412989-1	New Road Construction	I-4 Frontage Rd.from SR 472 to CR 4139	$0	$1,360,000	$0	$0	$0	$1,360,000
413019-9	Traffic Signals	Volusia Traffic Engineering Contracts	$0	$73,000	$231,000	$318,000	$327,000	$949,000
413763-1	Add Left Turn Lane	SR 15/US 17 and Emporia Rd	$0	$0	$0	$188,000	$6,000	$194,000
414995-1	Traffic Signals	SR 5A at Division Ave	$0	$0	$0	$0	$227,000	$227,000
416152-1	Traffic Signals	SR 40 at Orchard St	$0	$0	$0	$0	$280,000	$280,000
416194-1	Add Right Turn Lanes	SR 483 from S of SR 430 to SR 430	$0	$0	$0	$0	$17,000	$17,000
417127-1	Interchange (minor)	SR 421 from Williamson Blvd. to 259E/NB I95 off ramp	$0	$0	$0	$0	$1,000,000	$1,000,000
417247-1	Traffic Signals	SR 40 at SR 11	$0	$0	$0	$0	$443,000	$443,000
419661-1	Add Lanes & Reconstruct	Dunn Ave. Ext., Tomoka Farms Rd. Ext., Williamson Blvd.	$0	$0	$0	$0	$600,000	$600,000
Total			**$41,334,000**	**$19,743,000**	**$39,961,000**	**$29,257,000**	**$13,373,000**	**$143,668,000**

(1) Source: FDOT District 5 Gaming Reports

Table E-7
FDOT FY 1997 - 2001 Work Program - Volusia County Expansion Projects

Proj #	Description	On/From/To	FY 1996/1997	FY 1997/1998	FY 1998/1999	FY 1999/2000	FY 2000/2001	Total
240493-1	Add Lanes & Reconstruct	SR 15/600 US 17/92 from Plantation Rd. to Highbanks Rd.	$262,000	$16,000	$2,000	$1,000	$550,000	$831,000
240693-1	Add Lanes & Reconstruct	SR 5A/Nova Rd. from Brentowood Dr to Flomich Ave	$31,000	$69,000	$0	$0	$0	$100,000
240705-1	Add Lanes & Reconstruct	SR 5A/Nova Rd. from Herbert St. to SR 400/Beville Rd.	$2,345,000	$882,000	$1,983,000	$584,000	$48,000	$5,842,000
240719-1	Add Lanes & Reconstruct	SR 5A Nova Rd. from Flomich Ave. to Wilmette Ave.	$155,000	$775,000	$458,000	$982,000	$10,318,000	$12,688,000
240720-1	Add Lanes & Reconstruct	SR 5A/Nova Rd. from Village Tr. To Herbert St.	$128,000	$215,000	$360,000	$865,000	$5,420,000	$6,988,000
240721-1	Add Lanes & Reconstruct	SR 600 (US 92) from SR 483/Clyde Morris to SR 5A/Nova Rd.	$153,000	$0	$0	$0	$0	$153,000
240757-1	Add Lanes & Reconstruct	SR 5A Nova Rd. from SR 5/US 1 to Village Tr.	$160,000	$16,000	$1,522,000	$1,343,000	$10,347,000	$13,388,000
240758-1	Add Lanes & Reconstruct	SR 5A/Nova Rd. from Wilmette Ave. To SR 5/US 1 (Ormond)	$15,000	$117,000	$1,683,000	$797,000	$3,867,000	$6,479,000
240762-1	Add Lanes & Reconstruct	SR 421/Dunlawton from I-95 to SR 5A/Nova Rd.	$375,000	$0	$0	$0	$0	$375,000
240792-1	Add Lanes & Reconstruct	SR 15/600 US 17/92 from Highbanks Rd. to Enterprise Rd.	$1,487,000	$67,000	$580,000	$7,284,000	$326,000	$9,744,000
240793-1	Add Lanes & Reconstruct	SR 15/600 US 17/97 from Old Deland Rd. to Plantation Rd.	$225,000	$1,114,000	$6,861,000	$1,050,000	$774,000	$10,024,000
240804-1	Add Lanes & Reconstruct	SR 44 from SR 415 to I-95	$499,000	$7,563,000	$3,417,000	$5,356,000	$3,597,000	$20,432,000
240805-1	ROW	SR 44 from West Ramps of I-4 to SR 415	$1,778,000	$23,000	$646,000	$70,000	$1,717,000	$4,234,000
240811-1	Add Lanes & Reconstruct	SR 442 Indian River Blvd. from Air Park Rd. to SR 5/US 1	$56,000	$93,000	$565,000	$994,000	$3,514,000	$5,222,000
240812-1	Add Lanes & Reconstruct	SR 442 Indian River Blvd. from I-95 to Air Park Rd.	$0	$0	$0	$296,000	$802,000	$1,098,000
240822-1	Add Lanes & Reconstruct	SR 15A from SR 15/600 US 17/92 to Beresford Ave	$0	$0	$0	$89,000	$283,000	$372,000
240843-1	Add Lanes & Reconstruct	SR 40 from .5 mi. west of Tymber Ck Rd. to 600 ft. west of I-95	$4,515,000	$576,000	$56,000	$2,000	$0	$5,149,000
240853-1	Add Left Turn Lane	SR 5/US 1 int. SR 600/US 92 (4 dual LT tn lns)	$0	$0	$1,021,000	$9,000	$64,000	$1,094,000
240855-1	Add Lanes & Reconstruct	SR 15A from Plymouth Ave to Greens Dairy Rd	$29,000	$0	$0	$401,000	$10,000	$440,000
240856-1	Add Lanes & Reconstruct	SR 15A from Greens Dairy Rd. to SR 15 US 17	$6,000	$2,000	$0	$17,000	$826,000	$851,000
240862-1	ROW	SR 44 New York Ave Int. Hill Ave in DeLand	$2,000	$0	$0	$6,000	$0	$8,000
240889-1	Add Left Turn Lane	SR 483/Clyde Morris from Dunn Ave to North St	$6,000	$0	$0	$0	$0	$6,000
240896-1	New Road Construction	SR 472 Extension I-4 Howland Blvd	$1,000	$0	$0	$0	$0	$1,000
240943-1	Add Turn Lane	East Volusia, 3 locations	$673,000	$15,000	$0	$0	$0	$688,000
240946-1	PD&E/EMO Study	SR 40/Lake County Line Rd SR 15 US 17	$3,000	$0	$0	$0	$0	$3,000
240948-2	Traffic Control Devices/System	Volusia County ITS Integration	$0	$0	$0	$0	$700,000	$700,000
240962-1	Overhead Signing	SR A1A CR 4075	$50,000	$0	$0	$0	$0	$50,000
240975-1	Add Turn Lane	SR 15/600 US 17/92 from Minnesota Ave to SR 15A	$217,000	$3,000	$0	$0	$0	$220,000
240976-1	Add Turn Lane	SR 415 from Doyle Rd. to SB Rt Tn Ln	$0	$0	$62,000	$0	$0	$62,000
240986-1	Upgrade Traffic Signals	Install Fiber Optics State Signalized Roadways	$68,000	$0	$0	$0	$0	$68,000
240991-1	Intersection (minor)	SR 15/US 17 and W. Davis St.	$0	$0	$20,000	$450,000	$45,000	$515,000
240992-1	Intersection (major)	SR 5 (US1) at US1/SR430 (Mason Ave.) and US1/SR40 (Granada)	$772,000	$8,000	$23,000	$10,000	$17,000	$830,000
240997-1	Traffic Signals	SR 600 US 92 Indigo Dr SR 5A Nova Rd	$0	$0	$436,000	$159,000	$4,000	$599,000
240998-1	New Road Construction	SR 44 from 0.25 mi. West of CR 4139 to West of Ramps of I-4	$498,000	$9,000	$76,000	$92,000	$4,790,000	$5,465,000
241004-1	Add Left Turn Lane	SR 442 Edgewater Dr. from Intersection of Old Mission Road	$99,000	$0	$0	$0	$0	$99,000
241009-1	Add Lanes & Reconstruct	SR 40 from Cone Rd. to 0.38 mi. West of Tymbercreek Rd.	$0	$1,337,000	$37,000	$35,000	$301,000	$1,710,000
241023-1	Traffic Signals	SR 5/US 1 and Falcon Avenue Intersection	$0	$128,000	$24,000	$0	$0	$152,000
241032-1	Traffic Control Devices/System	Countywide install fiber	$0	$0	$243,000	$4,000	$0	$247,000
241033-1	Traffic Signals	SR 40 @ SR A1A Intersection	$0	$125,000	$27,000	$0	$0	$152,000
241036-1	Traffic Signals	SR 5/US 1 and Division Ave. Intersection	$0	$0	$101,000	$22,000	$0	$123,000
241039-1	Add Left Turn Lane	SR 5A/Nova Rd. and SR 430/Mason Ave. Intersection (LT TN LNS & Signal)	$0	$0	$0	$501,000	$54,000	$555,000
242187-1	Add Left Turn Lane	Howland Blvd. and Ambot Dr. Intersection in Deltona	$0	$0	$289,000	$37,000	$0	$326,000
242199-1	Traffic Signals	Clyde Morris Blvd. and Bill France Blvd. Intersection	$0	$0	$84,000	$13,000	$0	$97,000
242200-1	Traffic Signals	Voorhis Ave and Amelia Ave Intersection in DeLand	$0	$0	$68,000	$27,000	$0	$95,000
242201-1	Add Left Turn Lane	Kepler Rd. from Intersection of Minnesota Ave to SR 600 US 92	$0	$0	$448,000	$0	$0	$448,000
404059-1	Add Turn Lane	Fort Smith Blvd and Newmark Dr. Intersection	$0	$0	$0	$170,000	$0	$170,000
404646-1	PD&E/EMO Study	SR 44 from CR 42 to West Ramps of I-4	$0	$0	$0	$0	$1,029,000	$1,029,000
410523-1	Traffic Control Devices/System		$0	$0	$0	$0	$17,000	$17,000
Total			**$14,608,000**	**$13,153,000**	**$21,092,000**	**$21,666,000**	**$49,420,000**	**$119,939,000**

(1) Source: FDOT District 5 Gaming Reports

Table E-8
Average Motor Vehicle Fuel Efficiency – Excluding Interstate Travel

Travel Vehicle Miles of Travel (VMT) @			
	19.7	**6.7**	
Other Arterial Rural	356,437,241,650	40,123,037,750	396,560,279,400
Other Rural	348,080,891,010	28,852,429,199	376,933,320,209
Other Urban	1,414,612,160,557	62,088,922,445	1,476,701,083,001
Total	***2,119,130,293,217***	***131,064,389,393***	***2,250,194,682,610***

Percent VMT

@ 19.7 mpg	@ 6.7 mpg
90%	10%
92%	8%
96%	4%
94%	***6%***

Fuel Consumed			
	Gallons @ 19.7 mpg	**Gallons @ 6.7 mpg**	
Other Arterial Rural	18,093,260,997	5,988,513,097	24,081,774,094
Other Rural	17,669,080,762	4,306,332,716	21,975,413,478
Other Urban	71,807,723,886	9,267,003,350	81,074,727,236
Total	***107,570,065,645***	***19,561,849,163***	***127,131,914,808***

Total Mileage and Fuel	
2,250,195	**miles (millions)**
127,132	**gallons (millions)**
17.70	**mpg**

Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2005,* Section V, Table VM-1 - Annual Vehicle Distance Traveled in Miles and Related Data - 2005 by Highway Category and Vehicle Type

Table E-9
Annual Vehicle Distance Traveled In Miles and Related Data- By Highway Category and Vehicle Type [(1)]

YEAR	ITEM	PASSENGER CARS	MOTOR-CYCLES	BUSES	OTHER 2-AXLE 4-TIRE VEHICLES 2/	SINGLE-UNIT 2-AXLE 6-TIRE OR MORE TRUCKS 3/	COMBINATION TRUCKS	SUBTOTALS		ALL MOTOR VEHICLES
								PASSENGER CARS AND OTHER 2-AXLE 4-TIRE VEHICLES	SINGLE-UNIT 2-AXLE 6-TIRE OR MORE AND COMBINATION TRUCKS	
	Motor-Vehicle Travel: (millions of vehicle-miles)									
2005	Interstate Rural	122,470	1,433	971	82,208	7,758	43,950	204,679	51,708	258,790
2004		129,415	1,354	999	83,181	7,713	43,583	212,596	51,296	266,245
2005	Other Arterial Rural	208,127	1,411	961	148,310	14,102	26,021	**356,437**	**40,123**	398,932
2004		217,495	1,435	992	148,802	14,276	26,414	366,297	40,690	409,413
2005	Other Rural	208,472	1,624	1,658	139,609	14,716	14,136	**348,081**	**28,852**	380,215
2004		217,599	1,593	1,700	142,532	15,028	14,316	360,131	29,344	392,768
2005	All Rural	539,070	4,467	3,589	370,127	36,577	84,107	909,197	120,683	1,037,937
2004		564,509	4,381	3,691	374,515	37,017	84,313	939,024	121,330	1,068,426
2005	Interstate Urban	259,602	2,296	964	166,144	10,492	29,572	425,746	40,063	469,070
2004		258,666	2,089	986	155,714	9,729	28,355	414,379	38,083	455,538
2005	Other Urban	891,293	4,006	2,093	523,319	32,105	29,984	**1,414,612**	**62,089**	1,482,800
2004		876,715	3,652	2,124	496,935	31,696	29,702	1,373,651	61,398	1,440,824
2005	All Urban	1,150,895	6,302	3,057	689,463	42,597	59,556	1,840,359	102,152	1,951,870
2004		1,135,381	5,741	3,110	652,649	41,424	58,056	1,788,030	99,481	1,896,362
2005	Total Rural and Urban	1,689,965	10,770	6,646	1,059,590	79,174	143,662	2,749,555	222,836	2,989,807
2004		1,699,890	10,122	6,801	1,027,164	78,441	142,370	2,727,054	220,811	2,964,788
2005	Number of motor vehicles	136,568,083	6,227,146	807,053	95,336,839	6,395,240	2,086,759	231,904,922	8,481,999	247,421,120
2004	registered 4/	136,430,651	5,767,934	795,274	91,845,327	6,161,028	2,010,335	228,275,978	8,171,364	243,010,550
2005	Average miles traveled	12,375	1,729	8,235	11,114	12,380	68,845	11,856	26,272	12,084
2004	per vehicle	12,460	1,755	8,552	11,184	12,732	70,819	11,946	27,023	12,200
2005	Person-miles of travel 5/	2,670,145	13,677	140,910	1,836,988	79,174	143,662	4,507,133	222,836	4,884,557
2004	(millions)	2,685,827	12,855	144,188	1,780,771	78,441	142,370	4,466,598	220,811	4,844,452
2005	Fuel consumed 6/	73,870,371	215,393	1,329,254	65,419,170	9,042,283	24,410,512	139,289,541	33,452,796	174,286,984
2004	(thousand gallons)	75,401,891	202,447	1,360,178	63,417,148	8,958,622	24,190,904	138,819,039	33,149,526	173,531,190
2005	Average fuel consumption per	541	35	1,647	686	1,414	11,698	601	3,944	704
2004	vehicle (gallons) 6/	553	35	1,710	690	1,454	12,033	608	4,057	714
2005	Average miles traveled per	22.9	50.0	5.0	16.2	8.8	5.9	**19.7**	**6.7**	17.2
2004	gallon of fuel consumed 6/	22.5	50.0	5.0	16.2	8.8	5.9	19.6	6.7	17.1

1/ The 50 states and the District of Columbia report travel by highway category, number of motor vehicles registered, and total fuel consumed. The travel and fuel data by vehicle type and stratification of trucks are estimated by the Federal Highway Administration (FHWA). Entries for 2004 may have been revised based on the availability of more current data. Estimation procedures include use of State-supplied data, the 2002 Census of Transportation Vehicle Inventory and Use Survey (VIUS), and other sources. Some States may still be using 1990 Census-based urbanized area boundaries which may in turn affect highway data by category.

2/ Other 2-Axle 4-Tire Vehicles which are not passenger cars. These include vans, pickup trucks, and sport/utility vehicles.

3/ Single-Unit 2-Axle 6-Tire or More Trucks on a single frame with at least two axles and six tires.

4/ Truck registration figures are from tables MV-1 and MV-9 with truck distribution estimated by the FHWA using the 2002 VIUS.

5/ Vehicle occupancy is estimated by the FHWA from the 2001 National Household Travel Survey (NHTS) with nominal values for heavy trucks.

6/ Total fuel consumption figures are from tables MF-21 and MF-27. Distribution by vehicle type is estimated by the FHWA based on miles per gallon for both diesel and gasoline powered vehicles using State-supplied data, the 2002 VIUS, and other sources with nominal values for motorcycles and buses (revised).

APPENDIX F
Analysis of the Travel Behavior of Low-Income Households

Analysis of the Travel Behavior of Low-Income Households

Because of continued concern that the existing trip rate for the smallest Single Family (Detached) subcategory (i.e., Less than 1,500 s.f.) may not be representative of income-restricted households, an analysis was completed on the travel behavior of lower income households. This analysis utilized data from the 2001 National Household Travel Survey (NHTS) and the 2005 American Housing Survey (AHS) to examine the overall trip-making characteristics of low-income households in the United States.

Table F-1 presents the existing trip characteristics being utilized in the current adopted impact fee schedule for the Single Family (Detached) subcategory. The 2001 NHTS database was used to assess average annual household vehicle miles of travel (VMT) for various annual household income levels. In addition, the 2005 AHS database was used to compare median annual family/household incomes with housing unit size. It is important to recognize that the use of the income variable in each of these databases is completed simply to provide a convenient linking mechanism between household VMT from the NHTS and housing unit size from the AHS.

The results of the analyses of these two sources are included in Tables F-2 and F-4. First, the data shown in Table F-2 indicate that the median income in the U.S. for families/ households living in housing units smaller than 1,500 square feet in size ($34,579) is significantly lower than even the overall median income for the U.S. ($49,702). Then, in Table F-4, annual average household VMT was calculated from the NHTS database for a number of different income levels and ranges related to the resulting AHS income data in Table F-2 and the Volusia County SHIP definition for low income (<$40,250), which is equivalent to 80 percent of the median income level, and very low income (<$25,150), which is equivalent to 50 percent of the median income level for households, as shown in Table F-3.

The results of these analyses indicate that the most logical income-restricted categories to utilize in conjunction with the smallest Single Family (Detached) housing unit size is the less-than-$40,250 (i.e., median of $20,125 category from Table F-4) and the less-than-$25,150 (i.e., median of $12,575 category from Table F-4) segments. In order to calculate a corresponding trip rate for these new subcategories, however, it was necessary to rely on comparative ratios. First, it was determined that the average annual household VMT for

the median income level of the less-than-$40,250 (median of $20,125 category from Table F-4) segment is 15,133 miles. This figure was then compared to the overall average annual VMT per household in the U.S., normalized to the median-of-$57,167 (28,541 miles) category to derive a ratio of 0.53. Next, this ratio was applied to the daily VMT for the average Single Family (Detached) housing unit size (i.e., 1,500 to 2,499 s.f.) to generate a daily VMT of 24.9 for the new subcategory, as shown in Table F-5. This daily VMT figure was then divided by the proposed assessable trip length of 6.24 miles to obtain a typical trip rate of 3.99 trips per day. [1]

It should be noted that a second income-restricted subcategory was derived for the Single Family (Detached) residential land use category, as well: Less than 1,500 s.f. and Annual Household Income less than $25,150 (using the normalized ratio to the mean for the median of $12,575 income category from Table F-4). The travel rate calculations for this subcategory are the same as that described previously for the other new subcategory. The calculated daily trip rate for this subcategory is 2.67 trips.

Then, these two trip rates were placed in the impact fee schedule to generate a net impact fee value for the new "income-restricted" subcategories.

Table F-6 illustrates the impact that the incorporation of the low-income tiers for the Single Family (Detached) land use has on the County's proposed impact fee schedule. As shown in the table, the net impact fee for a housing unit of less than 1,500 square feet and very low income is $2,447. The net impact fee for a housing unit of less than 1,500 square feet and low income is $3,706.

Table F-1
Proposed Single Family Trip Characteristics (1)

Proposed Values Excluding Tiering	Trip Rate	Assessable Trip Length	Daily VMT	Ratio to Mean
Single Family (Detached)	7.53	6.24	46.99	1.00

(1) Source: Appendix G, Table G-1

[1] Assessable trip length is assumed to be 6.24 miles based on the trip characteristics studies performed in Volusia County.

Table F-2
AHS Median Income Data by Housing Size (1)

2005 AHS Median Income Data by Housing Size	Annual Income
Less than 1,500 sf	$34,579
1,500 to 2,499 sf	$57,167
2,500 sf or more	$80,889
Average of All Houses	$49,702

(1) Source: 2005 American Household Survey

Table F-3
Hernando County SHIP Definitions(1)

Volusia County SHIP Definitions
Low income ---> Less than $40,250
Very low income ---> Less than $25,150

(1) Source: Volusia County Community Assistance Department. www.volusia.org/community_assistance/changes.htm

Table F-4
NHTS VMT Annual VMT by Income Category (1)

2001 NHTS Travel Data by Annual HH Income	Annual VMT/HH	Days	Daily VMT	Ratio to Mean	Normalized to 1.128
Median of $12,575	10,095	365	27.66	0.399	0.354
Median of $20,125	15,133	365	41.46	0.598	0.530
Median of $34,577	20,976	365	57.47	0.829	0.735
Total (All Homes)	25,294	365	69.30	1.000	
Median of $57,165	28,541	365	78.19	1.128	1.000
Median of $80,887	32,285	365	88.45	1.276	1.131

(1) Source: 2001 National Household Travel Survey Database, Federal Highway Administration

Table F-5
Trip Generation Rate by Single Family Land Use Tier

Estimation of Trip Rate By Tier	Trip Rate[(1)]	Assessable Trip Length[(2)]	Daily VMT[(3)]	Ratio to Mean[(4)]
Single Family (Detached)				
Less than 1,500 sf and very low income	**2.67**	6.24	16.63	0.354
Less than 1,500 sf and low income	**3.99**	6.24	24.90	0.530
Less than 1,500 sf	**5.54**	6.24	34.54	0.735
1,500 to 2,499 sf	**7.53**	6.24	46.99	1.000
2,500 sf or larger	**8.52**	6.24	53.15	1.131

(1) Daily VMT (Item 3) divided by assessable trip length (Item 2) for each tiered single family land use category
(2) Source: Table F-1
(3) Ratio to Mean (Item 4) divided by total daily VMT for the 1,500 to 2,499 sf tier for each tiered single family land use category
(4) Source: Table F-4

Table F-6
Net Impact Fee by Single Family Land Use Tier [(1)]

Impact of Tiering on Fee Schedule	Trip Rate	Assessable Trip Length	Daily VMT	Net Fee[(1)]
Single Family (Detached)				
Less than 1,500 sf and very low income	**2.67**	6.24	16.63	$2,477
Less than 1,500 sf and low income	**3.99**	6.24	24.90	$3,706
Less than 1,500 sf	**5.54**	6.24	34.54	$5,151
1,500 to 2,499 sf	**7.53**	6.24	46.99	$6,991
2,500 sf or larger	**8.52**	6.24	53.15	$7,914

(1) Source: Appendix G, Table G-1

APPENDIX G
Proposed Volusia County
Transportation Impact Fee Schedule

Table G-1
Proposed Volusia County Transportation Impact Fee Schedule

Gasoline Tax:			Unit Construction Cost:	$4,310,545		City Collector Adjustment Factor:	6%
$$ per gallon to capital:	$0.133	State Equiv: $0.108	Capacity per lane:	8,233		Interstate/Toll Facility Adjustment Factor:	31%
Facility life (years):	25	County Gas Equiv: $0.025	Fuel Efficiency:	17.70 mpg		Cost per VMC:	$523.57
Interest rate:	5.0%		Effective days per year:	365			

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[1]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Net Impact Fee	Administrative Fee[6]	Total Impact Fee[7]	Current Fee[8]	% Change
	RESIDENTIAL:																	
210	Single Family (Detached)																	
	Less than 1,500 sf and Annual Hh Income less than 50% of SHIP Definition	du	2.67	FL Studies (NPTS, AHS, Census)	6.24	6.74	FL Studies w/Volusia	100%	N/A	5.40	$2,829	$25	$352	$2,477	$74	$2,551	N/A	N/A
	Less than 1,500 sf and Annual Hh Income between 51% and 80% of SHIP Definition	du	3.99	FL Studies (NPTS, AHS, Census)	6.24	6.74	FL Studies w/Volusia	100%	N/A	8.07	$4,227	$37	$521	$3,706	$111	$3,817	N/A	N/A
	Less than 1,500 s.f.	du	5.54	FL Studies (NPTS, AHS, Census)	6.24	6.74	FL Studies w/Volusia	100%	N/A	11.21	$5,870	$51	$719	$5,151	$155	$5,306	N/A	N/A
	1,501 to 2,499 s.f.	du	7.53	FL Studies (NPTS, AHS, Census)	6.24	6.74	FL Studies w/Volusia	100%	N/A	15.24	$7,978	$70	$987	$6,991	$210	$7,201	$2,174	231%
	2,500 s.f. and greater	du	8.52	FL Studies (NPTS, AHS, Census)	6.24	6.74	FL Studies w/Volusia	100%	N/A	17.24	$9,027	$79	$1,113	$7,914	$237	$8,151	N/A	N/A
220	Multi-Family	du	6.30	Blend of ITE 7th & FL Studies	5.58	6.08	FL Studies	100%	N/A	11.40	$5,969	$53	$747	$5,222	$157	$5,379	$1,506	257%
240	Mobile Home Park	du	4.63	FL Studies w/Volusia	4.29	4.79	FL Studies w/Volusia	100%	N/A	6.44	$3,373	$30	$423	$2,950	$89	$3,039	$761	299%
230	Residential Condominimum/Townhouse	du	5.81	Blend of ITE 7th & FL Studies	6.24	6.74	Same as LUC 210	100%	N/A	11.76	$6,156	$54	$761	$5,395	$162	$5,557	$1,105	388%
251	Retirement Community/Age-Restricted Single Family	du	3.13	Blend of ITE 7th & FL Studies	5.42	5.92	FL Studies	100%	N/A	5.50	$2,880	$25	$352	$2,528	$76	$2,604	N/A	N/A
	TRANSIENT, ASSISTED GROUP:																	
310	Hotel	room	8.30	FL Studies w/Volusia	6.14	6.64	FL Studies w/Volusia	66%	FL Studies	10.91	$5,711	$50	$705	$5,006	$150	$5,156	$1,266	307%
320	Motel	room	5.63	ITE 7th Edition	4.34	4.84	FL Studies	77%	FL Studies	6.10	$3,195	$29	$409	$2,786	$84	$2,870	$683	320%
620	Nursing Home/ Adult Living Facility	bed	2.48	Blend of ITE 7th & FL Studies	2.59	3.09	FL Studies	89%	FL Studies	1.85	$971	$9	$127	$844	$25	$869	$218	298%
	RECREATION:																	
460	Arena (Major Sports Facility)	acres	33.33	ITE 7th Edition	5.87	6.37	2003 Study - N/C	90%	FL Schedules	57.10	$29,898	$262	$3,693	$26,205	$786	$26,991	$466	N/A
411	City Park (Local Park)	acres	1.59	ITE 7th Edition	3.00	3.50	2003 Study - N/C	90%	FL Schedules	1.39	$729	$7	$99	$630	$19	$649	$352	84%
412	County Park (District Park)	acres	2.28	ITE 7th Edition	6.55	7.05	2003 Study - N/C	90%	FL Schedules	4.36	$2,282	$20	$282	$2,000	$60	$2,060	$523	294%
	MISCELLANEOUS:																	
560	Church	1,000 sf	9.11	ITE 7th Edition	3.90	4.40	2003 Study - N/C	90%	2003 Study - N/C	10.37	$5,429	$49	$691	$4,738	$142	$4,880	$1,210	303%
565	Day Care	1,000 sf	75.07	Blend of ITE 7th & FL Studies	2.03	2.53	FL Studies	73%	FL Studies	36.08	$18,889	$190	$2,678	$16,211	$486	$16,697	$4,360	283%
444	Movie Theaters	screen	96.39	FL Studies w/Volusia	2.74	3.24	FL Studies w/Volusia	80%	FL Studies w/Volusia	68.52	$35,875	$343	$4,834	$31,041	$931	$31,972	$9,398	240%

Table G-1 (continued)
Proposed Volusia County Transportation Impact Fee Schedule

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[1]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Net Impact Fee	Administrative Fee[6]	Total Impact Fee[7]	Current Fee[8]	% Change
	OFFICE AND FINANCIAL:																	
710	50,000 sf or less[2]	1,000 sf	15.65	ITE 7th equation	5.15	5.65	FL Studies	92%	FL Studies	24.05	$12,590	$112	$1,579	$11,011	$330	$11,341	$3,315	242%
710	50,001-100,000 sf[3]	1,000 sf	14.25	ITE 7th equation	5.15	5.65	FL Studies	92%	FL Studies	21.90	$11,464	$102	$1,438	$10,026	$301	$10,327	$2,310	347%
710	100,001-200,000 sf[3]	1,000 sf	12.15	ITE 7th equation	5.15	5.65	FL Studies	92%	FL Studies	18.67	$9,774	$87	$1,226	$8,548	$256	$8,804	$2,310	281%
710	200,001-400,000 sf[3]	1,000 sf	10.36	ITE 7th equation	5.15	5.65	FL Studies	92%	FL Studies	15.92	$8,334	$74	$1,043	$7,291	$219	$7,510	$2,310	225%
710	greater than 400,000 sf[3]	1,000 sf	8.83	ITE 7th equation	5.15	5.65	FL Studies	92%	FL Studies	13.57	$7,104	$63	$888	$6,216	$186	$6,402	$2,310	177%
610	Hospital	1,000 sf	17.57	ITE 7th Edition	5.10	5.60	2003 Study - N/C	77%	2003 Study - N/C	22.38	$11,715	$104	$1,466	$10,249	$307	$10,556	$2,490	324%
714	Corporate Headquaters Building	1,000 sf	7.98	ITE 7th Edition	5.15	5.65	Same as LUC 710	93%	2003 Study - N/C	12.39	$6,490	$58	$817	$5,673	$170	$5,843	$1,480	295%
720	Medical Office	1,000 sf	36.00	FL Studies w/Volusia	5.16	5.66	FL Studies w/Volusia	86%	FL Studies w/Volusia	51.81	$27,125	$240	$3,383	$23,742	$712	$24,454	$5,560	340%
912	Bank/Savings Drive-in	1,000 sf	281.55	Blend of ITE 7th & FL Studies	2.46	2.96	FL Studies	46%	FL Studies	103.32	$54,097	$526	$7,413	$46,684	$1,401	$48,085	$10,960	339%
911	Bank w/no Drive-thru	1,000 sf	156.48	ITE 7th Edition	2.46	2.96	Same as LUC 912	46%	Same as LUC 912	57.42	$30,066	$292	$4,115	$25,951	$779	$26,730	$4,550	487%
	RETAIL:																	
820	under 50,000 GSF[2]	1,000 sf	86.56	ITE 7th equation	2.00	2.50	FL Curve	55%	FL Curve	30.88	$16,167	$163	$2,297	$13,870	$416	$14,286	$4,410	224%
820	50,001-200,000 GSF[3]	1,000 sf	62.81	ITE 7th equation	2.52	3.02	FL Curve	62%	FL Curve	31.82	$16,663	$161	$2,269	$14,394	$432	$14,826	$3,275	353%
820	200,001-400,000 GSF[3]	1,000 sf	46.23	ITE 7th equation	2.66	3.16	FL Curve	69%	FL Curve	27.52	$14,407	$138	$1,945	$12,462	$374	$12,836	$3,080	317%
820	401,000-600,000 GSF[3]	1,000 sf	38.66	ITE 7th equation	2.83	3.33	FL Curve	74%	FL Curve	26.26	$13,747	$131	$1,846	$11,901	$357	$12,258	$3,080	298%
820	600,001-800,000 GSF[3]	1,000 sf	34.37	ITE 7th equation	2.87	3.37	FL Curve	77%	FL Curve	24.63	$12,897	$122	$1,719	$11,178	$335	$11,513	$3,080	274%
820	greater than 800,000 GSF[3]	1,000 sf	28.46	ITE 7th equation	3.52	4.02	FL Curve	83%	FL Curve	26.97	$14,118	$130	$1,832	$12,286	$369	$12,655	$3,710	241%
813	Free-Standing Discount Superstore	1,000 sf	49.86	Blend of ITE 7th & FL Studies	2.66	3.16	Same as LUC 820 (200-400K)	69%	Same as LUC 820 (200-400K)	29.68	$15,538	$149	$2,100	$13,438	$403	$13,841	N/A	N/A
881	Pharmacy/Drug Store w/ Drive-Thru	1,000 sf	95.21	Blend of ITE 7th & FL Studies	2.08	2.58	FL Studies	33%	FL Studies	21.19	$11,096	$111	$1,564	$9,532	$286	$9,818	$2,900	239%
862	Home Improvement Superstore	1,000 sf	29.80	ITE 7th Edition	3.95	4.45	VMT Calculation[4]	72%	FL Schedules	27.48	$14,390	$131	$1,846	$12,544	$376	$12,920	$3,600	259%
931	Quality Restaurant	1,000 sf	91.10	Blend of ITE 7th & FL Studies	3.14	3.64	FL Studies	77%	FL Studies	71.43	$37,399	$350	$4,933	$32,466	$974	$33,440	$8,090	313%
932	High-Turnover Restaurant	1,000 sf	123.91	FL Studies w/Volusia	2.90	3.40	FL Studies w/Volusia	71%	FL Studies w/Volusia	82.74	$43,320	$410	$5,779	$37,541	$1,126	$38,667	$10,590	265%
934	Fast Food Rest w/ Drive-Thru	1,000 sf	519.58	FL Studies w/Volusia	2.21	2.71	FL Studies w/Volusia	58%	FL Studies w/Volusia	215.98	$113,082	$1,120	$15,785	$97,297	$2,919	$100,216	$23,010	336%

Table G-1 (continued)
Proposed Volusia County Transportation Impact Fee Schedule

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[(1)]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Net Impact Fee	Administrative Fee[(6)]	Total Impact Fee[(7)]	Current Fee[(8)]	% Change
	RETAIL:																	
941	Quick Lube	bays	43.39	FL Studies w/Volusia	1.97	2.47	Local Volusia Study	68%	Same as LUC 848	18.85	$9,869	$100	$1,409	$8,460	$254	$8,714	$3,847	127%
850	Supermarket	1,000 sf	103.38	Blend of ITE 7th & FL Studies	2.08	2.58	FL Studies	56%	FL Studies	39.05	$20,446	$205	$2,889	$17,557	$527	$18,084	$6,800	166%
853	Convenience Store with Gas Pumps	1,000 sf	775.14	Blend of ITE 7th & FL Studies	1.51	2.01	FL Studies	28%	FL Studies	106.28	$55,646	$598	$8,428	$47,218	$1,417	$48,635	$14,590	233%
848	Tire Store	bays	36.16	FL Studies w/Volusia	2.44	2.94	Local Volusia Study	68%	Local Volusia Study	19.46	$10,187	$99	$1,395	$8,792	$264	$9,056	$2,762	228%
943	Auto Repair or Body Shop	1,000 sf	34.12	Blend of ITE 7th & FL Studies	3.62	4.12	FL Studies	72%	FL Studies	28.84	$15,100	$139	$1,959	$13,141	$394	$13,535	$2,762	390%
841	New/Used Auto Sales	1,000 sf	32.93	Blend of ITE 7th & FL Studies	4.60	5.10	FL Studies	79%	FL Studies	38.81	$20,319	$182	$2,565	$17,754	$533	$18,287	$5,270	247%
890	Furniture Store	1,000 sf	5.06	ITE 7th Edition	6.09	6.59	FL Studies	54%	FL Studies	5.40	$2,825	$25	$352	$2,473	$74	$2,547	$630	304%
N/A	CBD Sandwich Shop[(5)]	1,000 sf	19.30	2003 Study	6.55	7.05	2003 Study - N/C	21%	City of Tampa CBD Study	8.61	$4,508	$39	$550	$3,958	$119	$4,077	$4,780	-15%
N/A	Conv'ce/Gasoline/Fast Food Store	1,000 sf	984.59	FL Studies	2.65	3.15	FL Studies	32%	FL Studies	270.77	$141,766	$1,361	$19,182	$122,584	$3,678	$126,262	$27,510	359%
	INDUSTRIAL:																	
110	Light Industry	1,000 sf	6.97	ITE 7th Edition	5.10	5.60	Pinellas County	91%	2003 Study - N/C	10.49	$5,492	$49	$691	$4,801	$144	$4,945	$1,220	305%
140	Manufacturing	1,000 sf	3.82	ITE 7th Edition	5.10	5.60	Pinellas County	92%	2003 Study - N/C	5.81	$3,043	$27	$381	$2,662	$80	$2,742	$680	303%
150	Warehouse	1,000 sf	4.96	ITE 7th Edition	5.10	5.60	Pinellas County	92%	2003 Study - N/C	7.55	$3,951	$35	$493	$3,458	$104	$3,562	$860	314%
151	Mini-Warehouse	1,000 sf	2.50	ITE 7th Edition	3.10	3.60	Pinellas County	91%	2003 Study - N/C	2.29	$1,197	$11	$155	$1,042	$31	$1,073	$430	150%

(1) Net VMT as calculated ((Trip Generation Rate*Trip Length*% New Trips)/2)*(1-Interstate/Toll Facility Adjustment Factor)*(1-City Collector Adjustment Factor). This reflects the unit of vehicle miles of capacity consumed per unit and is multiplied by the cost per vehicle mile of capacity to determine the total impact cost
(2) The trip generation rate recommended for the office and retail less than 50,000 sf categories used the end-point of the tier
(3) The trip generation rate recommended for all other office and retail tiered categories used the mid-point of each category. Note that the average of the current fee for applicable tiers was used for comparative purposes since the tiering has been updated
(4) The trip length was determined using a relationship between the VMT for the retail 200,001-400,000 sf tier. This is due to the comparable size of home improvement stores to this size category
(5) Based on the unique travel characteristics of this land use, the City of Tampa CBD Study was used to estimate the percent new trips generated in the downtown area
(6) Administrative fee is 3 percent of net impact fee
(7) Total impact fee is the sum of the net impact fee and the administrative fee
(8) The current fee has been indexed since the 2003 Study and includes a 3 percent administrative fee