



City of Palm Bay Transportation Impact Fee Update Study

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City of Palm Bay

Transportation Impact Fee Update Study

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Introduction

The City of Palm Bay has been experiencing significant population growth, with over 20,000 additional residents over the past 10 years. The City's residential permitting levels exceeded 2,500 units in the past couple of years. To address growth-related infrastructure needs, the City of Palm Bay implemented several impact fees, including a transportation impact fee, which was last updated in 2012. To reflect the changes to the impact fee variables since then, the City of Palm Bay has retained Benesch to prepare an update study.

This report serves as the technical study to support the calculation of the updated impact fees. Data presented in this report represents the most recent and localized data available at the time of this update study. All data and support material used in this analysis are incorporated by reference as set forth in this document.

The figures calculated in this study represent the technically defensible level of impact fees that the City could charge; however, the City Council may choose to discount the fees as a policy decision.

Methodology

The methodology used for the transportation impact fee study is a consumption-based impact fee approach in which new development is charged based upon the proportion of vehicle-miles of travel (VMT) that each unit of new development is expected to consume of a lane-mile of the roadway network.

Under this methodology, the fees assess a proportionate share cost for the entire transportation network in the city, including classified City, County and State roadways, with the exception of local/neighborhood roads and interstate highways/toll facilities. Generally, neighborhood roads are the obligation of the developer and are part of the site/subdivision approvals. Toll facilities are funded by toll revenues through Florida Turnpike Enterprise or local toll authorities and interstate highways are funded with earmarked federal and statewide strategic intermodal systems funds and planned for at the state level with minimal local input and limited or no local funding.

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

$$[\text{Demand} \times \text{Cost}] - \text{Credit} = \text{Fee}$$

The “demand” for travel placed on a transportation system is expressed in units of Vehicle-Miles of Travel (daily vehicle-trip generation rate x the trip length x the percent new trips [of total trips]) for each land use contained in the impact fee schedule. Trip generation represents the average daily rates to provide a stable measure of new development’s impact. The number of trips tends to vary significantly throughout the day by time of day depending on activity levels; however, overall daily trips tend to be stable.

The “cost” of building new capacity typically is expressed in units of dollars per vehicle-mile of transportation capacity.

The “credit” is an estimate of future non-impact fee revenues generated by new development that are allocated to provide roadway capacity expansion. The impact fee is considered to be an “up front” payment for a portion of the cost of building a vehicle-mile of capacity that is directly related to the amount of capacity consumed by each unit of land use, that is not paid for by future tax revenues generated by the new development activity. These credits are required under the supporting case law for the calculation of impact fees where a new development activity must be reasonably assured that they are not being charged twice for the same level of service.

The input variables used in the fee equation are as follows:

Demand Variables:

- Trip generation rate
- Trip length
- Percent new trips
- Interstate & toll facility adjustment factor

Cost Variables:

- Roadway cost per vehicle-mile
- Roadway capacity added per lane mile constructed

Credit Variables:

- Equivalent gas tax credit (pennies)
- Present worth
- Fuel efficiency
- Effective days per year

Legal Overview

In Florida, legal requirements related to impact fees have primarily been established through case law since the 1980's. Impact fees must comply with the "dual rational nexus" test, which requires that they:

- Be supported by a study demonstrating that the fees are proportionate in amount to the need created by new development paying the fee; and
- Be spent in a manner that directs a proportionate benefit to new development, typically accomplished through establishment of benefit districts (if needed) and a list of capacity-adding projects included in the City's Capital Improvement Plan, Capital Improvement Element, or another planning document/Master Plan.

In 2006, the Florida legislature passed the "Florida Impact Fee Act," which recognized impact fees as "an outgrowth of home rule power of a local government to provide certain services within its jurisdiction." § 163.31801(2), Fla. Stat. The statute – concerned with mostly procedural and methodological limitations – did not expressly allow or disallow any particular public facility type from being funded with impact fees. The Act did specify procedural and methodological prerequisites, such as the requirement of the fee being based on most recent and localized data, a 90-day requirement for fee changes, and other similar requirements, most of which were common to the practice already.

More recent legislation further affected the impact fee framework in Florida, including the following:

- **HB 227 in 2009:** The Florida legislation statutorily clarified that in any action challenging an impact fee, the government has the burden of proving by a preponderance of the evidence that the imposition or amount of the fee meets the requirements of state legal precedent or the Impact Fee Act and that the court may not use a deferential standard.
- **SB 360 in 2009:** Allowed fees to be decreased without the 90-day notice period required to increase the fees and purported to change the standard of legal review associated with impact fees. SB 360 also required the Florida Department of Community Affairs (now the

Department of Commerce) and Florida Department of Transportation (FDOT) to conduct studies on “mobility fees,” which were completed in 2010.

- **HB 7207 in 2011:** Required a dollar-for-dollar credit, for purposes of concurrency compliance, for impact fees paid and other concurrency mitigation required.
- **HB 319 in 2013:** Applied mostly to concurrency management authorities, but also encouraged local governments to adopt alternative mobility systems using a series of tools identified in section 163.3180(5)(f), Florida Statutes, including:
 - Adoption of long-term strategies to facilitate development patterns that support multi-modal solutions, including urban design, and appropriate land use mixes, including intensity and density.
 - Adoption of an area-wide level of service not dependent on any single road segment function.
 - Exempting or discounting impacts of locally desired development, such as development in urban areas, redevelopment, job creation, and mixed use on the transportation system.
 - Assigning secondary priority to vehicle mobility and primary priority to ensuring a safe, comfortable, and attractive pedestrian environment, with convenient interconnection to transit.
 - Establishing multi-modal level of service standards that rely primarily on non-vehicular modes of transportation where existing or planned community design will provide adequate level of mobility.
 - Reducing impact fees or local access fees to promote development within urban areas, multi-modal transportation districts, and a balance of mixed-use development in certain areas or districts, or for affordable or workforce housing.

Also, under HB 319, a mobility fee funding system expressly must comply with the dual rational nexus test applicable to traditional impact fees. Furthermore, any mobility fee revenues collected must be used to implement the local government’s plan, which serves as the basis to demonstrate the need for the fee. Finally, under HB 319, an alternative mobility system, that is not mobility fee-based, must not impose upon new development any responsibility for funding an existing transportation deficiency.

- **HB 207 in 2019:** Included the following changes to the Impact Fee Act along with additional clarifying language:
 - Impact fees cannot be collected prior to building permit issuance; and

- Impact fee revenues cannot be used to pay debt service for previously approved projects unless the expenditure is reasonably connected to, or has a rational nexus with, the increased impact generated by the new residential and commercial construction.
- **HB 7103 in 2019:** Addressed multiple issues related to affordable housing/linkage fees, impact fees, and building services fees. In terms of impact fees, the bill required that when local governments increase their impact fees, the outstanding impact fee credits for developer contributions should also be increased. This requirement was to operate prospectively; however, HB 337 that was signed in 2021 deleted this clause and making all outstanding credits eligible for this adjustment. This bill also allowed local governments to waive/reduce impact fees for affordable housing projects without having to offset the associated revenue loss.
- **SB 1066 in 2020:** Added language allowing impact fee credits to be assignable and transferable at any time after establishment from one development or parcel to another that is within the same impact fee zone/district or that is within an adjoining impact fee zone/district within the same local government jurisdiction. In addition, added language indicating any new/increased impact fee not being applicable to current or pending permit applications submitted prior to the effective date of an ordinance or resolution imposing new/increased fees.
- **HB 1339 in 2020:** Requires reporting of various impact fee related data items within the annual financial audit report submitted to the Department of Financial Services.
- **HB 337 in 2021:** Placed limits on the amount and frequency of fee increases, but also included a clause to exceed these restrictions if the local governments can demonstrate extraordinary circumstances, hold two public workshops discussing these circumstances and the increases are approved by two-thirds of the governing body.
- **HB 479 in 2024 (Effective October 1, 2024):** Required interlocal agreements between counties and municipalities when both entities collect a transportation impact fee. Placed limits on timing of impact fee study completion and adoption and data used in the studies.

The following paragraphs provide further detail on the generally applicable legal standards.

Impact Fee Definition

- An impact fee is a one-time capital charge levied against new development.
- An impact fee is designed to cover the portion of the capital costs of infrastructure capacity consumed by new development.

- The principal purpose of an impact fee is to assist in funding the implementation of multi-modal transportation capacity addition projects identified in the Capital Improvements Element (CIE) and other capital improvement programs/plans.
- Examples of impact fee eligible projects include new road construction, lane addition projects, and turn lane additions/intersection improvements.

Impact Fee vs. Tax

- An impact fee is generally regarded as a regulatory function established based upon the specific benefit to the user related to a given infrastructure type and is not established for the primary purpose of generating revenue for the general benefit of the community, as are taxes.
- Impact fee expenditures must convey a proportional benefit to the fee payer. This is accomplished through the establishment of benefit districts, where fees collected in a benefit district are spent in the same benefit district.
- An impact fee must be tied to a proportional need for new infrastructure capacity created by new development.

This technical report has been prepared to support legal compliance with existing case law and statutory requirements.

Demand Component

Travel Demand

Travel demand is the amount of transportation system consumed by a unit of new land development activity. Demand is calculated using the following variables and is measured in terms of the vehicle-miles of new travel (VMT) that a unit of development consumes on the existing transportation system:

- Number of daily trips generated (Trip Generation Rate = TGR)
- Average length of those trips (Trip Length = TL)
- Proportion of travel that is new travel, rather than travel that is already on the transportation system and is captured by new development (Percent New Trips = PNT)

As part of this update, the trip characteristics variables were primarily obtained from two sources: (1) trip characteristics studies previously conducted throughout Florida (Florida Studies Database) and (2) the Institute of Transportation Engineers' (ITE) *Trip Generation Handbook* (11th Edition). The Florida Studies Database (included in Appendix A) was used to determine trip length, percent new trips, and the trip generation rate for several land uses.

Interstate & Toll Facility Adjustment Factor

This variable was used to recognize that interstate highway and toll facility improvements are funded by the State (specifically, the Florida Department of Transportation) using earmarked State and Federal funds or through toll revenues. Typically, impact fees are not used to pay for these improvements and the portion of travel occurring on the interstate/toll facility system is subtracted from the total travel for each use.

To calculate the interstate and toll (I/T) facility adjustment factor, the loaded highway network¹ file was generated for the Central Florida Regional Planning Model (CFRPM v7). A select zone analysis was run for all traffic analysis zones located within the City of Palm Bay in order to differentiate trips with an origin and/or destination within the city versus trips that simply passed through the city.

¹ The "loaded highway network" refers to the final travel demand model roadway network with traffic volumes assigned (or loaded) to each model roadway link

Currently, I-95 is the only interstate/toll facility going through Brevard County. Therefore, the limited access vehicle-miles of travel (Limited Access VMT) for trips with an origin and/or destination within the City of Palm Bay was calculated for I-95. Next, the total VMT was calculated for trips with an origin and/or destination within the City of Palm Bay for all roads, including limited access facilities.

The I/T adjustment factor of 31.6 percent was determined by dividing the total limited access VMT by the total City of Palm Bay VMT. The total city VMT reduced by this factor is representative of only the roadways that are eligible to be funded with transportation impact fee revenues. Appendix A, Table A-1 provides further detail on this calculation.

Land Use Changes

As part of this update study, the following land uses were revised/added to the City's fee schedule.

Single Family (Detached) Tiering

Currently, all single family development is charged the same rate. This study introduces a tiered fee schedule based on the square footage of the development.

Duplex

Land use removed. Duplex units will be charged under the "Multi-Family Housing" land use.

Multi-Family Re-Alignment

Consistent with the revised configuration published in ITE 11th Edition, the multi-family housing tiers were slightly adjusted to the following alignment:

- Low-rise, 1-3 stories (previously 1-2 stories)
- Mid/high-rise, 4+ stories (previously 3+ stories)

Hotel/Motel

While currently combined into a single use, this study provides separate rates for each.

General Office

Currently, this land use is separated into several tiers based on the square footage of the office development. ITE 11th Edition data indicates that office buildings generally have the same trip

generation per 1,000 square feet, regardless of size and therefore the tiering was removed for this update.

Medical/Dental Office

This land use was separated into two categories based on square footage (10,000 square feet or less vs greater than 10,000 square feet). This change reflects recent local studies that show smaller medical offices generating fewer trips than their larger counterparts.

Retail/Shopping Center

ITE 11th Edition re-aligned this land use into three distinct square footage ranges with different trip generation rates. For this update study, the existing retail/shopping center tiers have been re-aligned to match ITE 11th Edition.

Gas Station w/Convenience Store

Currently, The City of Palm Bay has a “Convenience” land use and a “Service Station” land use. Due to the increasing popularity of larger convenient stores, ITE 11th Edition has realigned these land uses to have the trip generation tiering tied to the square footage, not the number of pumps. This change is reflected in this update study.

Land Uses Added/Removed:

Single Family (Attached); added.

Senior Adult Housing – Detached (replaces “retirement home”); added.

Senior Adult Housing – Attached (replaces “retirement home”); added.

Recreational Community Center (replaces “Civic Center”); added.

Insurance; removed, limited data available.

Convenience; removed, overlaps with “Gas Station/Convenience Store” land use.

Hardware/Paint Store; removed, limited data available.

Building/Lumber Supply; removed, limited data available.

Coffee/Donut Shop w/Drive-Thru; added.

Coffee/Donut Shop w/Drive-Thru & No Indoor Seating; added.

General Aviation; removed, limited data available.

Cost Component

Cost information from the City of Palm Bay, Brevard County, and other counties in Florida was reviewed to develop a unit cost for all phases involved in the construction of one lane-mile of roadway capacity. Appendix B provides the data and other supporting information utilized in these analyses.

City/County Roadway Cost

This section examines the right-of-way (ROW), construction, and other cost components associated with city/county roads with respect to roadway capacity expansion improvements in the City of Palm Bay/Brevard County. In addition to local data, bid data for recently completed/ongoing projects and recent construction bid data from roadway projects throughout Florida were used to supplement the cost data for city/county roadway improvements. The cost for each roadway capacity project was separated into four components: design, right-of-way (ROW), construction, and construction engineering/inspection (CEI).

Design and CEI

Design costs for city/county roads were estimated at 11 percent of construction phase costs based on a review of other Florida jurisdictions. Additional detail is provided in Appendix B, Table B-2.

CEI costs for city/county roads were estimated at nine (9) percent of construction phase costs based on a review of other Florida jurisdictions. Additional detail is provided in Appendix B, Table B-7.

Right-of-Way

The ROW cost reflects the total cost of the acquisitions along a corridor that are necessary to have sufficient cross-section width to widen an existing road or, in the case of new construction, to build a new road. With only limited local data available, this factor was determined through a review of recent ROW-to-construction ratios seen in other jurisdictions throughout Florida, which average approximately 36 percent. For purposes of the transportation impact fee calculation, a **35 percent** ROW-to-construction factor was used for city/county roadways. Additional details are provided in Appendix B, Table B-3.

Construction Cost

A review of construction cost data for local city/county roadway capacity expansion projects included a recently completed improvement (Culver Drive from Emerson Drive to Palm Bay Road) with a construction cost of approximately \$1.9 million per lane mile. Additionally, cost estimates for seven upcoming improvements were reviewed, ranging from \$0.9 million to \$5.0 million per lane mile. Altogether, the local improvements have a weighted average cost of approximately \$3.4 million per lane mile. Additional details are provided in Appendix B, Table B-4.

In addition to local data, a review of recently completed or bid projects (from 2014 to 2023) throughout the state of Florida was conducted. As shown in Appendix B, Table B-5, a total of 46 projects from 15 different counties (including Brevard County) were identified with a weighted average cost of approximately \$3.7 million per lane mile. From this dataset, the counties that are more suburban/rural in nature were separated and this subset of counties had a weighted average construction cost of \$3.1 million per lane mile.

Based on this review and discussions with City of Palm Bay, the construction cost for city/county roads was estimated at **\$3.1 million per lane mile** for use in the transportation impact fee calculation.

To determine the cost per lane mile city/county roads with rural-design (open drainage) characteristics the relationship between urban and rural-designed roadway costs from the FDOT District 7 Long Range Estimates (LRE)² was reviewed. Based on these cost estimates, the costs for rural roadways are estimated at approximately 73 percent of the costs for urban roadways. Additional detail is provided in Appendix B, Table B-1.

As shown in Table 1, a total cost of **\$4.4 million per lane mile** for city/county roads was used in the transportation impact fee calculation.

² Similar data for FDOT District 5 was not available.

Table 1
Estimated Total Cost per Lane Mile for City/County Roads

Cost Phase	Cost per Lane Mile		
	Curb & Gutter (Urban) Design	Open Drainage (Rural) Design ⁽⁵⁾	Weighted Average ⁽⁶⁾
Design ⁽¹⁾	\$341,000	\$249,000	\$309,000
Right-of-Way ⁽²⁾	\$1,085,000	\$792,000	\$982,000
Construction ⁽³⁾	\$3,100,000	\$2,263,000	\$2,807,000
CEI ⁽⁴⁾	\$279,000	\$204,000	\$253,000
Total Cost	\$4,805,000	\$3,508,000	\$4,351,000
Lane Mile Distribution ⁽⁷⁾	65%	35%	100%

1) Design is estimated at 11% of construction costs.

2) ROW is estimated at 35% of construction costs.

3) Source: Estimate based on a review of data in Appendix B, Tables B-4 and B-5

4) CEI is estimated at 9% of construction costs.

5) Rural design (open drainage) cost are estimated at 73% of the urban (curb & gutter) costs.

6) Lane mile distribution (Item 7) multiplied by the design, ROW, construction, and CEI phase costs by improvement type to develop a weighted average cost per lane mile

7) Source: Appendix B, Table B-4; Items (a) and (b)

Note: All figures rounded to nearest \$000

State Roadway Cost

This section examines the right-of-way (ROW), construction, and other cost components associated with state roads with respect to roadway capacity expansion improvements in the City of Palm Bay. In addition to local data, bid data for recently completed/on-going projects and recent construction data from roadway projects throughout Florida were used to supplement the cost data for state roadway improvements. The cost for each roadway capacity project was separated into four components: design, right-of-way (ROW), construction, and construction engineering/inspection (CEI).

Design and CEI

Design costs for state roads were estimated at **11 percent** of construction phase costs based on a review of cost data from jurisdictions throughout Florida. Additional details are provided in Appendix B, Table B-2.

CEI costs for state roads were estimated at **11 percent** of construction phase costs based on a review of cost data from jurisdictions throughout Florida. Additional details are provided in Appendix B, Table B-7.

Right-of-Way

Given the lack of data on ROW costs for state roads in City of Palm Bay/Brevard County and based on experience in other jurisdictions, the ROW cost ratio calculation for city/county roads was also applied to state roads. Using this ROW-to-construction ratio of **35 percent**, the ROW cost for state roads is approximately \$1.2 million per lane mile.

Construction

A review of recent state road capacity improvements in Brevard County identified one recent project (additional detail is included in Appendix B, Table B-6):

- Galaxy Way from Kennedy Pkwy to Space Commerce Way

This improvement had a weighted average cost of \$4.9 million per lane mile. In addition to local data, a review of recently bid projects (from 2014 to 2023) throughout the state of Florida was conducted. As shown in Appendix B, Table B-6, a total of 63 projects from 30 different counties (including Brevard County) were identified with a weighted average cost of approximately \$4.2 million per lane mile. From this dataset, the counties that are more suburban/rural in nature were separated and this subset of counties also had a weighted average construction cost of \$4.2 million per lane mile.

Based on this review and discussions with the City of Palm Bay, the construction cost for state roads was estimated at **\$4.2 million per lane mile** for use in the transportation impact fee calculation. Additional information is presented in Appendix B, Table B-6.

To determine the cost per lane mile for state roads with rural-design (open drainage) characteristics the relationship between urban and rural-designed roadway costs from the FDOT District 7 Long Range Estimates (LRE)³ was reviewed. Based on these cost estimates, the costs for rural roadways are estimated at approximately 73 percent of the costs for urban roadways. Additional detail is provided in Appendix B, Table B-1.

As shown in Table 2, a total cost of **\$5.5 million per lane mile** for state roads was used in the transportation impact fee calculation.

³ Similar data for FDOT District 5 was not available

Table 2
Estimated Total Cost per Lane Mile for State Roads

Cost Phase	Cost per Lane Mile		
	Curb & Gutter (Urban) Design	Open Drainage (Rural) Design ⁽⁵⁾	Weighted Average ⁽⁶⁾
Design ⁽¹⁾	\$462,000	\$337,000	\$388,000
Right-of-Way ⁽²⁾	\$1,470,000	\$1,073,000	\$1,236,000
Construction ⁽³⁾	\$4,200,000	\$3,066,000	\$3,531,000
CEI ⁽⁴⁾	\$462,000	\$337,000	\$388,000
Total Cost	\$6,594,000	\$4,813,000	\$5,543,000
Lane Mile Distribution ⁽⁷⁾	41%	59%	100%

1) Design is estimated at 11% of construction costs.

2) ROW is estimated at 35% of construction costs.

3) Source: Estimate based on a review of data in Appendix B, Table B-6

4) CEI is estimated at 11% of construction costs.

5) Rural design (open drainage) costs are estimated at 73% of the urban (curb & gutter) costs.

6) Lane mile distribution (Item 7) multiplied by the design, ROW, construction, and CEI phase costs by improvement type to develop a weighted average cost per lane mile

7) Source: Appendix B, Table B-8; Items (c) and (d)

Note: All figures rounded to nearest \$000

Summary of Costs (Blended Cost Analysis)

The weighted average cost per lane mile for city/county and state roads is presented in Table 3. The resulting weighted average cost of approximately \$5.0 million per lane mile was utilized as the roadway cost input in the calculation of the transportation impact fees. The weighted average cost per lane mile includes city/county and state roads and is based on the distribution of future lane miles for the capacity improvements in the Space Coast TPO's 2045 Long Range Transportation Plan.

Table 3
Estimated Cost per Lane Mile for City/County & State Roads

Cost Type	City/County Roads ⁽¹⁾	State Roads ⁽²⁾	City/County and State Roads ⁽³⁾
Design	\$309,000	\$388,000	\$349,000
Right-of-Way	\$982,000	\$1,236,000	\$1,112,000
Construction	\$2,807,000	\$3,531,000	\$3,176,000
CEI	\$253,000	\$388,000	\$322,000
Total	\$4,351,000	\$5,543,000	\$4,959,000
Lane Mile Distribution ⁽⁴⁾	49%	51%	100%

1) Source: Table 1

2) Source: Table 2

3) Lane mile distribution (item 4) multiplied by the design, ROW, construction, and CEI phases costs by jurisdiction to develop a weighted average cost per lane mile

4) Source: Appendix B, Table B-8; Items (a) and (b)

Note: All figures rounded to nearest \$000

Vehicle-Miles of Capacity per Lane Mile

An additional component of the transportation impact fee equation is the capacity added per lane-mile of roadway constructed. The vehicle-miles of capacity (VMC) is an estimate of capacity added per lane mile for city, county and state roadway improvements in the 2045 Long Range Transportation Plan. As shown in Table 4, each lane mile will add approximately 9,700 VMC.

Table 4
Weighted Average Vehicle-Miles of Capacity per Lane Mile

Source	Lane Mile Added ⁽¹⁾	Vehicle-Miles of Capacity Added ⁽¹⁾	VMC Added per Lane Mile ⁽²⁾
City/County Roads	62.30	571,002	9,200
State Roads	64.64	657,288	10,200
Total	126.94	1,228,290	9,700

1) Source: Appendix B, Table B-8

2) Vehicle-miles of capacity added divided by lane miles added (rounded to 100)

Cost per Vehicle-Mile of Capacity

The transportation cost per unit of development is assessed based on the cost per vehicle-mile of capacity. As shown in Tables 3 and 4, the cost and capacity for roadways in the City of Palm Bay have been calculated based on typical roadway improvements planned to be constructed in the future. As presented in Table 5, the cost for travel within the city is approximately \$511 per VMC.

The cost per VMC figure is used in the transportation impact fee calculation to determine the total cost per unit of development based on vehicle-miles of travel consumed. For each vehicle-mile of travel that is added to the roadway system, approximately \$511 of transportation capacity is consumed.

Table 5
Weighted Average Cost per Vehicle-Mile of Capacity Added

Source	Cost per Lane Mile ⁽¹⁾	Average VMC Added per Lane Mile ⁽²⁾	Cost per VMC ⁽³⁾
City/County Roads	\$4,351,000	9,200	\$472.93
State Roads	\$5,543,000	10,200	\$543.43
Weighted Average	\$4,959,000	9,700	\$511.24

1) Source: Table 3

2) Source: Table 4

3) Cost per lane mile (Item 1) divided by the average VMC added per lane mile (Item 2)

Credit Component

Capital Improvement Credit

The credit component of the impact fee accounts for the existing City, County, and State revenue sources that are being used to fund roadway capacity expansion projects (excluding impact fee funds). This section summarizes the credit calculations that account for non-impact fee contributions. Additional details are provided in Appendix C.

The present value of the non-impact fee revenues generated by new development over a 25-year period that is expected to fund capacity expansion projects was credited against the cost of the system consumed by travel associated with new development. In order to provide a connection to the demand component, which is measured in terms of travel, the non-impact fee dollars were converted to a fuel tax equivalency.

City Credit

The City of Palm Bay is using local option gas tax revenues to retire debt service on bond proceeds used to fund transportation capacity expansion improvements. A total impact fee credit of approximately 0.2 pennies was calculated for debt service associated with transportation improvements. Additional details are provided in Appendix C, Table C-2.

County Credit

A review of Brevard County's FY 2024 Proposed Budget's Capital Improvement Plan indicated a combination of impact fees, fuel tax and grant revenues being used to fund transportation capacity expansion. Based on this review, Brevard County allocates an equivalent of 2.0 pennies for the portion of non-impact fee revenues dedicated to transportation capacity expansion improvements. Additional details are provided in Appendix C, Table C-3.

Additionally, the County is using non-impact fee revenues to retire debt service used to fund transportation capacity expansion improvements. A total impact fee credit of approximately 0.9 pennies was calculated for debt service associated with transportation improvements. Further detail is provided in Appendix C, Table C-4.

State Credit

As shown in Table 6, state expenditures for transportation capacity projects in Brevard County were reviewed and a credit for the capacity-expansion portion attributable to state projects was

estimated (excluding expenditures on limited access facilities). This review, which included 10 years of historical expenditures, as well as five (5) years of planned expenditures, indicated that FDOT's transportation capacity spending averages \$21.8 million per year and generates a credit of 5.2 pennies of equivalent gas tax revenue, annually. The use of a 15-year period for developing a state credit accounts for the volatility in FDOT spending in the given area over short time periods. Additional details are provided in Appendix C, Table C-5.

As presented in Table 6, for transportation capacity projects, the City of Palm Bay allocates 0.2 pennies and Brevard County allocates 2.9 pennies (including debt service), while the State spends an average of 5.2 pennies, annually. The portion of capital improvement funding included in the transportation impact fee equation for credit calculations recognizes the future capital revenue that is expected to be generated by new development from all non-impact fee revenues. This credit does not include revenues generated by the existing population.

Table 6
Equivalent Pennies of Gas Tax Revenue

Credit	Average Annual Expenditures	Value per Penny ⁽⁵⁾	Equivalent Pennies per Gallon ⁽⁶⁾
Palm Bay Debt Service ⁽¹⁾	\$758,952	\$4,216,257	\$0.002
County Revenues ⁽²⁾	\$8,566,238	\$4,216,257	\$0.020
County Debt Service ⁽³⁾	\$3,906,185	\$4,216,257	\$0.009
State Revenues ⁽⁴⁾	<u>\$21,763,766</u>	\$4,216,257	\$0.052
Total	\$34,995,141		\$0.083

1) Source: Appendix C, Table C-2

2) Source: Appendix C, Table C-3

3) Source: Appendix C, Table C-4

4) Source: Appendix C, Table C-5

5) Source: Appendix C, Table C-1

6) Average annual expenditures divided by the value per penny (Item 5) divided by 100

Present Worth Variables

- **Facility Life:** The roadway facility life used in the impact fee analysis is 25 years, which represents the reasonable life of a roadway prior to significant maintenance needs.
- **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 4.00 percent was used in the impact fee calculation based on interest rates on recent bonds issued by the City of Palm Bay.

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 C, Table C-10 documents the calculation of fuel efficiency value 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 uses 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 used 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 reflects 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 2022*. Based on the calculation completed in Appendix C, Table C-10, the fuel efficiency rate to be used in the updated impact fee equation is 19.47 miles per gallon.

Effective Days per Year

An effective 365 days per year of operation was used for all land uses in the proposed fee. However, this will not be the case for all land uses since some uses operate only on weekdays (e.g., office buildings) and/or only seasonally (e.g., schools). The use of 365 days per year, therefore, provides a conservative estimate, ensuring that non-impact fee contributions are adequately credited against the fee.

Calculated Transportation Impact Fee Schedule

Detailed impact fee calculations for each land use are presented in Appendix D, which includes the major land use categories and the impact fees for the individual land uses contained in each of the major categories. For each land use, Appendix D, Table D-1 illustrates the following:

- Demand component variables (trip rate, trip length, and percent of new trips);
- Total impact fee cost;
- Annual capital improvement credit;
- Present value of the capital improvement credit; and
- Net transportation impact fee.

It should be noted that the net impact fees presented in Appendix D is not necessarily a recommended fee, but instead represents the technically calculated transportation impact fees per unit of land use that could be charged in the City of Palm Bay.

For clarification purposes, it may be useful to walk through the calculation of a transportation impact fee for one of the land use categories. In the following example, the net transportation impact fee is calculated for the mid-size single-family residential detached land use category (ITE LUC 210) using information from the impact fee schedules included in Appendix D. For each land use category, the following equations are utilized to calculate the net impact fee:

$$\text{Net Transportation Impact Fee} = \text{Total Impact Cost} - \text{Capital Improvement Credit}$$

Where:

Total Transportation Impact Cost = $([\text{Trip Rate} \times \text{Adjusted Trip Length} \times \% \text{ New Trips}] / 2) \times (1 - \text{Interstate/Toll Facility Adjustment Factor}) \times (\text{Cost per Vehicle-Mile of Capacity})$

Capital Improvement Credit = Present Value (Annual Capital Improvement Credit), given 4.00% interest rate & a 25-year facility life

Annual Capital Improvement Credit = $([\text{Trip Rate} \times \text{Total Trip Length} \times \% \text{ New Trips}] / 2) \times (\text{Effective Days per Year} \times \$/\text{Gallon to Capital}) / \text{Fuel Efficiency}$

Each of the inputs has been discussed previously in this document; however, for purposes of this example, brief definitions for each input are provided in the following paragraphs, along with the actual inputs used in the calculation of the fee for the single-family detached residential land use category (2,000 square feet):

- *Trip Rate* = the average daily trip generation rate, in vehicle-trips/day (7.81)
- *Assessable Trip Length* = the average trip length on collector roads or above, for the category, in vehicle-miles (6.62)
- *Total Trip Length* = the assessable trip length plus an adjustment factor of half a mile, which is added to the trip length to account for the fact that gas taxes are collected for travel on all roads including local roads ($6.62 + 0.50 = 7.12$)
- *% New Trips* = adjustment factor to account for trips that are already on the roadway (100%)
- *Divide by 2* = the total daily miles of travel generated by a particular category (i.e., $\text{rate} \times \text{length} \times \% \text{ new trips}$) is divided by two to prevent the double-counting of travel generated between two land use codes since every trip has an origin and a destination
- *Interstate/Toll Facility Adjustment Factor* = discount factor to account for travel demand occurring on interstate highways and/or toll facilities (31.6%)
- *Cost per Lane Mile* = unit cost to construct one lane mile of roadway, in \$/lane-mile (\$4,959,000)
- *Average Vehicle-Capacity Added per Lane Mile* = represents the average daily vehicle-traffic on one travel lane at capacity for one lane mile of roadway, in vehicle/lane-mile/day (9,700)
- *Cost per Vehicle-Mile of Capacity* = unit of vehicle-miles of capacity consumed per unit of development. Cost per vehicle-mile divided by average capacity added per lane mile (\$511.24)
- *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 4.00% interest and a 25-year facility life, the uniform series present worth factor is 15.6221
- *Effective Days per Year* = 365 days
- *\$/Gallon to Capital* = the amount of equivalent gas tax revenue per gallon of fuel that is used for capital improvements, in \$/gallon (\$0.083)
- *Fuel Efficiency* = average fuel efficiency of vehicles, in vehicle-miles/gallon (19.47)

Transportation Impact Fee Calculation

Using these inputs, a net impact fee can be calculated for the single-family residential detached (2,000 sf) land use category as follows:

Transportation Impact Fee:

$$\text{Total Impact Cost} = ([7.81 * 6.62 * 1.0] / 2) * (1 - 0.316) * (\$511.24) = \mathbf{\$9,040}$$

$$\text{Annual Cap. Improv. Credit} = ([7.81 * 7.12 * 1.0] / 2) * 365 * (\$0.083 / 19.47) = \$43$$

$$\text{Capital Improvement Credit} = \$43 * 15.6221 = \mathbf{\$672}$$

$$\text{Net Impact Fee} = \$9,040 - \$672 = \mathbf{\$8,368}$$

Table 7 presents the full calculated impact fee schedule with rate caps and phasing implemented, consistent with F.S. 163.31801 guidelines.

Table 7
Calculated Transportation Impact Fee with Phasing

ITE LUC	Land Use	Unit	Current Adopted Impact Fee	Calculated Impact Fee	% Change	Max Allowable F.S. 163.31801	Phase I	Phase II	Phase III	Phase IV
RESIDENTIAL:										
210	Single Family (Detached) - Less than 1,500 sf	du	\$4,353	\$6,892	58%	\$6,529	\$4,897	\$5,441	\$5,985	\$6,529
	Single Family (Detached) - 1,501 to 2,499 sf	du	\$4,353	\$8,368	92%	\$6,529	\$4,897	\$5,441	\$5,985	\$6,529
	Single Family (Detached) - 2,500 sf and greater	du	\$4,353	\$9,193	111%	\$6,529	\$4,897	\$5,441	\$5,985	\$6,529
215	Single Family (Attached)	du	\$2,551	\$7,242	184%	\$3,826	\$2,870	\$3,189	\$3,508	\$3,826
220	Multi-Family Housing (Low-Rise, 1-3 floors)	du	\$2,869	\$5,671	98%	\$4,303	\$3,228	\$3,587	\$3,946	\$4,303
221/222	Multi-Family Housing (Mid/High-Rise, 4+ floors)	du	\$2,551	\$3,824	50%	\$3,824	\$2,869	\$3,187	\$3,505	\$3,824
240	Mobile Home Park	du	\$2,172	\$3,088	42%	\$3,088	\$2,401	\$2,630	\$2,859	\$3,088
251	Senior Adult Housing - Single Family	du	\$771	\$3,105	303%	\$1,156	\$867	\$963	\$1,059	\$1,156
252	Senior Adult Housing - Multi-Family	du	\$771	\$2,097	172%	\$1,156	\$867	\$963	\$1,059	\$1,156
253	Congregate Care Facility	du	\$350	\$825	136%	\$525	\$394	\$438	\$482	\$525
LODGING:										
310	Hotel	room	\$2,260	\$3,719	65%	\$3,390	\$2,543	\$2,826	\$3,109	\$3,390
320	Motel	room	\$2,260	\$1,801	-20%	\$1,801	\$1,801	\$1,801	\$1,801	\$1,801
RECREATION:										
411	Public Park	acre	\$1,691	\$585	-65%	\$585	\$585	\$585	\$585	\$585
420	Marina	berth	\$1,391	\$2,324	67%	\$2,086	\$1,565	\$1,739	\$1,913	\$2,086
430	Golf Course*	hole	\$23,240	\$29,288	26%	\$29,288	\$26,264	\$29,288	\$29,288	\$29,288
491	Racquet/Tennis Club	1,000 sf	\$6,262	\$15,409	146%	\$9,393	\$7,045	\$7,828	\$8,611	\$9,393
495	Recreational Community Center	1,000 sf	\$10,272	\$21,575	110%	\$15,408	\$11,556	\$12,840	\$14,124	\$15,408
INSTITUTIONS:										
520	Elementary School (Private)	student	\$530	\$973	84%	\$795	\$596	\$662	\$728	\$795
522	Middle School (Private)	student	\$666	\$894	34%	\$894	\$780	\$894	\$894	\$894
525	High School (Private)	student	\$703	\$932	33%	\$932	\$818	\$932	\$932	\$932
540	University/Junior College (7,500 or fewer students) (Private)	student	\$493	\$1,927	291%	\$739	\$555	\$617	\$679	\$739
550	University/Junior College (more than 7,500 students) (Private)	student	\$978	\$1,454	49%	\$1,454	\$1,097	\$1,216	\$1,335	\$1,454
560	Church	1,000 sf	\$3,743	\$4,325	16%	\$4,325	\$4,034	\$4,325	\$4,325	\$4,325
565	Day Care Center	1,000 sf	\$8,339	\$11,750	41%	\$11,750	\$9,192	\$10,045	\$10,898	\$11,750
MEDICAL:										
610	Hospital	bed	\$5,593	\$18,651	234%	\$8,389	\$6,292	\$6,991	\$7,690	\$8,389
620	Nursing Home	bed	\$870	\$1,123	29%	\$1,123	\$997	\$1,123	\$1,123	\$1,123
OFFICE:										
710	Office	1,000 sf	\$8,117	\$8,293	2%	\$8,293	\$8,205	\$8,293	\$8,293	\$8,293
720	Medical/Dental Office 10,000 sq ft or less	1,000 sf	\$15,669	\$19,018	21%	\$19,018	\$17,344	\$19,018	\$19,018	\$19,018
	Medical/Dental Office greater than 10,000 sq ft	1,000 sf	\$15,669	\$27,311	74%	\$23,503	\$17,628	\$19,587	\$21,546	\$23,503
730	Government Office	1,000 sf	\$8,751	\$16,917	93%	\$13,126	\$9,845	\$10,939	\$12,033	\$13,126
732	U.S. Post Office	1,000 sf	\$13,735	\$42,361	208%	\$20,602	\$15,452	\$17,169	\$18,886	\$20,602
760	Research and Development Center	1,000 sf	\$3,841	\$8,573	123%	\$5,761	\$4,321	\$4,801	\$5,281	\$5,761
RETAIL:										
822	Retail less than 40,000 sf gla	1,000 sf gla	\$9,634	\$6,138	-36%	\$6,138	\$6,138	\$6,138	\$6,138	\$6,138
821	Retail 40,000 to 150,000 sf gla	1,000 sf gla	\$10,143	\$11,914	18%	\$11,914	\$11,029	\$11,914	\$11,914	\$11,914
820	Retail greater than 150,000 sf gla	1,000 sf gla	\$11,191	\$12,480	12%	\$12,480	\$11,836	\$12,480	\$12,480	\$12,480
840/841	New/Used Auto Sales	1,000 sf	\$1,282	\$14,415	1024%	\$1,923	\$1,442	\$1,602	\$1,762	\$1,923
860	Wholesale Market	1,000 sf	\$1,797	\$4,084	127%	\$2,695	\$2,022	\$2,247	\$2,472	\$2,695
862	Home Improvement Superstore	1,000 sf	\$8,851	\$7,343	-17%	\$7,343	\$7,343	\$7,343	\$7,343	\$7,343
890	Furniture Store	1,000 sf	\$847	\$3,356	296%	\$1,270	\$953	\$1,059	\$1,165	\$1,270
SERVICES:										
911	Bank/Savings Walk-In	1,000 sf	\$9,337	\$8,865	-5%	\$8,865	\$8,865	\$8,865	\$8,865	\$8,865
912	Bank/Savings Drive-In	1,000 sf	\$15,824	\$15,853	0%	\$15,853	\$15,839	\$15,853	\$15,853	\$15,853
931	Fine Dining Restaurant	1,000 sf	\$7,625	\$33,431	338%	\$11,437	\$8,578	\$9,531	\$10,484	\$11,437
932	High Turnover (Sit-Down) Restaurant	1,000 sf	\$14,051	\$37,433	166%	\$21,076	\$15,807	\$17,563	\$19,319	\$21,075
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	\$28,566	\$91,006	219%	\$42,849	\$32,137	\$35,708	\$39,279	\$42,850
937	Coffee/Donut Shop w/Drive-Thru	1,000 sf	n/a	\$101,331	n/a	n/a	\$101,331	\$101,331	\$101,331	\$101,331
938	Coffee/Donut Shop w/Drive-Thru and No Indoor Seating	lanes	n/a	\$33,994	n/a	n/a	\$33,994	\$33,994	\$33,994	\$33,994
944	Gas Station w/Convenience Store <2,000 sq ft	fuel pos.	\$6,483	\$11,987	85%	\$9,724	\$7,293	\$8,103	\$8,913	\$9,724
945	Gas Station w/Convenience Store 2,000 to 5,499 sq ft	fuel pos.	\$6,483	\$18,419	184%	\$9,724	\$7,293	\$8,103	\$8,913	\$9,724
	Gas Station w/Convenience Store 5,500+ sq ft	fuel pos.	\$6,483	\$24,106	272%	\$9,724	\$7,293	\$8,103	\$8,913	\$9,724
947	Self-Service Car Wash	service bay	\$4,153	\$10,420	151%	\$6,229	\$4,672	\$5,191	\$5,710	\$6,229
INDUSTRIAL:										
110	General Light Industrial	1,000 sf	\$3,092	\$3,722	20%	\$3,722	\$3,407	\$3,722	\$3,722	\$3,722
120	General Heavy Industrial	1,000 sf	\$710	\$1,149	62%	\$1,065	\$799	\$888	\$977	\$1,065
150	Warehousing	1,000 sf	\$2,201	\$1,308	-41%	\$1,308	\$1,308	\$1,308	\$1,308	\$1,308
151	Mini-Warehouse	1,000 sf	\$1,184	\$762	-36%	\$762	\$762	\$762	\$762	\$762
170	Utilities	1,000 sf	\$379	\$9,400	2380%	\$568	\$426	\$473	\$520	\$568

*The current fee for golf course is an estimated equivalent “per hole” rate due to the unit of measure change from “per acre” to “per hole”

Transportation Impact Fee Comparison

Table 8 presents the calculated transportation impact fee rates for the City of Palm Bay compared to transportation impact fee rates adopted by surrounding and other jurisdictions in Florida.

Note that differences in fee levels for a given land use can be caused by several factors, including the year of the technical study, adoption percentage, study methodology including variation in costs, credits, and travel demand, land use categories included in the fee schedule, etc. In addition, in some cases when both the County and City collect a transportation impact fee, fee amounts adopted by the Cities may reflect the portion of the fee associated with the City roads only.

Table 8
Transportation Impact Fee Comparison

Land Use	Unit ⁽³⁾	City of Palm Bay			City of Melbourne ⁽⁷⁾	City of Port Orange ⁽⁸⁾	City of Port St. Lucie ⁽⁹⁾			City of Deltona ⁽¹⁰⁾	City of Lakeland ⁽¹¹⁾	City of St. Cloud ⁽¹²⁾
		Calculated ⁽⁴⁾	Max Allowable F.S. 163.31801 ⁽⁵⁾	Current Adopted ⁽⁶⁾			E	SW	NW			
Date of Last Update		2024	2024	2012	-	2023	2022	2022	2022	2007/2015	2019	2017
Adoption Percentage ⁽¹⁾		100%	up to 50%	n/a	-	varies	100%	100%	100%	100%	varies	100%/24%
Scope of Fee Calculation ⁽²⁾		Total Travel	Total Travel	n/a	n/a	City only	City only	City only	City only	City only	City/State	Total Travel
Residential:												
Single Family (2,000 sf)	du	\$8,368	\$6,529	\$4,353	\$3,047	\$992	\$3,200	\$2,260	\$2,840	\$1,044	\$4,316	\$6,442
Multi-Family (1,300 sf, Low-Rise)	du	\$5,671	\$4,303	\$2,869	\$1,874	\$724	\$3,445	\$2,431	\$1,677	\$888	\$1,837	\$4,166
Non-Residential:												
Light Industrial	1,000 sf	\$3,722	\$3,722	\$3,092	\$2,187	\$402	\$700	\$550	\$740	\$1,308	\$604	\$1,001
Office (50,000 sq ft)	1,000 sf	\$8,293	\$8,293	\$8,117	\$6,341	\$1,502	\$2,660	\$2,120	\$2,850	\$1,638	\$2,516	\$1,580
Retail (125,000 sq ft)	1,000 sfgla	\$11,914	\$11,914	\$10,143	\$3,689	\$7,332	\$4,780	\$3,300	\$4,050	\$2,075	\$6,096	\$2,133

- 1) Represents the portion of the maximum calculated fee for each respective county that is adopted. Fees may have been lowered/raised through indexing or policy discounts.
- 2) Indicates the transportation network used to calculate the impact fee rates.
- 3) Du = dwelling unit
- 4) Source: Table 7
- 5) Source: Table 7
- 6) Source: City of Palm Bay Growth Management Division
- 7) Source: City of Melbourne Community Development Department
- 8) Source: City of Port Orange Community Development Department. Rates effective 4/1/2024. Rates shown will be implemented in compliance with the 50% limit per F.S. 163.31801
- 9) Source: City of Port St. Lucie Planning & Development Department
- 10) Source: City of Deltona Planning and Development Services
- 11) Source: City of Lakeland Community & Economic Development Department
- 12) Source: City of St. Cloud Community Development Department. Fees for residential land uses are adopted at 100% and for non-residential land uses at 24%

Table 8 (continued)
Transportation Impact Fee Comparison

Land Use	Unit ⁽³⁾	City of Palm Bay			City of Orlando ⁽⁷⁾		Brevard County ⁽⁸⁾	Volusia County ⁽⁹⁾	Orange County ⁽¹⁰⁾			St. Lucie County Uninc. ⁽¹¹⁾	Indian River County ⁽¹²⁾
		Calculated ⁽⁴⁾	Max Allowable F.S. 163.31801 ⁽⁵⁾	Current Adopted ⁽⁶⁾	Downtown	City Other			Urban	Non-Urb/Suburban	Rural		
Date of Last Update		2024	2024	2012	2022	2022	2000	2022	2020	2020	2020	2022	2020
Adoption Percentage⁽¹⁾		100%	up to 50%	n/a	85%	85%	100%	100%	100%	100%	100%	varies/63% SF	75%/45%
Scope of Fee Calculation⁽²⁾		Total Travel	Total Travel	n/a	Total Travel	Total Travel	Total Travel	Co./State	Total Travel	Total Travel	Total Travel	Total Travel	Total Travel
Residential:													
Single Family (2,000 sf)	du	\$8,368	\$6,529	\$4,353	\$4,973	\$5,645	\$4,353	\$5,464	\$8,786	\$10,839	\$12,387	\$5,450	\$6,632
Multi-Family (1,300 sf, Low-Rise)	du	\$5,671	\$4,303	\$2,869	\$3,426	\$3,883	\$2,677	\$3,700	\$6,348	\$7,808	\$8,926	\$4,212	\$4,753
Non-Residential:													
Light Industrial	1,000 sf	\$3,722	\$3,722	\$3,092	\$2,224	\$2,524	n/a	\$2,040	\$3,333	\$4,124	\$4,715	\$1,173	\$1,795
Office (50,000 sq ft)	1,000 sf	\$8,293	\$8,293	\$8,117	\$4,848	\$5,516	\$5,058	\$5,400	\$8,694	\$10,731	\$12,266	\$3,950	\$3,530
Retail (125,000 sq ft)	1,000 sf gla	\$11,914	\$11,914	\$10,143	\$7,061	\$8,033	\$5,270	\$6,320	\$10,747	\$12,576	\$13,395	\$6,737	\$5,603

1) Represents the portion of the maximum calculated fee for each respective county that is adopted. Fees may have been lowered/raised through indexing or policy discounts.

2) Indicates portion of travel network used to calculate the impact fee rates.

3) Du = dwelling unit

4) Source: Appendix D, Table D-1

5) Source: Table 7

6) Source: City of Palm Bay Growth Management Division

7) Source: City of Orlando Building and Development Department

8) Source: Brevard County Planning & Development Department. Unincorporated County rates are shown.

9) Source: Volusia County Growth and Resource Management Department

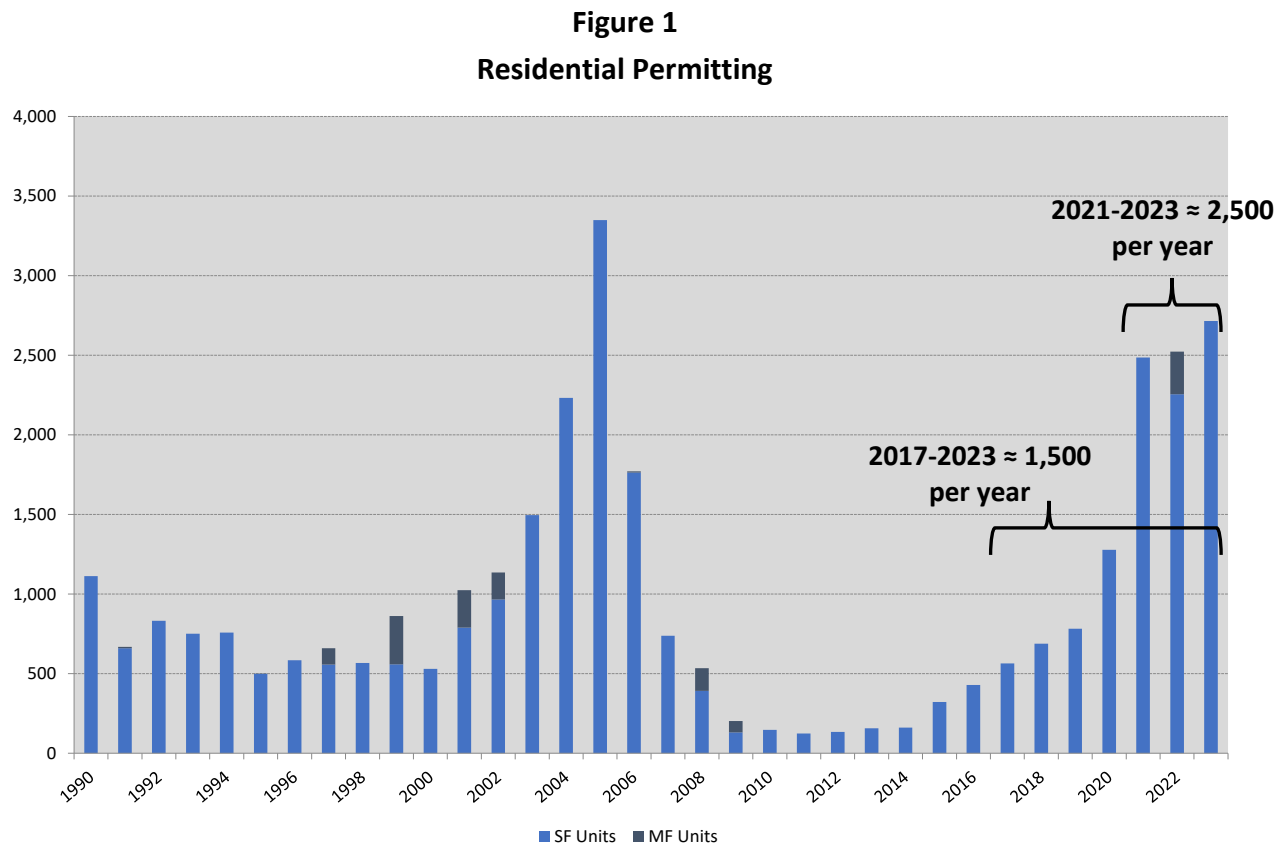
10) Source: Orange County Planning Division. Fees shown reflect annual indexing applied since adoption.

11) Source: St. Lucie County Administration Department; Innovation and Performance Division. Rates shown were adopted in compliance with the 50% limit pr F.S. 163.31801. Due to this compliance, the adoption rate varies by land use. For the Single Family (2,000 sf) land use, the current adopted rate is approximately 63% of the full calculated rate from the 2022 update study.

12) Source: Indian River County Planning Division. Fees for residential land uses are adopted at 75% and for non-residential at 45%

Revenue Projections

The transportation impact fee projections in this report are based on recent permitting levels in the City of Palm Bay. As shown in Figure 1, the City of Palm Bay has experienced a significant increase in residential permitting over the past two to three years. Figure 1 presents residential permitting trends since 1990s.



Source: U.S. Census Bureau

Given fluctuations in permitting levels, a range of projects scenarios was developed. For the low-end, residential permitting was based on the average permitting levels since 2017 (approximately 1,500 permits) and for the high-end, residential permitting was based on average permitting levels of the last three years (approximately 2,500 permits).

Additional assumptions/estimates reflected in the projections:

- Impact fees phased-in to maximum allowable rates over four years;
- Residential permitting is primarily for the “Single Family Detached” land use;

- Non-residential revenues account for approximately 20 percent of the total revenue collected. This estimate is based on the average tax base distribution in the City of Palm Bay over the past five years; and
- Revenue estimates adjusted down approximately 30 percent to account for developer credits and other reductions based on revenue levels of recent years.

As shown in Table 8, the City of Palm Bay has the potential to generate between \$44 million and \$74 million in transportation impact fee revenues over the next five years. These projections reflect the calculated rates being phased-in to their maximum allowable rates over four years.

Table 8
Transportation Impact Fee Revenue Projections

Service Area	Annual Revenue (Low-End)	Annual Revenue (High-End)	2025-2030 Revenues (Low-End)	2025-2030 Revenues (High-End)
Transportation	\$7,390,000	\$12,320,000	\$44,340,000	\$73,920,000

Source: Based on recent residential permitting levels and calculated fee rates from this report

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 City 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.

Appendix A:

Demand Component

Appendix A: Demand Component

This appendix presents the detailed calculations for the demand component of the transportation impact fee study.

Interstate & Toll Facility Adjustment Factor

Table A-1 presents the interstate and toll facility adjustment factor used in the calculation of the road impact fee. This variable is based on data from the Central Florida Regional Planning Model v7), specifically the 2045 projected vehicle-miles of travel of all city-generated trips on all in-county roadways. It should be noted that the adjustment factor excludes all external-to-external trips, which represent traffic that goes through the City of Palm Bay but does not necessarily stop in the city. This traffic is excluded from the analysis since it does not come from development within the city. The I/T adjustment factor is used to reduce the VMT that the impact fee charges for each land use.

Table A-1
Interstate/Toll Facility Adjustment Factor

Facility Type	Total	
	VMT	%
Interstate/Toll	1,184,684	31.6%
Other Roads	2,569,029	68.4%
Total	3,753,713	100.0%

Source: Central Florida Regional Planning Model v7

Florida Studies Trip Characteristics Database

The Florida Studies Trip Characteristics Database includes approximately 345 studies on 40 different residential and non-residential land uses collected over the last 30 years. Data from these studies include trip generation, trip length, and percent new trips for each land use. This information has been used in the development of impact/multi-modal/mobility fees for communities throughout Florida and the U.S.

Benesch estimates trip generation rates for all land uses in an impact fee schedule using data from studies in the Florida Studies Database and the Institute of Transportation Engineers’ (ITE) *Trip Generation* reference report (11th edition). In instances, when both ITE *Trip Generation* reference report (11th edition) and Florida Studies trip generation rate (TGR) data are available for a particular land use, the data is typically blended together to increase the sample size and

provide a more valid estimate of the average number of trips generated per unit of development. If no Florida Studies data is available, only TGR data from the ITE reference report is used in the fee calculation.

The trip generation rate for each respective land use is calculated using machine counts that record daily traffic into and out of the site studied. The traffic count hoses or video cameras are set at entrances to residential subdivisions for the residential land uses and at all access points for non-residential land uses.

The trip length information is obtained through origin-destination surveys that ask respondents where they came from prior to arriving at the site and where they intended to go after leaving the site. The results of these surveys were used to estimate average trip length by land use.

The percent new trip variable is based on assigning each trip collected through the origin-destination survey process a trip type (primary, secondary, diverted, and captured). The percent new trip variable is then calculated as 1 minus the percentage of trips that are captured. Benesch has published an article entitled, *Measuring Travel Characteristics for Transportation Impact Fees*, ITE Journal, April 1991, on the data collection methodology for trip characteristics studies.

Table A-2

Land Use 151: Mini-Warehouse

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Orange Co, FL	89.6	2006	-	-	1.23	-	-	-	-	Orange County
Orange Co, FL	84.7	2006	-	-	1.39	-	-	-	-	Orange County
Orange Co, FL	93.0	2006	-	-	1.51	-	-	-	-	Orange County
Orange Co, FL	107.0	2007	-	-	1.45	-	-	-	-	Orange County
Orange Co, FL	77.0	2009	-	-	2.18	-	-	-	-	Tindale Oliver
Orange Co, FL	93.7	2012	-	-	1.15	-	-	-	-	Tindale Oliver
Total Size	545.0	6	Average Trip Length:				n/a			
ITE	880.0	16	Weighted Average Trip Length:				n/a			
Blended total	1,425.0	Weighted Percent New Trip Average:				-				
Weighted Average Trip Generation Rate:										1.47
ITE Average Trip Generation Rate:										1.45
Blend of FL Studies and ITE Average Trip Generation Rate:										1.46

Table A-3

Land Use 210: Single Family - Detached

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Sarasota Co, FL	76	Jun-93	70	70	10.03	-	6.00	-	60.18	Sarasota County
Sarasota Co, FL	79	Jun-93	86	86	9.77	-	4.40	-	42.99	Sarasota County
Sarasota Co, FL	135	Jun-93	75	75	8.05	-	5.90	-	47.50	Sarasota County
Sarasota Co, FL	152	Jun-93	63	63	8.55	-	7.30	-	62.42	Sarasota County
Sarasota Co, FL	193	Jun-93	123	123	6.85	-	4.60	-	31.51	Sarasota County
Sarasota Co, FL	97	Jun-93	33	33	13.20	-	3.00	-	39.60	Sarasota County
Sarasota Co, FL	282	Jun-93	146	146	6.61	-	8.40	-	55.52	Sarasota County
Sarasota Co, FL	393	Jun-93	207	207	7.76	-	5.40	-	41.90	Sarasota County
Hernando Co, FL	76	May-96	148	148	10.01	9a-6p	4.85	-	48.55	Tindale Oliver
Hernando Co, FL	128	May-96	205	205	8.17	9a-6p	6.03	-	49.27	Tindale Oliver
Hernando Co, FL	232	May-96	182	182	7.24	9a-6p	5.04	-	36.49	Tindale Oliver
Hernando Co, FL	301	May-96	264	264	8.93	9a-6p	3.28	-	29.29	Tindale Oliver
Charlotte Co, FL	135	Oct-97	230	-	5.30	9a-5p	7.90	-	41.87	Tindale Oliver
Charlotte Co, FL	142	Oct-97	245	-	5.20	9a-5p	4.10	-	21.32	Tindale Oliver
Charlotte Co, FL	150	Oct-97	160	-	5.00	9a-5p	10.80	-	54.00	Tindale Oliver
Charlotte Co, FL	215	Oct-97	158	-	7.60	9a-5p	4.60	-	34.96	Tindale Oliver
Charlotte Co, FL	257	Oct-97	225	-	7.60	9a-5p	7.40	-	56.24	Tindale Oliver
Charlotte Co, FL	345	Oct-97	161	-	7.00	9a-5p	6.60	-	46.20	Tindale Oliver
Charlotte Co, FL	368	Oct-97	152	-	6.60	9a-5p	5.70	-	37.62	Tindale Oliver
Charlotte Co, FL	383	Oct-97	516	-	8.40	9a-5p	5.00	-	42.00	Tindale Oliver
Charlotte Co, FL	441	Oct-97	195	-	8.20	9a-5p	4.70	-	38.54	Tindale Oliver
Charlotte Co, FL	1,169	Oct-97	348	-	6.10	9a-5p	8.00	-	48.80	Tindale Oliver
Collier Co, FL	90	Dec-99	91	-	12.80	8a-6p	11.40	-	145.92	Tindale Oliver
Collier Co, FL	400	Dec-99	389	-	7.80	8a-6p	6.40	-	49.92	Tindale Oliver
Lake Co, FL	49	Apr-02	170	-	6.70	7a-6p	10.20	-	68.34	Tindale Oliver
Lake Co, FL	52	Apr-02	212	-	10.00	7a-6p	7.60	-	76.00	Tindale Oliver
Lake Co, FL	126	Apr-02	217	-	8.50	7a-6p	8.30	-	70.55	Tindale Oliver
Pasco Co, FL	55	Apr-02	133	-	6.80	8a-6p	8.12	-	55.22	Tindale Oliver
Pasco Co, FL	60	Apr-02	106	-	7.73	8a-6p	8.75	-	67.64	Tindale Oliver
Pasco Co, FL	70	Apr-02	188	-	7.80	8a-6p	6.03	-	47.03	Tindale Oliver
Pasco Co, FL	74	Apr-02	188	-	8.18	8a-6p	5.95	-	48.67	Tindale Oliver
Pasco Co, FL	189	Apr-02	261	-	7.46	8a-6p	8.99	-	67.07	Tindale Oliver
Marion Co, FL	102	Apr-02	167	-	8.02	7a-6p	5.10	-	40.90	Kimley-Horn & Associates
Marion Co, FL	105	Apr-02	169	-	7.23	7a-6p	7.22	-	52.20	Kimley-Horn & Associates
Marion Co, FL	124	Apr-02	170	-	6.04	7a-6p	7.29	-	44.03	Kimley-Horn & Associates
Marion Co, FL	132	Apr-02	171	-	7.87	7a-6p	7.00	-	55.09	Kimley-Horn & Associates
Marion Co, FL	133	Apr-02	209	-	8.04	7a-6p	4.92	-	39.56	Kimley-Horn & Associates
Citrus Co, FL	111	Oct-03	273	-	8.66	7a-6p	7.70	-	66.68	Tindale Oliver
Citrus Co, FL	231	Oct-03	155	-	5.71	7a-6p	4.82	-	27.52	Tindale Oliver
Citrus Co, FL	306	Oct-03	146	-	8.40	7a-6p	3.94	-	33.10	Tindale Oliver
Citrus Co, FL	364	Oct-03	345	-	7.20	7a-6p	9.14	-	65.81	Tindale Oliver
Citrus Co, FL	374	Oct-03	248	-	12.30	7a-6p	6.88	-	84.62	Tindale Oliver
Lake Co, FL	42	Dec-06	122	-	11.26	-	5.56	-	62.61	Tindale Oliver
Lake Co, FL	51	Dec-06	346	-	18.22	-	9.46	-	172.36	Tindale Oliver
Lake Co, FL	59	Dec-06	144	-	12.07	-	10.79	-	130.24	Tindale Oliver
Lake Co, FL	90	Dec-06	194	-	9.12	-	5.78	-	52.71	Tindale Oliver
Lake Co, FL	239	Dec-06	385	-	7.58	-	8.93	-	67.69	Tindale Oliver
Hernando Co, FL	232	Apr-07	516	-	8.02	7a-6p	8.16	-	65.44	Tindale Oliver
Hernando Co, FL	95	Apr-07	256	-	8.08	7a-6p	5.88	-	47.51	Tindale Oliver
Hernando Co, FL	90	Apr-07	338	-	7.13	7a-6p	5.86	-	41.78	Tindale Oliver
Hernando Co, FL	58	Apr-07	153	-	6.16	7a-6p	8.39	-	51.68	Tindale Oliver
Collier Co, FL	74	Mar-08	503	-	12.81	7a-6p	3.05	-	39.07	Tindale Oliver
Collier Co, FL	97	Mar-08	512	-	8.78	7a-6p	11.29	-	99.13	Tindale Oliver
Collier Co, FL	315	Mar-08	1,347	-	6.97	7a-6p	6.55	-	45.65	Tindale Oliver
Collier Co, FL	42	Mar-08	314	-	9.55	7a-6p	10.98	-	104.86	Tindale Oliver
Total Size	10,380	55	13,130	Average Trip Length: 6.83		Weighted Average Trip Length: 6.62		Weighted Average Trip Generation Rate: 7.81		

Table A-4

LUC 215: Single Family Attached Housing

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Hernando Co, FL	31	May-96	31	31	6.12	9a-6p	-	-	-	Tindale Oliver
Hernando Co, FL	128	May-96	198	198	6.47	9a-6p	-	-	-	Tindale Oliver
Pasco Co, FL	229	Apr-02	198	198	4.77	9a-6p	-	-	-	Tindale Oliver
Pasco Co, FL	248	Apr-02	353	353	4.24	9a-6p	-	-	-	Tindale Oliver
Total Size	636	4	780	Average Trip Length: -		Weighted Average Trip Length: -		Weighted Average Trip Generation Rate: 4.97		
ITE	2,640	22						ITE Average Trip Generation Rate: 7.20		
Blended total	3,276							Blend of FL Studies and ITE Average Trip Generation Rate: 6.77		

Table A-5

LUC 220/221/222: Multi-Family/Apartment

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTMT	Source
Sarasota Co, FL	212	Jun-93	42	42	5.78	-	5.20	-	30.06	Sarasota County
Sarasota Co, FL	243	Jun-93	36	36	5.84	-	-	-	-	Sarasota County
Marion Co, FL	214	Apr-02	175	175	6.84	-	4.61	-	31.53	Kimley-Horn & Associates
Marion Co, FL	240	Apr-02	174	174	6.96	-	3.43	-	23.87	Kimley-Horn & Associates
Marion Co, FL	288	Apr-02	175	175	5.66	-	5.55	-	31.41	Kimley-Horn & Associates
Marion Co, FL	480	Apr-02	175	175	5.73	-	6.88	-	39.42	Kimley-Horn & Associates
Marion Co, FL	500	Apr-02	170	170	5.46	-	5.94	-	32.43	Kimley-Horn & Associates
Lake Co, FL	250	Dec-06	135	135	6.71	-	5.33	-	35.76	Tindale Oliver
Lake Co, FL	157	Dec-06	265	265	13.97	-	2.62	-	36.60	Tindale Oliver
Lake Co, FL	169	Dec-06	212	-	8.09	-	6.00	-	48.54	Tindale Oliver
Lake Co, FL	226	Dec-06	301	-	6.74	-	2.17	-	14.63	Tindale Oliver
Hernando Co, FL	312	Apr-07	456	-	4.09	-	5.95	-	24.34	Tindale Oliver
Hernando Co, FL	176	Apr-07	332	-	5.38	-	5.24	-	28.19	Tindale Oliver
Total Size	3,467	13	2,648	Average Trip Length: 4.91						
				Weighted Average Trip Length: 5.21						

Table A-6

Land Use 240: Mobile Home Park

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTMT	Source
Marion Co, FL	67	Jul-91	22	22	5.40	48hrs.	2.29	-	12.37	Tindale Oliver
Marion Co, FL	82	Jul-91	58	58	10.80	24hr.	3.72	-	40.18	Tindale Oliver
Marion Co, FL	137	Jul-91	22	22	3.10	24hr.	4.88	-	15.13	Tindale Oliver
Sarasota Co, FL	996	Jun-93	181	181	4.19	-	4.40	-	18.44	Sarasota County
Sarasota Co, FL	235	Jun-93	100	100	3.51	-	5.10	-	17.90	Sarasota County
Marion Co, FL	188	Apr-02	147	-	3.51	24hr.	5.48	-	19.23	Kimley-Horn & Associates
Marion Co, FL	227	Apr-02	173	-	2.76	24hr.	8.80	-	24.29	Kimley-Horn & Associates
Marion Co, FL	297	Apr-02	175	-	4.78	24hr.	4.76	-	22.75	Kimley-Horn & Associates
Hernando Co, FL	1,892	May-96	425	425	4.13	9a-6p	4.13	-	17.06	Tindale Oliver
Total Size	4,121	9	1,303	Average Trip Length: 4.84						
				Weighted Average Trip Length: 4.60						

Weighted Average Trip Generation Rate: 4.17

Table A-7

Land Use 251: Senior Adult Housing - Single Family

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	9am-4pm	2.44	-	8.54	Tindale Oliver
Marion Co, FL	778	Apr-02	175	-	2.96	24hr.	3.49	-	10.33	Kimley-Horn & Associates
Marion Co, FL	877	Apr-02	209	-	2.91	24hr.	5.90	-	17.17	Kimley-Horn & Associates
Marion Co, FL	1,054	Apr-02	173	-	3.65	24hr.	6.00	-	21.90	Kimley-Horn & Associates
Marion Co, FL	3,076	Apr-02	198	-	2.63	24hr.	5.16	-	13.57	Kimley-Horn & Associates
Marion Co, FL	3,625	Apr-02	164	-	2.50	24hr.	5.83	-	14.58	Kimley-Horn & Associates
Total Size	9,477	6	945	Average Trip Length: 4.80				Weighted Average Trip Generation Rate: 2.75		
ITE	9,690	15		Weighted Average Trip Length: 5.42						
Blended total	19,167									

Weighted Average Trip Generation Rate: 2.75
ITE Average Trip Generation Rate: 4.31
Blend of FL Studies and ITE Average Trip Generation Rate: 3.54

Table A-8

Land Use 252: Senior Adult Housing - Multi-Family

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source	
Sun City Center, FL	208	Oct-91	726	726	2.46	24hr.	-	-	-	Tindale Oliver	
Total Size	208	1		Average Trip Length:		-					
ITE	432	6		Weighted Average Trip Length:		-					
Blended total	640			Weighted Average Trip Generation Rate:							2.46

Weighted Average Trip Generation Rate: 2.46
ITE Average Trip Generation Rate: 3.24
Blend of FL Studies and ITE Average Trip Generation Rate: 2.99

Table A-9

Land Use 253: Congregate Care Facility

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pinellas Park, FL	72	Aug-89	25	19	3.50	9am-5pm	2.20	79.0	7.70	Tindale Oliver
Palm Harbor, FL	200	Oct-89	58	40	-	9am-5pm	3.40	69.0	-	Tindale Oliver
Total Size	272	2	83	Average Trip Length: 2.80						
ITE	720	4		Weighted Average Trip Length: 3.08						
Blended total	992			Weighted Percent New Trip Average: 71.6						
	792			Weighted Average Trip Generation Rate: 3.50						

Weighted Percent New Trip Average: 71.6
Weighted Average Trip Generation Rate: 3.50
ITE Average Trip Generation Rate: 2.21
Blend of FL Studies and ITE Average Trip Generation Rate: 2.33

Table A-10

Land Use 310: Hotel

Location	Size (Rooms)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Pinellas Co, FL	174	Aug-89	134	106	12.50	7-11a/3-7p	6.30	79.0	62.21	Tindale Oliver
Pinellas Co, FL	114	Oct-89	30	14	7.30	12-7p	6.20	47.0	21.27	Tindale Oliver
Orange Co, FL	123	1997	-	-	6.32	-	-	-	-	Orange County
Orange Co, FL	120	1997	-	-	5.27	-	-	-	-	Orange County
Orange Co, FL	146	1997	-	-	7.61	-	-	-	-	Orange County
Orange Co, FL	252	1997	-	-	5.63	-	-	-	-	Orange County
Orange Co, FL	172	1997	-	-	6.36	-	-	-	-	Orange County
Orange Co, FL	170	1997	-	-	6.06	-	-	-	-	Orange County
Orange Co, FL	128	1997	-	-	6.10	-	-	-	-	Orange County
Orange Co, FL	200	1997	-	-	4.56	-	-	-	-	Orange County
Orange Co, FL	112	1998	-	-	2.78	-	-	-	-	Orange County
Orange Co, FL	130	1998	-	-	9.12	-	-	-	-	Orange County
Orange Co, FL	106	1998	-	-	7.34	-	-	-	-	Orange County
Orange Co, FL	98	1998	-	-	7.32	-	-	-	-	Orange County
Orange Co, FL	120	1998	-	-	5.57	-	-	-	-	Orange County
Orange Co, FL	70	1999	-	-	1.85	-	-	-	-	Orange County
Orange Co, FL	123	1999	-	-	4.81	-	-	-	-	Orange County
Orange Co, FL	123	1999	-	-	3.70	-	-	-	-	Orange County
Orange Co, FL	211	2000	-	-	2.23	-	-	-	-	Orange County
Orange Co, FL	144	2000	-	-	7.32	-	-	-	-	Orange County
Orange Co, FL	105	2001	-	-	5.25	-	-	-	-	Orange County
Orange Co, FL	891	2005	-	-	5.69	-	-	-	-	Orange County
Orange Co, FL	1,584	2005	-	-	5.88	-	-	-	-	Orange County
Orange Co, FL	210	2006	-	-	4.88	-	-	-	-	Orange County
Orange Co, FL	1,499	2006	-	-	4.69	-	-	-	-	Orange County
Orange Co, FL	144	-	-	-	4.74	-	-	-	-	Orange County
Orange Co, FL	148	-	-	-	7.61	-	-	-	-	Orange County
Orange Co, FL	160	-	-	-	6.19	-	-	-	-	Orange County
Orange Co, FL	130	-	-	-	4.29	-	-	-	-	Orange County
Orange Co, FL	130	-	-	-	3.40	-	-	-	-	Orange County
Orange Co, FL	144	-	-	-	7.66	-	-	-	-	Orange County
Orange Co, FL	100	-	-	-	7.37	-	-	-	-	Orange County
Orange Co, FL	190	-	-	-	4.71	-	-	-	-	Orange County
Orange Co, FL	1,501	2011	-	-	3.50	-	-	-	-	Tindale Oliver
Orange Co, FL	174	2011	-	-	7.03	-	-	-	-	Tindale Oliver
Orange Co, FL	238	2014	-	-	4.05	-	-	-	-	Tindale Oliver
Total Size	10,184	36	164	Average Trip Length:		6.25				
ITE	1,036	7		Weighted Average Trip Length:		6.26				
Blended total	11,220			Weighted Percent New Trip Average:				66.3		

Table A-11

Land Use 320: Motel

Location	Size (Rooms)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pinellas Co, FL	48	Oct-89	46	24	-	10a-2p	2.80	65.0	-	Tindale Oliver
Pinellas Co, FL	54	Oct-89	32	22	-	12p-7p	3.80	69.0	-	Tindale Oliver
Pinellas Co, FL	120	Oct-89	26	22	-	2p-7p	5.20	84.6	-	Tindale Oliver
Total Size	222	3	104	Average Trip Length:				3.93		
ITE	654	6		Weighted Average Trip Length:				4.34		
Weighted Percent New Trip Average:								76.6		

Table A-12

Land Use 492: Health/Fitness Club

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Tampa, FL	-	Mar-86	33	31	-	-	-	94.0	-	Kimley-Horn & Associates
Total Size			1	33	Average Trip Length:		-			
ITE	37		8		Percent New Trip Average:		94.0			

Table A-13

Land Use 565: Day Care Center

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pinellas Co, FL	5.6	Aug-89	94	66	66.99	7a-6p	1.90	70.0	89.10	Tindale Oliver
Pinellas Co, FL	10.0	Sep-89	179	134	66.99	7a-6p	2.10	75.0	105.51	Tindale Oliver
Tampa, FL	-	Mar-86	28	25	-	-	2.60	89.0	-	Kimley-Horn & Associates
Total Size	15.6	3	301	Average Trip Length:			2.20			
ITE	135.0	27		Weighted Average Trip Length:			2.03			
Blended total	150.6			Weighted Percent New Trip Average:			73.2			
							Weighted Average Trip Generation Rate:		66.99	
							ITE Average Trip Generation Rate:		47.62	
							Blend of FL Studies and ITE Average Trip Generation Rate:		49.63	

Table A-14

Land Use 620: Nursing Home

Location	Size (Beds)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Lakeland, FL	120	Mar-90	74	66	2.86	11a-4p	2.59	89.0	6.59	Tindale Oliver
		1	74							
							Average Trip Length:	2.59		
							Weighted Average Trip Length:	2.59		
							Weighted Percent New Trip Average:			89.0
							Weighted Average Trip Generation Rate:			2.86
							ITE Average Trip Generation Rate:			3.06
							Blend of FL Studies and ITE Average Trip Generation Rate:			3.02

Table A-15

Land Use 710: General Office Building

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Sarasota Co, FL	14.3	Jun-93	14	14	46.85	-	11.30	-	529.41	Sarasota County
Gwinnett Co, GA	98.0	Dec-92	-	-	4.30	-	5.40	-	-	Street Smarts
Gwinnett Co, GA	180.0	Dec-92	-	-	3.60	-	5.90	-	-	Street Smarts
Pinellas Co, FL	187.0	Oct-89	431	388	18.49	7a-5p	6.30	90.0	104.84	Tindale Oliver
St. Petersburg, FL	262.8	Sep-89	291	274	-	7a-5p	3.40	94.0	-	Tindale Oliver
		5	736							
							Average Trip Length:	6.46		
							Weighted Average Trip Length:	5.15		
							Weighted Percent New Trip Average:			92.3

Table A-16

LUC 720: Small Medical/Dental Office Building: 10,000 sf or Less

Site	Size (1,000 sf)	Tues., Jan 11		Wedn., Jan 12		Thur., Jan 13		TOTAL		AVERAGE		AVERAGE (per 1,000 sf)		
		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	TOTAL
Site 1	2.100	35	35	22	22	13	13	70	70	23.33	23.33	11.11	11.11	22.22
Site 2	3.000	40	40	52	52	53	53	145	145	48.33	48.33	16.11	16.11	32.22
Site 3	2.000	28	28	19	21	24	26	71	75	23.67	25.00	11.84	12.50	24.34
Site 4	1.000	30	30	52	52	57	57	139	139	46.33	46.33	46.33	46.33	92.66
Site 5	3.024	31	32	43	43	24	24	98	99	32.67	33.00	10.80	10.91	21.71
Site 6	1.860	22	24	19	17	11	11	52	52	17.33	17.33	9.32	9.32	18.64
Average												17.59	17.71	35.30
Average (excluding Site 4)												11.84	11.99	23.83

Table A-17

Land Use 720: Medical-Dental Office Building

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Tampa, FL	-	Mar-86	33	26	-	-	6.00	79.0	-	Kimley-Horn & Associates
Palm Harbor, FL	14.6	Oct-89	104	76	33.98	9a-5p	6.30	73.0	156.27	Tindale Oliver
St. Petersburg, FL	-	Nov-89	34	30	57.20	9a-4p	1.20	88.0	-	Tindale Oliver
Hernando Co, FL	58.4	May-96	390	349	28.52	9a-6p	6.47	89.5	165.09	Tindale Oliver
Hernando Co, FL	28.0	May-96	202	189	49.75	9a-6p	6.06	93.8	282.64	Tindale Oliver
Charlotte Co, FL	11.0	Oct-97	-	186	49.50	9a-5p	4.60	92.1	209.67	Tindale Oliver
Charlotte Co, FL	28.0	Oct-97	-	186	31.00	9a-5p	3.60	81.6	91.04	Tindale Oliver
Charlotte Co, FL	30.4	Oct-97	-	324	39.80	9a-5p	3.30	83.5	109.68	Tindale Oliver
Citrus Co, FL	38.9	Oct-03	-	168	32.26	8-6p	6.80	97.1	213.03	Tindale Oliver
Citrus Co, FL	10.0	Nov-03	-	340	40.56	8-630p	6.20	92.4	232.33	Tindale Oliver
Citrus Co, FL	5.3	Dec-03	-	20	29.36	8-5p	5.25	95.2	146.78	Tindale Oliver
Orange Co, FL	50.6	2009	-	-	26.72	-	-	-	-	Orange County
Orange Co, FL	23.5	2010	-	-	16.58	-	-	-	-	Tindale Oliver
		13	763							
							Average Trip Length:	5.07		
							Weighted Average Trip Length:	5.55		
							Weighted Percent New Trip Average:			88.9
							Average Trip Generation Rate:			32.59
							ITE Average Trip Generation Rate:			36.00
							Blend of FL Studies and ITE Average Trip Generation Rate:			34.21

Table A-18

Land Use 770: Business Park

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Collier Co, FL	14.1	May-99	-	55	33.48	8a-6p	3.60	72.7	87.62	Tindale Oliver
Collier Co, FL	66.0	May-99	-	43	11.53	8a-6p	5.70	79.0	51.92	Tindale Oliver
Collier Co, FL	211.1	May-99	-	284	17.91	8a-6p	5.40	93.0	89.94	Tindale Oliver
Total Size	291.2		3							
ITE	6,288.0		16							
Blended total	6,579.2									
							Average Trip Length:	4.90		
							Weighted Average Trip Length:	5.38		
							Weighted Percent New Trip Average:			88.8

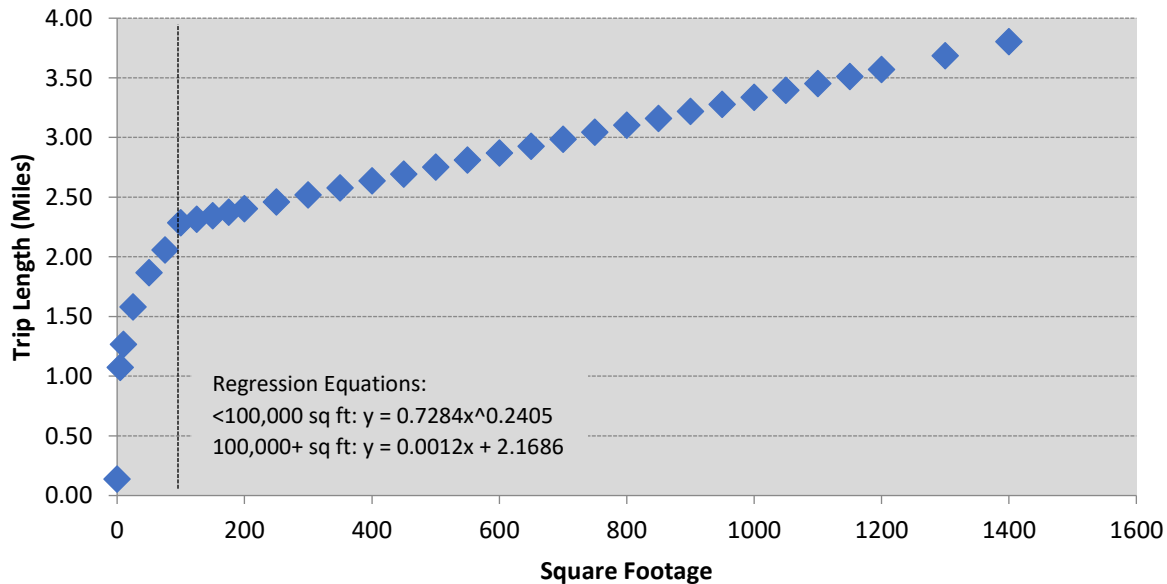
Table A-19

Land Use 820/821/822: Retail/Shopping Center

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Tampa, FL	-	Mar-86	527	348	-	-	-	66.0	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	170	-	-	-	1.70	-	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	354	269	-	-	-	76.0	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	144	-	-	-	2.50	-	-	Kimley-Horn & Associates
St. Petersburg, FL	1,192.0	Aug-89	384	298	-	11a-7p	3.60	78.0	-	Tindale Oliver
St. Petersburg, FL	132.3	Sep-89	400	368	77.00	10a-7p	1.80	92.0	127.51	Tindale Oliver
Largo, FL	425.0	Aug-89	160	120	26.73	10a-6p	2.30	75.0	46.11	Tindale Oliver
Dunedin, FL	80.5	Sep-89	276	210	81.48	9a-5p	1.40	76.0	86.69	Tindale Oliver
Pinellas Park, FL	696.0	Sep-89	485	388	-	9a-6p	3.20	80.0	-	Tindale Oliver
Seminole, FL	425.0	Oct-89	674	586	-	-	-	87.0	-	Tindale Oliver
Hillsborough Co, FL	134.0	Jul-91	-	-	-	-	1.30	74.0	-	Tindale Oliver
Hillsborough Co, FL	151.0	Jul-91	-	-	-	-	1.30	73.0	-	Tindale Oliver
Collier Co, FL	-	Aug-91	68	64	-	-	3.33	94.1	-	Tindale Oliver
Collier Co, FL	-	Aug-91	208	154	-	-	2.64	74.0	-	Tindale Oliver
Sarasota/Bradenton, FL	109.0	Sep-92	300	185	-	12a-6p	-	61.6	-	King Engineering Associates, Inc.
Ocala, FL	133.4	Sep-92	300	192	-	12a-6p	-	64.0	-	King Engineering Associates, Inc.
Sarasota Co, FL	110.0	Jun-93	58	58	122.14	-	3.20	-	-	Sarasota County
Sarasota Co, FL	146.1	Jun-93	65	65	51.53	-	2.80	-	-	Sarasota County
Sarasota Co, FL	157.5	Jun-93	57	57	79.79	-	3.40	-	-	Sarasota County
Sarasota Co, FL	191.0	Jun-93	62	62	66.79	-	5.90	-	-	Sarasota County
Hernando Co, FL	107.8	May-96	608	331	77.60	9a-6p	4.68	54.5	197.85	Tindale Oliver
Charlotte Co, FL	88.0	Oct-97	-	-	73.50	9a-5p	1.80	57.1	75.56	Tindale Oliver
Charlotte Co, FL	191.9	Oct-97	-	-	72.00	9a-5p	2.40	50.9	87.97	Tindale Oliver
Charlotte Co, FL	51.3	Oct-97	-	-	43.00	9a-5p	2.70	51.8	60.08	Tindale Oliver
Lake Co, FL	67.8	Apr-01	246	177	102.60	-	3.40	71.2	248.37	Tindale Oliver
Lake Co, FL	72.3	Apr-01	444	376	65.30	-	4.50	59.0	173.37	Tindale Oliver
Pasco Co, FL	65.6	Apr-02	222	-	145.64	9a-5p	1.46	46.9	99.62	Tindale Oliver
Pasco Co, FL	75.8	Apr-02	134	-	38.23	9a-5p	2.36	58.2	52.52	Tindale Oliver
Citrus Co, FL	185.0	Oct-03	-	784	55.84	8a-6p	2.40	88.1	118.05	Tindale Oliver
Citrus Co, FL	91.3	Nov-03	-	390	54.50	8a-6p	1.60	88.0	76.77	Tindale Oliver
			30	6,346	Average Trip Length:		2.71			

Figure A-1

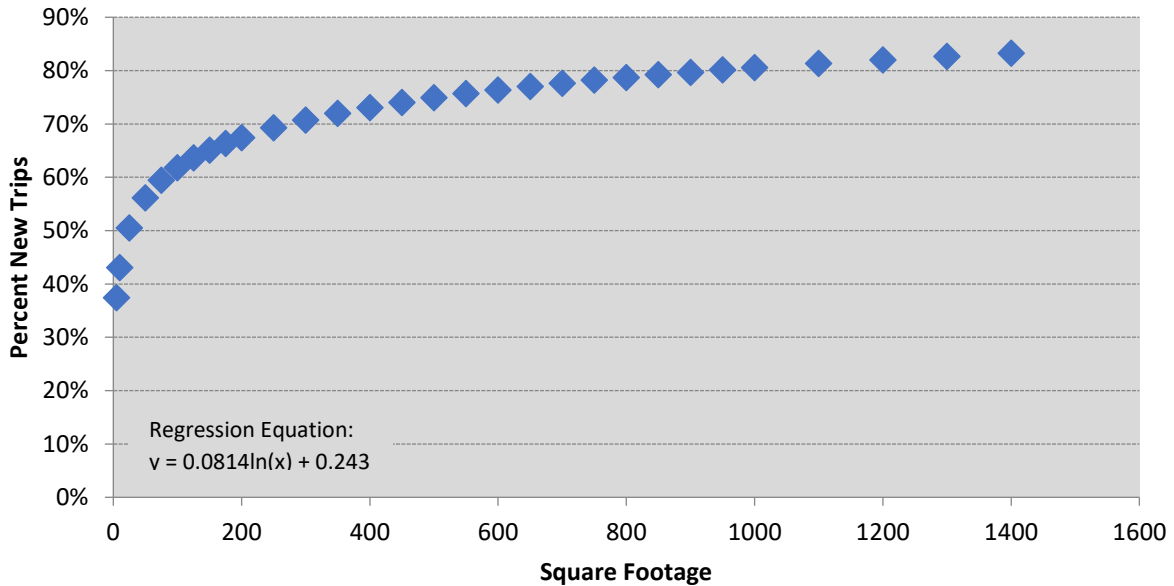
LUC 820-822: Retail/Shopping Center – Florida Curve Trip Length Regression



Source: Regression analysis based on FL Studies data for LUC 820-822. This curve, along with the average development size presented in the ITE 11th Edition Handbook, was used to estimate the trip length for retail land uses

Figure A-2

LUC 820-822: Retail/Shopping Center – Florida Curve Percent New Trips Regression



Source: Regression analysis based on FL Studies data for LUC 820-822. This curve, along with the average development size presented in the ITE 11th Edition Handbook, was used to estimate the percent new trips for retail land uses

Table A-20

Land Use 840/841: New/Used Automobile Sales

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
St.Petersburg, FL	43.0	Oct-89	152	120	-	9a-5p	4.70	79.0	-	Tindale Oliver
Clearwater, FL	43.0	Oct-89	136	106	29.40	9a-5p	4.50	78.0	103.19	Tindale Oliver
Orange Co, FL	13.8	1997	-	-	35.75	-	-	-	-	Orange County
Orange Co, FL	34.4	1998	-	-	23.45	-	-	-	-	Orange County
Orange Co, FL	66.3	2001	-	-	28.50	-	-	-	-	Orange County
Orange Co, FL	39.1	2002	-	-	10.48	-	-	-	-	Orange County
Orange Co, FL	116.7	2003	-	-	22.18	-	-	-	-	Orange County
Orange Co, FL	51.7	2007	-	-	40.34	-	-	-	-	L-TEC
Orange Co, FL	36.6	-	-	-	15.17	-	-	-	-	Orange County
Orange Co, FL	216.4	2008	-	-	13.45	-	-	-	-	Orange County
Total Size	618.0	10	288	Average Trip Length: 4.60						
ITE (840)	648.0	18		Weighted Average Trip Length: 4.60						
ITE (841)	28.0	14		Weighted Percent New Trip Average: 78.5						
Blended total	1,294.0			Weighted Average Trip Generation Rate: 21.04						
				ITE Average Trip Generation Rate (LUC 840): 27.84						
				ITE Average Trip Generation Rate (LUC 841): 27.06						
				Blend of FL Studies and ITE Average Trip Generation Rate: 24.58						

Table A-21

Land Use 890: Furniture Store

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Largo, FL	15.0	7/28-30/92	64	34	-	-	4.63	52.5	-	Tindale Oliver
Tampa, FL	16.9	Jul-92	68	39	-	-	7.38	55.7	-	Tindale Oliver
Total Size	31.90	2	132	Average Trip Length: 6.01						
ITE	779.0	19		Weighted Average Trip Length: 6.09						
Blended total	810.90			Weighted Percent New Trip Average: 54.2						

Table A-22

Land Use 912: Bank/Savings w/Drive-Thru

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTMT	Source
Tampa, FL	-	Mar-86	77	-	-	-	2.40	-	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	211	-	-	-	-	54.0	-	Kimley-Horn & Associates
Clearwater, FL	0.4	Aug-89	113	52	-	9a-6p	5.20	46.0	-	Tindale Oliver
Largo, FL	2.0	Sep-89	129	94	-	-	1.60	73.0	-	Tindale Oliver
Seminole, FL	4.5	Oct-89	-	-	-	-	-	-	-	Tindale Oliver
Marion Co, FL	2.3	Jun-91	69	29	-	24hr.	1.33	42.0	-	Tindale Oliver
Marion Co, FL	3.1	Jun-91	47	32	-	24hr.	1.75	68.1	-	Tindale Oliver
Marion Co, FL	2.5	Jul-91	57	26	-	48hrs.	2.70	45.6	-	Tindale Oliver
Collier Co, FL	-	Aug-91	162	96	-	24hr.	0.88	59.3	-	Tindale Oliver
Collier Co, FL	-	Aug-91	116	54	-	-	1.58	46.6	-	Tindale Oliver
Collier Co, FL	-	Aug-91	142	68	-	-	2.08	47.9	-	Tindale Oliver
Hernando Co, FL	5.4	May-96	164	41	-	9a-6p	2.77	24.7	-	Tindale Oliver
Marion Co, FL	2.4	Apr-02	70	-	-	24hr.	3.55	54.6	-	Kimley-Horn & Associates
Marion Co, FL	2.7	May-02	50	-	246.66	24hr.	2.66	40.5	265.44	Kimley-Horn & Associates

Total Size 25.2 14 1,407
ITE 114.0 19
Blended total 139.2
116.7

Average Trip Length: 2.38
Weighted Average Trip Length: 2.46

Weighted Percent New Trip Average: 46.2

Weighted Average Trip Generation Rate: 246.66

ITE Average Trip Generation Rate: 100.35

Blend of FL Studies and ITE Average Trip Generation Rate: 103.73

Table A-23

Land Use 931: Fine Dining Restaurant

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTMT	Source
Tampa, FL	-	Mar-86	76	62	-	-	2.10	82.0	-	Kimley-Horn & Associates
St. Petersburg, FL	7.5	Oct-89	177	154	-	11a-2p/4-8p	3.50	87.0	-	Tindale Oliver
Clearwater, FL	8.0	Oct-89	60	40	110.63	10a-2p/5-9p	2.80	67.0	207.54	Tindale Oliver

Total Size 15.5 3 313
ITE 90.0 10
Blended total 105.5
98.0

Average Trip Length: 2.80
Weighted Average Trip Length: 3.14

Weighted Percent New Trip Average: 76.7

Weighted Average Trip Generation Rate: 110.63

ITE Average Trip Generation Rate: 83.84

Blend of FL Studies and ITE Average Trip Generation Rate: 86.03

Table A-24

Land Use 932: High-Turnover (Sit-Down) Restaurant

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTMT	Source
Hernando Co, FL	6.2	1996	242	175	187.51	9a-6p	2.76	72.5	375.00	Tindale Oliver
Hernando Co, FL	8.2	1996	154	93	102.71	9a-6p	4.15	60.2	256.43	Tindale Oliver
St. Petersburg, FL	5.0	1989	74	68	132.60	1130-7p	2.00	92.0	243.98	Tindale Oliver
Kenneth City, FL	5.2	1989	236	176	127.88	4p-730p	2.30	75.0	220.59	Tindale Oliver
Pasco Co, FL	5.2	2002	114	88	82.47	9a-6p	3.72	77.2	236.81	Tindale Oliver
Pasco Co, FL	5.8	2002	182	102	116.97	9a-6p	3.49	56.0	228.77	Tindale Oliver
Orange Co, FL	5.0	1996	-	-	135.68	-	-	-	-	Orange County
Orange Co, FL	9.7	1996	-	-	132.32	-	-	-	-	Orange County
Orange Co, FL	11.2	1998	-	-	18.76	-	-	-	-	Orange County
Orange Co, FL	7.0	1998	-	-	126.40	-	-	-	-	Orange County
Orange Co, FL	4.6	1998	-	-	129.23	-	-	-	-	Orange County
Orange Co, FL	7.4	1998	-	-	147.44	-	-	-	-	Orange County
Orange Co, FL	6.7	1998	-	-	82.58	-	-	-	-	Orange County
Orange Co, FL	11.3	2000	-	-	95.33	-	-	-	-	Orange County
Orange Co, FL	7.2	2000	-	-	98.06	-	-	-	-	Orange County
Orange Co, FL	11.4	2001	-	-	91.67	-	-	-	-	Orange County
Orange Co, FL	5.6	2001	-	-	145.59	-	-	-	-	Orange County
Orange Co, FL	5.5	-	-	-	100.18	-	-	-	-	Orange County
Orange Co, FL	11.3	-	-	-	62.12	-	-	-	-	Orange County
Orange Co, FL	10.4	-	-	-	31.77	-	-	-	-	Orange County
Orange Co, FL	5.9	-	-	-	147.74	-	-	-	-	Orange County
Orange Co, FL	8.9	2008	-	-	52.69	-	-	-	-	Orange County
Orange Co, FL	9.7	2010	-	-	105.84	-	-	-	-	Orange County
Orange Co, FL	9.5	2013	-	-	40.46	-	-	-	-	Orange County
Orange Co, FL	11.0	2015	-	-	138.39	-	-	-	-	Orange County

Total Size 194.9 25 1,102
ITE 250.0 50
Blended total 444.9

Average Trip Length: 3.07
Weighted Average Trip Length: 3.17

Weighted Percent New Trip Average: 70.8

Weighted Average Trip Generation Rate: 98.67

ITE Average Trip Generation Rate: 107.20

Blend of FL Studies and ITE Average Trip Generation Rate: 103.46

Table A-25

Land Use 934: Fast Food Restaurant with Drive-Through Window

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Tampa, FL	-	Mar-86	61	-	-	-	2.70	-	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	306	-	-	-	-	65.0	-	Kimley-Horn & Associates
Pinellas Co, FL	2.20	Aug-89	81	48	502.80	11a-2p	1.70	59.0	504.31	Tindale Oliver
Pinellas Co, FL	4.30	Oct-89	456	260	660.40	1 day	2.30	57.0	865.78	Tindale Oliver
Tarpon Springs, FL	-	Oct-89	233	114	-	7a-7p	3.60	49.0	-	Tindale Oliver
Marion Co, FL	1.60	Jun-91	60	32	962.50	48hrs.	0.91	53.3	466.84	Tindale Oliver
Marion Co, FL	4.00	Jun-91	75	46	625.00	48hrs.	1.54	61.3	590.01	Tindale Oliver
Collier Co, FL	-	Aug-91	66	44	-	-	1.91	66.7	-	Tindale Oliver
Collier Co, FL	-	Aug-91	118	40	-	-	1.17	33.9	-	Tindale Oliver
Hernando Co, FL	5.43	May-96	136	82	311.83	9a-6p	1.68	60.2	315.27	Tindale Oliver
Hernando Co, FL	3.13	May-96	168	82	547.34	9a-6p	1.59	48.8	425.04	Tindale Oliver
Orange Co, FL	8.93	1996	-	-	377.00	-	-	-	-	Orange County
Lake Co, FL	2.20	Apr-01	376	252	934.30	-	2.50	74.6	1742.47	Tindale Oliver
Lake Co, FL	3.20	Apr-01	171	182	654.90	-	-	47.8	-	Tindale Oliver
Lake Co, FL	3.80	Apr-01	188	137	353.70	-	3.30	70.8	826.38	Tindale Oliver
Pasco Co, FL	2.66	Apr-02	100	46	283.12	9a-6p	-	46.0	-	Tindale Oliver
Pasco Co, FL	2.96	Apr-02	486	164	515.32	9a-6p	2.72	33.7	472.92	Tindale Oliver
Pasco Co, FL	4.42	Apr-02	168	120	759.24	9a-6p	1.89	71.4	1024.99	Tindale Oliver
Total Size	48.8	18	4,463	Average Trip Length: 2.11						
ITE	213.0	71		Weighted Average Trip Length: 2.05						
Blended total	261.8			Weighted Percent New Trip Average: 57.9						
	34.0			Weighted Average Trip Generation Rate: 530.19						
				ITE Average Trip Generation Rate: 467.48						
				Blend of FL Studies and ITE Average Trip Generation Rate: 479.17						

Table A-26

Land Use 944: Gasoline/Service Station

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Largo, FL	0.6	Nov-89	70	14	-	8am-5pm	1.90	23.0	-	Tindale Oliver
Collier Co, FL	-	Aug-91	168	40	-	-	1.01	23.8	-	Tindale Oliver
Total Size	0.6	1	238	Average Trip Length: 1.46						
ITE (vfp)	144.0	18		Weighted Average Trip Length: 1.90						
				Weighted Percent New Trip Average: 23.0						
				Convenience Store/Gas Station (ITE LUC 945) - Mid-Size Blend						
				Conv. Store 2,000 to 3,999 sf: 265.12						
				Conv. Store 4,000 to 5,499 sf: 257.13						
				Blend of ITE Average Trip Generation Rates for Convenience Store/Gas Station 2,000 to 5,499 sf: 264.38						

Table A-27

Land Use 947: Self-Service Car Wash

Location	Size (Bays)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VTM	Source
Largo, FL	10	Nov-89	111	84	-	8am-5pm	2.00	76.0	-	Tindale Oliver
Clearwater, FL	-	Nov-89	177	108	-	10am-5pm	1.30	61.0	-	Tindale Oliver
Collier Co, FL	11	Dec-09	304	-	30.24	-	2.50	57.0	-	Tindale Oliver
Collier Co, FL	8	Jan-09	186	-	22.75	-	1.96	72.0	-	Tindale Oliver
Total Size	29	4	778	Average Trip Length: 1.94						
Total Size (TGR)	19	2		Weighted Average Trip Length: 2.18						
ITE	5	1		Weighted Percent New Trip Average: 67.7						
Blended total	24			Weighted Average Trip Generation Rate: 27.09						
				ITE Average Trip Generation Rate: 108.00						
				Blend of FL Studies and ITE Average Trip Generation Rate: 43.94						

Residential Trip Generation Rate Tiering

Single Family Detached

As part of this study, the single family residential trip generation rate tiering was included to reflect a three-tier analysis to ensure equity by the size of a home. To facilitate this, an analysis was completed on the comparative relationship between housing size and household travel behavior. This analysis utilized data from the 2022 National Household Travel Survey (NHTS) and the 2021 American Housing Survey (AHS) to examine overall trip-making characteristics of households in the United States.

Table A-28 presents that trip characteristics being utilized in the calculated transportation impact fee schedule for the single family (detached) land use. The 2022 NHTS database was used to assess average annual household vehicle miles of travel (VMT) for various annual household income levels. In addition, the 2021 AHS database was used to compare median annual family/household incomes with housing unit sizes. It is important to recognize that the use of the income variable in each of these databases is simply to provide a convenient linking mechanism between household VMT from the NHTS and housing unit size from the AHS.

Table A-28
Calculated Single Family (Detached) Trip Characteristics

Calculated Values Excluding Tiering	Trip Rate	Assessable Trip Length	Daily VMT
Single Family (Detached)	7.81	6.62	51.70

Source: Table A-3

The results of the NHTS and AHS analyses are included in Tables A-29 and A-30. First, the data shown in Table A-29 indicates that the average income in the U.S. for families/households living in housing units between 1,500 and 2,499 sq ft in size (\$74,416) is higher than the overall average income for the U.S. (\$66,289). In Table A-30, the annual average household VMT was calculated from the NHTS database for several different income levels and ranges related to the resulting AHS income data from Table A-29.

Table A-29
Annual Income by Housing Size

2021 AHS Average Income Data by Housing Size	Annual Income ⁽¹⁾
Less than 1,500 sf	\$51,697
1,500 to 2,499 sf	\$74,416
2,500 sf or more	\$90,699
Average of All Houses	\$66,289

Source: American Housing Survey for the United States in 2021

1) Weighted average of annual income for each tier

Table A-30
NHTS VMT Annual VMT by Income Category

2022 NHTS Travel Data by Annual HH Income	Annual VMT/HH	Days	Daily VMT	Ratio to Mean	Normalized to 1.061
Total (All Homes)	15,545	365	42.59	1.000	-
Average of \$51,697	13,594	365	37.24	0.874	0.824
Average of \$74,416	16,496	365	45.19	1.061	1.000
Average of \$90,699	18,138	365	49.69	1.167	1.100

Source: 2022 National Household Travel Survey Database, Federal Highway Administration

To calculate a corresponding trip rate for the new tiers it was necessary to rely on comparative ratios. As an example, consider the \$51,697 annual income category. First, it was determined that the average annual household VMT for this income level is 13,594 miles. This figure was then compared to the overall average annual VMT per household in the U.S. and normalized to the average of the \$74,416 (16,496 miles) category to derive a ratio of 0.824.

Next, the normalized ratio was applied to the daily VMT for the average single family housing unit size (less than 1,500 sq ft) to generate a daily VMT of 42.60 for the tier, as shown in Table A-31. This daily VMT figure was then divided by the proposed assessable trip length of 6.62 miles to obtain a trip generation rate of 6.44 trips per day.

Table A-31
Trip Generation Rate by Single Family (Detached) Land Use Tier

Estimation of Trip Rate by Tier	Trip Rate ⁽¹⁾	Assessable Trip Length ⁽²⁾	Daily VMT ⁽³⁾	Ratio to Mean ⁽⁴⁾
<i>Single Family (Detached)</i>				
Less than 1,500 sf	6.44	6.62	42.60	0.824
1,500 to 2,499 sf	7.81	6.62	51.70	1.000
2,500 sf or larger	8.59	6.62	56.87	1.100

1) Daily VMT (Item 3) divided by assessable trip length (Item 2) for each tier

2) Source: Table A-28

3) Ratio to the mean (Item 4) multiplied by the total daily VMT for the 1,500 to 2,499 sq tier

4) Source: Table A-30

Table A-32 illustrates the impact that the trip generation rate tiers for the single family (detached) land use have on the City's calculated transportation impact fee rate.

Table A-32
Net Impact Fee by Single Family (Detached) Land Use Tier

Impact of Tiering on Fee Schedule	Trip Rate ⁽¹⁾	Assessable Trip Length ⁽²⁾	Daily VMT ⁽³⁾	Net Fee ⁽⁴⁾
<i>Single Family (Detached)</i>				
Less than 1,500 sf	6.44	6.62	42.60	\$6,892
1,500 to 2,499 sf	7.81	6.62	51.70	\$8,368
2,500 sf or larger	8.59	6.62	56.87	\$9,193

1) Source: Table A-31, Item 1

2) Source: Table A-28

3) Source: Table A-31, Item 3

4) Source: Appendix D, Table D-1

Appendix B:

Cost Component

Appendix B: Cost Component

This appendix presents the detailed calculations for the cost component of the transportation impact fee update. Supporting data and estimates are provided for all cost variables, including:

- Design
- Right-of-Way
- Construction
- Construction engineering/inspection

Urban-Design vs. Rural-Design

Due to limited construction data for roadways with rural-design (open drainage) characteristics, the cost per lane mile for these types of roads was calculated using an adjustment factor. This factor was based on the rural-to-urban (curb & gutter) cost ratio from the most recent District 7 Long Range Estimates (LRE) provided by FDOT⁴. As shown in Table B-1, the cost for rural-design roadway capacity expansion (new road construction or lane addition) is approximately 73 percent of the construction costs for urban-design roadway improvements.

Table B-1
Urban/Rural-Design Cost Factor

Improvement	Construction Cost per Lane Mile		
	Open Drainage Rural Design	Curb & Gutter Urban Design	Ratio
0-2 Lanes	\$4,811,069	\$7,492,440	64%
0-4 Lanes	\$3,925,297	\$5,235,679	75%
0-6 Lanes	\$3,340,793	\$4,244,073	79%
2-4 Lanes	\$5,660,879	\$7,333,052	77%
4-6 Lanes	\$5,909,730	\$7,926,966	75%
Average	\$4,729,553	\$6,446,442	73%

Source: FDOT District 7 Long Range Estimates, 2023

⁴ Similar data for FDOT District 5 was not available.

Design

City/County Roadways

The design cost factor for city/county roads is estimated as a percentage of the construction cost per lane mile. This factor is determined based on a review of design-to-construction cost ratios from other jurisdictions throughout Florida. As shown in Table B-2, the design factors ranged from six (6) percent to 14 percent with a weighted average of 11 percent. For purposes of this study, the design cost for city/county roads is estimated at 11 percent of the construction cost per lane mile.

State Roadways

The design cost factor for state roads is estimated as a percentage of the construction cost per lane mile. This factor is determined based on a review of design-to-construction cost ratios from other jurisdictions throughout Florida. As shown in Table B-2, the design factors ranged from 10 percent to 11 percent with a weighted average of 11 percent. For purposes of this study, the design cost for state roads is estimated at 11 percent of the construction cost per lane mile.

Table B-2
Design Cost Factor for City/County & State Roads – Other Florida Jurisdictions

Year	County	County Roadways (Cost per Lane Mile)			State Roadways (Cost per Lane Mile)		
		Design	Constr.	Design Ratio	Design	Constr.	Design Ratio
2013	Hernando	\$198,000	\$1,980,000	10%	\$222,640	\$2,024,000	11%
2013	Charlotte	\$220,000	\$2,200,000	10%	\$240,000	\$2,400,000	10%
2014	Indian River	\$159,000	\$1,598,000	10%	\$196,000	\$1,776,000	11%
2015	Collier	\$270,000	\$2,700,000	10%	\$270,000	\$2,700,000	10%
2015	Brevard	\$242,000	\$2,023,000	12%	\$316,000	\$2,875,000	11%
2015	Sumter	\$210,000	\$2,100,000	10%	\$276,000	\$2,505,000	11%
2015	Marion	\$167,000	\$2,668,000	6%	\$227,000	\$2,060,000	11%
2015	Palm Beach	\$224,000	\$1,759,000	13%	\$333,000	\$3,029,000	11%
2017	St. Lucie	\$220,000	\$2,200,000	10%	\$341,000	\$3,100,000	11%
2017	Clay	\$239,000	\$2,385,000	10%	-	-	-
2019	Collier	\$385,000	\$3,500,000	11%	-	-	-
2019	Sumter	\$315,000	\$2,862,000	11%	\$370,000	\$3,365,000	11%
2020	Indian River	\$291,000	\$2,647,000	11%	\$395,000	\$3,593,000	11%
2020	Hillsborough	\$484,000	\$4,036,000	12%	\$486,000	\$4,421,000	11%
2020	Hernando	\$232,000	\$2,108,000	11%	\$348,000	\$3,163,000	11%
2021	Manatee	\$308,000	\$2,800,000	11%	-	-	-
2021	Flagler	\$258,000	\$2,582,000	10%	-	-	-
2022	Lake	\$215,000	\$2,145,000	10%	-	-	-
2022	Volusia	\$188,000	\$2,350,000	8%	-	-	-
2023	Manatee	\$546,000	\$3,900,000	14%	-	-	-
Average		\$269,000	\$2,527,000	11%	\$309,000	\$2,847,000	11%

Source: Each respective County

Right-of-Way

The ROW cost reflects the total cost of the acquisitions along a corridor that was necessary to have sufficient cross-section width to widen an existing road or, in the case of new road construction, build a new road.

City/County Roadways

For impact fee purposes, the ROW cost for city/county roads is estimated as a percentage of the construction cost per lane mile. To determine the ROW cost factor, Benesch conducted a review of ROW-to-construction cost ratios from other counties in Florida. As shown in Table B-3, the ROW-to-construction factor for other jurisdictions in Florida ranged from 10 percent to 60 percent with an average of 36 percent.

Based on a review of this data set and discussions with City of Palm Bay representatives, ROW costs were estimated at approximately 35 percent of the construction costs.

State Roadways

Similar to city/county roads, the ROW cost for state roads was estimated as a percentage of the construction cost per lane mile. As shown in Table B-3, the ROW-to-construction factor for state roads in other jurisdictions ranged from 20 percent to 60 percent with a weighted average of 41 percent.

Based on a review of this data set and discussions with the City of Palm Bay, it was estimated that the city/county factor of 35 percent of construction would also be representative of the ROW cost for state roads.

Table B-3

Right-of-Way Cost Factor for City/County & State Roads – Other Florida Jurisdictions

Year	County	County Roadways (Cost per Lane Mile)				State Roadways (Cost per Lane Mile)		
		ROW	Constr.	ROW Ratio		ROW	Constr.	ROW Ratio
2013	Hernando	\$811,800	\$1,980,000	41%		\$890,560	\$2,024,000	44%
2013	Charlotte	\$1,034,000	\$2,200,000	47%		\$1,128,000	\$2,400,000	47%
2014	Indian River	\$656,000	\$1,598,000	41%		\$781,000	\$1,776,000	44%
2015	Collier	\$863,000	\$2,700,000	32%		\$863,000	\$2,700,000	32%
2015	Brevard	\$708,000	\$2,023,000	35%		\$1,006,000	\$2,785,000	36%
2015	Sumter	\$945,000	\$2,100,000	45%		\$1,127,000	\$2,505,000	45%
2015	Marion	\$1,001,000	\$1,668,000	60%		\$1,236,000	\$2,060,000	60%
2015	Palm Beach	\$721,000	\$1,759,000	41%		\$1,333,000	\$3,029,000	44%
2017	St. Lucie	\$990,000	\$2,200,000	45%		\$1,395,000	\$3,100,000	45%
2017	Clay	\$954,000	\$2,385,000	40%		-	-	-
2018	Collier	\$1,208,000	\$3,500,000	35%		\$1,208,000	\$3,500,000	35%
2019	Sumter	\$1,202,000	\$2,862,000	42%		\$1,447,000	\$3,365,000	43%
2020	Indian River	\$529,000	\$2,647,000	20%		\$718,000	\$3,593,000	20%
2020	Hillsborough	\$1,448,000	\$2,897,000	50%		\$1,448,000	\$2,897,000	50%
2020	Hernando	\$844,000	\$2,108,000	40%		\$1,265,000	\$3,163,000	40%
2021	Manatee	\$1,120,000	\$2,800,000	40%		-	-	-
2021	Flagler	\$258,000	\$2,582,000	10%		-	-	-
2022	Lake	\$1,073,000	\$2,145,000	50%		-	-	-
2022	Volusia	\$470,000	\$2,350,000	20%		-	-	-
2023	Manatee	\$741,000	\$3,900,000	19%		-	-	-
Average		\$879,000	\$2,420,000	36%		\$1,132,000	\$2,778,000	41%

Source: Each respective County

Construction

City/County Roadways

A review of construction cost data for local city/county roadway capacity expansion projects included one recently completed improvement and seven future estimates in the City of Palm Bay, as shown in Table B-4.

- Culver Drive from Emerson Drive to Palm Bay Road (completed)
- St. Johns Heritage Parkway from Malabar Road to City Limits
- Babcock Street from Malabar Road to Waco Boulevard
- Emerson Drive from Jupiter Boulevard to St. Johns Heritage Parkway
- San Filippo Drive from Jupiter Boulevard to Foundation Park
- Malabar Road from Emerson Drive to Wal-Mart
- Minton Road from Malabar Road to Jupiter Boulevard
- Osmosis Drive from DeGroodt Road to eastern terminus

The construction cost of these improvements ranged from \$0.9 million per lane mile to \$5.0 million per lane mile with a weighted average construction cost of approximately \$3.45 million per lane mile.

In addition to local data, a review of recently bid projects (from 2014 to 2023) throughout the state of Florida was conducted. As shown in Table D-5, a total of 46 projects from 14 different counties (including Brevard County) were identified with a weighted average cost of approximately \$3.73 million per lane mile. Of these, when 30 suburban counties were considered, the construction cost averaged \$3.13 million per lane mile.

Based on this review, the construction cost for city/county roads (urban design; curb & gutter) was estimated at \$3.10 million per lane mile for use in the transportation impact fee calculation.

Table B-4
Construction Cost for Palm Bay Improvements

Project ID	Roadway	From	To	Feature	Section Design	Length	Lanes Added	Lane Miles Added	Construction Cost	Construction Cost per Lane Mile
Completed										
16PW13	Culver Drive Widening	Emerson Dr	Palm Bay Rd	2 to 4 Lanes	Curb & Gutter	0.50	2	1.00	\$1,905,731	\$1,905,731
Future Estimate										
-	St. Johns Heritage Pkwy	Malabar Rd	City Limits	2 to 4 Lanes	Curb & Gutter	3.00	2	6.00	\$30,000,000	\$5,000,000
-	Babcock St	Malabar Rd	Waco Blvd	2 to 4 Lanes	Curb & Gutter	2.24	2	4.48	\$16,500,000	\$3,683,036
-	Emerson Dr	Jupiter Blvd	St. Johns Heritage Pkwy	2 to 4 Lanes	Open Drainage	2.52	2	5.04	\$17,900,000	\$3,551,587
-	San Filippo Dr Widening	Jupiter Blvd	Foundation Park	2 to 4 Lanes	Swale	0.80	2	1.60	\$1,500,000	\$937,500
-	Malabar Rd Widening	Emerson Dr	Wal-Mart	1 EB Lane	Curb & Gutter	1.00	1	1.00	\$1,200,000	\$1,200,000
-	Minton Rd Widening	Malabar Rd	Jupiter Blvd	2 to 4 Lanes	Curb & Gutter	0.80	2	1.60	\$3,500,000	\$2,187,500
-	Osmosis Drive Extention	DeGroodt Rd	Eastern terminus	New 2-Lane	Swale	0.45	2	0.90	\$2,000,000	\$2,222,222
Total						Count:	8	21.62	\$74,505,731	\$3,446,000
Curb & Gutter								14.08	65%	(a)
Open Drainage/Swale								7.54	35%	(b)

Source: City of Palm Bay Public Works Department

Table B-5
Construction Cost for **City/County** Roads – Brevard and Other Florida Counties

County	County Classification	District	Description	From	To	Year	Feature	Design	Length	Lanes Added	Lane Miles Added	Construction Cost	Construction Cost per Lane Mile
URBAN Counties; Curb & Gutter													
Orange	Urban	5	CR 535 Seg. F	Overstreet Rd	Fossick Rd	2014	2 to 4	Curb & Gutter	0.60	2	1.20	\$3,263,746	\$2,719,788
Hillsborough	Urban	7	Boyette Rd, Ph. III	Donneymoor Dr	Bell Shoals Rd	2014	2 to 4	Curb & Gutter	1.84	2	3.68	\$25,720,068	\$6,989,149
Orange	Urban	5	International Dr	Westwood Blvd	Westwood Blvd	2015	4 to 6	Curb & Gutter	2.20	2	4.40	\$16,775,875	\$3,812,699
Orange	Urban	5	Reams Rd	Delmar Ave	Taborfield Ave	2017	2 to 4	Curb & Gutter	0.36	2	0.72	\$3,409,584	\$4,735,533
Orange	Urban	5	Destination Pkwy 1B/2A	Tradeshow Blvd	Lake Cay	2017	2 to 4	Curb & Gutter	0.78	2	1.56	\$6,110,403	\$3,916,925
Hillsborough	Urban	7	Bruce B. Downs Blvd, Seg. A	Bearss Ave	Palm Springs Blvd	2017	4 to 8	Curb & Gutter	3.56	4	14.24	\$37,155,153	\$2,609,210
Hillsborough	Urban	7	Bruce B. Downs Blvd, Seg. D	Pebble Creek Dr	Pasco Co. Line	2018	4 to 8	Curb & Gutter	1.36	4	5.44	\$17,755,778	\$3,263,930
Hillsborough	Urban	7	CR 580 (Sam Allen Rd)	SR 39A (Paul Buchman Hwy)	Park Rd	2018	2 to 4	Curb & Gutter	2.00	2	4.00	\$23,200,000	\$5,800,000
Palm Beach	Urban	4	Roebuck Rd	Jog Rd	Haverhill Rd	2018	2 to 5	Curb & Gutter	1.03	3	3.10	\$5,154,028	\$1,662,590
Palm Beach	Urban	4	Lyons Rd	Clint Moore Rd	N of LWDD L-39 Canal	2018	2 to 4	Curb & Gutter	0.70	2	1.40	\$3,163,022	\$2,259,301
Orange	Urban	5	Holden Ave	John Young Pkwy	Orange Blossom Tr	2019	0/2 to 4	Curb & Gutter	1.24	2/4	3.50	\$18,798,771	\$5,371,077
Orange	Urban	5	Boggy Creek Rd N	South Access Rd	Wetherbee Rd	2019	2 to 4	Curb & Gutter	1.29	2	2.58	\$8,585,774	\$3,327,819
Palm Beach	Urban	4	Hood Rd	E. of FL Turnpike	W. of Central Blvd	2019	2 to 4	Curb & Gutter	0.95	2	1.90	\$12,686,954	\$6,677,344
Palm Beach	Urban	4	Silver Beach Rd	E. of Congress Ave	Old Dixie/Pre. Barack Obama Hwy	2019	2 to 3	Curb & Gutter	0.90	1	0.90	\$4,478,355	\$4,975,950
Hillsborough	Urban	7	19th Ave NE	US 41	US 301	2019	2 to 4	Curb & Gutter	6.08	2	12.16	\$67,919,173	\$5,585,458
Hillsborough	Urban	7	Big Bend Rd	US 41/Simmons Loop	Covington Gardens Dr/US Hwy 301	2019	4 to 6	Curb & Gutter	1.75	2	3.50	\$48,417,488	\$13,833,568
Total (2014-2023); Urban Counties ONLY									Count:	16	64.28	\$302,594,172	\$4,707,000
SUBURBAN/RURAL Counties; Curb & Gutter													
Collier	Suburban/Rural	1	Golden Gate Blvd	Wilson Blvd	Desoto Blvd	2014	2 to 4	Curb & Gutter	2.40	2	4.80	\$16,003,504	\$3,334,063
Brevard	Suburban/Rural	5	St. Johns Heritage Pkwy	SE of I-95 Intersection	US 192 (Space Coast Pkwy)	2014	0 to 2	Curb & Gutter	3.11	2	6.22	\$16,763,567	\$2,695,107
Sarasota	Suburban/Rural	1	Bee Ridge Rd	Mauna Loa Blvd	Iona Rd	2014	2 to 4	Curb & Gutter	2.68	2	5.36	\$14,066,523	\$2,624,351
St. Lucie	Suburban/Rural	4	W Midway Rd (CR 712)	Selvitz Rd	25th St	2014	2 to 4	Curb & Gutter	1.00	2	2.00	\$15,359,926	\$7,679,963

Table B-5 (continued)
Construction Cost for City/County Roads – Brevard and Other Florida Counties

County	County Classification	District	Description	From	To	Year	Feature	Design	Length	Lanes Added	Lane Miles Added	Construction Cost	Construction Cost per Lane Mile
<i>SUBURBAN/RURAL Counties; Curb & Gutter</i>													
Lake	Suburban/Rural	5	N. Hancock Rd Ext.	Old 50	Gatewood Dr	2014	0/2 to 4	Curb & Gutter	1.50	2/4	5.00	\$8,185,574	\$1,637,115
Polk	Suburban/Rural	1	CR 655 & CR 559A	Pace Rd & N of CR 559A	N. of CR 559A & SR 599	2014	2 to 4	Curb & Gutter	2.60	2	5.20	\$10,793,552	\$2,075,683
Volusia	Suburban/Rural	5	Howland Blvd	Courtland Blvd	N. of SR 415	2014	2 to 4	Curb & Gutter	2.08	2	4.16	\$11,110,480	\$2,670,788
Polk	Suburban/Rural	1	Ernie Caldwell Blvd	Pine Tree Tr	US 17/92	2015	0 to 4	Curb & Gutter	2.41	4	9.64	\$19,535,391	\$2,026,493
Flagler	Suburban/Rural	5	Old Kings Rd Ext.	Forest Grove Dr	Matanzas Woods Pkwy	2015	0 to 4	Curb & Gutter	0.52	4	2.08	\$4,831,579	\$2,322,875
Manatee	Suburban/Rural	1	44th Ave E	15th St E	19th St Ct E	2015	2 to 4	Curb & Gutter	0.45	2	0.90	\$5,454,438	\$6,060,487
Volusia	Suburban/Rural	5	LPGA Blvd	Jimmy Ann Dr/Grand Reserve	Derbyshire Rd	2016	2 to 4	Curb & Gutter	0.68	2	1.36	\$3,758,279	\$2,763,440
St. Lucie	Suburban/Rural	4	W Midway Rd (CR 712)	25th St	US 1	2016	2 to 4	Curb & Gutter	1.60	2	3.20	\$31,483,319	\$9,838,537
Marion	Suburban/Rural	5	NW/NE 35th St, Ph. 1a	US 441	600' E. of W Anthony Rd	2016	2 to 4	Curb & Gutter	0.30	2	0.60	\$1,770,250	\$2,950,417
Lake	Suburban/Rural	5	CR 466A, Ph. I	US 27/441	Sunny Ct	2016	2 to 4	Curb & Gutter	0.44	2	0.88	\$3,237,561	\$3,679,047
Manatee	Suburban/Rural	1	44th Ave E	19th St Ct E	30th St E	2016	0 to 4	Curb & Gutter	0.90	4	3.60	\$11,763,178	\$3,267,549
Lake	Suburban/Rural	5	CR 466A, Ph. IIIA	Poinsettia Ave	Century Ave	2018	2 to 4	Curb & Gutter	0.42	2	0.84	\$3,368,889	\$4,010,582
Lake	Suburban/Rural	5	North Hancock Rd	CR 561A	Minneola Interchange	2018	0 to 2	Curb & Gutter	1.20	2	2.40	\$2,902,256	\$1,209,273
Lee	Suburban/Rural	1	Alico Rd	Ben Hill Griffin Pkwy	E. of Airport Haul Rd	2018	2 to 4	Curb & Gutter	1.78	2	3.56	\$18,062,562	\$5,073,753
Lee	Suburban/Rural	1	Homestead Rd	S. of Sunrise Blvd	N. of Alabama Rd	2018	2 to 4	Curb & Gutter	2.25	2	4.50	\$14,041,919	\$3,120,426
Volusia	Suburban/Rural	5	Williamson Blvd	LPGA Blvd	Strickland Range Rd	2019	2 to 4	Curb & Gutter	0.93	2	1.86	\$4,951,165	\$2,661,917
Lake	Suburban/Rural	5	Citrus Grove Rd, Ph. I	W. of Grassy Lake Rd	Hancock Rd	2019	0 to 4	Curb & Gutter	0.87	4	3.48	\$5,751,614	\$1,652,763
Lake	Suburban/Rural	5	Education Ave	Grassy Lake Rd	US 27	2019	0 to 2	Curb & Gutter	1.22	2	2.44	\$3,324,769	\$1,362,610
Hernando	Suburban/Rural	7	Cortez Blvd Frontage Rd @ I-75			2020	0 to 2	Curb & Gutter	0.62	2	1.24	\$2,064,688	\$1,665,071
Volusia	Suburban/Rural	5	Howland Blvd	Providence Blvd	Elkcam Blvd	2020	2 to 4	Curb & Gutter	2.38	2	4.76	\$11,290,456	\$2,371,945
Volusia	Suburban/Rural	5	Orange Camp Rd	MLK Blvd	I-4	2020	2 to 4	Curb & Gutter	2.23	2	4.46	\$8,741,920	\$1,960,072
Volusia	Suburban/Rural	5	10th St	Myrtle Ave	US-1	2020	0/2 to 4	Curb & Gutter	0.47	2/4	1.42	\$9,456,399	\$6,659,436
Lake	Suburban/Rural	5	Citrus Grove Rd, Ph. III	US 27	Scrub Jay Ln	2020	2 to 4	Curb & Gutter	0.81	2	1.62	\$6,434,819	\$3,972,110
Manatee	Suburban/Rural	1	Ft Hamer Rd	US 301	69th St E	2021	0 to 4	Curb & Gutter	0.75	4	3.00	\$11,637,711	\$3,879,237
Manatee	Suburban/Rural	1	44th Ave E	44th Ave Plaza E	Lakewood Ranch Blvd	2023	0 to 4	Curb & Gutter	2.50	4	10.00	\$29,809,786	\$2,980,979
Manatee	Suburban/Rural	1	Moccasin Wallow Rd	W of 115th Ave E	US 301	2023	2 to 4	Curb & Gutter	1.30	2	2.60	\$16,647,973	\$6,403,067
Total (2014-2023); Suburban/Rural Counties ONLY									Count:	30	103.18	\$322,604,047	\$3,127,000
Total (2014-2023); Suburban/Rural Counties ONLY; Excluding Brevard									Count:	29	96.96	\$305,840,480	\$3,154,000
<i>URBAN & SUBURBAN/RURAL Counties; Curb & Gutter</i>													
Total (2014-2023); Urban & Suburban/Rural Counties									Count:	46	167.46	\$625,198,219	\$3,733,000
Total (2014-2023); Urban & Suburban/Rural Counties; Excluding Brevard									Count:	45	161.24	\$608,434,652	\$3,773,000

Source: Data obtained from each respective county (Building and Public Works Departments)

State Roadways

A review of construction cost data for local state roadway capacity expansion projects included one recent improvement identified in Brevard County, as shown in Table B-6.

- Galaxy Way from Kennedy Parkway to Space Commerce Way

This improvement was bid with an estimated construction cost of approximately \$4.90 million per lane mile.

In addition to local data, a review of recently bid projects (from 2014 to 2023) throughout the state of Florida was conducted. As shown in Table B-6, a total of 43 projects from 30 different suburban counties (including the Brevard County improvement) were identified with a weighted average cost of approximately \$4.22 million per lane mile. However, projects in more recent years (2020+) indicate cost figures above \$5.00 million per lane mile.

Based on these datasets, a conservative state road construction cost of \$4.20 million per lane mile (curb & gutter design) was used in the transportation impact fee calculation.

Table B-6
Construction Cost for **State** Roads – Brevard and Other Florida Counties

County	County Classification	District	Description	From	To	Year	Feature	Design	Length	Lanes Added	Lane Miles Added	Construction Cost	Construction Cost per Lane Mile
URBAN Counties; Curb & Gutter													
Broward	Urban	4	SR 7 (US 441)	N. of Hallandale Beach	N. of Fillmore St	2014	4 to 6	Curb & Gutter	1.79	2	3.58	\$30,674,813	\$8,568,384
Broward	Urban	4	Andrews Ave Ext.	Pompano Park Place	S. of Atlantic Blvd	2014	2 to 4	Curb & Gutter	0.36	2	0.72	\$3,177,530	\$4,413,236
Miami-Dade	Urban	6	SR 823/NW 57th Ave	W. 65th St	W. 84th St	2014	4 to 6	Curb & Gutter	1.00	2	2.00	\$17,896,531	\$8,948,266
Miami-Dade	Urban	6	SR 823/NW 57th Ave	W. 53rd St	W. 65th St	2014	4 to 6	Curb & Gutter	0.78	2	1.56	\$14,837,466	\$9,511,196
Orange	Urban	5	SR 50	SR 429 (Western Beltway)	E. of West Oaks Mall	2014	4 to 6	Curb & Gutter	2.56	2	5.12	\$34,275,001	\$6,694,336
Orange	Urban	5	SR 15 (Hofner Rd)	Lee Vista Blvd	Conway Rd	2015	2 to 4	Curb & Gutter	3.81	2	7.62	\$37,089,690	\$4,867,413
Miami-Dade	Urban	6	SR 977/Krome Ave/SW 177th Ave	S of SW 136th St	S. of SR 94 (SW 88th St/Kendall Dr)	2016	0 to 4	Curb & Gutter	3.50	4	14.00	\$32,129,013	\$2,294,930
Broward	Urban	4	SW 30th Ave	Griffin Rd	SW 45th St	2016	2 to 4	Curb & Gutter	0.24	2	0.48	\$1,303,999	\$2,716,665
Hillsborough	Urban	7	SR 43 (US 301)	SR 674	S. of CR 672 (Balm Rd)	2016	2 to 6	Curb & Gutter	3.77	4	15.08	\$43,591,333	\$2,890,672
Miami-Dade	Urban	6	NW 87th Ave/SR 25 & SR 932	NW 74th St	NW 103rd St	2016	0 to 4	Curb & Gutter	1.93	4	7.72	\$28,078,366	\$3,637,094
Hillsborough	Urban	7	SR 60 (Adamo Dr)	E of US 301	W of Falkenburg Rd	2017	4 to 6	Curb & Gutter	0.96	2	1.92	\$21,100,000	\$10,989,583
Hillsborough	Urban	7	US 301	Sun City Center Blvd	Balm Rd	2017	2 to 6	Curb & Gutter	3.80	4	15.20	\$50,800,000	\$3,342,105
Orange	Urban	5	SR 423 (John Young Pkwy)	SR 50 (Colonial Dr)	Shader Rd	2017	4 to 6	Curb & Gutter	2.35	2	4.70	\$27,752,000	\$5,904,681
Palm Beach	Urban	4	SR 80	W. of Lion County Safari Rd	Forest Hill Blvd	2018	4 to 6	Curb & Gutter	7.20	2	14.40	\$32,799,566	\$2,277,748
Miami-Dade	Urban	6	SR 847 (NW 47th Ave)	SR 860 (NW 183rd St)	N. of NW 199th St	2018	2 to 4	Curb & Gutter	1.31	2	2.62	\$18,768,744	\$7,163,643
Miami-Dade	Urban	6	SR 847 (NW 47th Ave)	N. of NW 199th St and S of NW 203 St	Premier Pkwy and N of S Snake CR Canal	2018	2 to 4	Curb & Gutter	1.09	2	2.18	\$10,785,063	\$4,947,277
Orange	Urban	5	SR 414 (Maitland Blvd)	E. of I-4	E. of CR 427 (Maitland Ave)	2018	4 to 6	Curb & Gutter	1.39	2	2.78	\$7,136,709	\$2,567,162
Miami-Dade	Urban	6	SR 997 (Krome Ave)	SW 312 St	SW 232nd St	2019	2 to 4	Curb & Gutter	3.64	2	7.28	\$30,374,141	\$4,172,272
Miami-Dade	Urban	6	SR 25 (Okeechobee Rd)	Broward Co. Line	W of Heft	2021	4 to 6	Curb & Gutter	4.59	2	9.18	\$42,309,680	\$4,608,898
Broward	Urban	4	University Dr	SR 834 (Sample Rd)	Sawgrass Expwy	2022	4 to 6	Curb & Gutter	1.50	2	3.00	\$12,660,719	\$4,220,240
Total (2014-2023); Urban Counties ONLY									Count:	20	121.14	\$497,540,364	\$4,107,000
SUBURBAN/RURAL Counties; Curb & Gutter													
Okeechobee	Suburban/Rural	1	SR 70	NE 34th Ave	NE 80th Ave	2014	2 to 4	Curb & Gutter	3.60	2	7.20	\$23,707,065	\$3,292,648
Martin	Suburban/Rural	4	CR 714/Indian St	Turnpike/Martin Downs Blvd	W. of Mapp Rd	2014	2 to 4	Curb & Gutter	1.87	2	3.74	\$14,935,957	\$3,993,571
Pinellas	Suburban/Rural	7	43rd St Extension	S. of 118th Ave	40th St	2014	0 to 4	Curb & Gutter	0.49	4	1.96	\$4,872,870	\$2,486,158
Nassau	Suburban/Rural	2	SR 200 (A1A)	W. of Still Quarters Rd	W. of Ruben Ln	2014	4 to 6	Curb & Gutter	3.05	2	6.10	\$18,473,682	\$3,028,472
Charlotte	Suburban/Rural	1	US 41 (SR 45)	Enterprise Dr	Sarasota County Line	2014	4 to 6	Curb & Gutter	3.62	2	7.24	\$31,131,016	\$4,299,864
Duval	Suburban/Rural	2	SR 243 (JIA N Access)	Airport Rd	Pelican Park (I-95)	2014	0 to 2	Curb & Gutter	2.60	2	5.20	\$14,205,429	\$2,731,813
Desoto	Suburban/Rural	1	US 17	CR 760A (Nocatee)	Heard St	2014	2 to 4	Curb & Gutter	4.40	2	8.80	\$29,584,798	\$3,361,909
Hendry	Suburban/Rural	1	SR 82 (Immokalee Rd)	Lee County Line	Collier County Line	2015	2 to 4	Curb & Gutter	1.27	2	2.54	\$7,593,742	\$2,989,662
Sarasota	Suburban/Rural	1	SR 45A (US 41) (Venice Bypass)	Gulf Coast Blvd	Bird Bay Dr W	2015	4 to 6	Curb & Gutter	1.14	2	2.28	\$16,584,224	\$7,273,782
Clay	Suburban/Rural	2	SR 21	S. of Branan Field	Old Jennings Rd	2015	4 to 6	Curb & Gutter	1.45	2	2.90	\$15,887,487	\$5,478,444
Putnam	Suburban/Rural	2	SR 15 (US 17)	Horse Landing Rd	N. Boundary Rd	2015	2 to 4	Curb & Gutter	1.99	2	3.98	\$13,869,804	\$3,484,875
Osceola	Suburban/Rural	5	SR 500 (US 192/441)	Eastern Ave	Nova Rd	2015	4 to 6	Curb & Gutter	3.18	2	6.36	\$16,187,452	\$2,545,197
Osceola	Suburban/Rural	5	SR 500 (US 192/441)	Aeronautical Blvd	Budinger Ave	2015	4 to 6	Curb & Gutter	3.94	2	7.88	\$34,256,621	\$4,347,287
Lake	Suburban/Rural	5	SR 25 (US 27)	N. of Boggy Marsh Rd	N. of Lake Louisa Rd	2015	4 to 6	Curb & Gutter	6.52	2	13.03	\$37,503,443	\$2,878,238
Seminole	Suburban/Rural	5	SR 15/600	Shepard Rd	Lake Mary Blvd	2015	4 to 6	Curb & Gutter	3.63	2	7.26	\$42,712,728	\$5,883,296
St. Lucie	Suburban/Rural	4	SR 614 (Indrio Rd)	W. of SR 9 (I-95)	E. of SR 607 (Emerson Ave)	2016	2 to 4	Curb & Gutter	3.80	2	7.60	\$22,773,660	\$2,996,534
Seminole	Suburban/Rural	5	SR 46	Mellonville Ave	E. of SR 415	2016	2 to 4	Curb & Gutter	2.83	2	5.66	\$26,475,089	\$4,677,578
Citrus	Suburban/Rural	7	SR 55 (US 19)	W. Green Acres St	W. Jump Ct	2016	4 to 6	Curb & Gutter	2.07	2	4.14	\$27,868,889	\$6,731,616
Walton	Suburban/Rural	3	SR 30 (US 98)	Emerald Bay Dr	Tang-o-mar Dr	2016	4 to 6	Curb & Gutter	3.37	2	6.74	\$42,140,000	\$6,252,226
Duval	Suburban/Rural	2	SR 201	S. of Baldwin	N. of Baldwin (Bypass)	2016	0 to 4	Curb & Gutter	4.11	4	16.44	\$50,974,795	\$3,100,657
Hardee	Suburban/Rural	1	SR 35 (US 17)	S. of W. 9th St	N. of W. 3rd St	2016	0 to 4	Curb & Gutter	1.11	4	4.44	\$14,067,161	\$3,168,280
Alachua	Suburban/Rural	2	SR 20 (SE Hawthorne Rd)	E. of US 301	E. of Putnam Co. Line	2017	2 to 4	Curb & Gutter	1.70	2	3.40	\$11,112,564	\$3,268,401
Okaloosa	Suburban/Rural	3	SR 30 (US 98)	CR 30F (Airport Rd)	E. of Walton Co. Line	2017	4 to 6	Curb & Gutter	3.85	2	7.70	\$33,319,378	\$4,327,192
Bay	Suburban/Rural	3	SR 390 (St. Andrews Blvd)	E. of CR 2312 (Baldwin Rd)	Jenks Ave	2017	2 to 6	Curb & Gutter	1.33	4	5.32	\$14,541,719	\$2,733,406
Pasco	Suburban/Rural	7	SR 54	E. of CR 577 (Curley Rd)	E. of CR 579 (Morris Bridge Rd)	2017	2 to 4/6	Curb & Gutter	4.50	2/4	11.80	\$41,349,267	\$3,504,175
Lake	Suburban/Rural	5	SR 46 (US 441)	W. of SR 500	E. of Round Lake Rd	2017	2 to 6	Curb & Gutter	2.23	4	8.92	\$27,677,972	\$3,102,912
Wakulla	Suburban/Rural	3	SR 369 (US 19)	N. of SR 267	Leon Co. Line	2018	2 to 4	Curb & Gutter	2.24	2	4.48	\$15,646,589	\$3,492,542
St. Lucie	Suburban/Rural	4	SR 713 (Kings Hwy)	S. of SR 70	SR 9 (I-95) Overpass	2018	2 to 4	Curb & Gutter	3.42	2	6.84	\$45,162,221	\$6,602,664

Table B-6 (continued)
Construction Cost for **State** Roads – Brevard and Other Florida Counties

County	County Classification	District	Description	From	To	Year	Feature	Design	Length	Lanes Added	Lane Miles Added	Construction Cost	Construction Cost per Lane Mile
<i>SUBURBAN/RURAL Counties; Curb & Gutter</i>													
Citrus	Suburban/Rural	7	SR 55 (US 19)	W. Jump Ct	CR 44 (W Fort Island Tr)	2018	4 to 6	Curb & Gutter	4.81	2	9.62	\$50,444,444	\$5,243,705
Sarasota	Suburban/Rural	1	SR 45A (US 41) (Venice Bypass)	Center Rd	Gulf Coast Blvd	2018	4 to 6	Curb & Gutter	1.19	2	2.38	\$15,860,000	\$6,663,866
Seminole	Suburban/Rural	5	SR 46	Orange Blvd	N. Oregon St (Wekiva Section 7B)	2019	4 to 6	Curb & Gutter	1.30	2	2.60	\$17,848,966	\$6,864,987
Duval	Suburban/Rural	2	Jax National Cemetery Access Rd	Lannie Rd	Arnold Rd	2019	0 to 2	Curb & Gutter	3.26	2	6.52	\$11,188,337	\$1,716,003
Pasco	Suburban/Rural	7	SR 52	W. of Suncoast Pkwy	E. of SR 45 (US 41)	2019	4 to 6	Curb & Gutter	4.64	2	9.28	\$45,307,439	\$4,882,267
Hernando	Suburban/Rural	7	SR 50	Windmere Rd	E of US 301	2019	4 to 6	Curb & Gutter	5.60	2	11.20	\$52,736,220	\$4,708,591
Hernando	Suburban/Rural	7	CR 578 (County Line Rd)	Suncoast Pkwy	US 41 @ Ayers Rd	2019	0 to 4	Curb & Gutter	1.49	4	5.96	\$20,155,312	\$3,381,764
Putnam	Suburban/Rural	2	SR 20	Alachua/Putnam Co. Line	SW 56th Ave	2019	2 to 4	Curb & Gutter	6.95	2	13.90	\$45,290,778	\$3,258,329
Bay	Suburban/Rural	3	SR 390 (St. Andrews Blvd)	SR 368 (23rd St)	E of CR 2312 (Baldwin Rd)	2019	2 to 6	Curb & Gutter	2.47	4	9.88	\$41,711,427	\$4,221,804
Lake	Suburban/Rural	5	SR 500 (US 441)	Lake Ella Rd	Avenida Central	2020	4 to 6	Curb & Gutter	4.08	2	8.16	\$44,960,000	\$5,509,804
Polk	Suburban/Rural	1	SR 542 (Dundee Rd)	MP 2.685	MP 6.211	2020	2 to 4	Curb & Gutter	3.52	2	7.04	\$43,563,143	\$6,187,946
St. Lucie	Suburban/Rural	4	Port St. Lucie Blvd	S of Alcantarra Blvd	S of Darwin Blvd	2021	2 to 4	Curb & Gutter	0.71	2	1.42	\$11,372,179	\$8,008,577
Seminole	Suburban/Rural	5	SR 426/CR 419	Pine Ave	Avenue B	2021	2 to 4	Curb & Gutter	1.39	2	2.78	\$19,997,789	\$7,193,449
Leon	Suburban/Rural	3	SR 263 (Capital Circle)	CR 2203 (Springhill Rd)	SR 371 (Orange Ave)	2022	2 to 6	Curb & Gutter	2.34	4	9.36	\$64,267,058	\$6,866,139
Brevard	Suburban/Rural	5	Galaxy Way	Kennedy Pkwy	Space Commerce Way	2023	2 to 4	Curb & Gutter	2.67	2	5.34	\$26,159,982	\$4,898,873
Total (2014-2023); Suburban/Rural Counties ONLY									Count:	43	285.39	\$1,205,478,696	\$4,224,000
Total (2014-2023); Suburban/Rural Counties ONLY; Excluding Brevard									Count:	42	280.05	\$1,179,318,714	\$4,211,000
<i>URBAN & SUBURBAN/RURAL Counties; Curb & Gutter</i>													
Total (2014-2023); Urban & Suburban/Rural Counties									Count:	63	406.53	\$1,703,019,060	\$4,189,000
Total (2014-2023); Urban & Suburban/Rural Counties; Excluding Brevard									Count:	62	401.19	\$1,676,859,078	\$4,180,000

Source: Florida Department of Transportation Contracts Administration Department, Bid Tabulations

Construction Engineering/Inspection

City/County Roadways

The CEI cost factor for city/county roads is estimated as a percentage of the construction cost per lane mile. This factor is determined based on a review of CEI-to-construction cost ratios from other jurisdictions throughout Florida. As shown in Table B-7, the CEI factors ranged from three (3) percent to 17 percent with a weighted average of nine (9) percent. For purposes of this study, the CEI cost for city/county roads is estimated at nine (9) percent of the construction cost per lane mile.

State Roadways

The CEI cost factor for state roads is estimated as a percentage of the construction cost per lane mile. This factor is determined based on a review of CEI-to-construction cost ratios from other jurisdictions throughout Florida. As shown in Table B-7, the CEI factors ranged from 10 percent to 11 percent with a weighted average of 11 percent. For purposes of this study, the CEI cost for state roads is estimated at 11 percent of the construction cost per lane mile.

Table B-7
CEI Cost Factor for City/County & State Roads – Other Florida Jurisdictions

Year	County	County Roadways (Cost per Lane Mile)			State Roadways (Cost per Lane Mile)		
		CEI	Constr.	CEI Ratio	CEI	Constr.	CEI Ratio
2013	Hernando	\$178,200	\$1,980,000	9%	\$222,640	\$2,024,000	11%
2013	Charlotte	\$220,000	\$2,200,000	10%	\$240,000	\$2,400,000	10%
2014	Indian River	\$143,000	\$1,598,000	9%	\$196,000	\$1,776,000	11%
2015	Collier	\$270,000	\$2,700,000	10%	\$270,000	\$2,700,000	10%
2015	Brevard	\$344,000	\$2,023,000	17%	\$316,000	\$2,875,000	11%
2015	Sumter	\$147,000	\$2,100,000	7%	\$250,000	\$2,505,000	10%
2015	Marion	\$50,000	\$1,668,000	3%	\$227,000	\$2,060,000	11%
2015	Palm Beach	\$108,000	\$1,759,000	6%	\$333,000	\$3,029,000	11%
2017	St. Lucie	\$198,000	\$2,200,000	9%	\$341,000	\$3,100,000	11%
2017	Clay	\$191,000	\$2,385,000	8%	-	-	-
2019	Collier	\$315,000	\$3,500,000	9%	\$385,000	\$3,500,000	11%
2019	Sumter	\$258,000	\$2,862,000	9%	\$370,000	\$3,365,000	11%
2020	Indian River	\$238,000	\$2,647,000	9%	\$395,000	\$3,593,000	11%
2020	Hillsborough	\$363,000	\$4,036,000	9%	\$486,000	\$4,421,000	11%
2020	Hernando	\$189,000	\$2,108,000	9%	\$348,000	\$3,163,000	11%
2021	Manatee	\$252,000	\$2,800,000	9%	-	-	-
2021	Flagler	\$232,000	\$2,582,000	9%	-	-	-
2022	Lake	\$172,000	\$2,145,000	8%	-	-	-
2022	Volusia	\$259,000	\$2,350,000	11%	-	-	-
2023	Manatee	\$429,000	\$3,900,000	11%	-	-	-
Average		\$228,000	\$2,477,000	9%	\$313,000	\$2,894,000	11%

Source: Each respective County

Roadway Capacity

As shown in Table B-8, the average capacity per lane miles was based on the projects in the Space Coast TPO's 2045 Long Range Transportation Plan's cost feasible plan project lists. The listing of projects reflects the mix of improvements that will yield the vehicle-miles of capacity (VMC) that will be built in Brevard County. The resulting weighted average capacity per lane mile of approximately 9,700 was used in the transportation impact fee calculation.

Table B-8
Space Coast TPO – 2045 Long Range Transportation Plan

Table ID	Jurisdiction	Facility	From	To	Project	Located in Palm Bay	Length	Lanes Added	Lane Miles Added	Section Design	Initial Capacity	Future Capacity	Added Capacity	Vehicle Miles of Capacity Added	VMC Added per Lane Mile
Cost Feasible Plan															
T1.1	Non-State	Ellis Rd	John Rhodes Blvd	W of Wickham Rd	Widen to 4 Lanes	No	1.67	2	3.34	Open Drainage	14,040	30,420	16,380	27,355	8,190
T1.9	State	SR 528	SR 520	SR 407	Widen to 6 Lanes	No	6.14	2	12.28	Open Drainage	40,500	60,900	20,400	125,256	10,200
T1.10	State	SR 528	E. of Industry Rd	E. of SR 3	Widen to 6 Lanes	No	2.91	2	5.82	Open Drainage	40,500	60,900	20,400	59,364	10,200
T1.11	State	SR 528	E. of SR 3	Port Canaveral Interchange (SR 401)	Widen to 6 Lanes	No	1.53	2	3.06	Open Drainage	40,500	60,900	20,400	31,212	10,200
T2.1	State	SR 46	I-95	US 1	Widen to 4 Lanes	No	1.53	2	3.06	Open Drainage	14,060	30,780	16,720	25,582	8,360
T2.5	State	SR 405 (South St)	SR 50	Rock Pit Rd	Widen to 4 Lanes	No	4.51	2	9.02	Open Drainage	17,700	39,800	22,100	99,671	11,050
T2.6	State	SR 524	S Friday Rd	Industry Rd	Widen to 4 Lanes	No	2.80	2	5.60	Open Drainage	17,700	39,800	22,100	61,880	11,050
T2.7	State	SR 501 (Clearlake Rd)	Michigan Ave	Industry Rd	Widen to 4 Lanes	No	1.10	2	2.20	Curb & Gutter	17,700	39,800	22,100	24,310	11,050
T2.36	State	US 192	Wickham Rd	Dairy Rd	Widen to 6 Lanes	No	2.10	2	4.20	Curb & Gutter	39,800	59,900	20,100	42,210	10,050
T2.37	State	US 192	Dairy Rd	SR 507 (Babcock St)	Widen to 6 Lanes	No	0.99	2	1.98	Curb & Gutter	39,800	59,900	20,100	19,899	10,050
T2.42	State	SR 514 (Malabar Rd)	SR 507 (Babcock St)	US 1	Widen to 4 Lanes	Yes	3.62	2	7.24	Open Drainage	14,800	32,400	17,600	63,712	8,800
T2.45	State	SR 507 (Babcock St)	SR 514 (Malabar Rd)	Palm Bay Rd	Widen to 6 Lanes	Yes	2.51	2	5.02	Curb & Gutter	41,775	62,625	20,850	52,334	10,425
T3.1	Non-State	Babcock St	South of Micco Rd/Deer Run Rd	Malabar Rd	Add Lanes and Reconstruct	Yes	8.58	2	17.16	Open Drainage	14,040	30,420	16,380	140,540	8,190
T3.9	State	US 192	Coastal Ln	Wickham Rd	Widen to 6 Lanes	No	1.87	2	3.74	Curb & Gutter	39,800	59,900	20,100	37,587	10,050
T3.10	State	US 192	St. Johns Heritage Pkwy	Coastal Ln	Widen to 6 Lanes	No	0.71	2	1.42	Open Drainage	39,800	59,900	20,100	14,271	10,050
T3.11	Non-State	Hollywood Blvd	Palm Bay Rd	US 192	Widen to 4 Lanes	No	3.10	2	6.20	Open Drainage	15,930	35,820	19,890	61,659	9,945
T3.12	Non-State	Malabar Rd	St. Johns Heritage Pkwy	Minton Rd	Widen to 4 Lanes	Yes	3.97	2	7.94	Open Drainage	15,930	35,820	19,890	78,963	9,945
T4.5	Non-State	Babcock St	Valkaria Rd	Convair St	Widen to 4 Lanes	Yes	2.60	2	5.20	Open Drainage	15,930	35,820	19,890	51,714	9,945
T4.6	Non-State	Babcock St	Convair St	SR 514 (Malabar Rd)	Widen to 4 Lanes	Yes	0.49	2	0.98	Open Drainage	15,930	35,820	19,890	9,746	9,945
T4.7	Non-State	Babcock St	Mara Loma Blvd	Valkaria Rd	Widen to 4 Lanes	Yes	3.28	2	6.56	Open Drainage	15,930	35,820	19,890	65,239	9,945
T4.8	Non-State	Babcock St	Meadowbrook	Mara Loma Blvd	Widen to 4 Lanes	Yes	0.86	2	1.72	Open Drainage	15,930	35,820	19,890	17,105	9,945
T4.11	Non-State	Eastern Norfolk Pkwy Ext.	Norfolk Pkwy	Imagine Way	New 2-Lane Rd & I-95 Flyover	No	0.58	2	1.16	Open Drainage	0	15,930	15,930	9,239	7,965
T4.12	Non-State	Dairy Rd	US 192	Hibiscus Blvd	Widen to 4 Lanes	No	0.43	2	0.86	Open Drainage	15,930	35,820	19,890	8,553	9,945
T4.13	Non-State	Western Norfolk Pkwy Ext.	St. Johns Heritage Pkwy	End of Norfolk Pkwy W. of Minton Rd	New 2-Lane Rd	Yes	2.60	2	5.20	Open Drainage	0	15,930	15,930	41,418	7,965
T9.5	Non-State	St. Johns Heritage Pkwy	Malabar Rd	N. of Emerson Dr (Palm Bay City Limits)	Widen to 4 Lanes	Yes	2.99	2	5.98	Curb & Gutter	15,930	35,820	19,890	59,471	9,945
Total (All Roads):									126.94					1,228,290	9,700
Non-State Roads:									62.30	49% (a)				571,002	9,200
State Roads:									64.64	51% (b)				657,288	10,200
State (in Palm Bay), Curb & Gutter:									5.02	41% (c)					
State (in Palm Bay), Open Drainage:									7.24	59% (d)					

Source: Space Coast TPO’s 2045 Long Range Transportation Plan, Cost Feasible Plan and the City of Palm Bay

Appendix C:

Credit Component

Appendix C: Credit Component

This appendix presents the detailed calculations for the credit component. County fuel taxes that are collected in Brevard County are listed below, along with a few pertinent characteristics of each.

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 allocated 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.
- Counties are not required to share the proceeds of this tax with their municipalities.

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 indebtedness 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.
- Counties are not required to share the proceeds of this tax with their municipalities.

3. Municipal Fuel Tax (1¢/gallon)

- Tax applies to every net gallon of motor fuel sold within a county.
- Primary purpose of the municipal revenue sharing program is to ensure a minimum level of parity across units of local government.
- Proceeds may be used to fund the purchase of transportation facilities and road and street right-of-way; construction, reconstruction, and maintenance of roads, streets, bicycle paths, and pedestrian pathways; adjustments of city-owned utilities as required by road and street construction; and construction, reconstruction, transportation-related public safety activities, maintenance, and operation of transportation facilities.

- The City of Palm Bay receives approximately 36 percent of the proceeds.

4. 1st Local Option Tax (up to 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 a county and its municipalities according to a mutually agreed upon distribution ratio, or by using a formula contained in the Florida Statutes.
- Brevard County has implemented all six pennies of this local option tax.

Each year, the Florida Legislature's Office of Economic and Demographic Research (EDR) produces 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. The 2023-24 data represent projected fuel tax distributions to Brevard County for the current fiscal year. Table C-1 shows the distribution per penny for each of the fuel levies, and then the calculation of the weighted average for the value of a penny of fuel tax. The weighting procedure takes into account the differing amount of revenues generated for the various types of fuel taxes. It is estimated that approximately \$4.22 million of annual revenue will be generated for the County from one penny of fuel tax in Brevard County.

Revenues from other sources, such as grants, etc. are converted to gas tax equivalent using this dollar value as a conversion factor. This conversion is needed to be able to relate associate funding to travel by each land use.

Table C-1
Estimated Fuel Tax Distribution Allocated to Capital Programs for
Brevard County & Municipalities, FY 2023-24⁽¹⁾

Tax	Amount of Levy per Gallon	Total Distribution	Distribution per Penny
Constitutional Fuel Tax	\$0.02	\$7,655,109	\$3,827,555
County Fuel Tax	\$0.01	\$3,385,149	\$3,385,149
Municipal Fuel Tax	\$0.01	\$3,381,899	\$3,381,899
1st Local Option (1-6 cents)	\$0.06	\$27,740,416	\$4,623,403
Total	\$0.10	\$42,162,573	
Weighted Average per Penny⁽²⁾			\$4,216,257

1) Source: Florida Legislature's Office of Economic and Demographic Research, <http://edr.state.fl.us/content/local-government/reports/-->

2) The weighted average distribution per penny is calculated by taking the sum of the total distribution and dividing that value by the sum of the total levies per gallon (multiplied by 100).

Capital Improvement Credit

A revenue credit for the annual expenditures on transportation capacity-expansion projects in the City of Palm Bay and Brevard County is presented below. The components of the credit are as follows:

- City capital project funding
- County capital project funding
- State capital project funding

The annual expenditures from each revenue source are converted to equivalent fuel tax pennies to be able to create a connection between travel by each land use and non-impact fee revenue contributions for all revenue sources.

City Capital Project Funding

A review of historical expenditures and planned capacity expansion improvements in the City of Palm Bay identified minor signal cabinet and traffic calming transportation improvements, but the funding levels were negligible. However, the City does have transportation debt related to a new connector road for an I-95 interchange. The remaining debt schedule, which results in an equivalent credit of 0.2 pennies, is summarized in Table C-2.

Table C-2
City Debt Service Fuel Tax Equivalent Pennies

Source	Cost of Projects	Number of Years	Revenue from 1 Penny ⁽²⁾	Equivalent Pennies ⁽³⁾
Local Option Gas Tax Rev. Note, Series 2018 ⁽¹⁾	\$7,589,520	10	\$4,216,257	\$0.002

1) Source: Table C-6

2) Source: Table C-1

3) Cost of projects divided by number of years divided by revenue from 1 penny (Item 3) divided by 100

County Capital Project Funding

A review of the County's FY 2023-2027 Capital Improvement Plan indicates that a combination of fuel tax revenues, impact fees, and grants are the primary revenue sources used to fund transportation capacity expansion improvements. As shown in Table C-3, Brevard County allocates an equivalent of approximately 2.0 pennies for non-impact fee revenues dedicated to capacity expansion projects such as traffic circulation, lane additions, and intersection improvements. The equivalent fuel tax credit in Table C-3 does not include the portion of fuel tax revenues being used to repay debt service.

Table C-3
County Fuel Tax Equivalent Pennies

Source	Cost of Projects	Number of Years	Revenue from 1 Penny ⁽²⁾	Equivalent Pennies ⁽³⁾
Projected CIP Expenditures (FY 2023-2027) ⁽¹⁾	\$42,831,191	5	\$4,216,257	\$0.020

1) Source: Table C-7

2) Source: Table C-1

3) Cost of projects divided by number of years divided by revenue from 1 penny (Item 3) divided by 100

In addition, an equivalent credit of 0.9 pennies was calculated for Brevard County debt service associated with the Local Option Fuel Tax Revenue Bond, Series 2016.

Table C-4
County Debt Service Fuel Tax Equivalent Pennies

Source	Cost of Projects	Number of Years	Revenue from 1 Penny ⁽²⁾	Equivalent Pennies ⁽³⁾
Local Option Fuel Tax Rev. Bond, Series 2016 ⁽¹⁾	\$54,686,590	14	\$4,216,257	\$0.009

1) Source: Table C-8

2) Source: Table C-1

3) Outstanding debt divided by number of years divided by revenue from 1 penny (Item 7) divided by 100

State Capital Project Funding

In the calculation of the equivalent pennies of fuel tax from the State, funding on transportation capacity-expansion projects spanning a 15-year period (from FY 2014 to FY 2028) were reviewed. This included capacity expansion projects such as lane additions, new road construction, intersection improvements, interchanges, traffic signal projects, and other capacity-addition projects. The use of a 15-year period, for purposes of developing a state credit for roadway capacity expansion projects, results in a stable credit, as it accounts for the volatility in FDOT spending in a jurisdiction over short periods of time.

The total cost of the transportation capacity-expansion projects for the “historical” periods and the “future” period:

- FY 2014-2018 work plan equates to 4.5 pennies
- FY 2019-2023 work plan equates to 5.9 pennies
- FY 2024-2028 work plan equates to 5.2 pennies

The combined weighted average over the 15-year period of state expenditure for capacity-expansion transportation projects results in a total of 5.2 equivalent pennies. Table C-5 documents this calculation. The specific projects that were used in the equivalent penny calculations are summarized in Table C-9.

Table C-5
State Fuel Tax Equivalent Pennies

Source	Cost of Projects	Number of Years	Revenue from 1 Penny ⁽⁴⁾	Equivalent Pennies ⁽⁵⁾
Projected Work Program (FY 2024-2028) ⁽¹⁾	\$108,752,838	5	\$4,216,257	\$0.052
Historical Work Program (FY 2019-2023) ⁽²⁾	\$123,731,942	5	\$4,216,257	\$0.059
Historical Work Program (FY 2014-2018) ⁽³⁾	<u>\$93,971,705</u>	<u>5</u>	\$4,216,257	\$0.045
Total	\$326,456,485	15	\$4,216,257	\$0.052

1) Source: Table C-9

2) Source: Table C-9

3) Source: Table C-9

4) Source: Table C-1

5) Cost of projects divided by number of years divided by revenue from 1 penny (Item 2) divided by 100

Table C-6
City of Palm Bay; Local Option Gas Tax Revenue Note, Series 2018

Year	Principal	Interest Rate	Interest	Total Debt Service
2023	\$572,000	2.60%	\$187,939	\$759,939
2024	\$588,000	2.59%	\$172,221	\$760,221
2025	\$604,000	2.58%	\$156,069	\$760,069
2026	\$620,000	2.56%	\$139,484	\$759,484
2027	\$637,000	2.53%	\$122,451	\$759,451
2028	\$654,000	2.50%	\$104,958	\$758,958
2029	\$672,000	2.45%	\$86,991	\$758,991
2030	\$690,000	2.39%	\$68,536	\$758,536
2031	\$709,000	2.27%	\$49,580	\$758,580
2032	\$728,000	2.04%	\$30,108	\$758,108
2033	\$747,000	1.36%	\$10,122	\$757,122
Total	\$6,649,000		\$940,520	\$7,589,520
Percent for Transportation Capacity				100%
Portion for Transportation Capacity				\$7,589,520
Payments Remaining				10
Annual Average Payment				\$758,952

Source: City of Palm Bay FY 2023 Approved Budget Book

Table C-7
Brevard County Capital Improvement Plan FY 2023 – FY 2027

Funded Program	Project Name	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total
518822	Traffic ITS Fiber Upgrade Project	\$0	\$250,000	\$0	\$0	\$0	\$250,000
6932504	St. Johns Heritage Parkway and Ellis Road 4-Lane Project	\$2,221,908	\$0	\$0	\$20,000,000	\$12,555,426	\$34,777,334
6932301	Hollywood Blvd Widening Project	\$805,061	\$1,632,283	\$1,635,432	\$668,071	\$0	\$4,740,847
6931203	South Courtenay Parkway Widening	\$0	\$0	\$859,649	\$938,361	\$0	\$1,798,010
6936308	Suntree Blvd and Wickham Road Intersection Improvements	\$165,269	\$304,731	\$0	\$0	\$0	\$470,000
6963204	West Central Avenue Bridge #704024	\$0	\$495,000	\$0	\$0	\$0	\$495,000
-	Right-of-Way Preliminary Expenditures	\$0	\$300,000	\$0	\$0	\$0	\$300,000
Total		\$3,192,238	\$2,982,014	\$2,495,081	\$21,606,432	\$12,555,426	\$42,831,191

Source: Brevard County FY 2024 Proposed Budget

Table C-8

Brevard County; Local Option Fuel Tax Revenue Bonds, Series 2016

Year	Principal	Interest Rate	Interest	Total Debt Service
2023	\$80,000	5.00%	\$2,127,219	\$2,207,219
2024	\$80,000	5.00%	\$2,123,219	\$2,203,219
2025	\$85,000	5.00%	\$2,119,219	\$2,204,219
2026	\$90,000	5.00%	\$2,114,969	\$2,204,969
2027	\$3,500,000	3.00%	\$2,112,268	\$5,612,268
2028	\$3,675,000	5.00%	\$1,937,269	\$5,612,269
2029	\$3,860,000	5.00%	\$1,753,519	\$5,613,519
2030	\$4,050,000	5.00%	\$1,560,519	\$5,610,519
2031	\$4,255,000	5.00%	\$1,358,019	\$5,613,019
2032	\$4,425,000	4.00%	\$1,187,818	\$5,612,818
2033	\$4,605,000	4.00%	\$1,010,819	\$5,615,819
2034	\$4,785,000	4.00%	\$826,619	\$5,611,619
2035	\$4,975,000	4.00%	\$635,219	\$5,610,219
2036	\$5,180,000	4.00%	\$436,219	\$5,616,219
2037	\$5,395,000	4.13%	\$222,543	<u>\$5,617,543</u>
Total	\$48,960,000		\$19,398,238	\$68,358,238
Percent for Transportation Capacity				80%
Portion for Transportation Capacity				\$54,686,590
Payments Remaining				14
Annual Average Payment				\$4,882,731

Source: Brevard County Annual Comprehensive Financial Report

Table C-9

Florida Department of Transportation, District 5 – Brevard County Work Program FY 2014 to FY 2028

ItemSeg	Description	Wkmx Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
237592-1	SR 5 (US 1) FROM ROSA L JONES DR TO PINE STREET	ADD LANES & RECONSTRUCT	\$1,136	\$0	\$5,307	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,443
237592-2	SR 5 (US 1) FROM N OF PINE STREET TO N OF CIDCO ROAD	ADD LANES & RECONSTRUCT	\$1,484,047	\$1,647,679	\$1,824,085	\$558,177	\$483,774	\$593,205	\$304	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,591,271
237650-2	SR 507 (BABCOCK ST) FROM MELBOURNE AVE TO FEE AVE	INTERSECTION IMPROVEMENT	\$310,353	\$210,468	\$12,282	\$88	\$46	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$533,237
237650-3	SR 507/SR 514 (MALABAR) INTERSECTION RECONSTRUCTION IMPROVE	ADD LANES & RECONSTRUCT	\$62,593	\$14,588	\$8,219	\$1,026	\$215	\$0	\$0	\$50	\$0	\$0	\$1,753	\$0	\$0	\$0	\$0	\$88,444
237650-6	SR 507 BABCOCK ST FROM MALABAR RD TO PALM BAY RD	ADD LANES & RECONSTRUCT	\$89,173	\$79,825	\$7,210	\$109,217	\$483,657	\$1,896,184	\$333,215	\$28,802	\$567	\$350	\$12,079	\$0	\$0	\$0	\$0	\$3,040,279
241241-1	APOLLO BLVD FROM SARNO RD TO EAU GALLIE BLVD	ADD LANES & RECONSTRUCT	\$16,157,133	\$420,850	\$519,096	\$6,810	\$9,832	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,113,721
404667-1	WICKHAM ROAD AT NASA BLVD & ELLIS RD	NEW ROAD CONSTRUCTION	\$2,899	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,899
407402-1	SR 528 PD&E STUDY FROM SR 520 TO SR A1A	PD&E/EMO STUDY	\$0	\$0	\$0	\$186,508	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$186,508
407402-3	SR 528 FROM E OF SR524(INDUSTRY) TO EAST OF SR 3	ADD LANES & RECONSTRUCT	\$0	\$2,273	\$10,083,361	\$74,575	\$134,475	\$649,624	\$321,931	\$534,454	\$316,061	\$86,088	\$7,252,540	\$3,119,555	\$2,183,320	\$0	\$0	\$24,758,257
407402-4	SR 528 FROM EAST OF SR 3 TO PORT CANAVERAL INTERCHANGE	ADD LANES & RECONSTRUCT	\$0	\$707	\$9,859,551	\$89,142	\$107,195	\$36,114	\$19,003	\$45,751	\$54,359	\$38,284	\$2,813,912	\$514,060	\$64,962	\$0	\$0	\$13,643,040
413019-1	BREVARD TRAFFIC ENGINEERING CONTRACTS	TRAFFIC SIGNALS	\$459,892	\$476,841	\$809,551	\$1,035,659	\$1,081,909	\$1,048,274	\$1,193,574	\$1,222,685	\$1,264,001	\$1,300,475	\$1,373,319	\$1,412,794	\$0	\$0	\$0	\$12,678,974
413761-1	SR 514 FROM WEBER RD TO COREY ROAD	ADD LEFT TURN LANE(S)	\$38,603	\$718,588	\$44,653	\$48,018	\$405,465	\$571,820	\$1,950,545	\$76,697	\$70,554	\$66,654	\$113,809	\$0	\$0	\$0	\$0	\$4,105,406
414975-1	SR 5 (US 1) FROM KNOX MC RAE TO COUNTRY CLUB DRIVE	TRAFFIC SIGNALS	\$29,323	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$29,323
414977-1	SR 501 FROM SR 520 TO MICHIGAN AVENUE	TRAFFIC SIGNALS	\$123	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$123
415973-1	SR 5054 FROM ENGELGAU LANE EAST OF WASTE FACILITY	ADD LEFT TURN LANE(S)	\$1,840	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,840
421218-1	DIXON BLVD DRAINAGE IMPROVEMENTS FRM CLEAR LA KE BLVD TO FEC RR	ADD LANES & RECONSTRUCT	\$305	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$305
422920-1	SR 46 AT I-95 NB RAMPS MAST ARM REPLACEMENT	TRAFFIC SIGNALS	\$0	\$0	\$0	\$0	\$0	\$124	\$511	\$1,006	\$2,683	\$1,264	\$3,658	\$0	\$0	\$0	\$0	\$9,246
423101-1	BARNES BOULEVARD FROM MURRELL ROAD TO FISKE BLVD (SR 519)	ADD LANES & RECONSTRUCT	\$8,100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,100,000
426905-2	ST JOHNS HERITAGE PKWY @ ELLIS RD FROM JOHN RHODES TO W OF WICKHAM RD	ADD LANES & RECONSTRUCT	\$2,942	\$126,340	\$5,476	\$41,371	\$152,221	\$21,900	\$98,458	\$323,953	\$94,845	\$34,187	\$11,022	\$0	\$26,155,286	\$0	\$0	\$27,068,001
426905-4	ST JOHNS HERITAGE PKWY/ELLIS RD FROM JOHN RHODES BLVD TO W OF WICKHAM	ADD LANES & RECONSTRUCT	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,878,803	\$2,940,896	\$25,977,432	\$6,743,760	\$0	\$0	\$0	\$37,540,891
427492-1	SR 519 (FISKE BLVD) FROM BARNES BLVD (CR502) TO SR 520 (KING ST)	PRELIMINARY ENGINEERING	\$9,258	\$0	\$0	\$0	\$33	\$188	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,479
427645-1	SR 520 FROM WEST OF MYRTICE AVE TO SR 3	INTERSECTION IMPROVEMENT	\$53,022	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$53,022
428346-1	PALM BAY PARKWAY FROM MALABAR RD. TO N OF PALM BAY LIMITS	NEW ROAD CONSTRUCTION	\$10,728	\$4,699	\$506	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,933
428346-2	ST JOHNS HERITAGE PKWY FROM N PALM BAY LIMI TS TO I-95/ELLIS INTCHG	RIGHT OF WAY ACQUISITION	\$21,292	\$6,276	\$20,088	\$788	\$8,949	\$1,484	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$58,877
428346-3	ST JOHNS HERITAGE PKWY FROM PALM BAY CITY LIMITS TO US 192	NEW ROAD CONSTRUCTION	\$3,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000,000
428346-4	ST JOHNS HERITAGE PKWY FROM US 192 TO ELLIS RD INTERCHANGE	NEW ROAD CONSTRUCTION	\$0	\$0	\$0	\$4,651,131	\$1,067,456	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,718,587
428597-1	SR 500 US 192 FROM I-95 SB RAMPS TO E OF WICKHAM/MINTON RD	TRAFFIC CONTROL DEVICES/SYSTEM	\$11,650	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,650
428930-1	BREVARD COUNTY ITS OPERATIONAL SUPPORT	ITS COMMUNICATION SYSTEM	\$186,266	\$225,000	\$0	\$224,709	\$0	\$225,000	\$0	\$224,999	\$225,000	\$300,000	\$225,000	\$225,000	\$225,000	\$225,000	\$225,000	\$2,735,974
430136-1	SR 514 (MALABAR RD) FROM BABCOCK ST TO US 1	ADD LANES & RECONSTRUCT	\$36,724	\$154,688	\$74,795	\$69,196	\$23,925	\$338	\$138	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$359,804
430202-4	SR A1A @ SR520 INTERSECTION IMPROVEMENTS	INTERSECTION IMPROVEMENT	\$0	\$0	\$0	\$552,120	\$13,151	\$2,347,225	\$425,554	\$35,379	\$9,373	\$119	\$17,286	\$0	\$0	\$0	\$0	\$3,400,207
430209-1	US 192 FEASIBILITY FROM W OF I-95 TO BABCOCK ROAD	PD&E/EMO STUDY	\$114,354	\$4,912	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$119,266
431139-2	SR 520 SYKES CREEK INTERSECTION	TRAFFIC SIGNALS	\$1,169	\$43,173	\$57,218	\$54	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$101,614
431139-3	SR 520 FROM ERIK COURT TO BANANA RV BR # 700208	TRAFFIC SIGNALS	\$1,531,067	\$7,894	\$237,629	\$1,537	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,778,127
431164-1	SR 520 AT RIVEREDGE BLVD	TRAFFIC SIGNALS	\$0	\$3,788	\$62,165	\$8,524	\$0	\$76	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$74,553
431924-1	WICKHAM RD EAU GALLIE INTERSECTION SOUTH BOUND RIGHT	TRAFFIC OPS IMPROVEMENT	\$41,450	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$41,450
431924-2	WICKHAM RD EAU GALLIE INTERSECTION NORTH BOUND	TRAFFIC OPS IMPROVEMENT	\$39,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$39,000
432412-1	SR 406 W OF SINGLETON AVE TO E OF SINGLETON AVE	TRAFFIC SIGNAL UPDATE	\$336,558	\$71,977	\$949,439	\$52,651	\$173	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,410,798
433061-1	BANANA RIVER DRIVE AT MARTIN BLVD	INTERSECTION IMPROVEMENT	\$761,993	\$2,242	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$764,235
433604-1	US 1 SR 404/PINEDA CAUSEWAY TO PARK AVENUE	PD&E/EMO STUDY	\$0	\$0	\$0	\$0	\$0	\$262,734	\$705	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$263,439
433605-1	SR 501 FROM MICHIGAN AVENUE TO INDUSTRY ROAD	ADD LANES & RECONSTRUCT	\$0	\$1,315,282	\$1,577,626	\$230,500	\$204,582	\$54,771	\$4,392	\$12,938	\$774	\$1,066,297	\$452,975	\$0	\$0	\$0	\$0	\$4,920,137
433654-1	SR 500/US 192 AT WICKHAM RD	ADD TURN LANE(S)	\$0	\$0	\$837,479	\$16,997	\$1,711,221	\$129,100	\$11,783	\$23	\$0	\$0	\$9,688	\$0	\$0	\$0	\$0	\$2,716,291
433655-1	SR 500/US 192 AT HOLLYWOOD BLVD	ADD TURN LANE(S)	\$0	\$0	\$1,178,399	\$36,360	\$60,248	\$196,830	\$1,129,317	\$2,291,565	\$1,305,437	\$6,093,915	\$2,482,986	\$0	\$0	\$0	\$0	\$14,775,057
434423-1	WICKHAM ROAD AT STADIUM PARKWAY	TRAFFIC SIGNALS	\$0	\$0	\$555,474	\$2,301	\$163	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$557,938
434816-1	SR 5 (US 1) AT SARNO RD	ADD RIGHT TURN LANE(S)	\$0	\$172,107	\$278	\$0	\$1,220	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$173,605
435647-1	SR A1A/ASTRONAUT BLVD FROM MCKINLEY/HOLMAN TO ATLANTIC AVE	TRAFFIC SIGNALS	\$0	\$0	\$10,119	\$413,843	\$1,084,306	\$82,573	\$24,327	\$0	\$0	\$0	\$1,999	\$0	\$0	\$0	\$0	\$1,617,167
435651-1	SR 5/US 1 FROM SR 508 (NASA) TO CHERRY ST	TRAFFIC SIGNALS	\$0	\$0	\$1,691	\$291,523	\$635,261	\$53,232	\$1,291	\$57	\$0	\$0	\$13,753	\$0	\$0	\$0	\$0	\$996,808
435652-1	SR 5/US 1 AT HIBISCUS, BALLARD AND US 192 INTERSECTIONS	TRAFFIC SIGNAL UPDATE	\$0	\$475,490	\$17,068	\$33,935	\$243,231	\$1,532,411	\$164,452	\$285,814	\$24,051	\$38,798	\$16,657	\$0	\$0	\$0	\$0	\$2,831,907
435655-1	SR 5/US 1 FROM PROSPECT AVE TO NEW HAVEN AVE	TRAFFIC SIGNALS	\$0	\$266,259	\$12,961	\$23,619	\$696,657	\$12,569	\$254	\$0	\$0	\$0	\$745	\$0	\$0	\$0	\$0	\$1,013,064
436122-1	SR 405 SPACEPORT CONNECTOR SIS INTERSECTION IMPROVEMENTS	ADD LEFT TURN LANE(S)	\$0	\$0	\$363	\$895,200	\$37,782	\$18,276	\$4,271,641	\$248,225	\$215,677	\$6,290	\$1,110	\$0	\$0	\$0	\$0	\$5,694,564
436123-1	SR 405 AT SISSON RD SPACEPORT CONNECTOR SIS INTERSECTION IMPROVEMENTS	ADD LEFT TURN LANE(S)	\$0	\$482,825	\$23,540	\$97,991	\$181,453	\$781,867	\$1,253,543	\$11,419	\$2,557	\$0	\$0	\$0	\$0	\$0	\$0	\$2,835,195
436125-1	WICKHAM RD AT I-95 RAMP IMPROVEMENTS AND MAST ARMS	ADD LEFT TURN LANE(S)	\$0	\$0	\$0	\$0	\$5,753	\$712,963	\$17,365	\$21,200	\$5,044,109	\$114,870	\$65,347	\$0	\$0	\$0	\$0	\$5,981,607
436237-1	SR 5 (US 1) @ SUNTREE BOULEVARD	INTERSECTION IMPROVEMENT	\$0	\$0	\$605,571	\$55,136	\$1,733,442	\$128,635	\$293,197	\$98,273	\$17,600	\$0	\$3,985	\$0	\$0	\$0	\$0	\$2,935,839
437109-1	BREVARD COUNTY ADVANCED ACQUISITION	RIGHT OF WAY ACQUISITION	\$0	\$144,656	\$441,673	\$0	\$227,860	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$814,189
437204-1	BABCOCK ST FROM SOUTH OF MICCO RD/DEER RUN RD TO MALABAR RD	ADD LANES & RECONSTRUCT	\$0	\$0	\$0	\$0	\$1,535,195	\$333,475	\$51,925	\$11,215	\$1,116	\$0	\$6,216	\$0	\$0	\$0	\$0	\$1,939,142
437210-1	MALABAR RD FROM ST JOHNS HERITAGE PKWY TO MINTON RD	PD&E/EMO STUDY	\$0	\$0	\$0	\$0	\$0	\$0	\$1,355,971	\$3,130	\$5,557	\$1,096	\$2,983,909	\$0	\$0	\$0	\$0	\$4,349,663
437983-1	SR 524 FROM FRIDAY ROAD TO INDUSTRY ROAD	PD&E/EMO STUDY	\$0	\$0	\$181,559	\$0	\$20,909	\$1,657,317	\$22,361	\$97,712	\$51,874	\$15,251	\$3,623	\$0	\$0	\$0	\$0	\$2,050,606
439123-1	SR 519/FISKE BLVD FROM PROSPERITY PLACE TO I-95 NB RAMPS/BARNES BLVD	ADD LEFT TURN LANE(S)	\$0	\$0	\$0	\$0	\$0	\$1,413,913	\$28,344	\$9,542,817	\$258,782	\$349,865	\$131,143	\$0	\$0	\$0	\$0	\$11,724,864
439130-1	US 192 AT MCCLAIN-REBUILD MAST ARM	TRAFFIC SIGNAL UPDATE	\$0	\$0	\$0	\$0	\$2,751	\$0	\$313,557	\$10,176	\$757,864	\$90,235	\$5,694	\$0	\$0	\$0	\$0	\$1,180,277
439135-1	SR 5054 AT WICKHAM RD MAST ARMS	TRAFFIC SIGNAL UPDATE	\$0	\$0	\$0	\$134	\$6,247	\$1,231	\$327,227	\$15,190	\$828,305	\$9,477	\$14,228	\$0	\$0	\$0	\$0	\$1,202,039
439146-1	SR A1A/S ATLANTIC AVE JUPITER ST/PATRICK AIR FORCE BASE MAIN GATE	TRAFFIC OPS IMPROVEMENT	\$0	\$0	\$0	\$545	\$141,731	\$2,846	\$0	\$0	\$38	\$0	\$7,114	\$0	\$0	\$0	\$0	\$152,274
439777-1	SR520/MERRITT ISL CSWY-W OF NEWFOUND HARBOR DR TO E OF S BANANA RIV DR	TRAFFIC OPS IMPROVEMENT	\$0	\$0	\$0	\$0	\$355,998	\$6,955	\$593,932	\$6,739	\$0	\$0	\$1,449	\$0	\$0	\$0	\$0	\$965,073
439778-1	SR518/W EAU GALLIE BLVD - E OF I-95 NB OFF RAMP TO W OF INT @ SARNO RD	TRAFFIC OPS IMPROVEMENT	\$0	\$0	\$0	\$3,785	\$571,108	\$5,763	\$14,652	\$2,633,408	\$189,283	\$16,009	\$9,560	\$0	\$0	\$0	\$0	\$3,443,568
439779-1	SR518/W EAU GALLIE BLVD-JONES ROAD TO 200FT E OF I-95 INTERCHG RAMPS	TRAFFIC OPS IMPROVEMENT	\$0	\$0	\$0	\$4,492	\$701,127	\$2,919	\$6,753	\$4,530,564	\$342,753	\$87,806	\$9,862	\$0	\$0	\$0	\$0	\$5,686,276
439853-1	SR 507 (BABCOCK STREET) FROM PALM BAY RD TO NASA BLVD	ITS COMMUNICATION SYSTEM	\$0	\$0	\$0	\$0	\$0	\$137,414	\$782,370	\$71,706	\$31,338	\$0	\$1	\$0	\$0	\$0	\$0	\$1,022,829
439856-1	SR 500 (US 192)-NEW HAVEN AVENUE FROM DAIRY ROAD TO US 1	ITS COMMUNICATION SYSTEM	\$0	\$0	\$0	\$0	\$0	\$138,281	\$411,265	\$32,309	\$25,783	\$28	\$4,490	\$0	\$0	\$0	\$0	\$612,156
439857-1	SR 5 (US 1-HARBOR CITY BLVD) FROM UNIVERSITY BLVD TO BABCOCK STREET	ITS COMMUNICATION SYSTEM	\$0	\$0	\$0	\$0	\$0											

Table C-9 (continued)																		
Florida Department of Transportation, District 5 – Brevard County Work Program FY 2014 to FY 2028																		
ItemSeg	Description	Wkmx Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
441412-1	ST JOHNS HERITAGE PKWY FROM BABCOCK STREET TO MALABAR ROAD	PD&E/EMO STUDY	\$0	\$0	\$0	\$0	\$0	\$0	\$1,083,649	\$2,614	\$11,320	\$6,872	\$0	\$0	\$0	\$0	\$0	\$1,104,455
441584-1	BREVARD TRAFFIC MANAGEMENT CENTER	TRAFFIC MANAGEMENT CENTERS	\$0	\$0	\$0	\$0	\$3,477	\$164	\$0	\$0	\$0	\$0	\$8,100,000	\$0	\$0	\$0	\$0	\$8,103,641
441945-1	SR 5 (US 1) AT SR 404 EB RAMPS SIGNALIZATION	TRAFFIC SIGNALS	\$0	\$0	\$0	\$0	\$0	\$462,791	\$40,028	\$1,998,589	\$83,007	\$6,478	\$77,041	\$0	\$0	\$0	\$0	\$2,667,934
443731-1	MALABAR RD FROM ST JOHN'S HERITAGE PKWY TO SAN FILIPPO BLVD	ITS COMMUNICATION SYSTEM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$279,220	\$933	\$2,451	\$0	\$0	\$0	\$0	\$282,604
443732-1	SAN FILIPPO DR FROM WACO BLVD TO MALABAR RD	ITS SURVEILLANCE SYSTEM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$152,321	\$25	\$1,974	\$0	\$0	\$0	\$0	\$154,320
443733-1	EMERSON DR FROM ST JOHN'S HERITAGE PKWY TO MINTON RD	ITS COMMUNICATION SYSTEM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$140,798	\$224	\$1,775	\$0	\$0	\$0	\$0	\$142,797
443768-1	COURTENAY PKWY (SR 3) FROM CONE RD TO SR 528	ITS COMMUNICATION SYSTEM	\$0	\$0	\$0	\$0	\$0	\$79,962	\$1,680,869	\$159,925	\$3,955	\$109	\$0	\$0	\$0	\$0	\$0	\$1,924,820
444176-1	SR 518 EAU GALLE BLVD FROM W OF MOSSWOOD DR TO E OF STEWARD AVE	ADD LEFT TURN LANE(S)	\$0	\$0	\$0	\$19,564	\$0	\$15,933	\$919,583	\$35,479	\$5,001	\$513	\$75,955	\$0	\$0	\$0	\$0	\$1,072,028
445183-1	SR 518 EAU GALLIE BLVD AT TURTLE MOUND ROAD	INTERSECTION IMPROVEMENT	\$0	\$0	\$0	\$404	\$1,125	\$390,580	\$41,054	\$97,966	\$458,814	\$38,262	\$17,440	\$0	\$0	\$0	\$0	\$1,045,645
445286-1	BREVARD COUNTY ATSPM TRAFFIC CONTROL DEVICES	TRAFFIC CONTROL DEVICES/SYSTEM	\$0	\$0	\$0	\$0	\$0	\$499,566	\$0	\$416,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$915,566
445287-1	CITY OF MELBOURNE ATSPM TRAFFIC CONTROL DEVICES	TRAFFIC CONTROL DEVICES/SYSTEM	\$0	\$0	\$0	\$0	\$0	\$297,937	\$0	\$246,218	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$544,155
445587-1	SR 5 (US1) FROM SOUTH OF FAY BLVD TO NORTH OF FAY BLVD	TRAFFIC SIGNALS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,524	\$475,302	\$21,075	\$220,505		\$914,780	\$0	\$0	\$1,633,186
445813-1	SR 518 EAU GALLE BLV @ WICKHAM RD	TRAFFIC SIGNALS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$472,205	\$45,641	\$1,873,351	\$11,840	\$0	\$0	\$0	\$0	\$2,403,037
445835-1	SR 518, EAU GALLE BLV, AT CROTON RD	TRAFFIC SIGNALS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$406,363	\$30,553	\$1,013,057	\$15,882	\$0	\$0	\$0	\$0	\$1,465,855
445855-1	SR-A1A @ SR 518 / E EAU GALLIE BLVD.	TRAFFIC SIGNALS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$503,158	\$255,717	\$6,589	\$3,981,292	\$0	\$0	\$0	\$0	\$4,746,756
445858-1	NASA BOULEVARD FROM WICKHAM ROAD TO US-1	ITS COMMUNICATION SYSTEM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$160,549	\$1,881,159	\$19,338	\$0	\$0	\$0	\$0	\$2,061,046
446600-1	SR 519 AT ROY WALL BLVD	TRAFFIC OPS IMPROVEMENT	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,108	\$1,365,755	\$0	\$0	\$0	\$0	\$1,366,863
447688-1	SR 5 AT CIDCO RD	TRAFFIC CONTROL DEVICES/SYSTEM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$466,613	\$7,456	\$1,306,200	\$0	\$0	\$0	\$0	\$1,780,269
447994-1	CAPE CANAVERAL SPACEPORT INDIAN RIVER BRIDGE ITS IMPROVEMENTS	TRAFFIC SIGNALS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$605,000	\$0	\$0	\$0	\$0	\$605,000
448378-1	US-1/SR-5 FROM W.H. JACKSON STREET TO CRANE CREEK BRIDGE #700006	TRAFFIC OPS IMPROVEMENT	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,705,000	\$0	\$0	\$0	\$1,705,000
450417-1	SR 519/FISKE BLVD AT LEVITT PARKWAY/LAKEMOUR BLVD SIGNALIZATION	TRAFFIC CONTROL DEVICES/SYSTEM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,475	\$630,000	\$0	\$1,254,046	\$0	\$0	\$1,891,521
Total			\$32,894,893	\$7,079,427	\$30,024,432	\$9,837,630	\$14,135,323	\$17,606,510	\$19,994,768	\$27,654,817	\$15,683,862	\$42,791,985	\$63,785,275	\$13,720,169	\$30,797,394	\$225,000	\$225,000	\$326,456,485
Total							\$93,971,705					\$123,731,942						\$108,752,838

Source: Florida Department of Transportation, District 5

Table C-10

Average Motor Vehicle Fuel Efficiency – Excluding Interstate Travel

Travel			
Vehicle Miles of Travel (VMT) @			
	22.8	7.3	
Other Arterial Rural	329,742,000,000	52,696,000,000	382,438,000,000
Other Rural	325,232,000,000	32,997,000,000	358,229,000,000
Other Urban	1,485,169,000,000	102,144,000,000	1,587,313,000,000
Total	2,140,143,000,000	187,837,000,000	2,327,980,000,000

Percent VMT	
@ 22.8 mpg	@ 7.3 mpg
86%	14%
91%	9%
94%	6%
92%	8%

Fuel Consumed			
	Gallons @ 22.8 mpg	Gallons @ 7.3 mpg	
Other Arterial Rural	14,462,368,421	7,218,630,137	21,680,998,558
Other Rural	14,264,561,404	4,520,136,986	18,784,698,390
Other Urban	65,138,991,228	13,992,328,767	79,131,319,995
Total	93,865,921,053	25,731,095,890	119,597,016,943

Total Mileage and Fuel	
2,327,980	miles (millions)
119,597	gallons (millions)
19.47	mpg

Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2022*, Section V, Table VM-1
Annual Vehicle Distance Traveled in Miles and Related Data - 2022 by Highway Category and Vehicle Type
<http://www.fhwa.dot.gov/policyinformation/statistics.cfm>

Table C-11
Annual Vehicle Distance Travelled in Miles and Related Data – 2022⁽¹⁾
By Highway Category and Vehicle Type

Updated: February 2024								TABLE VM-1		
YEAR	ITEM	LIGHT DUTY VEHICLES SHORT WB ⁽²⁾	MOTOR-CYCLES	BUSES	LIGHT DUTY VEHICLES LONG WB ⁽²⁾	SINGLE-UNIT TRUCKS ⁽³⁾	COMBINATION TRUCKS	SUBTOTALS		ALL MOTOR VEHICLES
								ALL LIGHT VEHICLES ⁽²⁾	SINGLE-UNIT 2-AXLE 6-TIRE OR MORE AND COMBINATION TRUCKS	
	Motor-Vehicle Travel (millions of vehicle-miles):									
2022	Interstate Rural	148,757	1,164	1,601	50,143	11,677	61,652	198,900	73,328	274,993
2022	Other Arterial Rural	229,877	2,233	2,231	99,865	19,332	33,364	329,742	52,696	386,901
2022	Other Rural	221,526	3,294	2,293	103,707	19,890	13,106	325,232	32,997	363,816
2022	All Rural	600,160	6,691	6,125	253,714	50,899	108,122	853,874	159,021	1,025,711
2022	Interstate Urban	378,935	2,842	2,624	104,686	20,397	49,710	483,621	70,108	559,194
2022	Other Urban	1,158,710	14,232	9,741	326,459	64,928	37,216	1,485,169	102,144	1,611,287
2022	All Urban	1,537,646	17,074	12,365	431,144	85,325	86,927	1,968,790	172,252	2,170,481
2022	Total Rural and Urban ⁽⁵⁾	2,137,805	23,765	18,490	684,859	136,224	195,049	2,822,664	331,272	3,196,191
2022	Number of motor vehicles registered ⁽²⁾	197,080,414	9,567,664	954,119	61,464,968	11,083,997	3,249,824	258,545,382	14,333,821	283,400,986
2022	Average miles traveled per vehicle	10,847	2,484	19,379	11,142	12,290	60,018	10,917	23,111	11,278
2022	Person-miles of travel (millions) ⁽⁴⁾	3,284,669	24,369	391,991	1,007,240	136,224	195,049	4,291,909	331,272	5,039,542
2022	Fuel consumed (thousand gallons)	86,040,199	540,572	2,497,605	37,939,063	17,180,850	28,218,175	123,979,262	45,399,024	172,416,463
2022	Average fuel consumption per vehicle (gallons)	437	56	2,618	617	1,550	8,683	480	3,167	608
2022	Average miles traveled per gallon of fuel consumed	24.8	44.0	7.4	18.1	7.9	6.9	22.8	7.3	18.5
(1) The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21), vehicle registration data (MV-1), other data such as the R.L. Polk vehicle data, and a host of modeling techniques.										
(2) Light Duty Vehicles Short WB - passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. Light Duty Vehicles Long WB - large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. All Light Duty Vehicles - passenger cars, light trucks, vans and sport utility vehicles regardless of wheelbase.										
(3) Single-Unit - single frame trucks that have 2-Axes and at least 6 tires or a gross vehicle weight rating exceeding 10,000 lbs.										
(4) For 2021 and 2020, the vehicle occupancy is estimated by the FHWA from the 2017 National Household Travel Survey (NHTS) and the annual R.L. Polk Vehicle registration data; For single unit truck and heavy trucks, 1 motor vehicle mile traveled = 1 person-mile traveled.										
(5) VMT data are based on the latest HPMS data available; it may not match previous published results.										

Appendix D:
Calculated Transportation
Impact Fee Schedule

Appendix D: Calculated TIF Schedule

This appendix presents the detailed fee calculations for each land use in the City of Palm Bay's transportation impact fee schedule.

Table D-1
Calculated Transportation Impact Fee Schedule

Gasoline Tax				Unit Construction Cost:				Interstate/Toll Facility Adjustment Factor:				31.6%				
\$ per gallon to capital: \$0.083				Capacity per lane mile: 9,700				Cost per VMC: \$511.24								
Facility life (years): 25				Fuel Efficiency: 19.47 mpg												
Interest rate: 4.00%				Effectivedays per year: 365												
ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Trip Length Source	Percent New Trips	% New Trips Source	Net VMT ⁽¹⁾	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Calculated Impact Fee	Current Adopted Impact Fee ⁽²⁾	% Change
RESIDENTIAL:																
210	Single Family (Detached) - Less than 1,500 sf	du	6.44	Appendix A: Table A-31	6.62	7.12	FL Studies	100%	n/a	14.58	\$7,454	\$36	\$562	\$6,892	\$4,353	58%
	Single Family (Detached) - 1,501 to 2,499 sf	du	7.81	Appendix A: Table A-31	6.62	7.12	FL Studies	100%	n/a	17.68	\$9,040	\$43	\$672	\$8,368	\$4,353	92%
	Single Family (Detached) - 2,500 sf and greater	du	8.59	Appendix A: Table A-31	6.62	7.12	FL Studies	100%	n/a	19.45	\$9,943	\$48	\$750	\$9,193	\$4,353	111%
215	Single Family (Attached)	du	6.77	Blend ITE 11th & FL Studies	6.62	7.12	Same as LUC 210	100%	n/a	15.33	\$7,836	\$38	\$594	\$7,242	\$2,551	184%
220	Multi-Family Housing (Low-Rise, 1-3 floors)	du	6.74	ITE 11th Edition	5.21	5.71	FL Studies: LUC 220/221/222	100%	n/a	12.01	\$6,140	\$30	\$469	\$5,671	\$2,869	98%
221/222	Multi-Family Housing (Mid/High-Rise, 4+ floors)	du	4.54	ITE 11th Edition	5.21	5.71	FL Studies: LUC 220/221/222	100%	n/a	8.09	\$4,136	\$20	\$312	\$3,824	\$2,551	50%
240	Mobile Home Park	du	4.17	FL Studies	4.60	5.10	FL Studies	100%	n/a	6.56	\$3,354	\$17	\$266	\$3,088	\$2,172	42%
251	Senior Adult Housing - Single Family	du	3.54	Blend ITE 11th & FL Studies	5.42	5.92	FL Studies	100%	n/a	6.56	\$3,355	\$16	\$250	\$3,105	\$771	303%
252	Senior Adult Housing - Multi-Family	du	2.99	Blend ITE 11th & FL Studies	4.34	4.84	Based on LUC 251 (Adjusted) ⁽³⁾	100%	n/a	4.44	\$2,269	\$11	\$172	\$2,097	\$771	172%
253	Congregate Care Facility	du	2.33	Blend ITE 11th & FL Studies	3.08	3.58	FL Studies	72%	FL Studies	1.77	\$903	\$5	\$78	\$825	\$350	136%
LODGING:																
310	Hotel	room	5.56	Blend ITE 11th & FL Studies	6.26	6.76	FL Studies	66%	FL Studies	7.86	\$4,016	\$19	\$297	\$3,719	\$2,260	65%
320	Motel	room	3.35	ITE 11th Edition	4.34	4.84	FL Studies	77%	FL Studies	3.83	\$1,957	\$10	\$156	\$1,801	\$2,260	-20%
RECREATION:																
411	Public Park	acre	0.78	ITE 11th Edition	5.15	5.65	Same as LUC 710	90%	Based on LUC 710	1.24	\$632	\$3	\$47	\$585	\$1,691	-65%
420	Marina	berth	2.41	ITE 11th Edition	6.62	7.12	Same as LUC 210	90%	Based on LUC 710	4.91	\$2,511	\$12	\$187	\$2,324	\$1,391	67%
430	Golf Course	hole	30.38	ITE 11th Edition	6.62	7.12	Same as LUC 210	90%	Based on LUC 710	61.90	\$31,647	\$151	\$2,359	\$29,288	n/a	n/a
491	Racquet/Tennis Club	1,000 sf	19.70	ITE 11th Edition (Adjusted) ⁽⁴⁾	5.15	5.65	Same as LUC 710	94%	Same as LUC 492 (Appendix A)	32.62	\$16,674	\$81	\$1,265	\$15,409	\$6,262	146%
495	Recreational Community Center	1,000 sf	28.82	ITE 11th Edition	5.15	5.65	Same as LUC 710	90%	Based on LUC 710	45.68	\$23,356	\$114	\$1,781	\$21,575	\$10,272	110%
INSTITUTIONS:																
520	Elementary School (Private)	student	2.27	ITE 11th Edition	3.31	3.81	50% of LUC 210:Travel Demand Model	80%	Based on LUC 710 (adjusted) ⁽⁵⁾	2.06	\$1,051	\$5	\$78	\$973	\$530	84%
522	Middle School (Private)	student	2.10	ITE 11th Edition	3.31	3.81	50% of LUC 210: Travel Demand Model	80%	Based on LUC 710 (adjusted) ⁽⁵⁾	1.90	\$972	\$5	\$78	\$894	\$666	34%
525	High School (Private)	student	1.94	ITE 11th Edition	3.31	3.81	50% of LUC 210:Travel Demand Model	90%	Based on LUC 710	1.98	\$1,010	\$5	\$78	\$932	\$703	33%

<div>Table D-1 (continued)</div> <div>Calculated Transportation Impact Fee Schedule</div>																
ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Trip Length Source	Percent New Trips	% New Trips Source	Net VMT ⁽¹⁾	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Calculated Impact Fee	Current Adopted Impact Fee ⁽²⁾	% Change
INSTITUTIONS:																
540	University/Junior College (7,500 or fewer students) (Private)	student	2.00	ITE Regression Analysis	6.62	7.12	Same as LUC 210	90%	Based on LUC 710	4.08	\$2,083	\$10	\$156	\$1,927	\$493	291%
550	University/Junior College (more than 7,500 students) (Private)	student	1.50	ITE Regression Analysis	6.62	7.12	Same as LUC 210	90%	Based on LUC 710	3.06	\$1,563	\$7	\$109	\$1,454	\$978	49%
560	Church	1,000 sf	7.60	ITE 11th Edition	3.93	4.43	Midpoint of LUC 710 & LUC 820 (App. A)	90%	Based on LUC 710	9.19	\$4,700	\$24	\$375	\$4,325	\$3,743	16%
565	Day Care Center	1,000 sf	49.63	Blend ITE 11th & FL Studies	2.03	2.53	FL Studies	73%	FL Studies	25.15	\$12,859	\$71	\$1,109	\$11,750	\$8,339	41%
MEDICAL:																
610	Hospital	bed	22.32	ITE 11th Edition	6.62	7.12	Same as LUC 210	78%	Midpoint of LUC 310 & LUC 720	39.42	\$20,151	\$96	\$1,500	\$18,651	\$5,593	234%
620	Nursing Home	bed	3.02	Blend ITE 11th & FL Studies	2.59	3.09	FL Studies	89%	FL Studies	2.38	\$1,217	\$6	\$94	\$1,123	\$870	29%
OFFICE:																
710	Office	1,000 sf	10.84	ITE 11th Edition	5.15	5.65	FL Studies	92%	FL Studies	17.57	\$8,980	\$44	\$687	\$8,293	\$8,117	2%
720	Medical/Dental Office 10,000 sq ft or less	1,000 sf	23.83	FL Studies	5.55	6.05	FL Studies	89%	FL Studies	40.26	\$20,580	\$100	\$1,562	\$19,018	\$15,669	21%
	Medical/Dental Office greater than 10,000 sq ft	1,000 sf	34.21	Blend ITE 11th & FL Studies	5.55	6.05	FL Studies	89%	FL Studies	57.79	\$29,545	\$143	\$2,234	\$27,311	\$15,669	74%
730	Government Office	1,000 sf	22.59	ITE 11th Edition	5.15	5.65	Same as LUC 710	90%	Based on LUC 710	35.81	\$18,307	\$89	\$1,390	\$16,917	\$8,751	93%
732	U.S. Post Office	1,000 sf	103.94	ITE 11th Edition	5.15	5.65	Same as LUC 710	49%	Orange County IF Study (2004)	89.70	\$45,860	\$224	\$3,499	\$42,361	\$13,735	208%
760	Research and Development Center	1,000 sf	11.08	ITE 11th Edition	5.38	5.88	Same as LUC 770 (Appendix A)	89%	Same as LUC 770 (Appendix A)	18.14	\$9,276	\$45	\$703	\$8,573	\$3,841	123%
RETAIL:																
822	Retail less than 40,000 sfgla	1,000 sfgla	54.45	ITE 11th Edition	1.48	1.98	Appendix A: Fig. A-1 (19k sfgla)	48%	Appendix A: Fig. A-2 (19k sfgla)	13.23	\$6,763	\$40	\$625	\$6,138	\$9,634	-36%
821	Retail 40,000 to 150,000 sfgla	1,000 sfgla	67.52	ITE 11th Edition	1.94	2.44	Appendix A: Fig. A-1 (59k sfgla)	57%	Appendix A: Fig. A-2 (59k sfgla)	25.53	\$13,054	\$73	\$1,140	\$11,914	\$10,143	18%
820	Retail greater than 150,000 sfgla	1,000 sfgla	37.01	ITE 11th Edition	2.80	3.30	Appendix A: Fig. A-1 (538k sfgla)	75%	Appendix A: Fig. A-2 (538k sfgla)	26.58	\$13,589	\$71	\$1,109	\$12,480	\$11,191	12%
840/841	New/Used Auto Sales	1,000 sf	24.58	Blend ITE 11th & FL Studies	4.60	5.10	FL Studies	79%	FL Studies	30.55	\$15,618	\$77	\$1,203	\$14,415	\$1,282	1024%
860	Wholesale Market	1,000 sf	17.60	ITE 11th Edition (Adjusted) ⁽⁴⁾	2.30	2.80	Appendix A: Fig. A-1 (115k sfgla)	63%	Appendix A: Fig. A-2 (115k sfgla)	8.72	\$4,459	\$24	\$375	\$4,084	\$1,797	127%
862	Home Improvement Superstore	1,000 sf	30.74	ITE 11th Edition	2.33	2.83	Appendix A: Fig. A-1 (135k sfgla)	64%	Appendix A: Fig. A-2 (135k sfgla)	15.68	\$8,015	\$43	\$672	\$7,343	\$8,851	-17%
890	Furniture Store	1,000 sf	6.30	ITE 11th Edition	6.09	6.59	FL Studies	54%	FL Studies	7.09	\$3,622	\$17	\$266	\$3,356	\$847	296%
SERVICES:																
911	Bank/Savings Walk-In	1,000 sf	57.94	ITE 11th Edition (Adjusted) ⁽⁶⁾	2.08	2.58	Same as LUC 912	46%	Same as LUC 912	18.96	\$9,693	\$53	\$828	\$8,865	\$9,337	-5%
912	Bank/Savings Drive-In	1,000 sf	103.73	Blend ITE 11th & FL Studies	2.08	2.58	FL Studies	46%	FL Studies	33.94	\$17,353	\$96	\$1,500	\$15,853	\$15,824	0%
931	Fine Dining Restaurant	1,000 sf	86.03	Blend ITE 11th & FL Studies	3.14	3.64	FL Studies	77%	FL Studies	71.14	\$36,368	\$188	\$2,937	\$33,431	\$7,625	338%

Table D-1 (continued)
Calculated Transportation Impact Fee Schedule

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Trip Length Source	Percent New Trips	% New Trips Source	Net VMT ⁽¹⁾	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Calculated Impact Fee	Current Adopted Impact Fee ⁽²⁾	% Change
SERVICES:																
932	High Turnover (Sit-Down) Restaurant	1,000 sf	103.46	Blend ITE 11th & FL Studies	3.17	3.67	FL Studies	71%	FL Studies	79.64	\$40,714	\$210	\$3,281	\$37,433	\$14,051	166%
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	479.17	Blend ITE 11th & FL Studies	2.05	2.55	FL Studies	58%	FL Studies	194.85	\$99,614	\$551	\$8,608	\$91,006	\$28,566	219%
937	Coffee/Donut Shop w/Drive-Thru	1,000 sf	533.57	ITE 11th Edition	2.05	2.55	Same as LUC 934	58%	Same as LUC 934	216.97	\$110,923	\$614	\$9,592	\$101,331	n/a	n/a
938	Coffee/Donut Shop w/Drive-Thru and No Indoor Seating	lanes	179.00	ITE 11th Edition	2.05	2.55	Same as LUC 934	58%	Same as LUC 934	72.79	\$37,212	\$206	\$3,218	\$33,994	n/a	n/a
944	Gas Station w/Convenience Store <2,000 sq ft	fuel pos.	172.01	ITE 11th Edition	1.90	2.40	FL Studies	23%	FL Studies	25.71	\$13,143	\$74	\$1,156	\$11,987	\$6,483	85%
945	Gas Station w/Convenience Store 2,000 to 5,499 sq ft	fuel pos.	264.38	ITE 11th Edition (Adjusted) ⁽⁷⁾	1.90	2.40	Same as LUC 944	23%	Same as LUC 944	39.51	\$20,200	\$114	\$1,781	\$18,419	\$6,483	184%
	Gas Station w/Convenience Store 5,500+ sq ft	fuel pos.	345.75	ITE 11th Edition	1.90	2.40	Same as LUC 944	23%	Same as LUC 944	51.67	\$26,418	\$148	\$2,312	\$24,106	\$6,483	272%
947	Self-Service Car Wash	service bay	43.94	Blend ITE 11th & FL Studies	2.18	2.68	FL Studies	68%	FL Studies	22.28	\$11,389	\$62	\$969	\$10,420	\$4,153	151%
INDUSTRIAL:																
110	General Light Industrial	1,000 sf	4.87	ITE 11th Edition	5.15	5.65	Same as LUC 710	92%	Same as LUC 710	7.89	\$4,034	\$20	\$312	\$3,722	\$3,092	20%
120	General Heavy Industrial	1,000 sf	1.50	ITE 9th Edition	5.15	5.65	Same as LUC 710	92%	Same as LUC 710	2.43	\$1,243	\$6	\$94	\$1,149	\$710	62%
150	Warehousing	1,000 sf	1.71	ITE 11th Edition	5.15	5.65	Same as LUC 710	92%	Same as LUC 710	2.77	\$1,417	\$7	\$109	\$1,308	\$2,201	-41%
151	Mini-Warehouse	1,000 sf	1.46	Blend ITE 11th & FL Studies	3.51	4.01	Midpoint of LUC 710 & LUC 820 (50k sq ft)	92%	Same as LUC 710	1.61	\$824	\$4	\$62	\$762	\$1,184	-36%
170	Utilities	1,000 sf	12.29	ITE 11th Edition	5.15	5.65	Same as LUC 710	92%	Same as LUC 710	19.91	\$10,181	\$50	\$781	\$9,400	\$379	2380%

1) Net VMT calculated as ((Trip Generation Rate* Trip Length* % New Trips)*(1-Interstate/Toll Facility Adjustment Factor)/2). This reflects the unit of vehicle-miles of capacity consumed per unit of development and is multiplied by the cost per vehicle

2) Source: City of Palm Bay Growth Management Department

3) The assessable trip length was based on LUC 251 (base trip length (5.42) but adjusted by the ratio of the single family (LUC 210) base trip length (6.62) to the multi-family (LUC 220) base trip length (5.21). Adj = 5.21 / 6.62 = 80%. TL = 80% × 5.42 = 4.34

4) The ITE 11th Edition trip generation rate for PM Peak Hour of Adjacent traffic was adjusted by a factor of 10 to approximate the Daily TGR

5) The percent new trips for schools was estimated at 90% based on LUC 710, but was then adjusted to 80% to provide a conservative fee rate. This adjustment reflects the nature of elementary and middle school uses where attendees are unable to drive and are typically dropped off by parents/guardians on their way to another destination

6) Due to only slight variation, the trip generation rates for LUC 945 2,000 to 3,999 sq ft and 4,000 to 5,499 sq ft were combined into a weighted average trip generation rate for a single land use tier of 2,000 to 5,499 sq ft