Orange County Transportation Impact Fee Update Study

FINAL REPORT
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Tindale Oliver
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ORANGE COUNTY FLORIDA

Prepared for:

Orange County Transportation Planning Division
Community, Environment & Development Services (CEDS) Dept.
4200 S. John Young Parkway
Orlando, FL 32839
ph (407) 836-7090

Prepared by:

Tindale Oliver
1000 N. Ashley Dr., #400
Tampa, Florida, 33602
ph (813) 224-8862
fax (813) 226-2106
E-mail: nkamp@tindaleoliver.com
363038-00.17

ORANGE COUNTY
TRANSPORTATION IMPACT FEE UPDATE STUDY

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I. Introduction

Orange County's Transportation Impact Fee was originally adopted in 1985 and went into effect in 1986 to assist the County in providing adequate transportation facilities for expected growth. The technical study supporting the fee levels was last updated in 2012. As part of the 2012 update, in addition to updating roadway-based transportation impact fee, a separate multi-modal fee rate was calculated for the more urbanized parts of the county, based on the boundary of the Alternative Mobility Area (AMA). The Board of County Commissioners adopted the 2012 study at a discounted rate. At this time, the County is considering eliminating the AMA designation; however, this study continues to provide fee variations based on travel and land use characteristics of various subareas within the county.

This report updates both the roadway and multi-modal impact fee variables to reflect changes to the cost, credit, and demand components since 2012. In addition, this study addresses the following:

- Fee variation by geographic area and boundary of fee districts;
- Fee levels under needs-based and asset-based approaches;
- Fee reductions for mixed-use developments based on internal capture;
- Fee reductions for affordable/workforce housing; and
- A tool for potential fee reductions for targeted land uses.

The information used to develop the Orange County Transportation Impact Fee schedules is based mostly on data received through November 2019.

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 County'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 Economic Opportunity) 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 163.31801 (5)(f), Florida Statutes, including:
    1. 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.
    2. **Adoption of an area-wide level of service not dependent on any single road segment function.**
    3. Exempting or discounting impacts of locally desired development, such as development in urban areas, redevelopment, job creation, and mixed use on the transportation system.
    4. Assigning secondary priority to vehicle mobility and primary priority to ensuring a safe, comfortable, and attractive pedestrian environment, with convenient interconnection to transit.

5. 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.
6. 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 served as the basis 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 will operate prospectively. 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 or impact fee district or that is within an adjoining impact fee zone or 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:** Required reporting of certain impact fee data within the annual financial audit report submitted to the Department of Financial Services.

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

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 principle purpose of an impact fee is to assist in funding the implementation of projects identified in the Capital Improvements Element (CIE) and other capital improvement programs for the respective facility/service categories.

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.

Methodology

The methodology used for the transportation impact fee study continues to follow 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 roadway network. Unlike a "needs-based" approach, the consumption-based approach ensures that the impact fee is set at a rate that does not generate sufficient revenues to correct existing deficiencies. As such, the County does not need to go through the process of estimating the portion of each capacity expansion project that may be related to existing deficiencies. The study incorporates the entire network of transportation

within the county, including city, county and state roads, but excludes limited access facilities and rail facilities, which require large scale investments and are not typically funded with impact fees.

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:

[Demand x Cost] – Credit = Fee

The "demand" for travel placed on a transportation system is expressed in units of Vehicle-Miles of Travel (VMT) (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 since new development consumes trips on a daily basis.

The "cost" of building new capacity typically is expressed in units of dollars per vehicle-mile or lane-mile of transportation capacity. Consistent with the current adopted methodology, the cost is based on county roadway costs.

The "credit" is an estimate of future non-impact fee revenues generated by new development that are allocated to provide transportation capacity expansion. The impact fee is considered to be an "up front" payment for a portion of the cost of building a lane-mile of capacity that is directly related to the amount of capacity consumed by each unit of land use contained in the impact fee schedule, 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 paying, or 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

Cost Variables:

- Roadway cost per added lane mile

- Roadway capacity per lane mile

Credit Variables:

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

II. Demand Component

Travel Demand

Travel demand is the amount of a 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 a unit of development consumes on the existing transportation system.

- Number of daily trips generated
- Average length of those trips
- Proportion of travel that is new travel, rather than travel that is already on the road system
- Interstate/Toll Facility discount factor

As part of this update, the trip characteristics variables were obtained primarily from two sources: (1) trip characteristics studies previously conducted throughout Florida (Florida Studies Database), which includes studies conducted in Orange County as well as in other Florida jurisdictions, and (2) the Institute of Transportation Engineers' (ITE) *Trip Generation Handbook* (10^{th} edition). The Florida Trip Characteristics Studies Database is included in Appendix A. This database was used to determine trip length, percent new trips, and the trip generation rate for several land uses.

Trip Length Adjustment Factor

Trip lengths for all land uses were adjusted to account for differences between the average trip lengths included in the Florida Studies Database, the Orlando Urban Area Transportation Study (OUATS 2040), and other Florida Standard Urban Transportation Model Structure (FSUTMS) model results. As it was the case in the 2012 update study, the OUATS 2040 model data suggested that trip lengths are typically longer in Orange County compared to other Florida counties. Therefore, residential and office trip lengths were increased by 25 percent, while lodging, recreational, institutional, retail, and industrial trip lengths were increased by five (5) percent.

Interstate & Toll Facility Discount 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. Typically, transportation impact fees are not used to pay for these improvements and the portion of travel occurring on the interstate/toll facility system is usually eliminated from the total travel for each use.

To calculate the interstate and toll (I/T) facility discount factor, the loaded highway network file was generated for the OUATS 2040 model. A select link analysis was run for all traffic analysis zones located within Orange County in order to differentiate trips with an origin and/or destination within the county versus trips with no origin or destination within the county.

Currently, interstate and toll facilities in Orange County include I-4, the Florida Turnpike (SR 91), SR 408, SR 414, SR 417, SR 429, SR 451, SR 453, and SR 528. The limited access vehicle-miles of travel (Limited Access VMT) for trips with an origin and/or destination within County was calculated for the identified limited access facilities. The total Orange County VMT was calculated for all trips with an origin and/or destination within the county for all roads, including limited access facilities, located within Orange County. The I/T discount factor of 36.1 percent was determined by dividing the total limited access VMT by the total county VMT using the base year of the model.

By applying this factor to the total county VMT, the reduced VMT is then representative of only the roadways that are funded by impact fees. Appendix A, Table A-1 provides further detail on this calculation.

Land Use Changes

<u>New Land Uses</u>

Based on input from the County and a review of the Institute of Transportation Engineers' (ITE) *Trip Generation* reference report (10th edition, released September 2017), several new land uses were added to the transportation impact fee schedule.

- Single Family Tiering: The current impact fee schedule includes a single rate for all single family development. This update study includes a tiered approach that varies the fee according to square footage tiers. This approach assists the County in its goal of encouraging attainable housing by moderating impact fee levels for smaller homes. Appendix A, Tables A-2 through A-10 includes additional detail.

- Multi-Family Realignment: The current impact fee schedule includes multi-family apartment, condo/townhouse, and high-rise condo/townhouse as separate land uses. ITE 10th Edition has realigned these uses, creating a combined "multi-family housing" category, with differentiation in trip generation rate based on the number of stories. This update was incorporated into the impact fee schedule, shown by Land Use Code (LUC) used by ITE:
    - LUC 220 (multi-family/townhouse, low-rise, 1-2 floors) – includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors).
    - LUC 221 (multi-family, mid-rise, 3-10 floors) – includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors).
    - LUC 222 (multi-family, high-rise, >10 floors) – includes apartments, townhouses, and condominiums that have more than 10 levels (floors). They are likely to have one or more elevators.
- Student Housing: ITE 10th includes this new land use (LUC 225) for consideration with two different trip generation rates depending on the proximity to campus (adjacent to campus and over ½ mile from campus), measured "per bedroom". These options replace the current Student Housing use (measured "per unit") which was based on independent trip characteristics studies conducted in Minnesota.
- Residential w/1st Floor Commercial: ITE 10th includes this new land use for consideration with two tiers:
    - LUC 231 (mid-rise residential with 1st floor commercial): mixed-use multi-family housing buildings that have between three and 10 floors and include retail space on the first level. Typically found in dense multi-use urban and center city core settings.
    - LUC 232 (high-rise residential with 1st floor commercial): mixed-use multi-family housing buildings that have more than 10 floors and include retail space that is open to the public on the first level. Typically found in dense multi-use urban and center city core settings.
- Senior Adult Housing – Attached: Attached independent living developments, including retirement communities, age-restricted, and active adult communities. These developments may include limited social or recreational services, however, they generally lack centralized dining and onsite medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired.
- Dance Studio (Martial Arts/Music Lessons): Privately-owned recreation-based facility offering dance, gymnastics, ballet, or similar activity classes such as martial arts training and music lessons. Facilities typically range between 5,000 square feet and 25,000 square feet.

- LUC 720 (medical/dental office): a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility.
    - Small Medical/Dental Office (<10,000 square feet): Similar to the Medical/Dental Office land use in the current schedule but reflects a lower trip generation rate which is representative of smaller medical businesses that typically do not have extensive testing equipment or laboratories.
- Walk-in Bank: This land use represents generally a free-standing building with its own parking lot. These banks do not have drive-in lanes but usually contain non-drive-thru teller machines (ATMs).
- Tourist Hotel/Retail: The current schedule includes separate rates for hotel and retail development within the County's "tourist" district. However, updates to ITE since the last study and additional local studies resulted in trip generation rates for general retail and hotel land uses that are lower than those reflected for tourist hotel/retail categories. Given that generation rates for tourist hotel/retail categories are based on a smaller sample, hotel and retail development within the tourist district should be charged the same rate as development outside of the district to benefit from lower impact fee rates that are based on a larger set of data.
- High-Cube Transload and Short-Term Storage Warehouse: A high-cube warehouse (HCW) is a building that typically has at least 200,000 gross square feet of floor area, has a ceiling height of 24 feet or more, and is used primarily for the storage and/or consolidation of manufactured goods prior to their distribution to retail locations or other warehouses. A typical HCW has a high level of on-site automation and logistics management. Transload facilities have a primary function of consolidation and distribution of pallet loads for manufacturers, wholesalers, or retailers. They typically have little storage duration, high throughput, and are high-efficiency facilities. Short-term HCWs are high-efficiency distribution facilities often with custom/special features built into the structure for movement of large volumes of freight with only short-term storage of products.

<u>Significant Demand Reductions</u>

Several land uses received a significant reduction in the estimated gross vehicle miles of travel (GVMT) that they generate per unit. Appendix A includes additional detail related to the changes in the demand component for all land use categories.

- Bowling Alley (LUC 437): The trip generation rate for this land use was reduced by 61 percent due to an update from ITE 9th Edition to ITE 10th Edition. While the 9th Edition included a "daily" TGR, the 10th Edition does not and, therefore, the recommended TGR is based on the peak hour trip rate adjusted for daily. This adjustment is based on the relationship of peak

hour-to-daily trip rates for other recreational uses in ITE 10th Edition (peak hour ≈ 1/10 of daily).

- Public Assembly (LUC 560): The trip generation rate for this land use was reduced by 24 percent due to an update from ITE 9th Edition to ITE 10th Edition. Additionally, the trip length has been reduced by 49 percent and the percent new trips has been reduced by 10 percent. In the current fee schedule, the TL and PNT data were based on data from the County's 2004 update study that used the County's transportation model and a 1991 document[1] to determine these values. This update study recommends the use of the Florida Studies Trip Characteristics Database (Appendix A) and similar land uses to estimate trip length and percent new trips using more recent data relationships.
- Animal Hospital/Veterinary Clinic (LUC 640): The trip generation rate for this land use was reduced by 16 percent due to an update from ITE 9th Edition to ITE 10th Edition. Additionally, the trip length has been reduced by 63 percent and the percent new trips has been reduced by 25 percent. Similar to the Public Assembly use, in the current fee schedule the TL and PNT data is based on data from the County's 2004 update study. This update study recommends the use of the Florida Studies Trip Characteristics Database (Appendix A) to estimate trip length and percent new trips.
- Hardware/Paint Store (LUC 816): The trip generation rate for this land use was reduced by 82 percent due to an update from ITE 9th Edition to ITE 10th Edition.
- Drug Store (LUC 880/881): The trip generation rate for this land use was increased by 18 percent due to an update from ITE 9th Edition to ITE 10th Edition (includes data from both LUC 880 and 881). Additionally, the trip length has been reduced by 46 percent and the percent new trips has been reduced by 36 percent. Similar to the Public Assembly and Animal Hospital uses, in the current fee schedule the TL and PNT data is based on data from the County's 2004 update study. This update study recommends the use of the Florida Studies Trip Characteristics Database (Appendix A) to estimate trip length and percent new trips.

[1] Nicholas, James, et. al., *A Practitioner's Guide to Development Impact Fees, 1991*

III. Cost Component

Cost information from Orange 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. Additionally, cost information for bicycle/pedestrian and transit facilities was reviewed and included in the cost component calculations for the urban district multi-modal impact fee rates. Appendix B provides the data and other support information utilized in these analyses.

County Roadway Cost

This section examines the right-of-way (ROW), construction, and other cost components associated with county roads with respect to transportation capacity expansion improvements in Orange County. For this purpose, bid data for recently completed/ongoing local projects and recent construction bid data from roadway projects throughout Florida were used to identify and provide supporting cost data for County roadway improvements. The cost for each roadway capacity project was separated into three phases: design, ROW, and construction/CEI.

Design

Design costs for county roads were estimated at approximately $340,000 per lane mile based on a review of recent improvements in Orange County. When compared to the average construction cost per lane mile ($2,750,000; Appendix B, Table B-5), the design-to-construction ratio is approximately 12 percent. This ratio is within the range of design-to-construction ratios observed in other recent impact fee studies in Florida. Additional detail is provided in Appendix B, Tables B-1 and B-2.

Right-of-Way

The ROW cost reflects the total cost of the acquisitions along a corridor that were necessary to have sufficient cross-section width to widen an existing road or, in the case of new construction, to build a new road. ROW costs for county roads were estimated at $1.20 million per lane mile based on a review of recent improvements in Orange County. When compared to the average construction cost per lane mile ($2,750,000; Appendix B, Table B-5), the ROW-to-construction ratio is approximately 44 percent. This ratio is within the range of ROW-to-construction ratios observed in other recent impact fee studies in Florida. Additional detail is provided in Appendix B, Tables B-3 and B-4.

Construction/CEI

The construction cost for county roads was based on recently bid/ongoing projects in the Orange County. This review included 15 recent projects in Orange County with construction occurring since 2012:

- Rouse Rd from Lake Underhill Rd to SR 50
- Clarcona-Ocoee Rd from SR 429 to Clark Rd
- Holden Ave from John Young Pkwy to Orange Blossom Tr
- Palm Pkwy/AVR Connector from Palm Pkwy to Apopka-Vineland Rd
- John Young Pkwy from SR 528 to FL Turnpike
- Econlockhatchee Tr from SR 408 to SR 50
- CR 535 Seg. F from Overstreet Rd to Fossick Rd
- Reams Rd from Delmar Ave to Taborfield Ave
- Destination Pkwy 1B/2A from Tradeshow Blvd to Lake Cay
- Lake Underhill Rd from Goldenrod Rd to Chickasaw Tr
- International Dr from Westwood Blvd to Westwood Blvd
- Porter Rd from Avalon Rd to Hamlin Groves Tr
- Innovation Way Seg. 3B from Magnolia Woods Blvd to Yellow Jasmine Dr
- Boggy Creek Rd North from South Access Rd to Wetherbee Rd
- Hamlin Groves Ph. I from New Independence Pkwy north approx. 2,800 feet

The weighted average construction cost for these improvements is approximately $3.00 million per lane mile, including CEI costs. Based on a review of data from other jurisdictions, CEI is approximately nine percent of construction. Therefore, the construction portion of these improvements averages approximately $2.75 million per lane mile. Additional detail is provided in Appendix B, Table B-5.

In addition to local projects, recent improvements from other counties in Florida were reviewed to increase the sample size. This review included approximately 147 lane miles of lane addition and new road construction improvements with a weighted average cost per added lane mile of approximately $2.87 million, which does not include CEI costs. Additional detail is provided in Appendix B, Table B-6.

Based on a review of these data sets, a construction cost of $3.00 million per lane mile (for construction and CEI) was used in the impact fee calculation for Orange County improvements. This figure reflects the local data and is supported by statewide data.

As shown in Table 1, the total county roadway cost was calculated at approximately $4.54 million per lane mile.

Table 1
Estimated Total Cost per Added Lane Mile for County Roads

Cost Type	Total Cost per Lane Mile
Design[1]	$340,000
Right-of-Way[2]	$1,200,000
Construction/CEI[3]	$3,000,000
Total	**$4,540,000**

1) Source: Appendix B, Table B-1
2) Source: Appendix B, Table B-3
3) Source: Appendix B, Table B-5

Vehicle-Miles of Capacity per Lane Mile

The transportation impact fee equation includes a vehicle-mile of capacity (VMC) component. The VMC is an estimate of capacity added, per lane mile, for county roadway improvements in the 2040 Metroplan Needs Plan for Orange County. As shown in Table 2, each lane mile will add approximately 9,000 vehicles. Additional detail is provided in Appendix B, Table B-7.

Table 2
Weighted Average Capacity per Lane Mile

Source	Lane Mile Added[1]	Vehicle-Miles of Capacity Added[1]	VMC Added per Lane Mile[2]
County Roads	270.44	2,437,462	9,013
Average VMC Added per Lane Mile (Rounded)			**9,000**

1) Source: Appendix B, Table B-7
2) Vehicle-miles of capacity added divided by lane miles added

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 1 and 2, the cost and capacity for transportation in Orange County have been calculated based on recent improvements. As shown in Table 3, the cost per VMC for travel within the County is approximately $504.

The cost per VMC figure is used in the transportation impact fee calculations 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 road system, approximately $504 of capacity is consumed.

Table 3
Weighted Average Cost per Capacity Added

Source	Cost per Lane Mile[1]	Average VMC Added per Lane Mile[2]	Cost per VMC/PMC[3]
County Roads (VMC)	$4,540,000	9,000	**$504.44**

1) Source: Table 1
2) Source: Table 2
3) Average VMC added per lane mile (Item 2) divided by cost per added lane mile (Item 1)

Bicycle and Pedestrian Facility Costs

Bicycle and pedestrian facilities provide for relatively small quantities of the total vehicle-miles of travel due to the difference in the average distance traveled by a car trip versus pedestrian/bicycle trips. Because of their relatively small role in the urban travel scheme, they do not have a significant effect on evaluating the costs of providing for transportation. However, bike and pedestrian facilities are important and provide a source of travel for those who cannot drive, cannot afford to drive or choose not to drive, and they are a standard part of the urban street and sometimes included in rural roadways. Their costs are included in the standard roadway cross-sections for which costs are estimated for safety and mobility reasons. Thus, the costs of these facilities on major roads are included in the multi-modal fee. The multi-modal fee provides funding for only those bike and pedestrian facilities associated with roadways on the classified road system (excluding local/neighborhood roads), and allows for facilities to be added to existing classified roadways or included in the construction of a new classified roadway or lane addition improvement.

Transit Capital Cost per Person-Mile of Travel

A model for transit service and cost was developed to establish both the capital cost per person-mile of capacity and the system operating characteristics in terms of system coverage, hours of service, and headways. The model developed for Orange County was based on information from the LYNX Transit Development Plan. Components of the transit capital cost include:

- Vehicle acquisition tied to new routes
- Bus stops, shelters, and benches
- Cost of road network (per person-mile of capacity) used by transit vehicles

Transit capital costs are computed as the cost of capital infrastructure needed to expand the transit system, as follows:

Transit Capital Cost = Bus Infrastructure Cost + Road Capacity Cost

Taking into account the infrastructure costs and the decline in potential vehicle-capacity that comes with adding transit, it was determined that the difference between constructing a lane mile of roadway (for cars only) versus constructing a roadway with transit is not significant. The roadway with transit cost per PMC is approximately three (3) percent higher per lane mile than the cost to simply construct a road without transit amenities. Therefore, for the multi-modal fee calculation, the cost per VMC of approximately $504 is representative of the cost to provide transportation capacity for all modes of travel. Additional information regarding the transit capital cost calculation is included in Appendix B, Tables B-8 and B-9.

Finally, given the dominance of auto travel in terms of mode split, the demand for both roadway and multi-modal fees are measured in terms of vehicle miles of travel. In the case of multi-modal impact fee, an additional credit was subtracted to reflect future development's contributions to stand-alone transit capital, sidewalk and bicycle lane additions, which will be discussed in more detail in the next section.

IV. Credit Component

Capital Improvement Credit

The credit component of the impact fee accounts for the existing County funding sources that are being expended on transportation capacity expansion (excluding impact fee funds). This section summarizes the calculations utilized in the credit for non-impact fee contributions. Additional details are provided in Appendix C.

The present value of the portion of non-impact fee funding generated by new development over a 25-year period that is expected to be expended on 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 for all funding sources, except for ad valorem tax. The credit for ad valorem tax revenue contributions is calculated based on average property values of each land use.

City

As shown in Table 4, the City of Orlando spends, on average, $516,000 per year, which equates to 0.1 pennies, on roadway capacity-expansion projects funded with non-impact fee revenues. For the multi-modal fee, additional multi-modal capacity improvements were included in the credit, increasing the average annual funding to $2.5 million or an equivalent credit of 0.3 pennies.

County

As shown in Table 4, Orange County allocates $35.2 million per year or the equivalent of 4.9 pennies on roadway capacity-expansion projects funded with non-impact fee revenues. This amount includes the INVEST funds that the County received for transportation, which are unlikely to reoccur beyond the CIP period. Though they are not a recurring revenue source, like a fuel tax, the INVEST funds are being credited in a similar manner for impact fee purposes.

For the multi-modal fee, additional multi-modal capacity improvements were included in the credit calculations, increasing the average spending to $39.0 million per year and the equivalent credit to 5.4 pennies. This includes the portion of the County's contribution to LYNX that is dedicated to capacity expansion.

Ad Valorem Credit

The Orange County Capital Improvement Plan (FY 2019 to FY 2023) includes ad valorem tax funding for roadway capacity expansion improvements and multi-modal improvements, including lane addition projects, transit land improvements, and pedestrian enhancements. The total value of the multi-modal improvements equates to approximately $31 million, or $6 million annually of the five-year time period. For the roadway improvements only, the total value is $10 million, or approximately $2 million annually. The value per 1-mil, based on the FY 2019 Orange County budget is approximately $120 million. Therefore, approximately five (5) percent of the millage is used for multi-modal capacity expansion, and only two (2) percent is used for roadway capacity expansion.

Since ad valorem revenues are going to be used to fund a portion of the CIP, a revenue credit is given. Credit due to ad valorem tax revenues for residential and non-residential land uses is calculated based on a review of the taxable value of each land use in Orange County. Additional detail is included in Appendix D.

State

As shown in Table 4, State expenditures on state roads were reviewed and a credit for the capacity-expansion portion attributable to state projects was estimated (excluding expenditures on limited access facilities). The review, which included 10 years of historical expenditures, indicated that FDOT's roadway spending generates a credit of 8.5 pennies of equivalent gas tax revenue annually. For the multi-modal fee, a credit of 14.0 pennies was calculated to account for additional FDOT funds going towards multi-modal improvements (standalone sidewalk construction, transit, etc.), primarily for the estimated state transit funding for new capacity. The use of a 10-year period for developing a State credit results in a reasonably stable credit for Orange County, accounting for the volatility in FDOT spending in the county over short time periods.

In summary, for roadways, the City of Orlando contributes approximately 0.1 pennies and Orange County contributes 4.9 pennies, while the State spends an average of 8.5 pennies, annually, in the County. A total credit of 13.5 pennies is included in the roadway impact fee calculation to recognize the future capital revenues that are expected to be generated by new development from all non-impact fee funding sources. In addition, $2 million of ad valorem tax revenues per year are estimated to be allocated to roadway transportation capacity.

For multi-modal improvements (including roadways), the City of Orlando contributes approximately 0.5 pennies and Orange County contributes 5.4 pennies, with the State spending

an average of 14.0 pennies, annually, in Orange County. A total credit of 19.9 pennies is included in the multi-modal fee calculation to recognize the future capital revenues that are expected to be generated by new development from non-impact fee revenues. In addition, $6 million of ad valorem tax revenues per year are estimated to be allocated to multi-modal transportation capacity.

Table 4
Equivalent Pennies of Fuel Tax Revenue

Credit	Funding Source	Roadway		Multi-Modal	
		Annual Contribution[4]	Equiv. Pennies per Gallon[5]	Annual Contribution[4]	Equiv. Pennies per Gallon[5]
City Revenue[1]	Fuel Tax	$516,000	-	$2,512,000	
	City Total	**$516,000**	**$0.001**	**$2,512,000**	**$0.003**
County Revenue[2]	Fuel Tax	$8,567,000	-	$10,567,000	-
	Ad Valorem	$1,913,000	n/a	$6,160,000	n/a
	INVEST	$26,591,000	-	$26,591,000	-
	Prop. Fair Share	$45,000	-	$45,000	-
	General Fund (LYNX)	-	-	$1,793,000	-
	County Total (No Ad Val)	**$35,203,000**	**$0.049**	**$38,996,000**	**$0.054**
State Revenue[3]	Various	$61,500,000	-	$100,889,000	-
	State Total	**$61,500,000**	**$0.085**	**$100,889,000**	**$0.140**
Total			**$0.135**		**$0.197**

1) Source: Appendix C, Table C-2 (roadway) and C-5 (multi-modal)
2) Source: Appendix C, Table C-3 (roadway) and C-6 (multi-modal)
3) Source: Appendix C, Table C-4 (roadway) and C-7 (multi-modal)
4) Average annual revenue contribution for capacity expansion improvements from each funding source
5) All non-ad valorem revenues are converted to equivalent pennies of fuel tax for use in the capital improvement credit calculation for the transportation impact fee. Additional detail is provided in Appendix C. For the ad valorem credit, detailed calculations are provided in Appendix D

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.

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 4.0 percent was used in the transportation impact fee calculation based on information provided by Orange County.

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-12 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 2017*. Based on the calculation completed in Appendix C, Table C-12, the fuel efficiency rate to be used in the updated impact fee equation is 18.92 miles per gallon.

Effective Days per Year

An effective 365 days per year of operation was assumed for all land uses in the proposed fee. 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.

V. Fee Variation by Geographic Area

Currently, Orange County has two impact fee areas: the urban area with a multi-modal fee, and the remainder of the unincorporated County, with a roadway-based transportation impact fee. The urban fee district includes areas with higher densities and transit accessibility and surrounds the City of Orlando core.

This update study presents two fee variation options for consideration:

- Option 1: Continue with the current adopted fee districts (Urban and Non-Urban); and
- Option 2: Expand the urban area and create suburban and rural fee districts.

Option 1

Map 1 presents the current adopted transportation impact fee districts.

Fee District Variation

A consumption-based impact fee rate is based on the adopted level of service (LOS) standards, which are exception standards, requiring no road to be in worse travel condition than the adopted standard. Consistent with the methodology used by many Florida jurisdictions, transportation impact fee calculations use adopted LOS standard as a countywide average, which suggests half the roads will be worse than the adopted standard and the other half will be better. However, in many cases, the actual countywide or subarea average LOS is better than the adopted standard. In other words, under the current methodology, even with the full impact fee, unless local governments use other revenue sources, the current achieved LOS for the system will deteriorate and more congestion will be experienced. As such, the standard methodology used for transportation impact fees results in revenue levels that slow down the degradation of the system but do not generate sufficient revenues to maintain the existing conditions when they are better than the adopted LOS standard.

When the current system performance conditions are better than the adopted standards, local governments have the option to base the fees on achieved LOS or at least to a LOS level that is in between. This approach was also supported by HB 319, when the bill allowed for adoption of an area-wide LOS not dependent on any single road segment function. The LOS for each road segment correlates to the volume-to-capacity (V/C) ratio. The V/C ratio measures the number of vehicles on the road versus the number of vehicles that the road can handle based on its

functional classification (arterial, collector, freeway, etc.) and design characteristics (number of lanes, signal spacing, etc.). A low V/C ratio suggests less congestion and delay and better average speed/performance.

The current achieved V/C ratios in Orange County are as follows:

- Countywide ≈ 0.77
- Urban area ≈ 0.80
- Non-urban area ≈ 0.75

The impact fee rate for the urban area is calculated based on the adopted LOS standards and allows degradation of the system to a V/C ratio of 1.00. However, as long as current achieved V/C supports it, the County may adopt a policy to base the fees on a better V/C ratio than the adopted standard to limit or slow the degradation for geographical subareas of the County, creating a fee differential. This approach is used in the case of fees calculated for the non-urban area of the county.

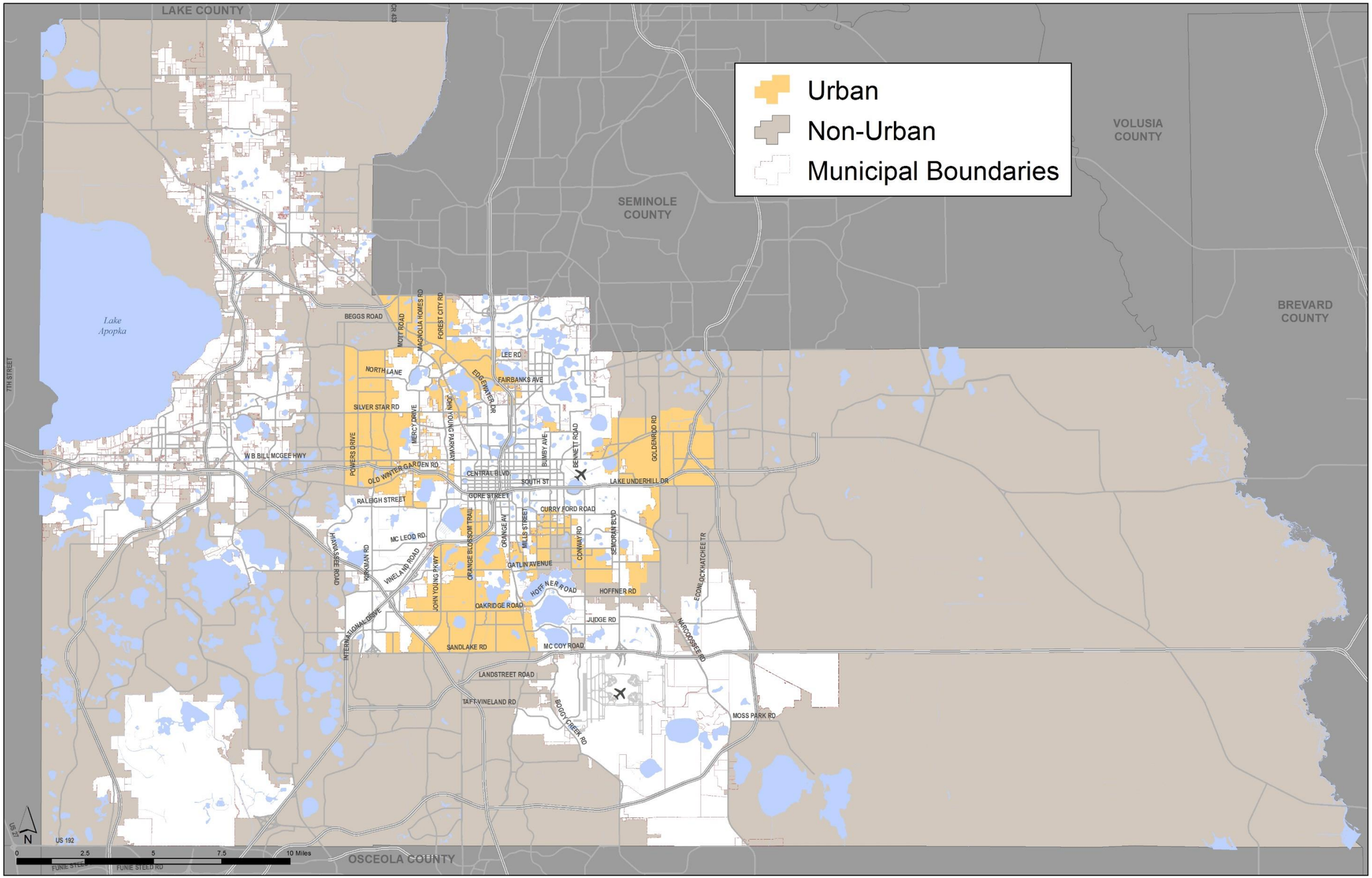
As illustrated on Map 1, Orange County currently has two separate fee districts. As mentioned previously, the multi-modal fees in the urban area are based on the adopted level-of-service standard (**V/C of 1.00**), reflecting the higher level of congestion in this area.

The roadways in the non-urban area are performing better than the urban area, and in an effort to maintain the higher levels of performance, a differential capacity option was developed. This option uses a **V/C of 0.90** for non-urban area. Recognizing the higher quality of service currently provided in the non-urban area, the County can elect to charge a higher fee in this area (compared to the urban area) to help preserve this higher achieved LOS. These adjustments are applied to the average VMC per lane mile added for each fee area.

- Urban = 9,000 * 1.00 = **9,000**
- Non-Urban = 9,000 * 0.90 = **8,100**

In the non-urban area, the full 10 percent reduction would only be applied to residential, office, and industrial land uses. These land uses generally demand longer trip lengths and receive significant benefit from the high service levels, whereas retail land uses attract more local travel with shorter trip lengths and the benefit they receive is more limited. Therefore, the retail uses are estimated to receive a capacity decrease of five (5) percent.

Map 1 – Current Transportation Impact Fee Districts



Option 2

As part of this update, the existing urban fee district boundary was reviewed for a potential expansion. Additionally, the remaining unincorporated county was reviewed, recognizing that there are sub-urban/transitioning areas and rural areas with different demographic and travel characteristics. More specifically, as part of this analysis, Tindale Oliver reviewed the following:

- The County's Concurrency Alternatives Evaluation Report, Multi-Modal Corridor Plan, which addresses potential boundary changes for the urban district;
- Current and projected travel conditions, measured in terms of V/C ratios; and
- Type and level of development (single use/mixed use, already developed/vacant, etc.).

Based on this analysis, as well input from Orange County staff, the following changes to the existing fee districts were considered.

<u>Urban Fee District</u>

As mentioned previously, during the 2012 study, a multi-modal transportation impact fee was developed for the urban area to allow for flexibility in spending impact fee revenues on multiple modes in an area of the County where pedestrian/bicycle and transit improvements were needed to accommodate the dense development patterns around the City of Orlando. It is proposed that, consistent with the 2017 Concurrency Alternatives Evaluation Report[2], the urban fee district be extended to the northeast to capture the University of Central Florida, Full Sail University, and Valencia College communities (see Map 2), along with additional adjustments based on input from the County representatives. Though much of this area consists of single use residential classification, the area is mostly built-out, with only a limited number of the vacant residential parcels available for new development, as illustrated in Map 3. Therefore, this area is likely to be dominated by redevelopment projects in the future, which will increase the densities and urban character of the area. The urban expansion should also extend to the southwest to include the International Drive corridor which houses many tourist accommodations and multi-modal amenities, as shown in Map 4.

Additionally, as shown on Map 6, Orange County staff has recommended additional adjustments to the urban area, based on the similarities of types and level of existing development, road facilities, and future land use designations. These changes are as follows:

- Existing southern boundary at Sand Lake Rd was moved further south to SR 528

[2] Concurrency Alternatives Evaluation Report, Multi-Modal Corridor Plan – Phase III, VHB 2017

- Added the area east of Orlando with SR 408 to the north and the FL Turnpike to the west and south
- Added the Winter Park Estates near the Orange County northern boundary
- Added the area southwest of the SR 408 and SR 417 interchange, within the border of SR 417 Greeneway, SR 408 East-West Expwy, and the SR 528 Beachline Expwy
- Removed the area west of Orlando surrounding the intersection of Pine Hills Rd and SR 438. This area will be included as "suburban" for impact fee purposes.

Suburban/Transitioning Fee District

The proposed transitioning area/suburban boundary is based on the existing Urban Service Area (USA) boundary and the western portion of the county. The Orange County USA includes the central part of the county surrounding the City of Orlando and extending to the county's northern and southern boundaries. The area to the west is primarily smaller cities and includes the future Horizon West development area, while the area to the east includes largely rural, preservation, and parks/recreation land. As shown on Map 5, this proposed transitioning area is much more congested than eastern rural area and exhibits different travel conditions.

As previously mentioned, a portion of the existing urban area (west of Orlando near the intersection of Pine Hills Rd and SR 438) will now be considered "suburban" for impact fee purposes as shown on Map 6.

Rural Fee District

As previously mentioned, the area to the east of the Orange County USA is primarily rural farmland with pockets of preservation area and a large portion of park/recreation land that are not developable. As shown in Map 5, this area is labeled as "rural east" and comprised of the unincorporated land east of Orlando that is outside of the USA. The roadways in this area of the County experience a very favorable level-of-service with little to no congestion, as shown on Map 5.

Map 6 illustrates the proposed fee district boundaries.

Fee District Variation

As previous discussed for Option 1, the proposed fee district rate variation is based on the LOS levels observed for each sub-area, which are measured in terms of V/C ratios.

The current achieved V/C ratios are as follows:

- Urban (expanded area) ≈ 0.81
- Suburban ≈ 0.76
- Rural ≈ 0.58

The multi-modal fees in the urban area are based on the adopted level-of-service standard (**V/C of 1.00**), reflecting the higher level of congestion in this area. The roadways in suburban/transitioning area are performing slightly better and roadways in the rural area are performing much better, and in an effort to maintain the higher levels of performance, a differential capacity option was developed. This option uses a **V/C of 0.90** for suburban/transitioning area and a **V/C of 0.80** for rural area impact fee calculations. Recognizing the better travel conditions/higher LOS currently provided in the transitioning and rural areas, the County can elect to charge a higher fee in these areas (as compared to the urban area) in an effort to help preserve this higher achieved LOS. These adjustments are applied to the average VMC per lane mile added for each fee district:

- Urban = 9,000 * 1.00 = **9,000**
- Suburban = 9,000 * 0.90 = **8,100**
- Rural = 9,000 * 0.80 = **7,200**

As discussed previously, the full reduction would only be applied to residential, office, and industrial land uses. These land uses generally demand longer trip lengths and receive significant benefit from the high service levels, whereas retail land uses attract more local travel with shorter trip lengths and the benefit they receive is more limited. Therefore, the retail uses are estimated to receive a more limited capacity decrease of five (5) percent (for Suburban Fee District) and 10 percent (for Rural Fee District).

Projected Future V/C Ratios

Using the 2040 SEData projections from the OUATS.40 model, future traffic volumes for each classified roadway in Orange County were projected. The SEData population projections are comparable to low/medium average figures from the latest BEBR population projections[3]. Using

[3] Bureau of Economic and Business Research; Volume 52, Bulletin 183, April 2019

these projected volumes and future improvements identified in the County's LRTP Cost Feasible Plan, future V/C ratios for each fee district were estimated.

Urban Fee District:

- Average annual population growth ≈ 4,007 persons
- Average annual population growth rate ≈ 1.15 percent
- Projected 2040 V/C ≈ 1.09

Suburban Fee District:

- Average annual population growth ≈ 6,164 persons
- Average annual population growth rate ≈ 1.27 percent
- Projected 2040 V/C ≈ 0.96

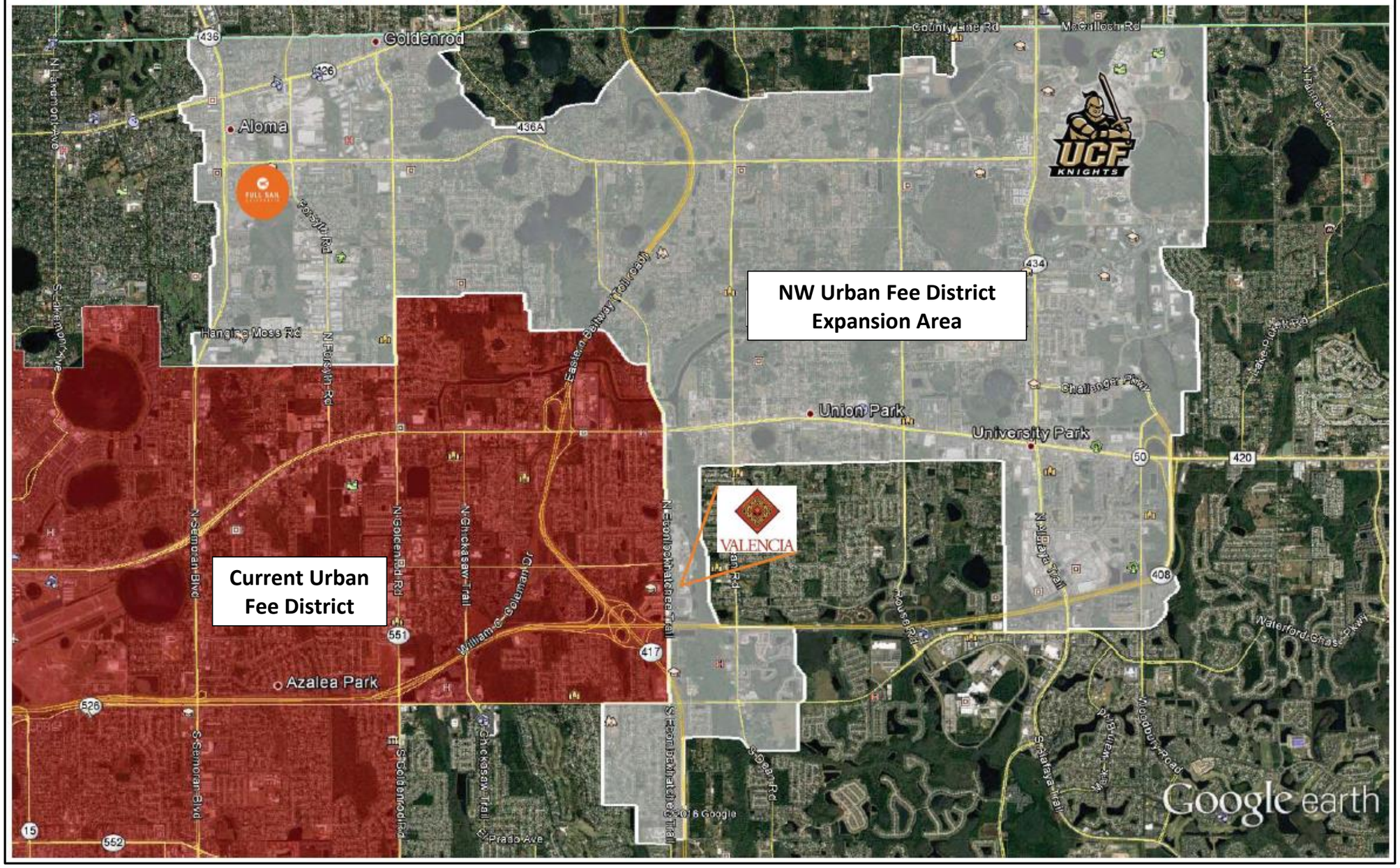
Rural Fee District:

- Average annual population growth ≈ 159 persons
- Average annual population growth rate ≈ 0.56 percent
- Projected 2040 V/C ≈ 0.65

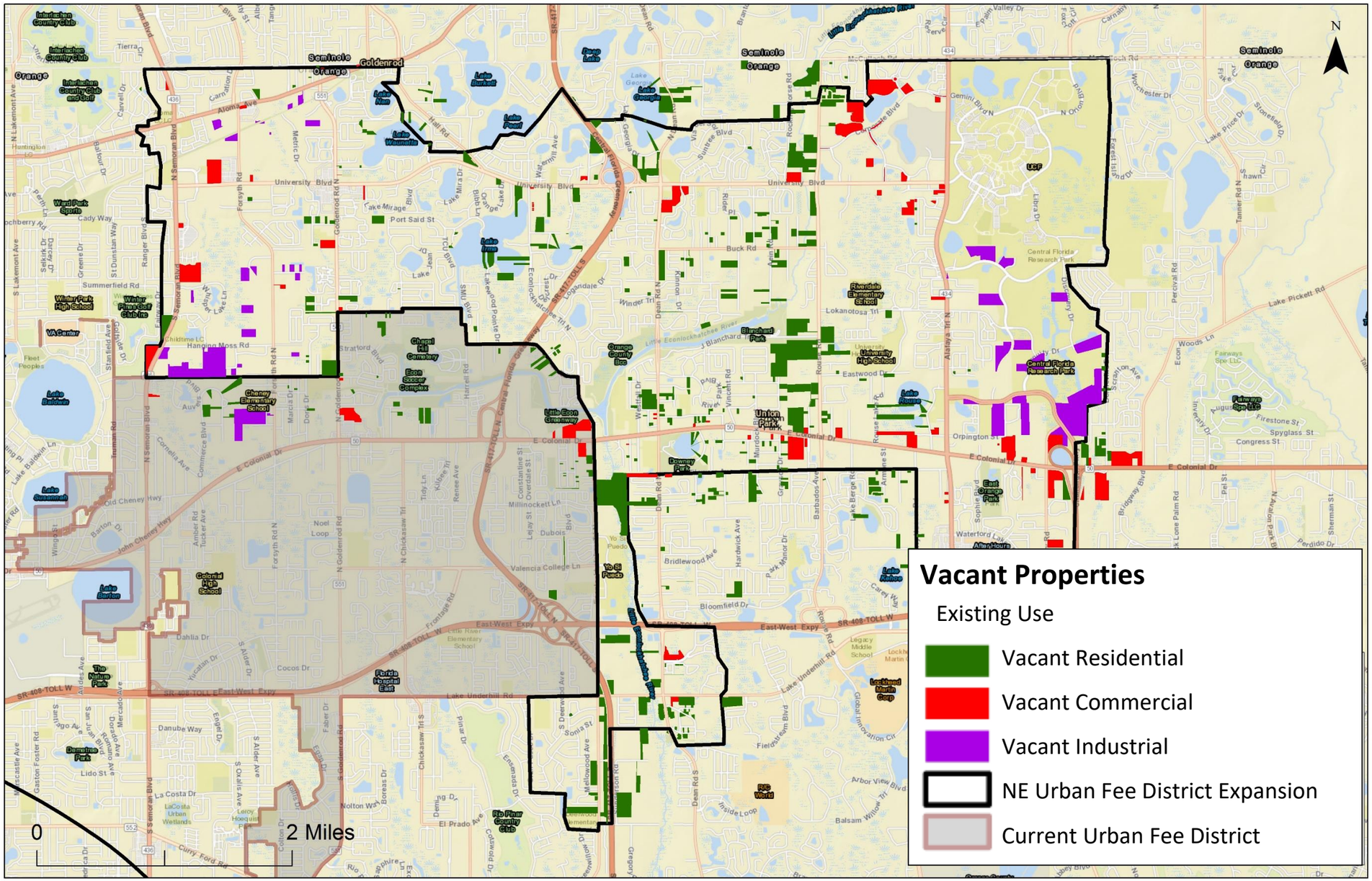
Given these higher congestion levels estimated for 2040, the current and projected V/C ratios should be re-evaluated with each subsequent transportation impact fee update to ensure that new development is not being charged for a higher level-of-service than is being achieved. Additionally, changes to capacity-expansion revenues (such as an increase in transportation impact fee rates) can greatly alter the number of future projects that can be funded, affecting the estimated future V/C ratios.

Map 2 – Proposed Northeast Urban Expansion - Orange County: Concurrency Alternatives Evaluation Report, Multi-Modal Corridor Plan Phase 3

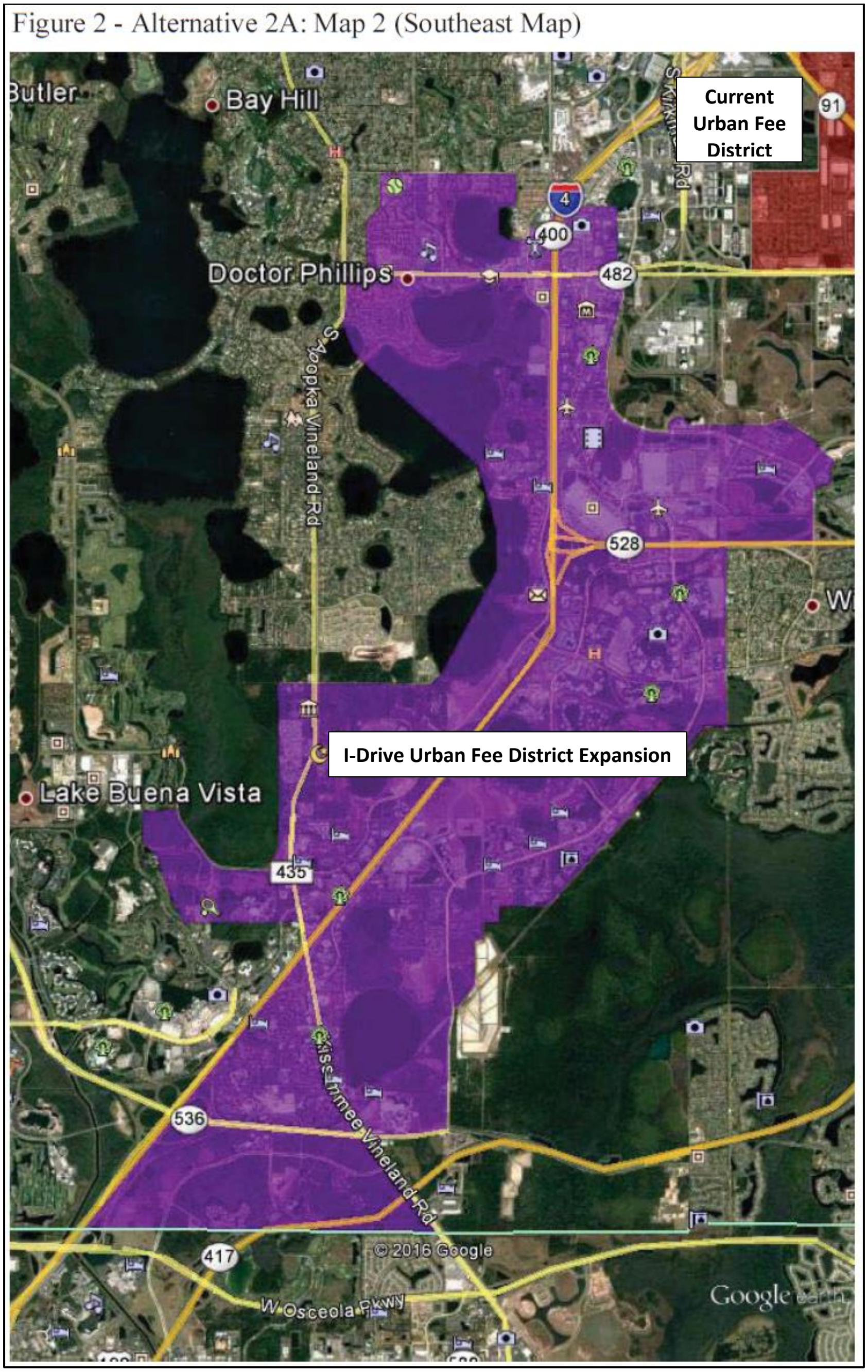
Figure 1 - Alternative 2A: Map 1 (Northeast Map)



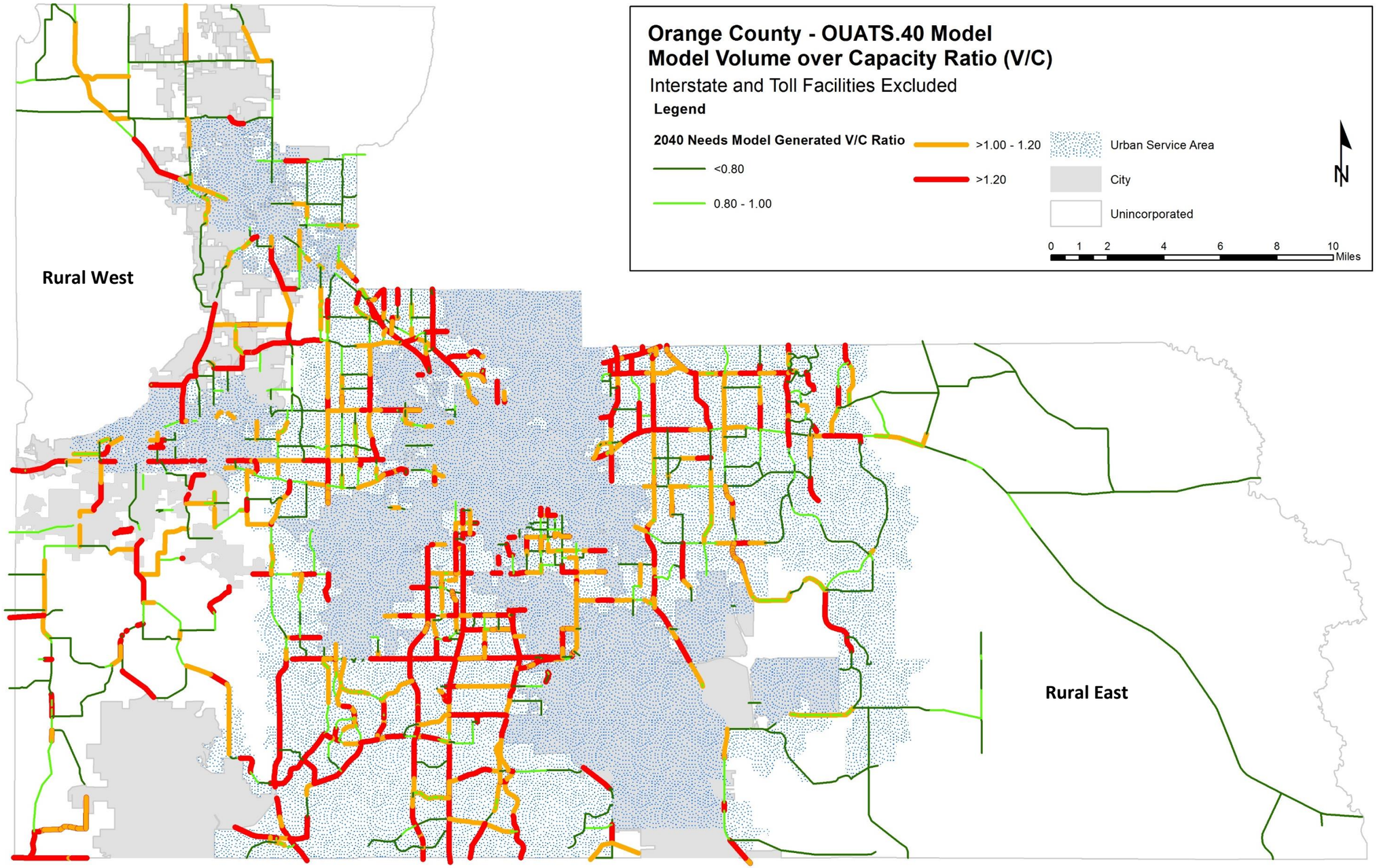
Map 3 – Vacant Parcels in Northeast Urban Fee District Expansion Area



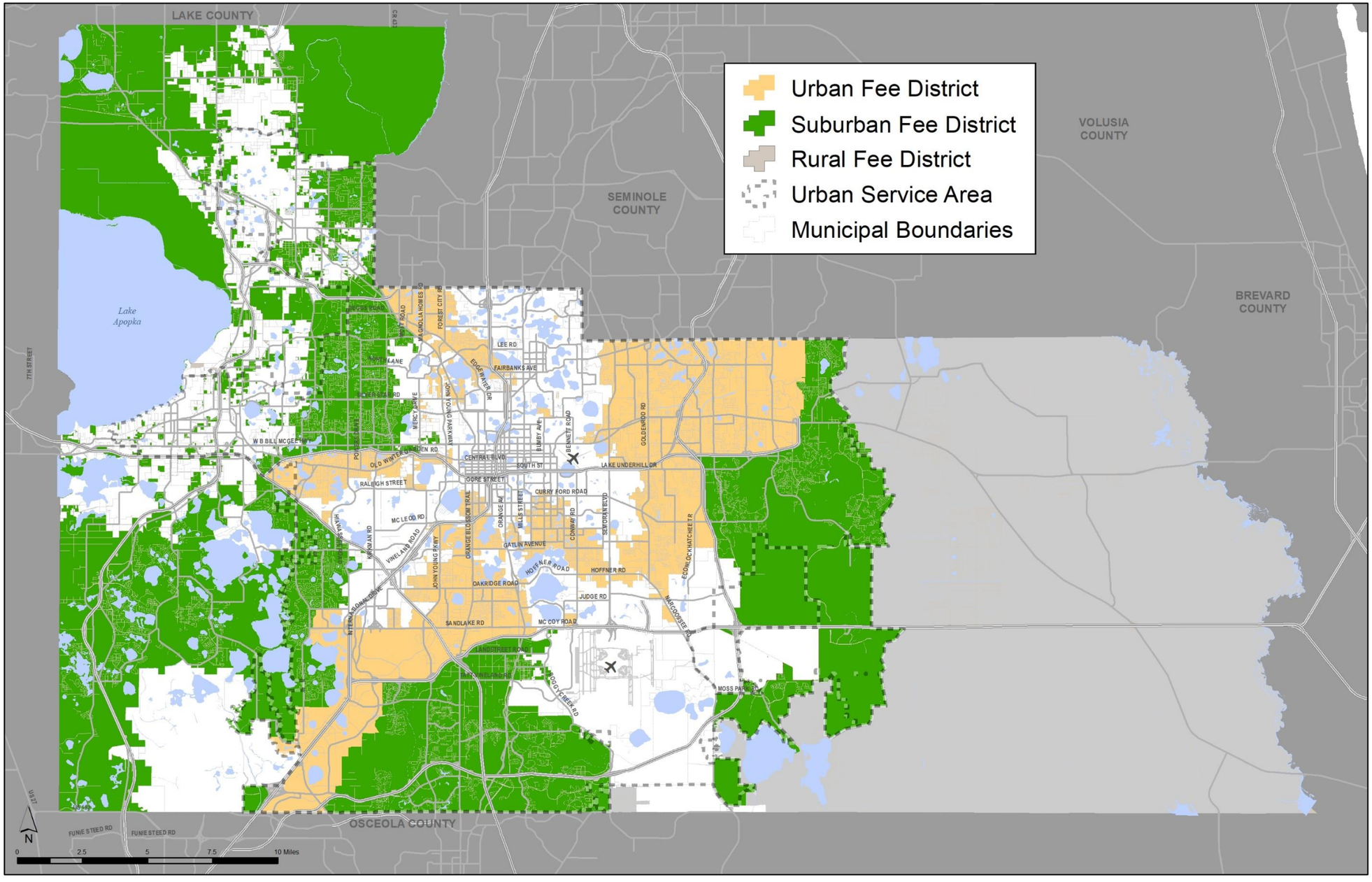
Map 4 – Proposed I-Drive Urban Fee District Expansion - Orange County: Concurrency Alternatives Evaluation Report, Multi-Modal Corridor Plan Phase 3



Map 5 – Future Congestion by Segment – OUATS 2040 Needs Plan



Map 6 – Proposed Orange County Transportation Impact Fee Districts



The alignment for the SW urban expansion includes adjustments not shown on Map 4 to include the entirety of the International Drive MSTU overlay

VI. Calculated Impact Fee Schedule

Detailed impact fee calculations for each land use are included in Appendix E, 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 E 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;
- Net transportation/multi-modal impact fee;
- Current adopted Orange County impact fee; and
- Percent difference between the calculated impact fee and the current adopted impact fee.

It should be noted that the net impact fee illustrated in Appendix E is not necessarily a recommended fee, but instead represents the technically calculated impact fee per unit of land use that could be charged in Orange County.

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

Net Impact Fee = Total Impact Cost – Capital Improvement Credit

Where:

Total Impact Cost = ([Trip Rate × Assessable Trip Length × % New Trips] / 2) × (1 – Interstate/Toll Facility Discount Factor) × (Cost per Vehicle-Mile of Capacity)

Capital Improvement Credit = Present Value (Annual Capital Improvement Credit), given 4.0% interest rate & a 25-year facility life

Annual Capital Improvement Credit = ([Trip Rate × Total Trip Length × % New Trips] / 2) × (Effective Days per Year × $/Gallon to Capital) / 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 sq ft):

- *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 (8.28) (excluding local neighborhood roads).
- *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 (8.28 + 0.50 = 8.78)
- *% 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., rate*length*% 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 Discount Factor* = discount factor to account for travel demand occurring on interstate highways and/or toll facilities (36.1%)
- *Cost per Added Lane Mile* = unit cost to construct one lane mile of roadway, in $/lane-mile ($4,540,000)
- *Average Vehicle-Capacity Added per Lane Mile* = represents the average daily traffic on one travel lane at capacity for one lane mile of roadway, in vehicles/lane-mile/day (9,000)
    - Suburban Adjustment = 9,000 x 0.90 V/C ratio = 8,100
    - Rural Adjustment = 9,000 x 0.80 V/C ratio = 7,200
- *Cost per Vehicle-Mile of Capacity* = unit of vehicle-miles of capacity consumed per unit of development. Cost per added lane mile divided by average capacity added per lane mile
    - Urban = $4,540,000 / 9,000 = $504.44 per VMC
    - Suburban = $4,540,000 / 8,100 = $560.49 per VMC
    - Rural = $4,540,000 / 7,200 = $630.56 per VMC
- *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 ($0.135 for roadways, $0.197 for multi-modal (including roadways)
- *Ad Valorem Credit* = the amount of ad valorem taxes used toward transportation capacity, calculated based on the average property value of each land use
- *Fuel Efficiency* = average fuel efficiency of vehicles, in vehicle-miles/gallon (18.92)

Consumption-Based 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:

Urban Fee District (Multi-Modal Fee) (Table E-2):

Total Impact Cost = ([7.81 * 8.28 * 1.0] /2) * (1 - 0.361) * ($4,540,000 / 9,000) = **$10,422**

Annual Cap. Improv. Credit = ([7.81 * 8.78 * 1.0] /2) * 365 * ($0.197 /18.92) = $130
Total Capital Improvement Credit = $130 * 15.6221 = $2,031
Ad Valorem Credit = $173

Net Multi-Modal Fee = $10,422 - $2,031 - $173 = **$8,218**

Non-Urban/Suburban Fee District (Roadway Fee) (Table E-3):

Total Impact Cost = ([7.81 * 8.28 * 1.0] /2) * (1 - 0.361) * ($4,540,000 / 8,100) = **$11,580**

Annual Cap. Improv. Credit = ([7.81 * 8.78 * 1.0] /2) * 365 * ($0.135 /18.92) = $89
Total Capital Improvement Credit = $89 * 15.6221 = $1,390
Ad Valorem Credit = $52

Net Impact Fee = $11,580 - $1,390 - $52 = **$10,138**

Rural Fee District (Roadway Fee) (Table E-4):

Total Impact Cost = ([7.81 * 8.28 * 1.0] /2) * (1 - 0.361) * ($4,540,000 / 7,200) = **$13,028**

Annual Cap. Improv. Credit = ([7.81 * 8.78 * 1.0] /2) * 365 * ($0.135 /18.92) = $89
Total Capital Improvement Credit = $91 * 15.6221 = $1,390
Ad Valorem Credit = $52

Net Impact Fee = $13,028 - $1,390 - $52 = **$11,586**

VII. Needs-Based Fee Analysis

As previously mentioned, the Orange County impact fee rates are calculated using a consumption-based methodology. For comparison purposes, this section presents an example of an impact fee calculation using a needs-based methodology.

A needs-based impact fee is calculated based on a list of improvements over a certain time period and associated growth over the same time period. As the list of improvements changes, the fee tends to vary. In the case of Orange County, the needs-based scenario is based on the Needs Plan improvements from the Metroplan 2040 LRTP.

Needs-Based Fee Calculation

Demand Component

Under the needs-based approach, the demand component for each land use is also measured in terms of VMT (the product of trip generation, trip length, and percent new trips, less the interstate/toll facility discount).

Cost of Needs

The cost component for the needs-based analysis is based on the cost of building a set of improvements. The set of projects and total cost were based on the list of County road improvements included in the Metroplan 2040 Long Range Transportation Plan. The cost estimates include adjustments for year-of-expenditure and use a 2040 cost equivalent for all unfunded needs plan improvements. The total estimated cost of improvements is approximately $2.15 billion.

Non-Impact Fee Revenue

The needs-based impact fee is based on the total cost of improvements less the non-impact fee revenue contributions. Therefore, fuel tax contributions are removed from the calculation. As shown in the Metroplan 2040 LRTP, fuel tax revenues are estimated at approximately $201.1 million. The remaining cost of improvements used in the impact fee equation is now approximately $1.95 billion.

VMT Added

The net cost per VMT is calculated based on the 2040 volumes for county roads in Orange County. Using the OUATS 2040 Transportation Model, approximately 5.69 million VMT will be added between the model base year (2009) and 2040. The VMT added represents the volume added to all county roads, not just those that were improved and excludes interstate/toll facilities. For the impact fee calculation, the VMT was adjusted to 3.85 million VMT to account for the difference in timeframes between the model timeframe (2009-2040) and the needs plan (2020-2040). The total cost of improvements net of available funding was then divided by the total VMT added for all county roads to determine a net cost per VMT of approximately $506 for the needs-plan approach.

Needs-Based 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:

Needs Plan:

Net Impact Fee = ([TGR * TL * PNT] / 2) * (1 – I/T Discount) * Net Cost per VMT
Net Impact Fee = ([7.81 * 8.28 * 1.0] /2) * (1 - 0.361) * $506 = **$10,454**

The resulting needs-based fee is approximately 15 percent more than its consumption-based counterpart, calculated below:

Consumption-Based (roadway ONLY, V/C 1.00):

Total Impact Cost = ([7.81 * 8.28 * 1.0] /2) * (1 - 0.361) * ($4,540,000 / 9,000) = $10,422

Annual Cap. Improv. Credit = ([7.81 * 8.78 * 1.0] /2) * 365 * ($0.135 /18.92) = $89
Total Capital Improvement Credit = $89 * 15.6221 = $1,390
Ad Valorem Credit = $52

Net Impact Fee = $10,422 - $1,390 - $52 = **$8,980**

Asset-Based Fee Calculation

An additional analysis was completed to measure the level of investment made by the existing development in Orange County's transportation system. This exercise provides a general sense of a fee per dwelling unit that would have been required to construct the existing transportation network. The total asset value of the county road system was estimated using the total lane

miles in the roadway inventory (≈3,173) and the cost per added lane mile from Table 1 ($4,540,000). This results in an estimated asset value of approximately $14.4 billion in roadway infrastructure.

The asset value was divided by the current population (1,386,080) and then multiplied by the persons-per-household (2.48) to determine an asset per household of approximately $26,000. However, this does not account for the portion of non-residential development that would pay impact fees. Based on historical impact fee collections, residential development has generated approximately 60 percent of the county revenues. Therefore, the asset per household was reduced to 60 percent resulting in an estimated fee of $15,600 per household.

As discussed previously, consumption-based transportation impact fees are calculated based on adopted LOS standards, and do not reflect historical investment levels in a community. Rather, they are conservative fees that slow down the degradation of the transportation system.

VIII. Transportation Impact Fee Rate Comparison

A comparison of calculated fee schedule to the current adopted fee by land use is presented in Table 5 for select land uses.

A summary of the calculated impact fee rates for all land uses is presented in Appendix E, Tables E-1 through E-3.

Table 5
Transportation Impact/Multi-Modal Fee Comparison

Land Use	Unit[2]	Orange County			Orange County[6]		Orange County[7]		Brevard County[8]	Hillsborough County[9]	Lake County[10]	Osceola County[11]	Pasco County[12]
		Urban[3]	Non-Urban/ Suburban[4]	Rural[5]	Non-AMA	AMA	Non-AMA	AMA					
Date of Last Update		**2020**	**2020**	**2020**	2012	2012	2012	2012	2000	2016/2020	2013	2017	2018
Adoption Percentage[1]		**100%**	**100%**	**100%**	56%	56%	100%	100%	100%	80%	70%	100%	N/A
Residential:													
Single Family (2,000 sf)	du	**$8,218**	**$10,138**	**$11,586**	$3,898	$3,761	$6,961	$6,716	$4,353	$5,094 to $7,377	$1,000 to $2,706	$9,055	$5,835 to $9,800
Non-Residential:													
Light Industrial	1,000 sf	**$3,117**	**$3,857**	**$4,410**	$2,163	$2,088	$3,863	$3,728	n/a	$2,727 to $4,129	$638 to $1,728	$3,997	$0
Office (50,000 sq ft)	1,000 sf	**$8,132**	**$10,037**	**$11,473**	$5,574	$5,374	$9,953	$9,596	$5,058	$5,374 to $8,127	$935 to $2,531	$5,700	$0
Retail (125,000 sq ft)	1,000 sf	**$10,052**	**$11,763**	**$12,529**	$5,477	$5,246	$9,780	$9,368	$5,270	$8,090 to $9,712	$1,095 to $2,964	$23,295	$5,641 to $8,813
Bank w/Drive-Thru	1,000 sf	**$14,868**	**$17,571**	**$18,719**	$11,525	$11,050	$20,581	$19,733	$23,331	$12,924 to $15,893	$818 to $2,213	$10,785	$12,730 to $15,582
Fast Food w/Drive-Thru	1,000 sf	**$74,592**	**$86,876**	**$92,547**	$38,463	$36,809	$68,684	$65,731	$35,791	$56,660 to $68,158	$818 to $2,213	$14,005	$40,950 to $50,978

1) Represents the portion of the maximum calculated fee for each respective county that is actually charged. Fees may have been lowered/increased through annual indexing or policy discounts. Does not account for moratoriums/suspensions
2) du = dwelling unit
3) Source: Appendix E, Table E-2
4) Source: Appendix E, Table E-3
5) Source: Appendix E, Table E-4
6) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees were adopted at 42 percent in 2012 and increased to 56 percent in 2014
7) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees shown at the maximum calculated rates
8) Source: Brevard County Planning and Development Department
9) Source: Hillsborough County Public Works Department
10) Source: Lake County Economic Growth Department. Small retail rate is shown for bank and fast food land uses
11) Source: Osceola County Community Development Department. Non-mixed use fees are shown. Single family fee shown is the non-rural rate and the bank with drive-thru land use is measured per lane
12) Source: Pasco County Central Planning Department

Table 5 (continued)
Transportation Impact/Multi-Modal Fee Comparison

Land Use	Unit[2]	Orange County			Orange County[6]		Orange County[7]		Polk County[8]	Seminole County[9]	Volusia County[10]	City of Ocoee[11]	City of Orlando[12]	City of Winter Garden[13]
		Urban[3]	Non-Urban/ Suburban[4]	Rural[5]	Non-AMA	AMA	Non-AMA	AMA						
Date of Last Update		**2020**	**2020**	**2020**	2012	2012	2012	2012	2019	1992	2018	2015	2012	2004
Adoption Percentage[1]		**100%**	**100%**	**100%**	56%	56%	100%	100%	100%	N/A	100%	100%	50%	100%
Residential:														
Single Family (2,000 sf)	du	**$8,218**	**$10,138**	**$11,586**	$3,898	$3,761	$6,961	$6,716	$2,380	$705 to $1,185	$5,274	$3,944	$3,574 to $4,123	$3,517
Non-Residential:														
Light Industrial	1,000 sf	**$3,117**	**$3,857**	**$4,410**	$2,163	$2,088	$3,863	$3,728	$855	$519 to $873	$1,980	$2,497	$2,270 to $2,391	$1,404
Office (50,000 sq ft)	1,000 sf	**$8,132**	**$10,037**	**$11,473**	$5,574	$5,374	$9,953	$9,596	$2,356	$1,545 to $2,598	$3,900	$4,753	$4,352 to $4,576	$5,748
Retail (125,000 sq ft)	1,000 sf	**$10,052**	**$11,763**	**$12,529**	$5,477	$5,246	$9,780	$9,368	$3,536	$1,821 to $3,062	$6,260	$4,847	$5,742 to $6,038	$7,645
Bank w/Drive-Thru	1,000 sf	**$14,868**	**$17,571**	**$18,719**	$11,525	$11,050	$20,581	$19,733	$3,536	$5,756 to $9,680	$9,560	$9,608	$12,069 to $12,716	$30,730
Fast Food w/Drive-Thru	1,000 sf	**$74,592**	**$86,876**	**$92,547**	$38,463	$36,809	$68,684	$65,731	$3,536	$9,426 to $15,852	$46,450	$23,156	$41,265 to $43,397	$58,351

1) Represents the portion of the maximum calculated fee for each respective county that is actually charged. Fees may have been lowered/increased through annual indexing or policy discounts. Does not account for moratoriums/suspensions
2) du = dwelling unit
3) Source: Appendix E, Table E-2
4) Source: Appendix E, Table E-3
5) Source: Appendix E, Table E-4
6) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees were adopted at 42 percent in 2012 and increased to 56 percent in 2014
7) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees shown at the maximum calculated rates
8) Source: Polk County Building Department
9) Source: Seminole County Development services Department
10) Source: Volusia County Growth and Resource Management Department
11) Source: City of Ocoee Planning and Zoning Division
12) Source: City of Orlando Transportation Planning Division
13) Source: City of Winter Garden Community Development Department

IX. Economic Growth Model

In addition to calculating the transportation impact fee levels, this study also includes an economic growth approach to impact fee calculations, which takes into account the existing development's ability to absorb new growth and calculates the levels of possible policy discounts without reducing the level-of-service used in the full roadway/multi-modal impact fee calculations.

As presented in Appendix C, in addition to impact fees, other revenue sources such as fuel tax and INVEST funds are also being used to fund the countywide transportation system. In terms of the economic growth calculations, it is important to note the following:

- As discussed previously, consumption-based impact fees that are based on either the adopted LOS standard or a service level that is lower than achieved LOS do not generate sufficient revenues to maintain the existing conditions.

- The economic growth strategy calculations are based on the future estimated fuel tax and other funding toward countywide transportation capital capacity projects. The calculations exclude any funding dedicated toward paying the debt service since the dollar amount cannot be available for absorbing the growth. If other revenue sources become available, these calculations will need to be revised.

- Based on the socio-economic data and projections obtained from the OUATS 2040, an average annual growth rate of 1.2 percent was calculated for unincorporated Orange County between 2017 and 2040. This growth projection is used in the calculations associated with the economic growth strategy.

- As shown in Appendix C, the County allocates $35 million of non-impact fee dollars per year toward capacity expansion of county roads. In addition, the State invests approximately $62 million per year on transportation capacity in Orange County. Although impact fee calculations already account for the portion of this revenue that is generated by new development, a larger portion of the revenue is generated by existing population and can be treated as a "buy-down" fund. In other words, as long as the County limits the buy-down amount to the level of non-impact fee investment, the equity requirements of impact fee will be met.

- Given that any impact fee discount results in revenue loss, it is recommended that the discounts are applied to select land uses consistent with the County's Comprehensive Plan and economic development goals and policies. Examples would be high wage creating jobs, industries/sectors important to well-being of the residents (such as housing, education, safety, etc.).

- Similarly, the County could reduce impact fees on residential land uses more than non-residential land uses.

It is important that the County track the impact fee discount amounts and compare them to the non-impact fee capacity funding programmed in the five-year Capital Improvement Plan to ensure that the discounted amounts do not exceed funding provided by other sources. This process should be documented in an annual report.

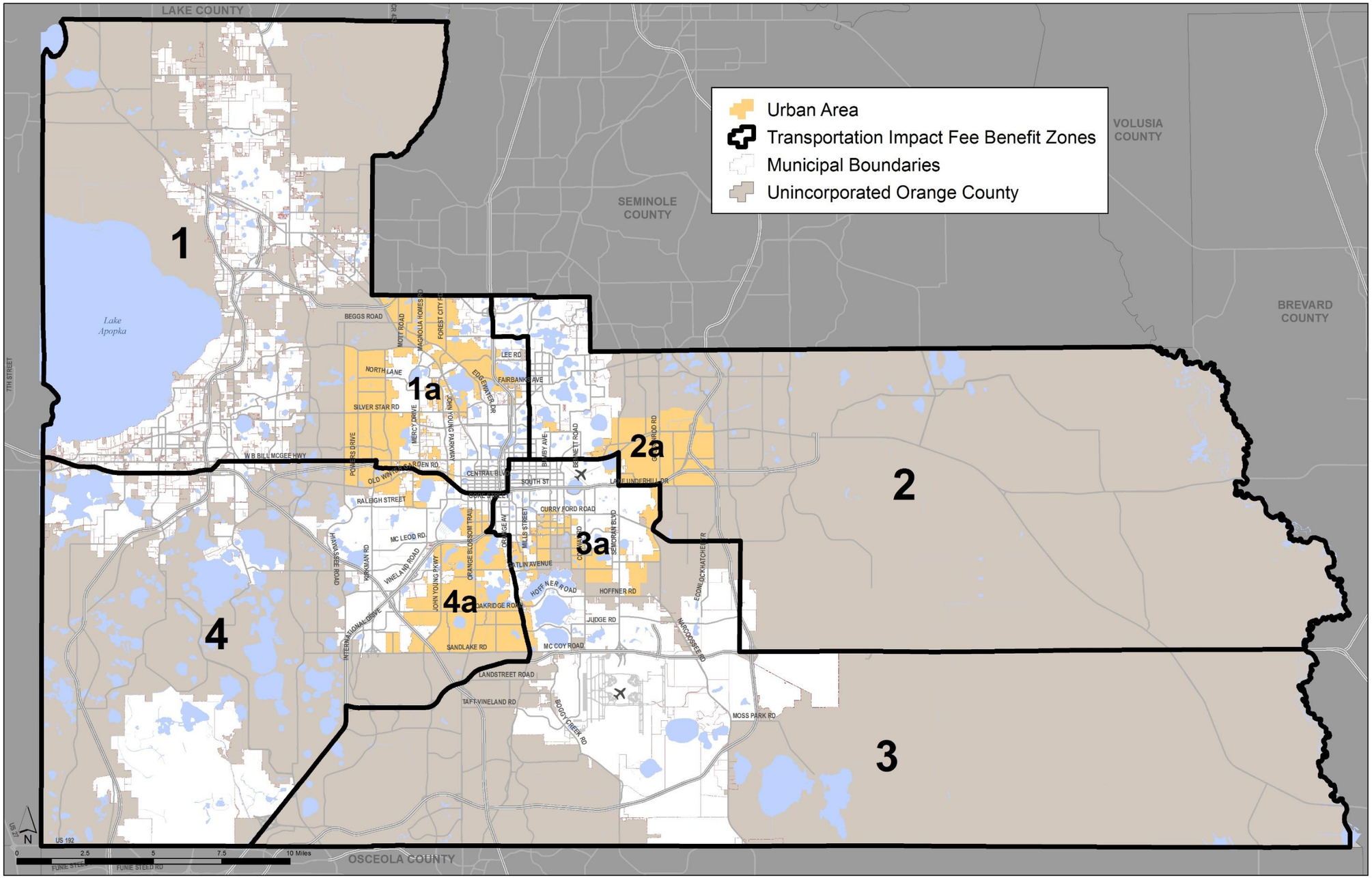
As mentioned previously, the level of discount is more of a policy decision and could be at any level between no discounts and the maximum level of non-impact fee investment per year (or any amount the County dedicates from non-impact fee revenue sources). Any additional discounts would either need to be applied to all land uses or to be bought down with the General Fund or another revenue source.

X. Impact Fee Benefit Zones

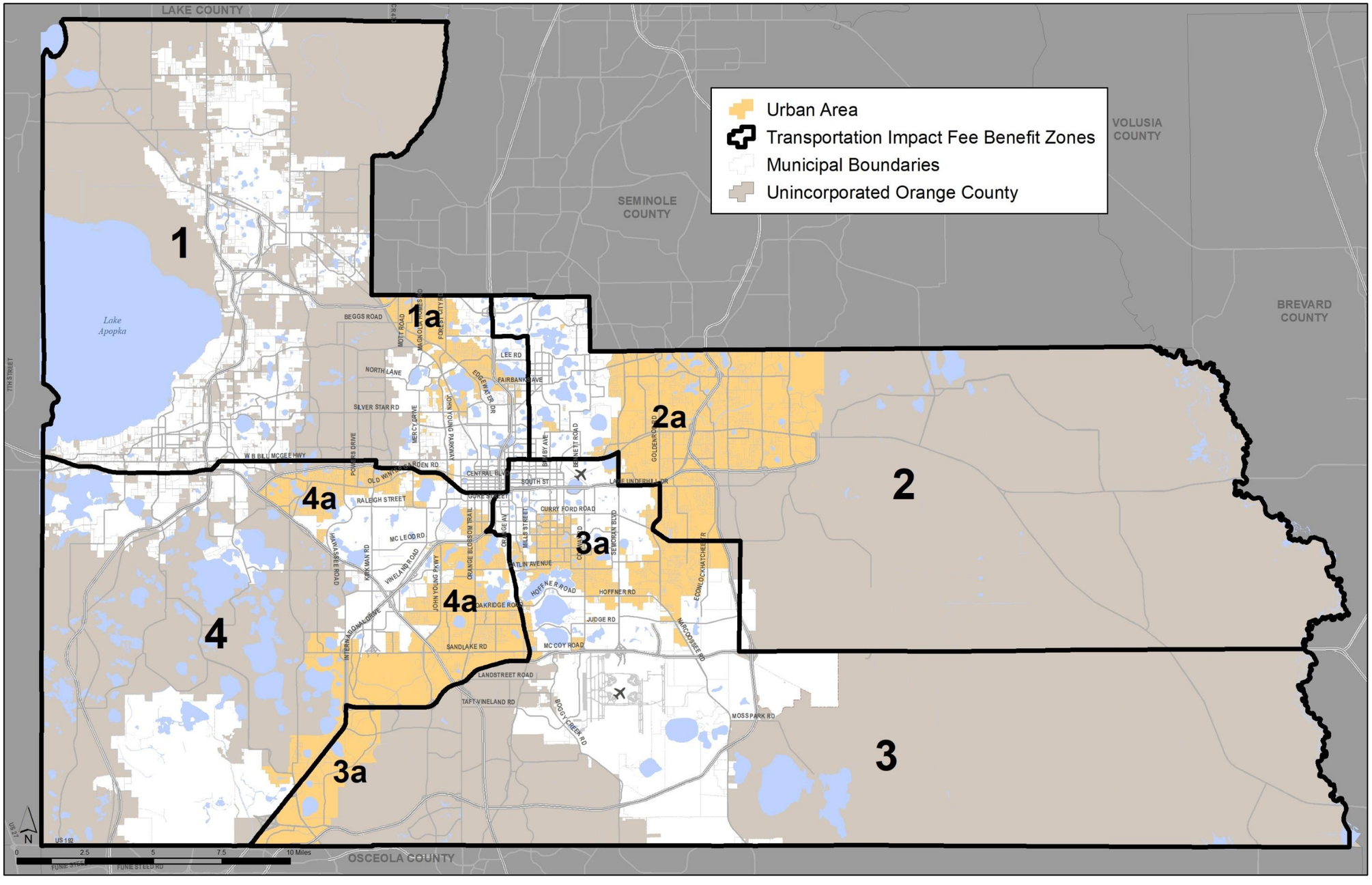
As part of the update to the impact fee program, the existing impact fee benefit zones illustrated in Map 7 were reviewed. Currently, Orange County has four road impact fee benefit zones, and four sub-zones for the alternative mobility area. Benefit districts dictate where impact fee revenues can be spent to ensure that fee payers receive the associated benefit. Typically, boundaries for benefit districts are based on land uses, growth rates, major roadway boundaries, and major geographical/environmental boundaries. Impact fee revenues collected within each district are deposited into separate trust accounts upon receipt. These revenues can only be used for capacity expansion improvements.

As previously discussed, the County may potentially expand the urban area to the southwest and the northeast. As shown in Map 8, these expansions will become part of the urban sub-areas within each larger transportation impact fee benefit district. The boundaries of the four main districts will not be altered.

Map 7 – Orange County Transportation Impact Fee Existing Benefit Zones



Map 8 – Orange County Transportation Impact Fee Benefit Zones with Expanded Urban Area



XI. Indexing

In many cases, impact fees are reviewed periodically (every three to five years) as opposed to an annual review. If no annual adjustment is applied to the impact fee rates a situation can arise where major adjustments to the fee schedule become necessary due to the time interval between update studies. The need for significant adjustment also creates major concern in the development community. To address this issue, the calculated fees in Appendix E, Tables E-1 through E-3, could potentially be indexed annually for construction and land cost increases, as appropriate. The method for developing this index is detailed in this section.

Land Cost

As shown in Table 6, between 2014 and 2019 the total just property value for all vacant residential land in unincorporated Orange County increased by an annual average of 7.1 percent. This index was applied to the ROW component of the transportation impact fee.

Table 6

Just Value Trend – Unincorporated Orange County

Year	Just Value (Vacant Land ONLY)			
	Countywide	Unincorporated	% Change CW	% Change Uninc.
2014	$2,794,876,391	$1,701,638,886	-	-
2015	$2,999,055,112	$1,835,656,636	7.3%	7.9%
2016	$3,356,603,868	$2,014,490,714	11.9%	9.7%
2017	$3,624,185,916	$2,156,930,154	8.0%	7.1%
2018	$4,014,053,192	$2,304,108,899	10.8%	6.8%
2019	$4,170,277,690	$2,399,591,893	3.9%	4.1%
Average			**8.4%**	**7.1%**

Source: Florida Department of Revenue

Roadway Construction Cost

The Florida Department of Transportation provides historical inflation factors for transportation project costs, which are presented in Table 7. It is recommended that these factors be used for the design and construction components of the transportation impact fee indexing. As shown in Table 7, the average index is approximately 2.0 percent based on the past 5 years.

Table 7

FDOT Project Cost Inflation Index

Fiscal Year	Inflation Rate
2014	3.0%
2015	0.0%
2016	0.0%
2017	3.0%
2018	4.0%
Annual Avg.	**2.0%**

Source: FDOT Office of Policy Planning

Transit Capital Cost

As previously noted, the transit capital cost for the multi-modal fee in the urban fee district is not included in the unit construction cost used to calculate the impact fee due to the insignificant impact on the cost per person-mile. Therefore, there is no indexing adjustment for capital costs related to transit investment. However, an index should be applied to the transit capital cost once the investment reaches a significant level, as determined in a future update study. For this component, the Engineering News-Record (ENR) Building Cost Index is recommended.

Index Calculation

Table 8 presents the indexing application for the transportation impact fee rates.

Table 8

Transportation Indexing Application

Phase	Cost per Lane Mile[1]	Percent of Total Cost[2]	Annual Increase[3]	Index[4]
Design	$340,000	7.5%	2.0%	0.2%
Right-of-Way	$1,200,000	26.4%	7.1%	1.9%
Construction	$3,000,000	66.1%	2.0%	1.3%
Total Cost	**$4,540,000**		-	-
Total Applicable Index[5]				**3.4%**

1) Source: Table 1
2) Cost phase (design, ROW, construction) divided by the total cost
3) Source: Table 6 for ROW; Table 7 for design and construction
4) Percent of total cost (Item 2) for each phase multiplied by the annual increase (Item 3)
5) Sum of the index components (Item 4) for all phases

Index Application

This section provides an indexing application example using the total application index of 3.4 percent:

- Single Family (detached):
    - Urban Area = $8,218 x (1 + 3.4%) = **$8,497**
    - Non-Urban/Suburban Area = $10,138 x (1 + 3.4%) = **$10,483**
    - Rural Area = $11,586 x (1 + 3.4%) = **$11,980**

This index would be applied to the fees for each land use at the end of the first year after adoption and implementation of the updated impact fee schedule. Given the recent fluctuations in land and construction values, it is recommended that the indices be re-evaluated at the end of the first year of implementation. At the end of each subsequent year, the index would be re-calculated and applied to the current adopted fee schedule. This approach provides the opportunity to base the index on the most current data available.

XII. Incentives for Affordable/Workforce Housing

Similar to many other Florida jurisdictions, Orange County is concerned about availability of affordable/workforce housing supply in the county. As part of the transportation impact fee study update, technical and policy-based methods available to the County to mitigate the adverse effects of higher impact fees are reviewed along with practices used by select Florida jurisdictions. This section starts with methods available to the County and continues with case studies.

- **Technical basis:** This approach requires the technical documentation indicating that affordable/workforce housing has lesser impact on a given infrastructure. One approach is to tier the single family category by size, which reflects fewer trips generated by smaller homes. A tiered approach is included in the fee schedules shown in Appendix E for the County's consideration.

  In the case of transportation impact fees, data also supports that smaller single family homes (less than 1,500 square feet) with lower income levels generate even fewer trips, and therefore, could be charged less. These categories reduce the impact fee by approximately 30 percent to 40 percent compared to an average home with higher income. This approach would require a monitoring process to track income levels of occupants/owners.
- **Policy discounts:** Some jurisdictions discount fees for affordable/workforce housing through the following programs/approaches:
  - **Deferral Programs:** Fees for affordable/workforce housing are deferred until homes are occupied by households that do not qualify under affordable/workforce housing criteria. This requires an annual monitoring process to ensure the homes did not change owners and/or rental rates do not exceed certain limits. Once the homes are no longer occupied by qualifying households, impact fees are collected.
  - **Buy-down Approach:** Some jurisdictions, including Orange County, set aside a certain dollar amount from the General Fund, SHIP funds, or another fund to buy down the fees for affordable housing or other targeted uses. This ensures that the impact fee program remains whole and those who paid the fee receive the associated benefit in terms of related infrastructure. **However, HB 7103 that was signed by the Governor following the 2019 legislative session eliminated the**

need to backfill lost revenues when impact fees for affordable housing are waived or reduced. In other words, local governments can now waive/reduce fees for affordable housing projects without having to offset the revenues.

HB 7103 defines qualifying units as "housing that is affordable, as defined in section 420.9071, Florida Statutes." F.S. section 420.9071 provides the following definitions:

- Section 420.9071 (2) "Affordable" means that monthly rents or monthly mortgage payments including taxes and insurance do not exceed 30 percent of that amount which represents the percentage of the median annual gross income for the households as indicated in subsection (19), subsection (20), or subsection (28).
- Subsection (19) – "Low-income person" or "low-income household" means one or more natural persons or a family that has a total annual gross household income that does not exceed 80 percent of the median annual income adjusted for family size for households within the metropolitan statistical area, the county, or the nonmetropolitan median for the state, whichever amount is greatest. With respect to rental units, the low-income household's annual income at the time of initial occupancy may not exceed 80 percent of the area's median income adjusted for family size. While occupying the rental unit, a low-income household's annual income may increase to an amount not to exceed 140 percent of 80 percent of the area's median income adjusted for family size.
- Subsection (20) provides the definition for "moderate-income household," where the household income is limited to 120 percent of the median annual income.
- Subsection (28) defines "very-low-income household" at 50 percent of the median annual income.

- **Geographic Discounts/Exemption Areas:** Some jurisdictions implement discounts in more disadvantaged areas, such as Community Redevelopment Areas (CRAs). In some cases, these areas are entirely exempt from impact fees. Given that affordable housing supply tends to be more easily available in these lower cost areas, this approach supports affordable housing as well as other development in exempt areas.
- **Alternative Incentives/Requirements:** Research conducted by Tindale Oliver suggested that jurisdictions interviewed use a combination of programs to incentivize affordable/workforce housing as opposed to relying only on impact fee discounts. Some

of the common incentive programs include density bonuses, expedited permitting, flexibility in design/parking requirements, and home purchase/construction assistance.

In some cases, local governments implemented an inclusionary zoning program with an in-lieu fee as well as a linkage fee, which tend to result in a larger supply of affordable housing compared to voluntary incentives.

Case Studies

Tindale Oliver conducted a statewide research to understand methods used by other Florida counties to mitigate effects of impact fees on affordable/workforce housing. In addition to impact fee incentives, this research also addressed other methods discussed by the jurisdictions in helping them increase the supply of affordable/workforce housing. A table summarizing these methods for counties for which the information was available is included at the end of this section.

After this initial review, more detailed case studies were prepared for the following jurisdictions:

- Broward County
- Collier County
- Miami-Dade County
- Palm Beach County

These jurisdictions are selected primarily because they started experiencing challenges in providing affordable/workforce housing prior to many other counties and three of them have large populations similar to Orange County.

Broward County

With a population of almost 2 million residents, Broward County is the second most populated county in Florida. It is also one of the most developed counties with very limited vacant land availability. This high development levels coupled with waterfront properties make it difficult to maintain the necessary supply of affordable/workforce housing. The County provided the following statistics to explain their challenges:

- 87 percent of households cannot afford the median home price in the county ($350,000).
- 147,000 renters use more than 30 percent of their income for rent.
- 78,000 renters use more than half their income for housing cost.

- The County estimates that almost 90,000 jobs will be created within the next eight years, which will be primarily service sector/low wage jobs, creating even a bigger need for affordable/workforce housing.

To address these issues, Broward County developed several initiatives.

Impact Fee Structure and Discount Levels

Broward County collects impact fees for roads, parks, and schools. As presented in Table 1, the total adopted residential fees for the selected residential development types range from $2,368 for a two-bedroom high rise unit to $9,037 for a three-bedroom single family home. Of these fees, roads and parks impact fees are bought down for very low and low income households by the County, while the School District buys down school impact fees for very low and low income households.

Table 9 provides a summary of adopted fees and discount levels for affordable/workforce housing development and includes a select number of residential categories to provide examples.

Table 9

Broward County, Impact Fees for Affordable/Workforce Housing

Impact Fee Program Area	Unit	Adopted Fee[1]	Discounted Amount[2]		Total Impact Fee[3]	
			Very Low (50% AMI)	Low Income (80% AMI)	Very Low (50% AMI)	Low Income (80% AMI)
		Discount Level	*100%*	*100%*		
Single Family Home (3 bedrooms)						
Road	du	$1,653	$1,653	$1,653	$0	$0
Parks	du	$496	$496	$496	$0	$0
Education	du	$6,888	$6,888	$6,888	$0	$0
Total	-	**$9,037**	**$9,037**	**$9,037**	**$0**	**$0**
Townhouse, Duplex, and Villa (2 bedrooms)						
Road	du	$1,653	$1,653	$1,653	$0	$0
Parks	du	$387	$387	$387	$0	$0
Education	du	$3,974	$3,974	$3,974	$0	$0
Total	-	**$6,014**	**$6,014**	**$6,014**	**$0**	**$0**
Garden Apartment (2 bedrooms)						
Road	du	$1,653	$1,653	$1,653	$0	$0
Parks	du	$354	$354	$354	$0	$0
Education	du	$4,393	$4,393	$4,393	$0	$0
Total	-	**$6,400**	**$6,400**	**$6,400**	**$0**	**$0**
Mid-Rise (2 bedrooms)						
Road	du	$1,653	$1,653	$1,653	$0	$0
Parks	du	$354	$354	$354	$0	$0
Education	du	$1,153	$1,153	$1,153	$0	$0
Total	-	**$3,160**	**$3,160**	**$3,160**	**$0**	**$0**
High-Rise (2 bedrooms)						
Road	du	$1,653	$1,653	$1,653	$0	$0
Parks	du	$354	$354	$354	$0	$0
Education	du	$361	$361	$361	$0	$0
Total	-	**$2,368**	**$2,368**	**$2,368**	**$0**	**$0**
Mobile Home (2 bedrooms)						
Road	du	$1,653	$1,653	$1,653	$0	$0
Parks	du	$350	$350	$350	$0	$0
Education	du	$3,103	$3,103	$3,103	$0	$0
Total	-	**$5,106**	**$5,106**	**$5,106**	**$0**	**$0**

1) Source: Broward County Planning and Development Management Division, Zone 1 road impact fee is shown.
2) Source: Broward County Planning and Development Management Division and Broward County Public Schools.
3) Adopted fee (Item 1) less discounted amount (Item 2)

Note: AMI = Area median income

Per Broward County Land Development Code, waivers of impact and/or application fees require that the applicant(s) will maintain affordable housing for twenty (20) years for rental housing and ten (10) years for owner-occupied housing. Other than this initial requirement, the County does not have a formal verification process to ensure these units are in compliance.

Funding of the Program

Broward County funds the discounts for roads, transit, and park impact fees through the interest accrued on these funds. The County does not have a limit on annual funding of these discounts.

The school impact fee discounts are also waived only for very low and low income applicants. The program has an annual cap of $375,000 and there is a cap of $50,000 per project. Funding is offered on a first-come-first-qualified basis. Since the program started, the discounted amounts have not reached the maximum annual amount due both to per project cap and discounts being offered only to very low income housing until recently. The School District representatives believe that the number of projects waived was relatively low because the program restricts the developer's ability to sell or rent to those that did not qualify under the very low income category. In addition, the application process is found to be cumbersome, discouraging potential applicants. With the recent changes, the discounts are now being offered to low income housing as well and the cap was increased from $25,000 per project to $50,000 per project. These recent changes should increase the use of the program.

Other Incentive Programs

In addition to the impact fee assistance program, Broward County also has other incentive programs in place to promote and preserve affordable/workforce housing. Some of the programs available are funded with federal, local, and state dollars such as State Housing Initiatives Partnership (SHIP), Community Development Block Grant (CDBG), Broward Redevelopment Program (BRP), and the Home Investment Partnerships (HOME). The following list provides some examples of the additional programs offered by Broward County.

- Expedited permitting.
- Density bonuses for development of market rate units (e.g. four market rate units per every one low or very low unit).
- Transfer of development rights.
- Allowance of affordable accessory residential units of small size.
- Reduction of parking and setback requirements.
- Flexible lot configurations, including zero lot line.
- Purchase assistance.
- New construction assistance.
- Rehabilitation assistance.

In 2017, Broward County adopted certain changes to its Land Use Plan, called the BrowardNEXT Plan. These changes require the County and municipalities of more than 15,000 residents to

address affordable housing on land use amendments that propose 100 or more additional units to existing densities. The Plan requires municipalities to provide evidence to the County of their current affordable housing programs, as well as, their current housing profile. The County reviews the profile and programs of the City to determine if they are in compliance with the Land Use Policy. If compliance cannot be met by the municipality, a 15 percent set-aside or a fee in-lieu of in the amount of $1 per residential gross square foot is required.

Given the continuing concerns regarding the affordable housing availability, in 2019, Broward County started discussing additional initiatives, including:

- Linkage fees;
- A more comprehensive inclusionary zoning program to replace the policy established by BrowardNEXT; and
- Possible revisions to the density bonus program, which would increase the number of market rate units per affordable housing unit and extend the required length of maintaining affordable housing status, among other changes.

Of these, implementation of linkage fees was denied by the Broward County Regional Planning Council. Some of the other proposed changes are still being considered.

Collier County

Located in southwest Florida, Collier County has a peak season population of approximately 450,000. Collier County has the highest average income per capita in the state ($91,000) while the median income is approximately $61,000, indicative of lower paying jobs along with wealthy population residing in the county. The County has the highest impact fee levels and 2nd lowest total millage rate among Florida counties. With a median housing price of $399,000, the County has been concerned about housing affordability for lower income families and workforce.

Impact Fee Structure and Discount Levels

Collier County collects impact fees for community parks, regional parks, libraries, roads, EMS, law enforcement, correctional facilities, government buildings and school facilities. The current adopted residential fees presented in the following table range from $10,602 for a condo, duplex, or single family attached unit to $22,360 for a single family home of 2,000 square feet. Collier County has an impact fee deferral program, available to first time homebuyers and renters with household income less than 120 percent of median income of the county. The program was initially adopted in 2005 and was in operation for a few years before it was shut down during the housing recession. In 2016, Collier County re-instituted the program.

Impact fees are deferred on owner-occupied units until the owner either sells, refinances, or moves out of the home. At that time, the fees are due (with interest) and this process is secured by a subordinate lien until the fees are collected by the County. Rental units' impact fees are deferred for a period of 10 years, after which the fees are paid. This requirement is secured with a first position lien or a subordinate lien with a Tri-party Agreement. The County has a limit of 225 rental units receiving deferrals each year.

In addition, the County implemented a pilot program in the Immokalee area, allowing payment of impact fees by an installment program through the property tax bill, as an alternative to paying the fees in a single, up-front payment. This is a 20-year installment program, secured with lien on the property. The purpose of the pilot program is to provide the Board of County Commissioners an opportunity to review if the option of paying impact fees through installments results in additional economic development in the area.

Finally, the County had a voluntary affordable housing contribution program, which involved agreements at zoning stage and/or through PUD commitments. Under this program, developers paid $1,000 per home and $0.50 per square foot of non-residential development. In return, they obtained future credits against affordable housing impact fee, which was anticipated to be implemented at the time. There have been $6 million of commitments and $600,000 was collected. However, this revenue was never spent since the affordable housing impact fee was never adopted. Eventually, the Board of County Commission repealed the program, removed commitments and refunded the collections.

Table 11
Collier County, Impact Fees for Affordable Housing

Impact Fee Program Area	Unit	Adopted Fee[1]	Discounted Amount[2]				Total Impact Fee[3]			
			Extremely Low (30% AMI)	Very Low (50% AMI)	Low Income (80% AMI)	Moderate (120% AMI)	Extremely Low (30% AMI)	Very Low (50% AMI)	Low Income (80% AMI)	Moderate (120% AMI)
		Discounted Level	*100%*	*100%*	*100%*	*100%*				
Single Family Home (2,000 sf)										
Community Parks	du	$934	$934	$934	$934	$934	$0	$0	$0	$0
Regional Parks	du	$2,694	$2,694	$2,694	$2,694	$2,694	$0	$0	$0	$0
Roads	du	$7,444	$7,444	$7,444	$7,444	$7,444	$0	$0	$0	$0
EMS	du	$142	$142	$142	$142	$142	$0	$0	$0	$0
Schools	du	$8,790	$8,790	$8,790	$8,790	$8,790	$0	$0	$0	$0
Government Buildings	du	$934	$934	$934	$934	$934	$0	$0	$0	$0
Libraries	du	$336	$336	$336	$336	$336	$0	$0	$0	$0
Law Enforcement	du	$587	$587	$587	$587	$587	$0	$0	$0	$0
Jail	du	$499	$499	$499	$499	$499	$0	$0	$0	$0
Total	-	**$22,360**	**$22,360**	**$22,360**	**$22,360**	**$22,360**	**$0**	**$0**	**$0**	**$0**
Condo, Duplex or Single Family Attached										
Community Parks	du	$455	$455	$455	$455	$455	$0	$0	$0	$0
Regional Parks	du	$1,230	$1,230	$1,230	$1,230	$1,230	$0	$0	$0	$0
Roads	du	$4,845	$4,845	$4,845	$4,845	$4,845	$0	$0	$0	$0
EMS	du	$68	$68	$68	$68	$68	$0	$0	$0	$0
Schools	du	$2,844	$2,844	$2,844	$2,844	$2,844	$0	$0	$0	$0
Government Buildings	du	$444	$444	$444	$444	$444	$0	$0	$0	$0
Libraries	du	$160	$160	$160	$160	$160	$0	$0	$0	$0
Law Enforcement	du	$297	$297	$297	$297	$297	$0	$0	$0	$0
Jail	du	$259	$259	$259	$259	$259	$0	$0	$0	$0
Total	-	**$10,602**	**$10,602**	**$10,602**	**$10,602**	**$10,602**	**$0**	**$0**	**$0**	**$0**
Multi-Family (Apts.) 10 Stories										
Community Parks	du	$455	$455	$455	$455	$455	$0	$0	$0	$0
Regional Parks	du	$1,230	$1,230	$1,230	$1,230	$1,230	$0	$0	$0	$0
Roads	du	$5,542	$5,542	$5,542	$5,542	$5,542	$0	$0	$0	$0
EMS	du	$68	$68	$68	$68	$68	$0	$0	$0	$0
Schools	du	$2,844	$2,844	$2,844	$2,844	$2,844	$0	$0	$0	$0
Government Buildings	du	$444	$444	$444	$444	$444	$0	$0	$0	$0
Libraries	du	$160	$160	$160	$160	$160	$0	$0	$0	$0
Law Enforcement	du	$297	$297	$297	$297	$297	$0	$0	$0	$0
Jail	du	$229	$229	$229	$229	$229	$0	$0	$0	$0
Total	-	**$11,269**	**$11,269**	**$11,269**	**$11,269**	**$11,269**	**$0**	**$0**	**$0**	**$0**
Mobile Home (Not in Mobile Home Park)										
Community Parks	du	$716	$716	$716	$716	$716	$0	$0	$0	$0
Regional Parks	du	$2,145	$2,145	$2,145	$2,145	$2,145	$0	$0	$0	$0
Roads	du	$7,444	$7,444	$7,444	$7,444	$7,444	$0	$0	$0	$0
EMS	du	$114	$114	$114	$114	$114	$0	$0	$0	$0
Schools	du	$7,238	$7,238	$7,238	$7,238	$7,238	$0	$0	$0	$0
Government Buildings	du	$749	$749	$749	$749	$749	$0	$0	$0	$0
Libraries	du	$270	$270	$270	$270	$270	$0	$0	$0	$0
Law Enforcement	du	$457	$457	$457	$457	$457	$0	$0	$0	$0
Jail	du	$397	$397	$397	$397	$397	$0	$0	$0	$0
Total	-	**$19,530**	**$19,530**	**$19,530**	**$19,530**	**$19,530**	**$0**	**$0**	**$0**	**$0**

1) Source: Collier County Growth Management Department
2) Source: Collier County Impact Fee Administration
3) Adopted fee (Item 1) less discounted amount (Item 2)

Note: AMI = Area median income

Funding of the Program and Results

Collier County sets aside 3 percent of prior year's impact fee collections to pay for the deferral program. The cap of 3 percent of collections ensures that the revenue loss is de-minimis. Historically, this level of impact fee deferrals has allowed the program to defer fees on approximately 100 homes per year, which has been typically less than the demand for the deferrals. The deferrals are primarily used by Habitat for Humanity and other builders of owner occupied and rental housing.

The pilot program in the Immokalee area has not been used yet, except for one participant for a mobile home development.

Other Incentive Programs

In 2016, Collier County contracted with the Urban Land Institute (ULI) to address concerns over housing affordability for an evaluation and recommendations through an interdisciplinary Advisory Services Panel. Some of the suggestions of this effort included the following:

- Expanding the County's current impact fee deferral in the following manner:
    - Increase deferral period for rental development to 30 years
    - Forgive owner-occupied deferrals after 15 years
    - Increase the eligibility to household with up to 140 percent of median income
    - Add additional funding by increasing the allocation from 3 percent of revenues to 4 percent or 5 percent of revenues.
- Mixed income ordinance with enhanced density bonus and multiple in-lieu options. Under this ordinance, the goal is to encourage development with diverse types of housing units for residents with a range of income levels, including households with income levels that are 50 percent to 140 percent of the median income. The development would receive 30 percent density bonus if it allocates 5 percent of units for each income level (low, moderate, gap). There would be multiple options to providing units, such as land donation, partnerships, and a fee-in-lieu of $127,000 per unit. This option was viewed as a means to create affordable housing without public subsidy.
- Linkage fee for commercial development.
- Increase density through the requirement of inclusion of residential development as part of Activity Centers and by allowing higher densities in these areas.
- Transportation-related initiatives:
    - Evaluate existing transit routes for accessibility to housing and major job centers
    - Explore multi-modal alternatives within gated communities

- Consider land development regulations requiring an ungated central internal roadway with connection to major roadway
- Require development to accommodate transit (route, bus stops, bus pull outs, etc.)
- Establish a transit system with peak and non-peak hour schedules with higher frequency during peak hours.

Collier County Board of County Commissioners have not yet adopted many of these suggestions but is considering some of them for implementation in the future.

Miami-Dade County

Introduction

Miami-Dade County has a variety of implemented programs in place as a result of a persistent shortage of housing for certain sectors of the community. The County currently has an array of various incentives in place to encourage the development of affordable and workforce housing units. The Affordable Housing Development Programs and the Impact Fee Waiver program for affordable units have been two of the most popular incentive programs.

Impact Fee Waiver Program

Miami-Dade County collects impact fees for parks, police, fire, education and road facilities. The current adopted residential fees for these impact fee areas range from $10,810 - $11,992 for a 1,200 sf multi-family unit to $15,275 - $17,326 for a 2,000-square foot single-family home. Qualified affordable units are 100 percent exempted from payment of impact fees for road, park, police, and fire. The County defines affordable housing units as a unit occupied by very low-income and low-income person when monthly housing costs do not exceed 30 percent of the household income. Affordable housing income levels include 50 percent (for very-low income) and 80 percent (for low income) of the median adjusted gross annual income for the households within the primary metropolitan statistical area (PMSA) for Miami-Dade County as established by HUD on a monthly basis. The discounts offered by Miami-Dade County reduce the total impact fees by approximately 92 percent to 96 percent, depending on housing type.

Table 12 presents a summary of adopted fees and discount levels for affordable housing in Miami-Dade County for a select number of residential categories, provided as examples.

Table 12

Miami-Dade County, Impact Fees for Affordable Housing

Impact Fee Program Area	Unit	Adopted Fee[1]	Discounted Amount[2]		Total Impact Fee[3]	
			Very Low (50% AMI)	Low Income (80% AMI)	Very Low (50% AMI)	Low Income (80% AMI)
		Discount Level	*100%*	*100%*		
Single Family Home Detached (2,000 sf)						
Road	du	$9,237 - $9,770	$9,237 - $9,770	$9,237 - $9,770	$0	$0
Fire	du	$440	$440	$440	$0	$0
Police	du	$575	$575	$575	$0	$0
Parks	du	$2,575 - $4,093	$2,575 - $4,093	$2,575 - $4,093	$0	$0
Education	du	$2,448	$0	$0	$2,448	$2,448
Total	-	**$15,275 - $17,326**	**$12,827 - $14,878**	**$12,827 - $14,878**	**$2,448**	**$2,448**
Apartment (Rentals) (1,200 sf)						
Road	du	$6,486 - $6,860	$6,486 - $6,860	$6,486 - $6,860	$0	$0
Fire	du	$440	$440	$440	$0	$0
Police	du	$575	$575	$575	$0	$0
Parks	du	$1,595 - $2,403	$1,595 - $2,403	$1,595 - $2,403	$0	$0
Education	du	$1,714	$0	$0	$1,714	$1,714
Total	-	**$10,810 - $11,992**	**$9,096 - $10,278**	**$9,096 - $10,278**	**$1,714**	**$1,714**
High-Rise (Over 3 Floors) (1,200 sf)						
Road	du	$4,054 - $4,288	$4,054 - $4,288	$4,054 - $4,288	$0	$0
Fire	du	$440	$440	$440	$0	$0
Police	du	$575	$575	$575	$0	$0
Parks	du	$1,595 - $2,403	$1,595 - $2,403	$1,595 - $2,403	$0	$0
Education	du	$1,714	$0	$0	$1,714	$1,714
Total	-	**$8,378 - $9,420**	**$6,664 - $7,706**	**$6,664 - $7,706**	**$1,714**	**$1,714**
Condo, Townhome, Duplex (1,200 sf)						
Road	du	$5,656 - $5,981	$5,656 - $5,981	$5,656 - $5,981	$0	$0
Fire	du	$440	$440	$440	$0	$0
Police	du	$575	$575	$575	$0	$0
Parks	du	$2,366 - $3,462	$2,366 - $3,462	$2,366 - $3,462	$0	$0
Education	du	$1,714	$0	$0	$1,714	$1,714
Total	-	**$10,744 - $12,172**	**$9,030 - $10,458**	**$9,030 - $10,458**	**$1,714**	**$1,714**
Mobile Home (1,200 sf)						
Road	du	$4,816 - $5,094	$4,816 - $5,094	$4,816 - $5,094	$0	$0
Fire	du	$440	$440	$440	$0	$0
Police	du	$575	$575	$575	$0	$0
Parks	du	$2,575 - $4,093	$2,575 - $4,093	$2,575 - $4,093	$0	$0
Education	du	$1,714	$0	$0	$1,714	$1,714
Total	-	**$10,120 - $11,916**	**$8,406 - $10,202**	**$8,406 - $10,202**	**$1,714**	**$1,714**

1) Source: Miami-Dade County Department of Planning and Zoning. Road impact fees shown represent a range consisting of the UIA and Non UIA districts, parks impact fee shown represents range of districts 1 through 3. Fees shown exclude the administration fee.
2) Source: Miami-Dade County Department of Planning and Zoning. Road, police, fire, and park impact fees are exempted 100% for very low and low income households.
3) Adopted fee (Item 1) less discounted amount (Item 2)

Note: AMI = Area median income

Qualified units that have accepted the impact fee exemption are required to declare a restrictive covenant on the property. Information from the Miami-Dade Impact Fee Section suggested that

the source of funding for waived impact fees is government programs; however, Tindale Oliver was unable to confirm what type of government programs are used to compensate the waived fees.

Workforce Housing Development Program

Implemented in 2016 with Ordinance 16-138, the Workforce Housing Development Program is a voluntary program providing density bonuses and other incentives in exchange for the provision of workforce housing units. Criteria for the program includes families whose incomes are within 60 percent to 140 percent of the area median income (adjusted for family size). If a development has more than 20 dwelling units, it may receive a density bonus and qualify for the maximum intensity standards as outlined per type of residential land use in Section 33-193 of the Code of Ordinances. In order to participate in this program, the development is required to provide at least 5 percent of the total residential units as workforce housing units. Additional density bonuses are granted as the percentage of workforce housing units of the development increases. However, the development must still comply with the County's Comprehensive Development Master Plan (CDMP) and must not exceed the maximum number of units permitted. Table 13 provides details on the percentage of workforce housing units in relation to density bonuses.

Table 13
Voluntary Workforce Housing Units

Designated Workforce Housing Units	Density Bonus	Type of Designation
5%	5%	Mandatory
6%	9%	Bonus
7%	13%	Bonus
8%	19%	Bonus
9%	21%	Bonus
10%	25%	Bonus

Source: Miami-Dade County Regulatory and Economic Resources

Alternative Mitigation Strategies

Miami-Dade County Code of Ordinances, Section 33-193.8 specifies alternative strategies from on-site construction of workforce housing units for developments. Alternative methods include off-site construction of workforce housing units within a 2-mile radius, monetary contributions in lieu of construction, rehabilitation of existing property for workforce housing units within certain geographic boundaries, land conveyance, or a combination of the listed mitigation strategies. The standard formula for calculating the in-lieu fee per unit is based on countywide median sales price within the Urban District Boundary (UBD) subtracted by the affordable

purchase price for a family of 4 at 60 percent of median family income for the County. Fees range from $51,500 to $121,300 for single family homes and from $45,000 to $114,800 for multi-family units. Fees may be adjusted if the development is in a Minor Statistical Area (MSA) where the median sales price within the UBD is lower than the Countywide median sales price under the standard formula. In lieu fee payments are deposited to the County's Affordable Housing Trust Fund.

If the development has fewer than 20 residential dwelling units, the development may utilize the density bonus and intensity standards if the development either: designates 100 percent of the proposed units as workforce housing or opt for an alternative method of mitigation listed above.

The program also offers a 2-year deferral program for workforce housing units for road impact fees. The workforce housing units must remain affordable for twenty (20) years. A restrictive covenant is required on the development at the time of zoning approval, and a workforce housing agreement prior to plat or building permit encumbering individual units. Residents of qualified workforce housing units must provide annual documentation of income criteria as an on-going monitoring process.

Additionally, the County has a mandatory Inclusionary Workforce Housing program for all residential or mixed-use development that are either located within the Core or Center Sub-districts of an urban center district. Since this area already allows for higher densities, additional density bonuses are not provided. The program specifies residential developments that have more than four residential units are subject to designate 12.5 percent of the total units as Workforce Housing Units.

Other Incentive Programs

In addition to the impact fee assistance and workforce housing programs, Miami-Dade County also has other incentive programs in place to promote and preserve affordable/workforce housing. Some of the programs available are funded with federal and state dollars such as State Housing Initiatives Partnership (SHIP). The following list provides some examples of the additional programs offered by Miami-Dade County.

- Expedited permitting:
    - Expedited review process available for all affordable housing projects.
- On-going Review Process.

    - An ongoing process for review of local policies, ordinances, regulations and plan provisions that increase the cost of housing prior to their adoption.
- Inventory of county owned land suitable for affordable housing.
- Transfer of development rights program.
- Purchase assistance.
- Rehabilitation assistance.
- Rental development:
    - Gap financing available for-profit and non-profit builders/developers.
- Replacement housing assistance.
- Emergency repairs assistance.
- Foreclosure prevention and mitigation.
- Allowance of affordable accessory residential units of small size.
- Reduction of parking and setback requirements.
- Flexible lot configurations, including zero lot line.
- Water and Sewer Capacity:
    - Reservation of infrastructure capacity for housing for very low and low-income persons.

Palm Beach County

Impact Fee Structure and Discount Levels

Palm Beach County collects impact fees for parks, libraries, public buildings, schools, fire rescue, law enforcement, and road facilities. The current adopted residential fees range from $6,140 for a mobile home of 1,200 square feet, $7,237 for a multi-family unit of 1,200 square feet, and $10,684 for a single family home of 2,000 square feet. The County pays 100 percent of the road, public buildings, and parks impact fees for very low, low, and moderate income households (up to 140 percent of the area median income, adjusted for family size). The discounts offered by Palm Beach County reduce the total impact fees by approximately 54 percent for single family homes, 53 percent for multi-family units, and 43 percent for mobile homes (for the sizes mentioned previously). In addition, there is no cap per project other than the total funding available. Table 14 presents a summary of adopted fees and discount levels for affordable/workforce housing in Palm Beach County for a select number of residential categories, provided as examples.

Table 14
Palm Beach County, Impact Fees for Affordable/Workforce Housing

Impact Fee Program Area	Unit	Adopted Fee[1]	Discounted Amount[2]			Total Impact Fee[3]		
			Very Low (50% AMI)	Low Income (80% AMI)	Moderate (140% AMI)	Very Low (50% AMI)	Low Income (80% AMI)	Moderate (140% AMI)
		Discount Level	100% / 0%	100% / 0%	100% / 0%			
Single Family Home (Detached, 2,000 sf)								
Parks	du	$860	$860	$860	$860	$0	$0	$0
Libraries	du	$243	$0	$0	$0	$243	$243	$243
Public Buildings	du	$223	$223	$223	$223	$0	$0	$0
Schools	du	$4,237	$0	$0	$0	$4,237	$4,237	$4,237
Fire Rescue	du	$276	$0	$0	$0	$276	$276	$276
Law Enforcement	du	$128	$0	$0	$0	$128	$128	$128
Road	du	$4,717	$4,717	$4,717	$4,717	$0	$0	$0
Total	-	**$10,684**	**$5,800**	**$5,800**	**$5,800**	**$4,884**	**$4,884**	**$4,884**
Multi-Family (1,200 sf)								
Parks	du	$734	$734	$734	$734	$0	$0	$0
Libraries	du	$186	$0	$0	$0	$186	$186	$186
Public Buildings	du	$171	$171	$171	$171	$0	$0	$0
Schools	du	$2,962	$0	$0	$0	$2,962	$2,962	$2,962
Fire Rescue	du	$185	$0	$0	$0	$185	$185	$185
Law Enforcement	du	$70	$0	$0	$0	$70	$70	$70
Road	du	$2,929	$2,929	$2,929	$2,929	$0	$0	$0
Total	-	**$7,237**	**$3,834**	**$3,834**	**$3,834**	**$3,403**	**$3,403**	**$3,403**
Mobile Home (1,200 sf)								
Parks	du	$734	$734	$734	$734	$0	$0	$0
Libraries	du	$186	$0	$0	$0	$186	$186	$186
Public Buildings	du	$171	$171	$171	$171	$0	$0	$0
Schools	du	$2,962	$0	$0	$0	$2,962	$2,962	$2,962
Fire Rescue	du	$276	$0	$0	$0	$276	$276	$276
Law Enforcement	du	$70	$0	$0	$0	$70	$70	$70
Road	du	$1,741	$1,741	$1,741	$1,741	$0	$0	$0
Total	-	**$6,140**	**$2,646**	**$2,646**	**$2,646**	**$3,494**	**$3,494**	**$3,494**

1) Source: Palm Beach County Department of Planning, Zoning, and Building. Multi-Family (5 or more units) land use is shown for Fire Rescue and Law Enforcement.
2) Source: Palm Beach County Department of Housing and Economic Sustainability. County pays the impact fees of roads, parks, and public buildings (no limit per project) until total funding is exhausted.
3) Adopted fee (Item 1) less discounted amount (Item 2)

Note: AMI = Area median income

The County requires rental housing units to produce annual reports/certifications of income and rental affordability and must maintain affordability for a 20-year period. Owner-occupied homes require a 15-year affordability period from date of sale. Additionally, if there is a change of ownership within the 15-year period, and the unit is sold to another qualified owner, a new 15-year affordability period begins. In both instances, affordability is secured by Declaration of Restrictions recorded against title to the property.

Property owners are required to repay the County upon a property owner's voluntary withdrawal or default prior to the end of the Declaration of Restrictions placed against the property. For rental housing and for-sale housing units, developers shall submit to the County a repayment

totaling the amount of assistance, plus 3 percent interest per year commencing with the recording of the Declaration, plus an administrative fee of $1,500. For owner-occupied housing, the entire amount of assistance provided shall be repaid to the County.

Funding of the Program

The County utilizes interest earnings from impact fees. Funds are segregated by impact fee type from which they originated: roads, parks, and public buildings, and payment of fees by the County cannot exceed the funds for a particular program area. As of 2019, Palm Beach County has approximately $1.8 million of impact fee funding assistance available, including: $1.7 million for roads, $92,000 for parks, and $69,000 for public buildings. Funding is available on a first-come-first-qualified basis until the total available funding is depleted.

Program Results and Lessons Learned

The County provided historical results of the impact fee program for affordable/workforce housing between 2015 and 2019. During this time period, the County has paid approximately $2.54 million of impact fees for 1,177 units. The majority of units built have been multi-family homes which amounted to $1.97 million of the total impact fees paid for 1,058 units. Single family and townhomes made up the remaining impact fees paid, amounting to $275,000 for 57 units and $296,000 for 62 units respectively.

Table 15
Palm Beach County, Impact Fees Paid (2015 – 2019)

Year	Impact Fees Paid[1]				Total Units[2]				Impact Fee Paid per Unit[3]			
	Single Family	Townhouse	Multi-Family	Total	Single Family	Townhouse	Multi-Family	Total	Single Family	Townhouse	Multi-Family	Total
2015	$0	$0	$684,144	$684,144	0	0	274	274	N/A	N/A	$2,497	$2,497
2016	$121,669	$0	$0	$121,669	24	0	0	24	$5,070	N/A	N/A	$5,070
2017	$105,862	$13,891	$469,145	$588,898	27	8	297	332	$3,921	$1,736	$1,580	$1,774
2018	$0	$0	$495,864	$495,864	0	0	241	241	N/A	N/A	$2,058	$2,058
2019	$47,594	$281,660	$318,248	$647,502	6	54	246	306	$7,932	$5,216	$1,294	$2,116
Total	**$275,125**	**$295,551**	**$1,967,401**	**$2,538,077**	**57**	**62**	**1,058**	**1,177**	**$4,827**	**$4,767**	**$1,860**	**$2,156**
Average per Yr.[4]	$55,025	$59,110	$393,480	$507,615	11	12	212	235	$5,641	$3,476	$1,857	$2,703
% of Total[5]	10.8%	11.6%	77.6%	100.0%	4.8%	5.3%	89.9%	100.0%	N/A	N/A	N/A	N/A

1) Source: Palm Beach County Department of Housing and Economic Sustainability
2) Source: Palm Beach County Department of Housing and Economic Sustainability
3) Impact fees paid (Item 1) divided by total units (Item 2)
4) Average of 2015 through 2019
5) Portion of total impact fees paid and total units (Items 1 and 2)

The County representatives felt that the impact fee program has been popular amongst developers. However, the County indicated that the most successful program in developing affordable/workforce housing has been the County's inclusionary zoning program. More information on the County's inclusionary zoning requirement is provided below.

Other Incentive Programs

In addition to the impact fee assistance program, Palm Beach County also has other incentive programs in place to promote and preserve affordable/workforce housing ((WHP) program details provided below). Some of the programs available are funded with federal and state dollars such as State Housing Initiatives Partnership (SHIP), Community Development Block Grant (CDBG), and the Home Investment Partnerships (HOME) program. The programs are made available to eligible households with income ranges between 60 percent and 140 percent of the area's median income, adjusted for family size.

The following list provides some examples of the additional programs offered by Palm Beach County.

- Expedited permitting.
- Density flexibility which allows greater density levels that would encourage the creation of affordable housing (additional information related to the County's Workforce Housing Program (WFH) is provided below).
- Transfer of development rights program.
- Purchase assistance.
- Rehabilitation assistance.
- Replacement housing assistance.
- Emergency repairs assistance.

In addition to the above, the County adopted changes to their WHP program in August of 2019. The County's WHP program includes the following incentives and policies to maintain and increase the workforce housing stock.

- Inclusionary zoning requirement: Developments of 10 or more units are required to set-aside a number of workforce housing units. The development has the option of providing the units on-site, off-site, restriction of existing housing units off-site, make a cash contribution in the form on an-lie fee, donate land of equal value to the in-lieu fee, or use the exchange (off-site) builder which allows for required units to be sold to another developer and be built elsewhere.

    - The County requires a 15-year recurring affordability period for owner-occupied units and 30-year period for rental units. In both cases a restrictive covenant is placed on the unit to ensure eligibility.
- The County's in-lieu fee was recently increased from $81,500 per owner-occupied unit and $50,000 per rental unit to $120,000 for a single-family unit, $100,000 for a townhouse, and $70,000 per multi-family unit. Discussions with County staff indicated that the fee was developed by negotiation of a group of stakeholders that included developers of both for and non-profit, housing advocates, and staff.
- Optional density bonus in exchange for additional workforce housing units. The County approved two options:
    - Limited (minimize obligation) which allows for up to 50 percent bonus or Full Incentive (maximize density) which allows for up to 100 percent bonus.
- Discussions with County representatives indicated the following outcomes of the WHP program since inception in 2006. Figures are as of November 2019.
    - Sixty-one projects have been subject to WHP, resulting in 1,423 WHP units, about 11.5 percent of total units approved in these projects.
    - Nearly 76 percent of WHP units provided are rentals: 893 rental units are completed or under development and 187 are in approved unbuilt projects.
    - About 16 percent of WHP units are for sale units, with 205 for-sale units in projects that are constructed or under development and 29 in approved unbuilt projects. As of November 2019, 43 units have been sold, and 31 are under contract.
    - To date, 20 developments have paid in-lieu fees for 99 units (approximately 7 percent of WHP units), totaling $7,669,500. The BCC has approved that these funds can be used to provide purchase assistance for the buyers of the WHP for-sale units.
    - Four approved unbuilt developments have not yet indicated how their workforce obligation will be met, accounting for 10 WHP units (1 percent of WHP units).
- Lastly, to comply with HB 7103, the County hired an economic consultant to assess whether the incentives available under the WHP program fully offset the costs to developers, for the same prototype projects. The consultant determined that the County's incentives more than offset the cost of compliance with the WHP requirements.

Table 16 provides additional example from other communities in Florida.

Table 16

Affordable Housing Programs/Incentives Matrix

Item/Community	Alachua County[1]	Brevard County[2]	Broward County[3]	Charlotte County[4]	Collier County[5]	Duval County[6]	Escambia County[7]	Flagler County[8]	Hillsborough County[9]	Indian River County[10]	Lake County[11]	Lee County[12]	Leon County[13]	Manatee County[14]	Martin County[15]
Housing Strategies															
Demolition/reconstruction assistance		X		X	X			X	X		X			X	
Disaster mitigation assistance	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Foreclosure prevention assistance	X	X	X		X			X				X	X		
New construction and/or reconstruction assistance		X	X		X	X	X		X			X			
Purchase assistance	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rapid Re-Housing Program												X			
Rental acquisition assistance	X			X	X	X	X				X			X	X
Replacement housing assistance													X		
Rehabilitation/ repair assistance	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rental security and/ or utilities deposit assistance	X	X		X	X		X	X	X		X	X	X		X
Special needs assistance (improve accessibility to the elderly and disabled persons)			X	X					X			X			
Tenant Based Rental Assistance	X	X		X	X	X	X	X	X		X	X	X		X
Incentive Strategies															
Affordable housing stock lost to development requires a 1 to 1 unit replacement on site (or off-site in case of proven hardship) or a payment to the Housing Trust Fund		X													
Allowance of affordable accessory residential units of small size	X		X	X		X	X	X	X	X		X			
Density Flexibility (Bonus)		X	X	X	X	X	X	X	X	X		X		X	X
Development of Housing Trust Fund and Mitigation Bank (Allows funds to be collected and utilized for housing strategies)		X	X						X	X					
Expedited Permitting	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Flexible lot configurations	X	X	X	X			X	X	X	X		X		X	
Flexible street requirement	X	X	X	X				X	X	X		X		X	X
Inclusionary zoning requirement			X												
In-lieu fee for density bonus			X									X			
Low income housing tax credit to assist non-profit organizations with matching funds needed to acquire credit funding										X					
Listing of inventory of publicly owned land suitable for affordable housing	X	X	X	X	X	X		X	X	X			X	X	X
Multi-Modal Transportation Districts Allow for Flexibility in Design of Streets, Parking, etc. for Affordable and Workforce Housing							X					X			
Ongoing Review Process - An ongoing process for review of local policies, ordinances, regulations and plan provisions that increase the cost of housing prior to their adoption	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Parking and setback flexibility	X	X	X	X			X	X	X	X		X	X	X	X
Reservation of infrastructure capacity	X		X	X			X	X	X	X		X		X	X
The Support of Development Near Transportation Hubs, Employment Centers and Mixed Use Developments	X	X	X	X		X	X	X	X	X		X		X	
Transfer of development rights	X	X	X	X	X					X		X			
Impact Fee Incentive Strategies															
Tiered Impact Fee			X		X				X	X	X			X	X
Impact Fee Payment Assistance						X		X	X	X		X			
Impact Fee Deferral/ Waiver/ Reduction		X	X		X	X			X		X	X		X	X

Table 16 (Continued)

Affordable Housing Programs/Incentives Matrix

Item/Community	Miami-Dade County[16]	Monroe County[17]	Nassau County[18]	Okaloosa County[19]	Osceola County[20]	Palm Beach County[21]	Pasco County[22]	Pinellas County[23]	Polk County[24]	Sarasota County[25]	Seminole County[26]	St. Johns County[27]	St. Lucie County[28]	Sumter County[29]
Housing Strategies														
Demolition/reconstruction assistance			X				X	X	X				X	X
Disaster mitigation assistance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Foreclosure prevention assistance	X					X	X							
New construction and/or reconstruction assistance		X					X	X	X	X	X			
Purchase assistance	X	X	X	X	X	X	X	X	X		X	X	X	X
Rapid Re-Housing Program	X								X	X	X			
Rental acquisition assistance	X	X	X	X	X		X							
Replacement housing assistance	X					X								
Rehabilitation/ repair assistance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rental security and/ or utilities deposit assistance	X				X	X	X				X		X	
Special needs assistance (improve accessibility to the elderly and disabled persons)					X	X	X	X		X				
Tenant Based Rental Assistance					X		X	X						
Incentive Strategies														
Affordable housing stock lost to development requires a 1 to 1 unit replacement on site (or off-site in case of proven hardship) or a payment to the Housing Trust Fund														
Allowance of affordable accessory residential units of small size	X	X												X
Density Flexibility (Bonus)		X	X			X		X			X			X
Development of Housing Trust Fund and Mitigation Bank (Allows funds to be collected and utilized for housing strategies)	X							X						
Expedited Permitting	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Flexible lot configurations	X	X	X					X			X			X
Flexible street requirement		X												
Inclusionary zoning requirement	X	X				X					X			
In-lieu fee for density bonus	X					X								
Low income housing tax credit to assist non-profit organizations with matching funds needed to acquire credit funding					X									
Listing of inventory of publicly owned land suitable for affordable housing	X	X	X						X					X
Multi-Modal Transportation Districts Allow for Flexibility in Design of Streets, Parking, etc. for Affordable and Workforce Housing								X						
Ongoing Review Process - An ongoing process for review of local policies, ordinances, regulations and plan provisions that increase the cost of housing prior to their adoption	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Parking and setback flexibility	X	X	X					X						
Reservation of infrastructure capacity	X	X												
The Support of Development Near Transportation Hubs, Employment Centers and Mixed Use Developments		X						x	X					X
Transfer of development rights	X	X			X	X	X	X	X	X		X	X	
Impact Fee Incentive Strategies														
Tiered Impact Fee						X	X	X		X		X		
Impact Fee Payment Assistance			X			X				X	X			
Impact Fee Deferral/ Waiver/ Reduction	X	X	X			X			X	X				

1) Source: Alachua County SHIP Local Housing Assistance Plan (LHAP) for the years 2017-2020 & Alachua County Growth Management Department.
2) Source: Brevard County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021 & Brevard County Planning & Development Department. Municide - Brevard County Sec. 62-6304. - Housing trust fund and unit mitigation bank.
3) Source: Broward County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Broward County Planning and Development Management Division.
4) Source: Charlotte County SHIP Local Housing Assistance Plan (LHAP) for the years 2017-2020 & Charlotte County Community Development Department.
5) Source: Collier County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Collier County Capital Project Planning, Impact Fees, and Program Management Division. IF Deferral - Article IV.
6) Source: Duval County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021.
7) Source: Escambia County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022.
8) Source: Flagler County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Flagler County Code, Chapter 17.
9) Source: Hillsborough County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Hillsborough County Permits and Records Department & Housing Trust Fund Project.
10) Source: Indian River County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021 & Indian River County Planning Division.
11) Source: Lake County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021 & Lake County Planning and Zoning Office.
12) Source: Lee County SHIP Local Housing Assistance Plan (LHAP) for the years 2017-2020 & Lee County Community Development Department.
13) Source: Leon County SHIP Local Housing Assistance Plan (LHAP) for the years 2017-2020.
14) Source: Manatee County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021 & Manatee County Administration Department.
15) Source: Martin County SHIP Local Housing Assistance Plan (LHAP) for the years 2017-2020 & Martin County Growth Management Department.
16) Source: Miami-Dade County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Miami-Dade Regulatory & Economic Resources Department & Housing Trust Fund Project.
17) Source: Monroe County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Monroe County Building and Permitting Department.
18) Source: Nassau County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021 & Nassau County Board of Commissioners' Planning and Economic Opportunity Department.
19) Source: Okaloosa County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022.
20) Source: Osceola County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Osceola County Community Development Department.
21) Source: Palm Beach County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Palm Beach County Administration Division.
22) Source: Pasco County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021 & Pasco County Central Permitting Department.
23) Source: Pinellas County SHIP Local Housing Assistance Plan (LHAP) for the years 2018-2021 & Pinellas County Code of Ordinances Sec 150-40 & Housing Trust Fund Project.
24) Source: Polk County SHIP Local Housing Assistance Plan (LHAP) for the years 2017-2020 & Polk County Building Department.
25) Source: Sarasota County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Sarasota County Planning and Development Services Department.
26) Source: Seminole County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Seminole County Development Services Department.
27) Source: St. Johns County SHIP Local Housing Assistance Plan (LHAP) for the years 2017-2020 & St. Johns County Growth Management Department.
28) Source: St. Lucie County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & St. Lucie County Planning Division.

29) Source: Sumter County SHIP Local Housing Assistance Plan (LHAP) for the years 2019-2022 & Sumter County Planning Division.

APPENDIX A
Demand Component Calculations

Appendix A: Demand Component

This appendix presents the detailed calculations for the demand component of the roadway/multi-modal impact fee update.

Interstate & Toll Facility Discount Factor

Table A-1 presents the interstate and toll facility discount factor used in the calculation of the roadway/multi-modal impact fee. This variable is based on data from the Orlando Urban Area Transportation System 2040 Model (OUATS), specifically the base year 2009 vehicle-miles of travel. It should be noted that discount factor excludes all external-to-external trips, which represent traffic that goes through Orange County, but does not necessarily stop in the county. This traffic is excluded from the analysis since it does not come from development within the county. The I/T discount factor is used to reduce the VMT/PMT that the roadway/multi-modal fee charges for each land use.

Table A-1
Interstate/Toll Facility Discount Factor

Facility Type	Total	
	VMT	%
Interstate/Toll	10,339,058	36.1%
Other Roads	18,331,972	63.9%
Total	**28,671,030**	**100.0%**
Interstate/Toll	10,339,058	**36.1%**

Source: OUATS 2040 (base year)

Single Family Trip Generation Rate Tiering

As part of this study, the demand component for single family homes is tiered by size to assist the County in its efforts to support attainable housing. The tiering analysis uses the American Community Survey (ACS) Public Use Microdata Sample (PUMS) date files as the basis. PUMS files allow for the use of census sample data collected in Orange County to create custom tables that are otherwise unavailable. For this analysis, the 5-year (2014-2018) PUMS files were utilized. The PUMS 5-year estimates incorporate 60 months of data (as opposed to the 1-year, 12-month dataset), representing a 5 percent sample of the population (1 percent for each year). The 5-year sample represents the largest and most reliable of the PUMS datasets.

To isolate the PUMS data specific to Orange County, all Public Use Microdata Areas (PUMAs) within the County were identified. PUMAs are non-overlapping areas that partition each state

into areas containing approximately 100,000 residents. These are the most detailed geographic area available within the PUMS data set.

Using the PUMAs identified, the number of persons, number of buildings, and number of vehicles were extracted for single family (attached/detached) buildings only. Additionally, this data is grouped based on the number of bedrooms present in each building. The result of this analysis is a local sample of persons, single family buildings, and vehicles by bedroom count.

Table A-2

PUMS Result Summary: Single Family Detached/Attached

Bedrooms	Persons	Vehicles	Buildings (Units)	Persons per Housing Unit	Vehicles per Housing Unit
0 to 1	360	247	218	1.65	1.13
2	3,428	2,593	1,902	1.80	1.36
3	18,436	13,661	7,772	2.37	1.76
4+	15,824	11,442	5,335	2.97	2.14
Total	**38,048**	**27,943**	**15,227**	**2.50**	**1.84**

Source: PUMS 2014-2018 dataset; PUMAs 9501-9510

As shown in Table A-2, the persons per housing unit and vehicles per housing unit were calculated for each bedroom tier, representing the entirety of Orange County. Since the transportation impact fee is not collected in the municipalities, a normalization factor was applied to adjust for the unincorporated county. As shown in Table A-3, the unincorporated persons-per-housing-unit (PPHU) was calculated using the 5-year 2014-2018 ACS data for Orange County and all municipalities. A similar analysis is completed for vehicle per housing unit (VPHU) data, resulting in PPHU and VPHU data by bedroom, for unincorporated Orange County.

Table A-3

PPHU and VPHU for Unincorporated Orange County

Item	Uninc. Orange County
Persons in Occupied Housing Units (Single Unit detached/attached)	535,047
Units in Structure (Single Unit detached/attached)	187,605
Persons per Housing Unit	**2.85**
Vehicles Available (Owner/Renter Occupied)	434,506
Units in Structure	278,932
Persons per Housing Unit	**1.56**

Source: 2014-2018 5-yr ACS Estimates for Tables B25033, B25044, and B25024. Census tracts designated as "incorporated" or "unincorporated" based on a GIS review

Table A-4 illustrates the ratio-based adjustments made to the countywide PUMS data based on the PPHU and VPHU calculated for the unincorporated county.

Table A-4

PPHU and VPHU Tiers Adjusted for Unincorporated County

Bedrooms	Persons per Housing Unit[1]	Persons per Housing Unit (Uninc.)[2]	Vehicles per Housing Unit[1]	Vehicles per Housing Unit (Uninc.)[2]
0 to 1	1.65	1.88	1.13	0.96
2	1.80	2.05	1.36	1.15
3	2.37	2.70	1.76	1.49
4+	2.97	3.39	2.14	1.81
Total	**2.50**	**2.85**	**1.84**	**1.56**

1) Source: Table A-2
2) Each bedroom tier for unincorporated county was based on the ratio of the total PPHU (or total VPHU) for the unincorporated county (Item 2) vs. the total PPHU (or total VPHU) for all of Orange County (Item 1)

The PPHU and VPHU per bedroom data was then converted to weighted average trip ends per person and per vehicles, respectively, using the ITE 10th Edition National averages. The resulting trip ends per persons and vehicles were then averaged, resulting in average trip ends, per bedroom tier, as shown in Table A-5.

Table A-5

Calculated Trip Ends per Bedroom

Bedrooms	Persons per Housing Unit (Uninc.)[1]	AWVTE per HU Based on Persons[2]	Vehicles per Housing Unit[1]	AWVTE per HU Based on Vehicles[3]	Avg. Weighted Vehicle Trip Ends per Housing Unit[4]
0 to 1	1.88	4.98	0.96	6.11	**5.55**
2	2.05	5.43	1.15	7.31	**6.37**
3	2.70	7.16	1.49	9.48	**8.32**
4+	3.39	8.98	1.81	11.51	**10.25**
ITE 10th Avg Trip Ends[5]		**2.65**	**-**	**6.36**	**-**

AWVTE = Average Weighted Vehicle Trip Ends

1) Source: Table A-4
2) PPHU (Item 1; PPHU) multiplied by the ITE 10th average trip ends per person (Item 5; 2.65)
3) VPHU (Item 1; VPHU) multiplied by the ITE 10th average trip ends per vehicle (Item 5; 6.36)
4) Average of AWVTE based on persons and AWVTE based on vehicles
5) Source: ITE 10th Edition Handbook

Using the Orange County Property Appraisers Database, the average square footage per unit by bedroom tier was determined for unincorporated Orange County, as shown in Table A-6. With these averages determined, the average trip ends were graphed per square footage to determine a line of best fit, as shown in Figure A-1.

Table A-6

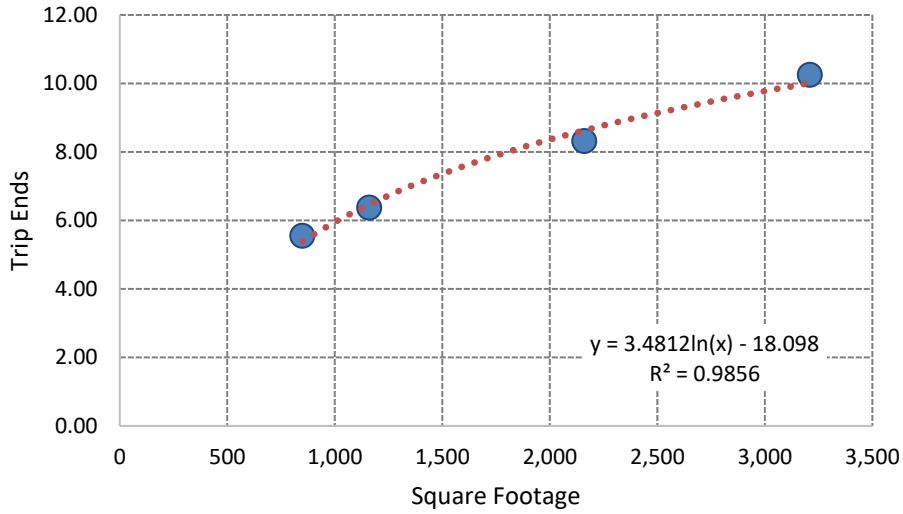
Trip Ends vs. Bedrooms vs. Square Footage

Bedrooms	Average Unit Size (Sq Ft)[(1)]	Avg. Weighted Vehicle Trip Ends per Housing Unit[(2)]
0 to 1	850	5.55
2	1,160	6.37
3	2,160	8.32
4+	3,210	10.25

1) Source: Orange County Property Appraiser's Parcel Database
2) Source: Table A-5

Figure A-1

Average Trip Ends per Square Footage



Using the resulting best-fit equation (as shown in Figure A-1), the trip generation rates for various square footage tiers were calculated. As a final adjustment, the resulting trip generation rates were adjusted to account for the differences between the national ITE 10th Edition average trip generation rate and the Florida Studies Trip Characteristics Database average trip generation rate for the single family land use. The resulting trip generation rates are shown in Table A-7.

Table A-7

Trip Generation Rates by Tier

Tier	Sq Ft Input	TGR[1]	TGR Adj.[2]
Single Family (Detached) - 1,200 sf or less	1,000	6.58	**6.15**
Single Family (Detached) - 1,201 to 2,000 sf	**2,000**	**8.36**	**7.81**
Single Family (Detached) - 2,001 to 3,500 sf	3,500	10.31	**9.63**
Single Family (Detached) - greater than 3,500 sf	4,000	10.78	**10.07**

1) Calculated using the sq ft inputs and the line of best fit from Figure 1
2) TGR (Item 1) adjusted from National data to Florida data. The ratio between the calculated TGR for the 1,501-2,000 sq ft tier (8.36) and the FL studies average TGR (7.81; detail is presented later in this Appendix) was applied to all other sq ft tiers.

Tables A-8 through A-10 present the tiered single family rates for each fee district.

Table A-8

Calculated Single Family Tiered Fee Rates (URBAN)

ITE LUC	Land Use	Unit	Trip Rate	Net Multi-Modal Fee
	URBAN			
210	Single Family (Detached) - 1,200 sf or less	du	6.15	**$6,425**
210	Single Family (Detached) - 1,201 to 2,000 sf	du	7.81	**$8,218**
210	Single Family (Detached) - 2,001 to 3,500 sf	du	9.63	**$10,163**
210	Single Family (Detached) - greater than 3,500 sf	du	10.07	**$10,640**

Table A-9

Calculated Single Family Tiered Fee Rates (SUBURBAN)

ITE LUC	Land Use	Unit	Trip Rate	Net Impact Fee
	SUBURBAN			
210	Single Family (Detached) - 1,200 sf or less	du	6.15	**$7,973**
210	Single Family (Detached) - 1,201 to 2,000 sf	du	7.81	**$10,138**
210	Single Family (Detached) - 2,001 to 3,500 sf	du	9.63	**$12,509**
210	Single Family (Detached) - greater than 3,500 sf	du	10.07	**$13,082**

Table A-10

Calculated Single Family Tiered Fee Rates (RURAL)

ITE LUC	Land Use	Unit	Trip Rate	Net Impact Fee
	RURAL			
210	Single Family (Detached) - 1,200 sf or less	du	6.15	**$9,113**
210	Single Family (Detached) - 1,201 to 2,000 sf	du	7.81	**$11,586**
210	Single Family (Detached) - 2,001 to 3,500 sf	du	9.63	**$14,294**
210	Single Family (Detached) - greater than 3,500 sf	du	10.07	**$14,949**

Demand Variable Changes

Since the last demand component update in 2012, the trip generation rate (TGR), trip length (TL), and percent new trips (PNT) have changed for several land uses. These variables were updated based on additional data included in the Florida Studies database (including local Orange County studies) and the use of the ITE 10th Edition Trip Generation Reference Report. Table A-11 presents the changes to the gross VMT while Tables A-12 through A-14 provide detail on each individual input variable. For the trip length comparison in Table A-13, it is important to note that these figures reflect the trip length figures used in the impact fee calculations prior to the application of local adjustment factor to reflect longer trip lengths in Orange County.

Table A-11
Percent Change in Gross VMT of Impact Fee Land Uses

ITE LUC	Land Use	Unit	GVMT 2012	GVMT 2020	GVMT %	Explanation
	RESIDENTIAL:					
210	Single Family (Detached) - 1,200 sf or less	du	25.85	20.36	-21%	Single Family TGR tiering by square footage added
210	Single Family (Detached) - 1,201 to 2,000 sf	du	25.85	25.85	0%	Single Family TGR tiering by square footage added
210	Single Family (Detached) - 2,001 to 3,500 sf	du	25.85	31.88	23%	Single Family TGR tiering by square footage added
210	Single Family (Detached) - greater than 3,500 sf	du	25.85	33.33	29%	Single Family TGR tiering by square footage added
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 floors)	du	16.83	18.67	11%	Re-alignment of multi-family land uses in ITE 10th Edition
221	Multi-Family Housing (Mid-Rise, 3-10 floors)	du	16.83	13.87	-18%	Re-alignment of multi-family land uses in ITE 10th Edition
222	Multi-Family Housing (High-Rise, >10 floors)	du	10.66	11.35	6%	Re-alignment of multi-family land uses in ITE 10th Edition
225	Student Housing (Adjacent to Campus)	bedroom	-	4.02	-	Unit change (previously "per du"), TGR & TL update, see Tables A-12 and A-13
225	Student Housing (Over 1/2 mile from Campus)	bedroom	-	7.60	-	Unit change (previously "per du"), TGR & TL update, see Tables A-12 and A-13
231	Mid-Rise Residential w/1st floor Commercial	du	-	8.77	-	New land use
232	High-Rise Residential w/1st floor Commercial	du	-	5.13	-	New land use
240	Mobile Home Park	du	9.59	9.59	0%	No change
251	Senior Adult Housing - Detached (Retirement Community/ Age-Restricted Single-Family)	du	8.48	9.49	12%	TGR update, see Table A-12
252	Senior Adult Housing - Attached (Retirement Community/ Age-Restricted Single-Family)	du	-	7.23	-	New land use
265	Time Share	du	13.91	17.13	23%	TGR update, see Table A-12
	LODGING:					
310	Hotel/Tourist Hotel	room	13.14	11.47	-13%	TGR update, see Table A-12
320	Motel	room	9.41	5.60	-40%	TGR update, see Table A-12
	RECREATIONAL:					
430	Golf Course	acre	15.01	11.14	-26%	TGR update, see Table A-12
437	Bowling Alley	1,000 sf	77.24	30.13	-61%	TGR update, see Table A-12
443	Movie Theater	1,000 sf	76.25	80.19	5%	TGR update, see Table A-12
491	Racquet Club	1,000 sf	33.96	47.68	40%	TGR update, see Table A-12
492	Health/Fitness Club	1,000 sf	79.71	83.51	5%	TGR update, see Table A-12
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	-	30.55	-	New land use
	INSTITUTIONAL:					
522	School	1,000 sf	52.85	26.71	-49%	TGR, TL & PNT update, see Tables A-12, A-13, and A-14
560	Public Assembly	1,000 sf	34.94	12.23	-65%	TGR, TL & PNT update, see Tables A-12, A-13, and A-14
565	Day Care	1,000 sf	55.62	36.77	-34%	TGR update, see Table A-12
590	Library	1,000 sf	91.22	116.86	28%	TGR update, see Table A-12
	MEDICAL:					
610	Hospital	bed	30.10	57.63	91%	TGR & PNT update, see Tables A-12 and A-14
620	Nursing Home	1,000 sf	2.86	7.65	167%	TGR update, see Table A-12
640	Animal Hospital/Veterinary Clinic	1,000 sf	67.97	16.09	-76%	TGR & TL update, see Tables A-12 and A-13
	OFFICE:					
710	General Office 50,000 sf or less	1,000 sf	37.07	25.66	-31%	TGR update, see Table A-12
710	General Office 50,001-100,000 sf	1,000 sf	31.60	25.14	-20%	TGR update, see Table A-12
710	General Office 100,001-200,000 sf	1,000 sf	26.94	24.61	-9%	TGR update, see Table A-12
710	General Office greater than 200,000 sf	1,000 sf	22.98	24.12	5%	TGR update, see Table A-12
720	Small Medical/Dental Office (10,000 sq ft or less)	1,000 sf	85.75	58.85	-31%	TGR update, see Table A-12
720	Medical/Dental Office	1,000 sf	85.75	84.27	-2%	TGR update, see Table A-12
732	Post Office	1,000 sf	136.51	131.15	-4%	TGR update, see Table A-12
	RETAIL:					
815	Free-Standing Discount Store	1,000 sf	46.02	42.71	-7%	TGR update, see Table A-12
816	Hardware/Paint Store	1,000 sf	26.86	4.79	-82%	TGR update, see Table A-12
820	Retail/Tourist Retail: 50,000 sfgla or less	1,000 sfgla	45.32	39.30	-13%	TGR update, see Table A-12
820	Retail/Tourist Retail: 50,001-100,000 sfgla	1,000 sfgla	48.21	42.68	-11%	TGR update, see Table A-12
820	Retail/Tourist Retail: 100,001-200,000 sfgla	1,000 sfgla	42.84	38.72	-10%	TGR update, see Table A-12
820	Retail/Tourist Retail: 200,001-300,000 sfgla	1,000 sfgla	41.36	37.84	-9%	TGR update, see Table A-12
820	Retail/Tourist Retail: 300,001-400,000 sfgla	1,000 sfgla	40.28	37.18	-8%	TGR update, see Table A-12
820	Retail/Tourist Retail: 400,001-500,000 sfgla	1,000 sfgla	39.87	37.04	-7%	TGR update, see Table A-12
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla	1,000 sfgla	41.03	38.93	-5%	TGR update, see Table A-12
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla	1,000 sfgla	41.66	39.72	-5%	TGR update, see Table A-12
820	Retail/Tourist Retail: greater than 1,200,000 sfgla	1,000 sfgla	42.52	40.75	-4%	TGR update, see Table A-12
840/841	New/Used Auto Sales	1,000 sf	47.97	44.66	-7%	TGR update, see Table A-12
850	Supermarket	1,000 sf	60.21	62.11	3%	TGR update, see Table A-12
853	Convenience Market w/Gas Pumps	1,000 sf	163.86	132.39	-19%	TGR update, see Table A-12
862	Home Improvement Superstore	1,000 sf	23.96	24.71	3%	TGR update, see Table A-12
863	Electronics Superstore	1,000 sf	12.30	21.49	75%	TGR, TL & PNT update, see Tables A-12, A-13, and A-14
880/881	Drug Store	1,000 sf	85.81	34.73	-60%	TGR, TL & PNT update, see Tables A-12, A-13, and A-14
	SERVICES:					
911	Bank/Savings Walk-In	1,000 sf	-	33.60	-	New land use
912	Bank/Savings Drive-In	1,000 sf	90.15	58.09	-36%	TGR update, see Table A-12
925	Drinking Place	1,000 sf	30.96	59.48	92%	TGR, TL & PNT update, see Tables A-12, A-13, and A-14
931	Quality Restaurant	1,000 sf	110.13	104.00	-6%	TGR update, see Table A-12
932	High-Turnover Restaurant	1,000 sf	131.22	119.58	-9%	TGR update, see Table A-12
934	Fast Food Restarurant w/Drive-Thru	1,000 sf	303.79	286.86	-6%	TGR update, see Table A-12
942	Auto Service	1,000 sf	52.17	36.74	-30%	TGR, TL & PNT update, see Tables A-12, A-13, and A-14
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	36.83	37.58	2%	TGR update, see Table A-12
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	-	44.87	-	New land use
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	-	50.37	-	New land use
947	Self-Service Car Wash	wash station	80.05	80.05	0%	No change
	INDUSTRIAL:					
110	General Light Industrial	1,000 sf	16.51	11.75	-29%	TGR update, see Table A-12
140	Manufacturing	1,000 sf	9.05	9.31	3%	TGR update, see Table A-12
150	Warehouse	1,000 sf	8.43	4.12	-51%	TGR update, see Table A-12
151	Mini-Warehouse	1,000 sf	3.07	2.41	-21%	TGR & TL update, see Tables A-12 and A-13
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	-	3.32	-	New land use

- Gross VMT = TGR * TL * PNT / 2
- Individual input variables are shown in Tables A-12 through A-14
- The trip length values used to calculate the GVMT do NOT include the TL adjustment factors that are applied in the impact fee rate calculations. The TL shown in Table A-13 provide a comparison to the 2012 report of the unadjusted TL values
- See Appendix E for additional information

Table A-12
Percent Change in Trip Generation Rate of Impact Fee Land Uses

ITE LUC	Land Use	Unit	TGR 2012	TGR 2020	TGR %	Explanation
	RESIDENTIAL:					
210	Single Family (Detached) - 1,200 sf or less	du	7.81	6.15	-21%	Single Family tiering by square footage added
210	Single Family (Detached) - 1,201 to 2,000 sf	du	7.81	7.81	0%	Single Family tiering by square footage added
210	Single Family (Detached) - 2,001 to 3,500 sf	du	7.81	9.63	23%	Single Family tiering by square footage added
210	Single Family (Detached) - greater than 3,500 sf	du	7.81	10.07	29%	Single Family tiering by square footage added
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 floors)	du	6.60	7.32	11%	Re-alignment of multi-family land uses in ITE 10th Edition
221	Multi-Family Housing (Mid-Rise, 3-10 floors)	du	6.60	5.44	-18%	Re-alignment of multi-family land uses in ITE 10th Edition
222	Multi-Family Housing (High-Rise, >10 floors)	du	4.18	4.45	6%	Re-alignment of multi-family land uses in ITE 10th Edition
225	Student Housing (Adjacent to Campus)	bedroom	-	3.15	-	Updated TGR in ITE 10th Edition, unit change (previously "per du")
225	Student Housing (Over 1/2 mile from Campus)	bedroom	-	3.97	-	Updated TGR in ITE 10th Edition, unit change (previously "per du")
231	Mid-Rise Residential w/1st floor Commercial	du	-	3.44	-	New land use
232	High-Rise Residential w/1st floor Commercial	du	-	2.01	-	New land use
240	Mobile Home Park	du	4.17	4.17	0%	No change
251	Senior Adult Housing - Detached (Retirement Community/ Age-Restricted Single-Family)	du	3.13	3.50	12%	Updated TGR in ITE 10th Edition
252	Senior Adult Housing - Attached (Retirement Community/ Age-Restricted Single-Family)	du	-	3.33	-	New land use
265	Time Share	du	7.01	8.63	23%	Updated TGR in ITE 10th Edition
	LODGING:					
310	Hotel/Tourist Hotel	room	6.36	5.55	-13%	Additional FL Studies added and updated TGR in ITE 10th Edition
320	Motel	room	5.63	3.35	-40%	Updated TGR in ITE 10th Edition
	RECREATIONAL:					
430	Golf Course	acre	5.04	3.74	-26%	Updated TGR in ITE 10th Edition
437	Bowling Alley	1,000 sf	33.33	13.00	-61%	Updated TGR in ITE 10th Edition (peak hour adjusted for daily)
443	Movie Theater	1,000 sf	78.06	82.30	5%	Updated TGR in ITE 10th Edition
491	Racquet Club	1,000 sf	14.03	19.70	40%	Updated TGR in ITE 10th Edition (peak hour adjusted for daily)
492	Health/Fitness Club	1,000 sf	32.93	34.50	5%	Updated TGR in ITE 10th Edition (peak hour adjusted for daily)
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	-	21.33	-	New land use
	INSTITUTIONAL:					
522	School	1,000 sf	13.78	20.17	46%	Updated TGR in ITE 10th Edition
560	Public Assembly	1,000 sf	9.11	6.95	-24%	Updated TGR in ITE 10th Edition
565	Day Care	1,000 sf	75.07	49.63	-34%	Updated TGR in ITE 10th Edition
590	Library	1,000 sf	56.24	72.05	28%	Updated TGR in ITE 10th Edition
	MEDICAL:					
610	Hospital	bed	11.81	22.32	89%	Updated TGR in ITE 10th Edition
620	Nursing Home	1,000 sf	2.48	6.64	168%	Updated TGR in ITE 10th Edition
640	Animal Hospital/Veterinary Clinic	1,000 sf	28.66	24.20	-16%	Updated TGR in ITE 10th Edition
	OFFICE:					
710	General Office 50,000 sf or less	1,000 sf	15.65	10.83	-31%	Updated TGR equation in ITE 10th Edition
710	General Office 50,001-100,000 sf	1,000 sf	13.34	10.61	-20%	Updated TGR equation in ITE 10th Edition
710	General Office 100,001-200,000 sf	1,000 sf	11.37	10.39	-9%	Updated TGR equation in ITE 10th Edition
710	General Office greater than 200,000 sf	1,000 sf	9.70	10.18	5%	Updated TGR equation in ITE 10th Edition
720	Small Medical/Dental Office (10,000 sq ft or less)	1,000 sf	34.72	23.83	-31%	New land use (change shown from the medical/dental office)
720	Medical/Dental Office	1,000 sf	34.72	34.12	-2%	Updated TGR in ITE 10th Edition
732	Post Office	1,000 sf	108.19	103.94	-4%	Updated TGR in ITE 10th Edition
	RETAIL:					
815	Free-Standing Discount Store	1,000 sf	57.24	53.12	-7%	Updated TGR in ITE 10th Edition
816	Hardware/Paint Store	1,000 sf	51.29	9.14	-82%	Updated TGR in ITE 10th Edition
820	Retail/Tourist Retail: 50,000 sfgla or less	1,000 sfgla	86.56	75.05	-13%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: 50,001-100,000 sfgla	1,000 sfgla	67.91	60.12	-11%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: 100,001-200,000 sfgla	1,000 sfgla	53.28	48.16	-10%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: 200,001-300,000 sfgla	1,000 sfgla	46.23	42.30	-9%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: 300,001-400,000 sfgla	1,000 sfgla	41.80	38.58	-8%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: 400,001-500,000 sfgla	1,000 sfgla	38.66	35.92	-7%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla	1,000 sfgla	30.33	28.78	-5%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla	1,000 sfgla	28.46	27.14	-5%	Updated TGR equation in ITE 10th Edition
820	Retail/Tourist Retail: greater than 1,200,000 sfgla	1,000 sfgla	26.96	25.84	-4%	Updated TGR equation in ITE 10th Edition
840/841	New/Used Auto Sales	1,000 sf	26.40	24.58	-7%	Updated TGR in ITE 10th Edition
850	Supermarket	1,000 sf	103.38	106.64	3%	Updated TGR in ITE 10th Edition
853	Convenience Market w/Gas Pumps	1,000 sf	775.14	626.25	-19%	Updated TGR in ITE 10th Edition
862	Home Improvement Superstore	1,000 sf	29.80	30.74	3%	Updated TGR in ITE 10th Edition
863	Electronics Superstore	1,000 sf	45.04	41.05	-9%	Updated TGR in ITE 10th Edition
880/881	Drug Store	1,000 sf	88.46	104.37	18%	Updated TGR in ITE 10th Edition
	SERVICES:					
911	Bank/Savings Walk-In	1,000 sf	-	59.39	-	New land use. TGR from ITE 10th (PM 4-6pm adjusted for daily)
912	Bank/Savings Drive-In	1,000 sf	159.34	102.66	-36%	Updated TGR in ITE 10th Edition
925	Drinking Place	1,000 sf	113.40	113.60	0%	Updated TGR in ITE 10th Edition (peak hour adjusted for daily)
931	Quality Restaurant	1,000 sf	91.10	86.03	-6%	Updated TGR in ITE 10th Edition
932	High-Turnover Restaurant	1,000 sf	116.60	106.26	-9%	Additional FL Studies added and updated TGR in ITE 10th Edition
934	Fast Food Restarurant w/Drive-Thru	1,000 sf	511.00	482.53	-6%	Updated TGR in ITE 10th Edition
942	Auto Service	1,000 sf	25.67	28.19	10%	Updated TGR in ITE 10th Edition (peak hour adjusted for daily)
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	168.56	172.01	2%	Updated TGR in ITE 10th Edition
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	-	205.36	-	New land use
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	-	230.52	-	New land use
947	Self-Service Car Wash	wash station	108.00	108.00	0%	No change
	INDUSTRIAL:					
110	General Light Industrial	1,000 sf	6.97	4.96	-29%	Updated TGR in ITE 10th Edition
140	Manufacturing	1,000 sf	3.82	3.93	3%	Updated TGR in ITE 10th Edition
150	Warehouse	1,000 sf	3.56	1.74	-51%	Updated TGR in ITE 10th Edition
151	Mini-Warehouse	1,000 sf	2.15	1.49	-31%	Additional FL Studies added
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	-	1.40	-	New land use

See Appendix E for additional information

Table A-13
Percent Change in Trip Length (Unadjusted) of Impact Fee Land Uses

ITE LUC	Land Use	Unit	TL 2012	TL 2020	TL %	Explanation
	RESIDENTIAL:					
210	Single Family (Detached) - 1,200 sf or less	du	6.62	6.62	0%	No change
210	Single Family (Detached) - 1,201 to 2,000 sf	du	6.62	6.62	0%	No change
210	Single Family (Detached) - 2,001 to 3,500 sf	du	6.62	6.62	0%	No change
210	Single Family (Detached) - greater than 3,500 sf	du	6.62	6.62	0%	No change
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 floors)	du	5.10	5.10	0%	No change
221	Multi-Family Housing (Mid-Rise, 3-10 floors)	du	5.10	5.10	0%	No change
222	Multi-Family Housing (High-Rise, >10 floors)	du	5.10	5.10	0%	No change
225	Student Housing (Adjacent to Campus)	bedroom	5.10	2.55	-50%	Updated to use 50% of LUC 220
225	Student Housing (Over 1/2 mile from Campus)	bedroom	5.10	3.83	-25%	Updated to use 75% of LUC 220
231	Mid-Rise Residential w/1st floor Commercial	du	-	5.10	-	New land use
232	High-Rise Residential w/1st floor Commercial	du	-	5.10	-	New land use
240	Mobile Home Park	du	4.60	4.60	0%	No change
251	Senior Adult Housing - Detached (Retirement Community/ Age-Restricted Single-Family)	du	5.42	5.42	0%	No change
252	Senior Adult Housing - Attached (Retirement Community/ Age-Restricted Single-Family)	du	-	4.34	-	New land use
265	Time Share	du	3.97	3.97	0%	No change
	LODGING:					
310	Hotel/Tourist Hotel	room	6.26	6.26	0%	No change
320	Motel	room	4.34	4.34	0%	No change
	RECREATIONAL:					
430	Golf Course	acre	6.62	6.62	0%	No change
437	Bowling Alley	1,000 sf	5.15	5.15	0%	No change
443	Movie Theater	1,000 sf	2.22	2.24	1%	Updated weighted average calculation
491	Racquet Club	1,000 sf	5.15	5.15	0%	No change
492	Health/Fitness Club	1,000 sf	5.15	5.15	0%	No change
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	-	3.37	-	New land use
	INSTITUTIONAL:					
522	School	1,000 sf	7.67	3.31	-57%	Updated to use 50% of single family per review of travel demand models
560	Public Assembly	1,000 sf	7.67	3.91	-49%	Updated to use the midpoint of office and retail (App. A)
565	Day Care	1,000 sf	2.03	2.03	0%	No change
590	Library	1,000 sf	6.62	6.62	0%	No change
	MEDICAL:					
610	Hospital	bed	6.62	6.62	0%	No change
620	Nursing Home	1,000 sf	2.59	2.59	0%	No change
640	Animal Hospital/Veterinary Clinic	1,000 sf	5.10	1.90	-63%	Updated to use FL Studies; previously used 2004 study
	OFFICE:					
710	General Office 50,000 sf or less	1,000 sf	5.15	5.15	0%	No change
710	General Office 50,001-100,000 sf	1,000 sf	5.15	5.15	0%	No change
710	General Office 100,001-200,000 sf	1,000 sf	5.15	5.15	0%	No change
710	General Office greater than 200,000 sf	1,000 sf	5.15	5.15	0%	No change
720	Small Medical/Dental Office	1,000 sf	5.55	5.55	0%	No change
720	Medical/Dental Office	1,000 sf	5.55	5.55	0%	No change
732	Post Office	1,000 sf	5.15	5.15	0%	No change
	RETAIL:					
815	Free-Standing Discount Store	1,000 sf	2.40	2.40	0%	No change
816	Hardware/Paint Store	1,000 sf	1.87	1.87	0%	No change
820	Retail/Tourist Retail: 50,000 sfgla or less	1,000 sfgla	1.87	1.87	0%	No change
820	Retail/Tourist Retail: 50,001-100,000 sfgla	1,000 sfgla	2.29	2.29	0%	No change
820	Retail/Tourist Retail: 100,001-200,000 sfgla	1,000 sfgla	2.40	2.40	0%	No change
820	Retail/Tourist Retail: 200,001-300,000 sfgla	1,000 sfgla	2.52	2.52	0%	No change
820	Retail/Tourist Retail: 300,001-400,000 sfgla	1,000 sfgla	2.64	2.64	0%	No change
820	Retail/Tourist Retail: 400,001-500,000 sfgla	1,000 sfgla	2.75	2.75	0%	No change
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla	1,000 sfgla	3.34	3.34	0%	No change
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla	1,000 sfgla	3.57	3.57	0%	No change
820	Retail/Tourist Retail: greater than 1,200,000 sfgla	1,000 sfgla	3.80	3.80	0%	No change
840/841	New/Used Auto Sales	1,000 sf	4.60	4.60	0%	No change
850	Supermarket	1,000 sf	2.08	2.08	0%	No change
853	Convenience Market w/Gas Pumps	1,000 sf	1.51	1.51	0%	No change
862	Home Improvement Superstore	1,000 sf	2.40	2.40	0%	No change
863	Electronics Superstore	1,000 sf	1.27	1.87	47%	Updated to <50,000 sq ft retail tier; previously used <10,000 sq ft
880/881	Drug Store	1,000 sf	3.88	2.08	-46%	Updated to use FL Studies; previously used 2004 study
	SERVICES:					
911	Bank/Savings Walk-In	1,000 sf	-	2.46	-	New land use
912	Bank/Savings Drive-In	1,000 sf	2.46	2.46	0%	No change
925	Drinking Place	1,000 sf	1.27	1.87	47%	Updated to <50,000 sq ft retail tier; previously used <10,000 sq ft
931	Quality Restaurant	1,000 sf	3.14	3.14	0%	No change
932	High-Turnover Restaurant	1,000 sf	3.17	3.17	0%	No change
934	Fast Food Restarurant w/Drive-Thru	1,000 sf	2.05	2.05	0%	No change
942	Auto Service	1,000 sf	7.97	3.62	-55%	Updated to use FL Studies; previously used 2004 study
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	1.90	1.90	0%	No change
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	-	1.90	-	New land use
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	-	1.90	-	New land use
947	Self-Service Car Wash	wash station	2.18	2.18	0%	No change
	INDUSTRIAL:					
110	General Light Industrial	1,000 sf	5.15	5.15	0%	No change
140	Manufacturing	1,000 sf	5.15	5.15	0%	No change
150	Warehouse	1,000 sf	5.15	5.15	0%	No change
151	Mini-Warehouse	1,000 sf	3.10	3.51	13%	Updated to use the midpoint of office and retail (<50k sq ft)
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	-	5.15	-	New land use

- The trip length values shown do NOT include the TL adjustment factors that are applied in the impact fee rate calculations. The TL shown in Table A-13 provide a comparison to the 2012 report of the raw, unadjusted TL values
- See Appendix E for additional information

Table A-14
Percent Change in Percent New Trips of Impact Fee Land Uses

ITE LUC	Land Use	Unit	PNT 2012	PNT 2020	PNT %	Explanation
	RESIDENTIAL:					
210	Single Family (Detached) - 1,200 sf or less	du	100%	100%	0%	No change
210	Single Family (Detached) - 1,201 to 2,000 sf	du	100%	100%	0%	No change
210	Single Family (Detached) - 2,001 to 3,500 sf	du	100%	100%	0%	No change
210	Single Family (Detached) - greater than 3,500 sf	du	100%	100%	0%	No change
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 floors)	du	100%	100%	0%	No change
221	Multi-Family Housing (Mid-Rise, 3-10 floors)	du	100%	100%	0%	No change
222	Multi-Family Housing (High-Rise, >10 floors)	du	100%	100%	0%	No change
225	Student Housing (Adjacent to Campus)	bedroom	100%	100%	0%	No change
225	Student Housing (Over 1/2 mile from Campus)	bedroom	100%	100%	0%	No change
231	Mid-Rise Residential w/1st floor Commercial	du	-	100%	-	New land use
232	High-Rise Residential w/1st floor Commercial	du	-	100%	-	New land use
240	Mobile Home Park	du	100%	100%	0%	No change
251	Senior Adult Housing - Detached (Retirement Community/ Age-Restricted Single-Family)	du	100%	100%	0%	No change
252	Senior Adult Housing - Attached (Retirement Community/ Age-Restricted Single-Family)	du	-	100%	-	New land use
265	Time Share	du	100%	100%	0%	No change
	LODGING:					
310	Hotel/Tourist Hotel	room	66%	66%	0%	No change
320	Motel	room	77%	77%	0%	No change
	RECREATIONAL:					
430	Golf Course	acre	90%	90%	0%	No change
437	Bowling Alley	1,000 sf	90%	90%	0%	No change
443	Movie Theater	1,000 sf	88%	87%	-1%	Updated weighted average calculation
491	Racquet Club	1,000 sf	94%	94%	0%	No change
492	Health/Fitness Club	1,000 sf	94%	94%	0%	No change
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	-	85%	-	New land use
	INSTITUTIONAL:					
522	School	1,000 sf	100%	80%	-20%	Updated; based on office land use w/adjustment
560	Public Assembly	1,000 sf	100%	90%	-10%	Updated; based on office land use
565	Day Care	1,000 sf	73%	73%	0%	No change
590	Library	1,000 sf	49%	49%	0%	No change
	MEDICAL:					
610	Hospital	bed	77%	78%	1%	Updated; based on midpoint of office and hotel
620	Nursing Home	1,000 sf	89%	89%	0%	No change
640	Animal Hospital/Veterinary Clinic	1,000 sf	93%	70%	-25%	Updated to use FL Studies; previously used 2004 study
	OFFICE:					
710	General Office 50,000 sf or less	1,000 sf	92%	92%	0%	No change
710	General Office 50,001-100,000 sf	1,000 sf	92%	92%	0%	No change
710	General Office 100,001-200,000 sf	1,000 sf	92%	92%	0%	No change
710	General Office greater than 200,000 sf	1,000 sf	92%	92%	0%	No change
720	Small Medical/Dental Office	1,000 sf	89%	89%	0%	No change
720	Medical/Dental Office	1,000 sf	89%	89%	0%	No change
732	Post Office	1,000 sf	49%	49%	0%	No change
	RETAIL:					
815	Free-Standing Discount Store	1,000 sf	67%	67%	0%	No change
816	Hardware/Paint Store	1,000 sf	56%	56%	0%	No change
820	Retail/Tourist Retail: 50,000 sfgla or less	1,000 sfgla	56%	56%	0%	No change
820	Retail/Tourist Retail: 50,001-100,000 sfgla	1,000 sfgla	62%	62%	0%	No change
820	Retail/Tourist Retail: 100,001-200,000 sfgla	1,000 sfgla	67%	67%	0%	No change
820	Retail/Tourist Retail: 200,001-300,000 sfgla	1,000 sfgla	71%	71%	0%	No change
820	Retail/Tourist Retail: 300,001-400,000 sfgla	1,000 sfgla	73%	73%	0%	No change
820	Retail/Tourist Retail: 400,001-500,000 sfgla	1,000 sfgla	75%	75%	0%	No change
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla	1,000 sfgla	81%	81%	0%	No change
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla	1,000 sfgla	82%	82%	0%	No change
820	Retail/Tourist Retail: greater than 1,200,000 sfgla	1,000 sfgla	83%	83%	0%	No change
840/841	New/Used Auto Sales	1,000 sf	79%	79%	0%	No change
850	Supermarket	1,000 sf	56%	56%	0%	No change
853	Convenience Market w/Gas Pumps	1,000 sf	28%	28%	0%	No change
862	Home Improvement Superstore	1,000 sf	67%	67%	0%	No change
863	Electronics Superstore	1,000 sf	43%	56%	30%	Updated to <50,000 sq ft retail tier; previously used <10,000 sq ft
880/881	Drug Store	1,000 sf	50%	32%	-36%	Updated to use FL Studies; previously used 2004 study
	SERVICES:					
911	Bank/Savings Walk-In	1,000 sf	-	46%	-	New land use
912	Bank/Savings Drive-In	1,000 sf	46%	46%	0%	No change
925	Drinking Place	1,000 sf	43%	56%	30%	Updated to <50,000 sq ft retail tier; previously used <10,000 sq ft
931	Quality Restaurant	1,000 sf	77%	77%	0%	No change
932	High-Turnover Restaurant	1,000 sf	71%	71%	0%	No change
934	Fast Food Restarurant w/Drive-Thru	1,000 sf	58%	58%	0%	No change
942	Auto Service	1,000 sf	51%	72%	41%	Updated to use FL Studies; previously used 2004 study
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	23%	23%	0%	No change
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	-	23%	-	New land use
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	-	23%	-	New land use
947	Self-Service Car Wash	wash station	68%	68%	0%	No change
	INDUSTRIAL:					
110	General Light Industrial	1,000 sf	92%	92%	0%	No change
140	Manufacturing	1,000 sf	92%	92%	0%	No change
150	Warehouse	1,000 sf	92%	92%	0%	No change
151	Mini-Warehouse	1,000 sf	92%	92%	0%	No change
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	-	92%	-	New land use

See Appendix E for additional information

Florida Studies Trip Characteristics Database

The Florida Studies Trip Characteristics Database includes over 200 studies on 40 different residential and non-residential land uses collected over the last 25 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 fees and the creation of land use plan category trip characteristics for communities throughout Florida and the U.S.

Tindale Oliver estimates trip generation rates for all land uses in the transportation impact fee schedule using data from studies in the Florida Studies Database and the Institute of Transportation Engineers' (ITE) *Trip Generation* reference report (10th edition). In instances, when both ITE *Trip Generation* reference report (10th edition) and Florida Studies trip generation rate (TGR) data are available for a particular land use, the data is typically blended 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 database includes several local Orange County studies (highlighted).

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 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.

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	5					**Average Trip Length:**	**n/a**		
ITE	780.0	15					**Weighted Average Trip Length:**	**n/a**		
Blended total	1,325.0									

Weighted Percent New Trip Average: -

Weighted Average Trip Generation Rate: 1.47

ITE Average Trip Generation Rate: 1.51

Blend of FL Studies and ITE Average Trip Generation Rate: 1.49

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	VMT	Source
Gwinnett Co, GA	-	12/13-18/92	-	-	5.80	-	5.40	-	31.32	Street Smarts
Gwinnett Co, GA	-	12/13-18/92	-	-	5.40	-	6.10	-	32.94	Street Smarts
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:	6.79		
							Weighted Average Trip Length:	6.62		

Note: Georgia studies are not included in summary statistics

Weighted Average Trip Generation Rate: 7.81

Land Use: 220/221/222: Multi-Family Low/Mid/High-Rise

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	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
Orange Co, FL	364	Nov-13	-	-	9.08	-	-	-	-	Orange County
Orange Co, FL	108	Aug-14	-	-	5.51	-	-	-	-	Orange County
Hernando Co, FL	31	May-96	31	31	6.12	9a-6p	4.98	-	30.48	Tindale Oliver
Hernando Co, FL	128	May-96	128	128	6.47	9a-6p	5.18	-	33.51	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	3.53	-	14.97	Tindale Oliver
Total Size	4,575						Average Trip Length:	4.27		
Total Size (TL)	3,631						Weighted Average Trip Length:	5.10		

ITE Average Trip Generation Rate (LUC 220: Low-Rise): 7.32

ITE Average Trip Generation Rate (LUC 221: Mid-Rise): 5.44

ITE Average Trip Generation Rate (LUC 222: High-Rise): 4.45

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	VMT	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**

Land Use 251: Senior Adult Housing - Detached

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**		
ITE	9,170	14					**Weighted Average Trip Length:**	**5.42**		
Blended total	18,647									

Weighted Average Trip Generation Rate: 2.75
ITE Average Trip Generation Rate: 4.27
Blend of FL Studies and ITE Average Trip Generation Rate: **3.50**

Land Use 252: Senior Adult Housing - Attached

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	486	6					**Weighted Average Trip Length:**	**-**		
Blended total	694									

Weighted Average Trip Generation Rate: 2.46
ITE Average Trip Generation Rate: 3.70
Blend of FL Studies and ITE Average Trip Generation Rate: **3.33**

Land Use 310: Hotel

Location	Size (Rooms)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	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	21	164				**Average Trip Length:**	**6.25**		
ITE	876	6					**Weighted Average Trip Length:**	**6.26**		
Blended total	11,060									

Weighted Percent New Trip Average: 66.3
Weighted Average Trip Generation Rate: 5.31
ITE Average Trip Generation Rate: 8.36
Blend of FL Studies and ITE Average Trip Generation Rate: **5.55**

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		
								ITE Average Trip Generation Rate:		**3.35**

Land Use 444: Movie Theater

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	24.7	Oct-89	151	116	113.10	2p-8p	2.70	77.0	235.13	Tindale Oliver
Pinellas Co, FL	34.0	Sep-89	122	116	63.40	2p-8p	1.90	95.0	114.44	Tindale Oliver
Total Size	58.7	2	273			**Average Trip Length:**	**2.30**			
ITE	28.0	1				**Weighted Average Trip Length:**	**2.24**			
Blended total	86.7						Weighted Percent New Trip Average:	87.4		
								Weighted Average Trip Generation Rate:		84.31
								ITE Average Trip Generation Rate:		78.09
								Blend of FL Studies and ITE Average Trip Generation Rate:		**82.30**

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	VMT	Source
Tampa, FL	-	Mar-86	33	31	-	-	7.90	94.0	-	Kimley-Horn & Associates
Total Size			33			**Average Trip Length:**	**n/a**			
ITE	37	8					Percent New Trip Average:	94.0		
								ITE Average Trip Generation Rate (adjusted):		**34.50**

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	2	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**

Land Use 620: Nursing Home

Location	Size (Beds)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Lakeland, FL	120	Mar-90	74	66	2.86	11a-4p	2.59	89.0	6.59	Tindale Oliver
Total Size	120	1	74			**Average Trip Length:**	**2.59**			
ITE	480	3				**Weighted Average Trip Length:**	**2.59**			
Blended total	600						Weighted Percent New Trip Average:	89.0		
								ITE Average Trip Generation Rate (per 1,000 sq ft):		**6.64**

Land Use 640: Animal Hospital/Veterinary Clinic

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	4.0	-	-	-	21.50	-	-	-	-	Tindale Oliver
Clearwater, FL	3.0	Sep-89	-	-	44.00	-	1.90	70.0	-	Tindale Oliver
Clearwater, FL	2.0	Aug-89	-	-	-	-	1.90	70.0	-	Tindale Oliver
Total Size	7.0	3	0			**Average Trip Length:**	**1.90**			
ITE	18.0	6				**Weighted Average Trip Length:**	**1.90**			
	25.0						Weighted Percent New Trip Average:	70.0		
								Weighted Average Trip Generation Rate:		31.14
								ITE Average Trip Generation Rate:		21.50
								Blend of FL Studies and ITE Average Trip Generation Rate:		**24.20**

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	VMT	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
Total Size	742.1	5	736			**Average Trip Length:**	**6.46**			
ITE	11,286.0	66				**Weighted Average Trip Length:**	**5.15**			
							Weighted Percent New Trip Average:	92.3		

Land Use 720: Small Medical/Dental Office Building

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**

Land Use 720: Medical/Dental Office Building

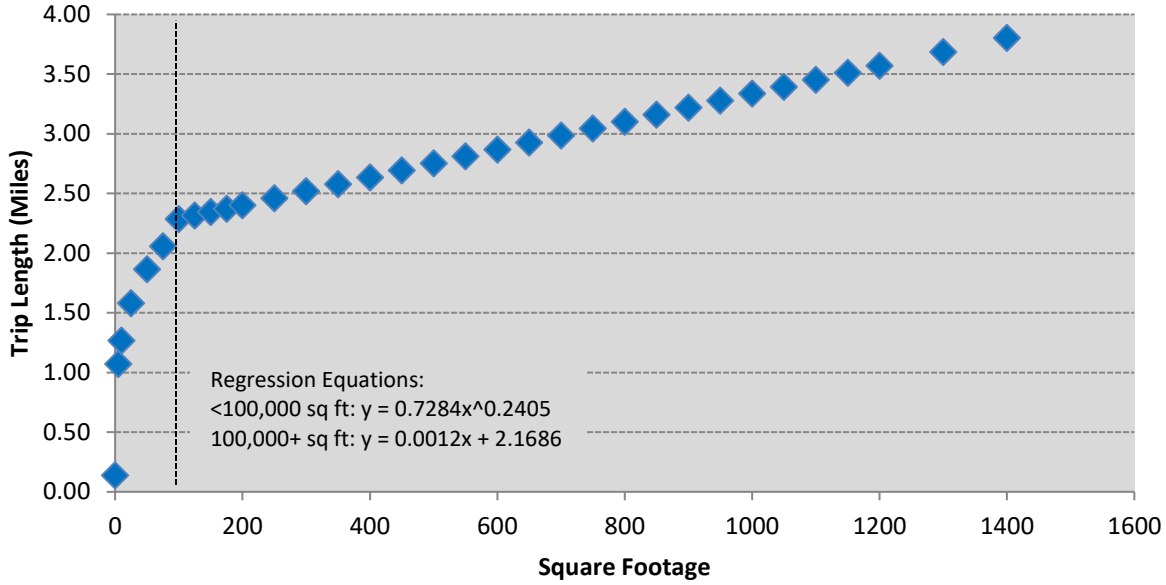
Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Tampa, FL	-	Mar-86	33	26	-	-	6.00	79.0	-	Kimley-Horn & Associates
Palm Harbor, FL	14.6	Oct-89	104	76	33.98	9a-5p	6.30	73.0	156.27	Tindale Oliver
St. Petersburg, 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
Total Size	298.6	11	763				**Average Trip Length:**	**5.07**		
ITE	672.0	28					**Weighted Average Trip Length:**	**5.55**		
Blended total	970.6						Weighted Percent New Trip Average:	88.9		

Average Trip Generation Rate: 32.59
ITE Average Trip Generation Rate: 34.80
Blend of FL Studies and ITE Average Trip Generation Rate: 34.12

Land Use 820: Shopping Center

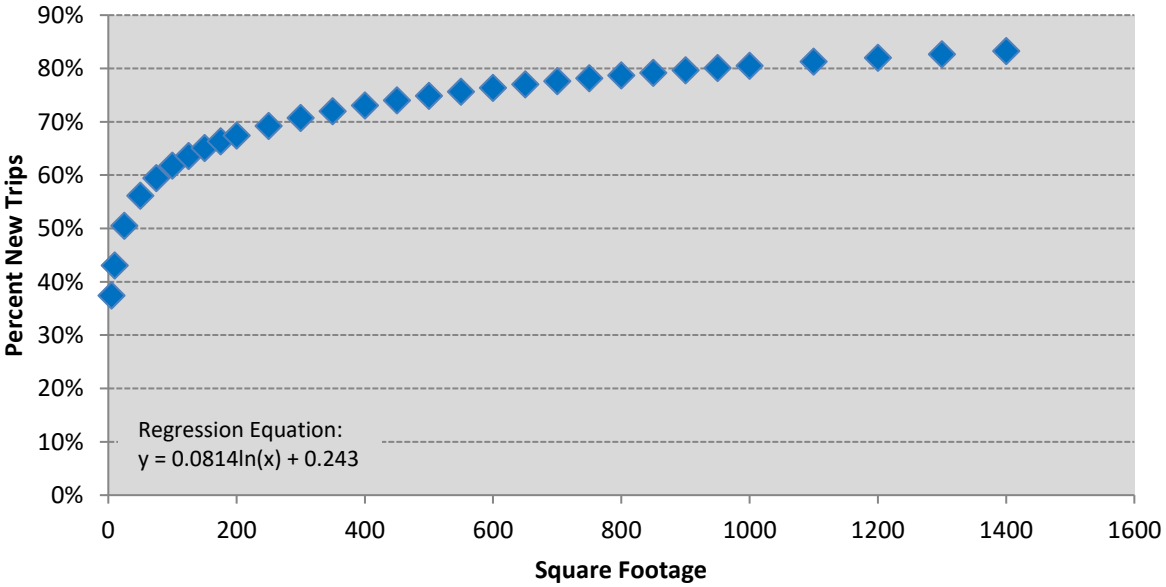
Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Tampa, FL	-	Mar-86	527	348	-	-	-	66.0	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	170	-	-	-	1.70	-	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	354	269	-	-	-	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.
Gwinnett Co, GA	99.1	Dec-92	-	-	46.00	-	3.20	70.0	103.04	Street Smarts
Gwinnett Co, GA	314.7	Dec-92	-	-	27.00	-	-	84.0	-	Street Smarts
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
Bozeman, MT	104.3	Dec-06	359	359	46.96	-	3.35	49.0	77.08	Tindale Oliver
Bozeman, MT	159.9	Dec-06	502	502	56.49	-	1.56	54.0	47.59	Tindale Oliver
Bozeman, MT	35.9	Dec-06	329	329	69.30	-	1.39	74.0	71.28	Tindale Oliver
Total Size	5,757.5		7,536				**Average Trip Length:**	**2.66**		

Figure A-2
LUC 820: Retail/Shopping Center – Florida Curve Trip Length Regression



Source: Regression analysis based on FL Studies data for LUC 820

Figure A-3
LUC 820: Retail/Shopping Center – Florida Curve Percent New Trips Regression



Source: Regression analysis based on FL Studies data for LUC 820

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	8	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**

Land Use 850: Supermarket

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Palm Harbor, FL	62.0	Aug-89	163	62	106.26	9a-4p	2.08	56.0	123.77	Tindale Oliver
Total Size	62.0	1	163				**Average Trip Length:**	**2.08**		
ITE	170.0	5					**Weighted Average Trip Length:**	**2.08**		
Blended total	232.0						Weighted Percent New Trip Average:	56.0		
								Weighted Average Trip Generation Rate:		106.26
								ITE Average Trip Generation Rate:		106.78
								Blend of FL Studies and ITE Average Trip Generation Rate:		**106.64**

Land Use 853: Convenience Market with Gasoline Pumps

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Tampa, FL	-	Mar-86	72	-	-	-	2.00	-	-	Kimley-Horn & Associates
Marion Co, FL	1.1	Jun-91	77	20	544.80	24hr.	0.89	26.0	126.07	Tindale Oliver
Marion Co, FL	2.1	Jun-91	66	24	997.60	24hr.	1.67	36.4	606.42	Tindale Oliver
Marion Co, FL	4.4	Jun-91	85	25	486.70	48hrs.	1.06	29.4	151.68	Tindale Oliver
Collier Co, FL	-	Aug-91	96	38	-	-	1.19	39.6	-	Tindale Oliver
Collier Co, FL	-	Aug-91	78	16	-	-	1.06	20.5	-	Tindale Oliver
Tampa, FL	2.3	10/13-15/92	239	74	-	24hr.	1.06	31.1	-	Tindale Oliver
Ellenton, FL	3.3	10/20-22/92	124	44	-	24hr.	0.96	35.3	-	Tindale Oliver
Tampa, FL	3.8	11/10-12/92	142	23	-	24hr.	3.13	16.4	-	Tindale Oliver
Marion Co, FL	2.5	Apr-02	87	-	719.79	24hr.	1.62	32.8	322.19	Kimley-Horn & Associates
Marion Co, FL	2.5	Apr-02	23	-	610.46	24hr.	1.77	11.7	126.61	Kimley-Horn & Associates
Marion Co, FL	3.0	Apr-02	59	-	606.02	24hr.	0.83	32.6	195.00	Kimley-Horn & Associates
Total Size	25.1	9	1,148				**Average Trip Length:**	**1.44**		
ITE	102.0	34					**Weighted Average Trip Length:**	**1.51**		
Blended Total	127.1						Weighted Percent New Trip Average:	27.7		
	117.6							Average Trip Generation Rate:		639.68
								ITE Average Trip Generation Rate:		624.20
								Blend of FL Studies and ITE Average Trip Generation Rate:		**626.25**

Land Use 880/881: Pharmacy with and without Drive-Through Window

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pasco Co, FL	11.1	Apr-02	138	38	88.97	-	2.05	27.5	50.23	Tindale Oliver
Pasco Co, FL	12.0	Apr-02	212	90	122.16	-	2.04	42.5	105.79	Tindale Oliver
Pasco Co, FL	15.1	Apr-02	1192	54	97.96	-	2.13	28.1	58.69	Tindale Oliver
Total Size	38.2	3	1,542				**Average Trip Length:**	**2.07**		
ITE (LUC 880)	66.0	6					**Weighted Average Trip Length:**	**2.08**		
ITE (LUC 881)	208.0	16					Weighted Percent New Trip Average:	32.0		
Blended total	312.2							Average Trip Generation Rate:		103.03
								ITE Average Trip Generation Rate (LUC 880):		90.08
								ITE Average Trip Generation Rate (LUC 881):		109.16
								Blend of FL Studies and ITE Average Trip Generation Rate:		**104.37**

Land Use 912: Drive-In Bank

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	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	9	1,407				**Average Trip Length:**	**2.38**		
ITE	147.0	21					**Weighted Average Trip Length:**	**2.46**		
Blended total	172.2						Weighted Percent New Trip Average:	46.2		
	149.7							Weighted Average Trip Generation Rate:		246.66
								ITE Average Trip Generation Rate:		100.03
								Blend of FL Studies and ITE Average Trip Generation Rate:		**102.66**

Land Use 931: Quality Restaurant

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	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	2	313				**Average Trip Length:**	**2.80**		
ITE	90.0	10					**Weighted Average Trip Length:**	**3.14**		
Blended total	105.5						Weighted Percent New Trip Average:	76.7		
	98.0							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**

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	VMT	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	21	1,102				**Average Trip Length:**	**3.07**		
ITE	250.0	50					**Weighted Average Trip Length:**	**3.17**		
Blended total	444.9						Weighted Percent New Trip Average:	70.8		
								Weighted Average Trip Generation Rate:		98.67
								ITE Average Trip Generation Rate:		112.18
								Blend of FL Studies and ITE Average Trip Generation Rate:		**106.26**

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	VMT	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	13	4,463				**Average Trip Length:**	**2.11**		
ITE	201.0	67					**Weighted Average Trip Length:**	**2.05**		
Blended total	249.8						Weighted Percent New Trip Average:	57.9		
	34.0							Weighted Average Trip Generation Rate:		530.19
								ITE Average Trip Generation Rate:		470.95
								Blend of FL Studies and ITE Average Trip Generation Rate:		**482.53**

Land Use 942: Automobile 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
Largo, FL	5.5	Sep-89	34	30	37.64	9a-5p	2.40	88.0	79.50	Tindale Oliver
Jacksonville, FL	2.3	2/3-4/90	124	94	-	9a-5p	3.07	76.0	-	Tindale Oliver
Jacksonville, FL	2.3	2/3-4/90	110	74	-	9a-5p	2.96	67.0	-	Tindale Oliver
Jacksonville, FL	2.4	2/3-4/90	132	87	-	9a-5p	2.32	66.0	-	Tindale Oliver
Lakeland, FL	5.2	Mar-90	24	14	-	9a-4p	1.36	59.0	-	Tindale Oliver
Lakeland, FL	-	Mar-90	54	42	-	9a-4p	2.44	78.0	-	Tindale Oliver
Orange Co, FL	25.0	Nov-92	41	39	-	2-6p	4.60	-	-	LCE, Inc.
Orange Co, FL	36.6	-	-	-	15.17	-	-	-	-	Orange County
Orange Co, FL	7.0	-	-	-	46.43	-	-	-	-	Orange County
Total Size	86.2	6	519				**Average Trip Length:**	**2.74**		
ITE	102.0	6					**Weighted Average Trip Length:**	**3.62**		
Blended total	188.2						Weighted Percent New Trip Average:	72.2		
	151.1							Weighted Average Trip Generation Rate:		22.14
								ITE Average Trip Generation Rate (adjusted):		31.10
								Blend of FL Studies and ITE Average Trip Generation Rate:		**28.19**

Land Use 944/945: Gasoline/Service Station with and without Convenience Market

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	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 LUC 944 (vfp)	144.0	18				**Weighted Average Trip Length:**	**1.90**			
ITE LUC 945 (vfp)	90.0	5				Weighted Percent New Trip Average:		23.0		
						ITE Average Trip Generation Rate - per fuel position (LUC 944):				172.01
						ITE Average Trip Generation Rate - per fuel position (LUC 945):				205.36
						Blended ITE Average Trip Generation Rate - per fuel position:				**184.84**

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	VMT	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	-	-	-	2.50	57.0	-	Tindale Oliver
Collier Co, FL	8	Jan-09	186	-	-	-	1.96	72.0	-	Tindale Oliver
Total Size	29	3	778			**Average Trip Length:**	**1.94**			
ITE	5	1				**Weighted Average Trip Length:**	**2.18**			
						Weighted Percent New Trip Average:		67.7		

Land Use N/A: Dance Studio

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Collier Co, FL	7.000	Jul-08	-	-	30.29	-	-	-	-	Tindale Oliver
Collier Co, FL	20.48	Jul-08	-	-	17.19	-	-	-	-	Tindale Oliver
Collier Co, FL	8.705	Jul-08	-	-	23.89	-	-	-	-	Tindale Oliver
Total Size	36.2	3				**Average Trip Length:**	**n/a**			
						Weighted Average Trip Length:	**n/a**			
						Weighted Average Trip Generation Rate:				**21.33**

Land Use N/A: Specialty Retail Center

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Orlando, FL	56.5	Jan-96	-	602	-	varied	3.54	87.9	-	LCE, Inc.
Collier Co, FL	12.0	May-99	-	13	19.70	8a-6p	3.70	75.0	54.67	Tindale Oliver
Collier Co, FL	12.0	May-99	-	146	127.50	8a-6p	2.24	84.3	240.76	Tindale Oliver
Total Size	80.5	3				**Average Trip Length:**	**3.16**			
ITE	100.0	4				**Weighted Average Trip Length:**	**3.37**			
Blended total	156.5					Weighted Percent New Trip Average:		85.4		

Evaluation of Mixed-Use Developments

Mixed-Use Internal Capture

To correspond with adopted fiscal neutrality and sustainability guiding policies, Orange County has made efforts to define and encourage infill and redevelopment activity and create mixed-use developments, Traditional Neighborhood Developments (TND), and Transit Oriented Developments (TOD). In addition, the County's Comprehensive Plan historically has designated the International Drive tourist corridor as an Activity Center (AC) and implemented I-Drive District Overlay Zone within the past year. This Overlay Zone is an example of transect-based planning and describes the site design requirements in terms of road layout, intersection spacing, requirements of sidewalks, interconnectivity, spacing between uses, etc. These types of requirements are critical in mixed-use developments' ability to reduce trips. If designed correctly, these developments tend to have reduced travel demand which in turn reduces the need to provide additional transportation infrastructure.

Mixed-Use Models

This section provides a summary of more commonly used models in estimating the reduction of travel achieved by mixed-use development.

- Historically, the ITE model has been the primary model used to quantify internal capture. ITE groups land uses into three categories:
    - Residential;
    - Office; and
    - Retail.

  Internal capture calculations focus on trip reduction, especially between residential and retail uses. The data is available for weekday P.M. peak hour, midday, and "daily," which is based on data collection between noon and 6:30 PM. ITE calculations fail to capture much of the interaction between residential and office land uses. Compared to raw data used for verification, ITE method error rate is about one-half.

- Several publications by National Cooperative Highway Research Program (NCHRP) made improvements to the original ITE approach, which were summarized in the NCHRP 684. This improved estimate method was developed based on existing survey data from prior studies plus three pilot data collection surveys for this study.
    - Although the model developed as part of NCHRP 684 continued to focus on trip reduction, three land uses were added: restaurant, hotel, and cinema. These resulted for a higher internal capture percentage. **The authors caution users to limit their applications to these six uses, and that the model was not tested for any additional land uses.** The model should only be used for development up to 300 acres.
    - NCHRP Report 684 also added weekday A.M. peak hour and created a land use classification structure that would permit disaggregation of the six land uses to more detailed categories should enough data become available.
    - Included the **effects of proximity (convenient walking distance) between interacting land uses to represent both compactness and design.** The report states that several planners and architects recommend ¼-mile or longer walking distances. However, developers contacted for the study reported that acceptable walking distances range from 600 feet to 1,000 feet. The study found that when the major uses were within a convenient (e.g., covered walkways, etc.) and short walking distance, the capture rate increased.

- This method reduced the estimation error by half compared to the original ITE method, resulting in an error rate of about one-fourth of the raw trip generation rates.

- Since the late 1980s, there have been numerous studies of various census and regional travel survey databases, limited site data collection, and studies and surveys of related travel and development characteristics that could contribute useful material for developing an improved estimation technique. Internal trip capture rates estimated in this research vary widely depending on conditions and land uses, but for developments with major commercial components, capture rates typically reached up to more than 30 percent. For mixed-use neighborhoods and small communities, internal capture reached 50 percent and even higher.

- Other widely used approach is a policy-based flat percentage reduction in external trips. Such percentages are established by local planning, zoning, or transportation engineering officials for use in transportation impact analyses (TIAs) prepared to support applications for zoning, subdivision, site plan approval, or access permits. The percentages are typically arbitrarily selected and tend to range from 5 percent to 25 percent, with 10 percent being most commonly used discount factor.

Table A-15 provides a summary of some of these studies and resulting internal capture levels.

Table A-15
Comparison of Mixed-Use Models

Source	Reference	Range of Internal Capture
Research Studies		
ITE 2nd Edition	Institute of Transportation Engineers Handbook, 2nd Ed.	5-25%
NCHRP 684/ITE 3rd Edition	National Cooperative Highway Research Program	28-41%
EPX MXD Model v4.0	EPA, Fehr & Peers	8-28%
ITE 1998 surveys (origins)	NCHRP 684, PDF pg 19	0-53%
ITE 1998 surveys (destinations)	NCHRP 684, PDF pg 19	0-37%
Districtwide TGR Study, FDOT, District IV, March 1995	NCHRP 684, PDF pg 20	28-41%
FDOT Trip Characteristics Study of MXDs, FDOT, District IV, March 1993	NCHRP 684, PDF pg 21 (Table 8)	7-62%
Trip Generation for MXDs, Technical Committee Report, Colorado-Wyoming Section, ITE, January 1986	NCHRP 684, PDF pg 23	25%
Brandermill PUD Traffic Generation Study, Technical Report, JHK & Associates, Alexandria, Virginia, June 1984	NCHRP 684, PDF pg 23	45-55%
Kittelson & Associates, Crocker Center, Mizner Park, Galleria	NCHRP 684, PDF pg 25	38-41%
Mehara and Keller	NCHRP 684, PDF pg 25	0-40%
Local Government Practices		
Transportation Impact Analyses (ITE Method)	NCHRP 684, PDF pg 11	5-25%

Internal Capture Sensitivity Analysis

This section illustrates potential internal capture reductions that may occur if proposed developments include the right mix of land uses. Note that this analysis only considers the mix of uses and not the specific design standards.

Tables A-16 through A-18 present a sensitivity analysis for internal capture that includes developments of all levels, in terms of both units of development and percent of travel. Observations include:

- When single family units dominate the overall development (generating over 60 percent of trips or over 80 percent of vehicle miles of travel (VMT)), there does not seem to be any substantial internal capture.
- In cases where there are three or more uses with some level of activity, the internal capture improves. The internal capture rate is higher when travel generated by each land use is balanced (e.g., no one land use exceeds 50 percent of trips).
- Availability of retail (including restaurants) is important in achieving high levels of internal capture.

- Travel demand characteristics used in the standard impact fee calculations evolved over time to recognize reduction in travel due to the availability of multiple uses at a regional level.
- Any additional internal capture that is attributed to a mixed-use development needs to be due to the increase in pedestrian travel as well as travel within the development. Some of the variables that will determine the level internal capture include:
    - Scale of development;
    - Complementary land uses;
    - Proximity and connectivity between each pair of land uses, especially the layout of the land uses relative to each other; and
    - Other characteristics such as proximity to transit and pedestrian access within and around the site.
- Industry models used to measure internal capture suggest that to the extent travel distribution from each land use within the mixed-use development is balanced, the level of internal capture increases. When one land use is dominant, internal capture percentage decreases. For example, when residential development generates more than 60 percent of trips and 80 percent of VMT, the resulting internal capture is negligible. On the other hand, a mix of at least three different uses, with none of the uses generating more than 50 percent of travel, result in higher levels of internal capture.

As previously mentioned, the NCHRP model does not account for proximity of uses, density, and other design elements. It is recommended that potential mixed-use developments include elements of connectivity, promote walkability between land uses, and include access to other travel modes (transit, bike lanes, etc) when possible. These factors, along with a balanced mix of uses, will yield the most favorable internal capture rates.

Due to the large scale of potential future developments, it may be difficult to achieve reasonable walkability and enhanced trip capture. By focusing on smaller, inter-connected areas, developers can work towards creating a truly “mixed-use” community. The sensitivity analysis in Tables A-16 through A-18 provide general guidelines that can be applied to future development in order to achieve the best balance of uses.

Table A-16
Comparison of Mixed-Use Internal Capture

Secnario	Single Family DU's	Hotel Rooms	Retail Sq Ft	Office Sq Ft	Restaurant Sq Ft	AM Peak Hr: IC %	PM Peak Hr: IC %	Average Internal Capture %	Trip Distribution				
									Single Family	Hotel	Retail	Office	Restaurant
Scenario #1.01	**50**	50	10,000	10,000	2,000	19%	29%	**24%**	20%	15%	33%	24%	8%
Scenario #1.02	**50**	60	10,000	10,000	2,000	18%	29%	**24%**	20%	17%	32%	23%	8%
Scenario #1.03	**50**	75	10,000	10,000	2,000	18%	28%	**23%**	19%	20%	31%	22%	8%
Scenario #1.04	**50**	90	10,000	10,000	2,000	17%	27%	**22%**	18%	23%	30%	22%	8%
Scenario #1.05	**50**	120	10,000	10,000	2,000	15%	26%	**21%**	17%	28%	28%	20%	7%
Scenario #1.06	**50**	200	10,000	10,000	2,000	13%	22%	**18%**	15%	38%	24%	17%	6%
Scenario #1.07	**50**	300	10,000	10,000	2,000	10%	19%	**15%**	12%	47%	20%	15%	5%
Scenario #1.08	**50**	400	10,000	10,000	2,000	9%	17%	**13%**	11%	54%	18%	13%	4%
Scenario #1.09	**50**	500	10,000	10,000	2,000	8%	15%	**12%**	10%	59%	16%	11%	4%
Scenario #1.10	**50**	600	10,000	10,000	2,000	7%	14%	**11%**	9%	63%	14%	10%	4%
Scenario #1.11	**50**	50	20,000	10,000	2,000	19%	27%	**23%**	17%	12%	44%	20%	7%
Scenario #1.12	**50**	50	50,000	10,000	2,000	18%	22%	**20%**	12%	9%	59%	15%	5%
Scenario #1.13	**50**	50	80,000	10,000	2,000	16%	18%	**17%**	10%	7%	66%	12%	4%
Scenario #1.14	**50**	50	100,000	10,000	2,000	15%	16%	**16%**	9%	7%	69%	11%	4%
Scenario #1.15	**50**	50	300,000	10,000	2,000	10%	9%	**10%**	5%	4%	82%	6%	2%
Scenario #1.16	**50**	50	500,000	10,000	2,000	8%	7%	**8%**	4%	3%	87%	5%	2%
Scenario #1.17	**50**	50	1,000,000	10,000	2,000	6%	4%	**5%**	3%	2%	91%	3%	1%
Scenario #1.18	**50**	50	2,000,000	10,000	2,000	4%	3%	**4%**	2%	1%	94%	2%	1%
Scenario #1.19	**50**	50	3,000,000	10,000	2,000	3%	2%	**3%**	1%	1%	95%	2%	1%
Scenario #1.20	**50**	50	10,000	20,000	2,000	20%	28%	**24%**	19%	14%	31%	29%	8%
Scenario #1.21	**50**	50	10,000	50,000	2,000	19%	26%	**23%**	16%	12%	26%	39%	7%
Scenario #1.22	**50**	50	10,000	80,000	2,000	19%	24%	**22%**	14%	10%	23%	46%	6%
Scenario #1.23	**50**	50	10,000	100,000	2,000	18%	23%	**21%**	13%	10%	22%	50%	5%
Scenario #1.24	**50**	50	10,000	300,000	2,000	13%	15%	**14%**	8%	6%	13%	70%	3%
Scenario #1.25	**50**	50	10,000	500,000	2,000	9%	11%	**10%**	6%	4%	10%	78%	2%
Scenario #1.26	**50**	50	10,000	1,000,000	2,000	6%	7%	**7%**	4%	3%	6%	86%	2%
Scenario #1.27	**50**	50	10,000	2,000,000	2,000	3%	4%	**4%**	2%	2%	3%	92%	1%
Scenario #1.28	**50**	50	10,000	3,000,000	2,000	3%	3%	**3%**	2%	1%	2%	94%	1%
Scenario #1.29	**50**	50	10,000	10,000	5,000	22%	36%	**29%**	18%	13%	29%	21%	18%
Scenario #1.30	**50**	50	10,000	10,000	7,000	22%	40%	**31%**	17%	12%	27%	20%	24%
Scenario #1.31	**50**	50	10,000	10,000	10,000	19%	43%	**31%**	15%	11%	25%	18%	31%
Scenario #1.32	**50**	50	10,000	10,000	15,000	16%	45%	**31%**	13%	10%	22%	16%	40%
Scenario #1.33	**50**	50	10,000	10,000	30,000	10%	40%	**25%**	9%	7%	15%	11%	57%
Scenario #1.34	**50**	50	10,000	10,000	50,000	7%	32%	**20%**	7%	5%	11%	8%	69%
Scenario #1.35	**50**	50	10,000	10,000	100,000	4%	20%	**12%**	4%	3%	7%	5%	82%
Scenario #1.36	**50**	50	10,000	10,000	200,000	2%	11%	**7%**	2%	2%	4%	3%	90%
Scenario #1.37	**50**	50	10,000	10,000	400,000	1%	6%	**4%**	1%	1%	2%	1%	95%
Scenario #1.38	**50**	60	20,000	20,000	5,000	25%	32%	**29%**	14%	12%	37%	22%	15%
Scenario #1.39	**50**	75	50,000	50,000	7,000	28%	27%	**28%**	9%	10%	45%	23%	13%
Scenario #1.40	**50**	90	80,000	80,000	10,000	28%	26%	**27%**	7%	9%	46%	23%	15%
Scenario #1.41	**50**	120	100,000	100,000	15,000	28%	27%	**28%**	6%	10%	44%	22%	18%
Scenario #1.42	**50**	200	300,000	300,000	30,000	28%	23%	**26%**	3%	8%	46%	26%	18%
Scenario #1.43	**50**	300	500,000	500,000	50,000	28%	23%	**26%**	2%	8%	43%	26%	21%
Scenario #1.44	**50**	400	1,000,000	1,000,000	100,000	28%	24%	**26%**	1%	6%	40%	28%	24%
Scenario #1.45	**50**	500	2,000,000	2,000,000	200,000	27%	25%	**26%**	1%	4%	37%	30%	28%
Scenario #1.46	**50**	600	3,000,000	3,000,000	400,000	23%	30%	**27%**	0%	3%	31%	28%	37%
Scenario #1.47	**50**	50	3,000,000	3,000,000	400,000	65%	27%	**46%**	0%	0%	32%	29%	38%
Scenario #1.48	**50**	600	10,000	3,000,000	400,000	18%	11%	**15%**	1%	5%	1%	41%	53%
Scenario #1.49	**50**	600	3,000,000	10,000	400,000	6%	33%	**20%**	1%	5%	43%	1%	51%
Scenario #1.50	**50**	600	3,000,000	3,000,000	2,000	14%	7%	**11%**	1%	5%	50%	44%	0%

Notes:

- Each scenario includes a different mix of dwelling units, hotel rooms and non-residential development.
- Using the ITE 9th Edition handbook, AM and PM Peak Hour trip generation rates are applied to each land use and each development scenario. This results in the total AM and PM Peak Hour trips. Using the direction distribution provided in the ITE handbook, the "entering" and "exiting" trips are determined.
- The resulting trips are entered into the NCHRP internal capture model which outputs the internal capture percentages for both AM and PM Peak Hour.
- The average internal capture shown in the tab above reflects the average of the AM and PM Peak Hour internal capture.
- The trip distribution illustrates the proportion of trip that is attributed to each land use in each scenario. The scenarios which include a balanced distribution of trip tend to yield higher internal capture.

Table A-17
Comparison of Mixed-Use Internal Capture

Secnario	Single Family DU's	Hotel Rooms	Retail Sq Ft	Office Sq Ft	Restaurant Sq Ft	AM Peak Hr: IC %	PM Peak Hr: IC %	Average Internal Capture %	Trip Distribution				
									Single Family	Hotel	Retail	Office	Restaurant
Scenario #2.01	**1,000**	50	10,000	10,000	2,000	5%	11%	**8%**	79%	4%	9%	6%	2%
Scenario #2.02	**1,000**	60	10,000	10,000	2,000	5%	11%	**8%**	79%	4%	8%	6%	2%
Scenario #2.03	**1,000**	75	10,000	10,000	2,000	5%	11%	**8%**	78%	5%	8%	6%	2%
Scenario #2.04	**1,000**	90	10,000	10,000	2,000	5%	11%	**8%**	77%	6%	8%	6%	2%
Scenario #2.05	**1,000**	120	10,000	10,000	2,000	5%	11%	**8%**	76%	8%	8%	6%	2%
Scenario #2.06	**1,000**	200	10,000	10,000	2,000	5%	11%	**8%**	72%	12%	8%	6%	2%
Scenario #2.07	**1,000**	300	10,000	10,000	2,000	5%	10%	**8%**	68%	17%	7%	5%	2%
Scenario #2.08	**1,000**	400	10,000	10,000	2,000	4%	10%	**7%**	65%	21%	7%	5%	2%
Scenario #2.09	**1,000**	500	10,000	10,000	2,000	4%	9%	**7%**	62%	25%	7%	5%	2%
Scenario #2.10	**1,000**	600	10,000	10,000	2,000	4%	9%	**7%**	59%	28%	6%	5%	2%
Scenario #2.11	**1,000**	50	20,000	10,000	2,000	6%	13%	**10%**	76%	4%	13%	6%	2%
Scenario #2.12	**1,000**	50	50,000	10,000	2,000	7%	17%	**12%**	68%	3%	21%	5%	2%
Scenario #2.13	**1,000**	50	80,000	10,000	2,000	6%	19%	**13%**	64%	3%	27%	5%	2%
Scenario #2.14	**1,000**	50	100,000	10,000	2,000	6%	20%	**13%**	61%	3%	30%	5%	2%
Scenario #2.15	**1,000**	50	300,000	10,000	2,000	5%	25%	**15%**	46%	2%	47%	4%	1%
Scenario #2.16	**1,000**	50	500,000	10,000	2,000	5%	27%	**16%**	39%	2%	55%	3%	1%
Scenario #2.17	**1,000**	50	1,000,000	10,000	2,000	4%	22%	**13%**	30%	1%	66%	2%	1%
Scenario #2.18	**1,000**	50	2,000,000	10,000	2,000	3%	16%	**10%**	21%	1%	75%	2%	1%
Scenario #2.19	**1,000**	50	3,000,000	10,000	2,000	3%	12%	**8%**	17%	1%	80%	1%	0%
Scenario #2.20	**1,000**	50	10,000	20,000	2,000	6%	11%	**9%**	78%	4%	8%	8%	2%
Scenario #2.21	**1,000**	50	10,000	50,000	2,000	7%	11%	**9%**	75%	4%	8%	12%	2%
Scenario #2.22	**1,000**	50	10,000	80,000	2,000	8%	11%	**10%**	72%	3%	8%	15%	2%
Scenario #2.23	**1,000**	50	10,000	100,000	2,000	8%	11%	**10%**	70%	3%	8%	17%	2%
Scenario #2.24	**1,000**	50	10,000	300,000	2,000	9%	10%	**10%**	57%	3%	6%	32%	2%
Scenario #2.25	**1,000**	50	10,000	500,000	2,000	7%	9%	**8%**	49%	2%	5%	42%	1%
Scenario #2.26	**1,000**	50	10,000	1,000,000	2,000	5%	7%	**6%**	37%	2%	4%	57%	1%
Scenario #2.27	**1,000**	50	10,000	2,000,000	2,000	4%	5%	**5%**	25%	1%	3%	71%	1%
Scenario #2.28	**1,000**	50	10,000	3,000,000	2,000	3%	4%	**4%**	19%	1%	2%	78%	1%
Scenario #2.29	**1,000**	50	10,000	10,000	5,000	7%	13%	**10%**	77%	4%	8%	6%	5%
Scenario #2.30	**1,000**	50	10,000	10,000	7,000	7%	15%	**11%**	75%	4%	8%	6%	7%
Scenario #2.31	**1,000**	50	10,000	10,000	10,000	8%	18%	**13%**	73%	4%	8%	6%	10%
Scenario #2.32	**1,000**	50	10,000	10,000	15,000	9%	21%	**15%**	70%	3%	7%	5%	14%
Scenario #2.33	**1,000**	50	10,000	10,000	30,000	11%	24%	**18%**	61%	3%	7%	5%	25%
Scenario #2.34	**1,000**	50	10,000	10,000	50,000	13%	26%	**20%**	53%	3%	6%	4%	35%
Scenario #2.35	**1,000**	50	10,000	10,000	100,000	15%	26%	**21%**	39%	2%	4%	3%	52%
Scenario #2.36	**1,000**	50	10,000	10,000	200,000	9%	18%	**14%**	26%	1%	3%	2%	68%
Scenario #2.37	**1,000**	50	10,000	10,000	400,000	5%	11%	**8%**	15%	1%	2%	1%	81%
Scenario #2.38	**1,000**	60	20,000	20,000	5,000	9%	16%	**13%**	72%	4%	12%	7%	5%
Scenario #2.39	**1,000**	75	50,000	50,000	7,000	13%	21%	**17%**	61%	4%	19%	10%	6%
Scenario #2.40	**1,000**	90	80,000	80,000	10,000	15%	25%	**20%**	54%	4%	23%	11%	7%
Scenario #2.41	**1,000**	120	100,000	100,000	15,000	18%	28%	**23%**	49%	5%	24%	12%	10%
Scenario #2.42	**1,000**	200	300,000	300,000	30,000	24%	35%	**30%**	32%	5%	32%	18%	13%
Scenario #2.43	**1,000**	300	500,000	500,000	50,000	27%	39%	**33%**	24%	6%	34%	21%	16%
Scenario #2.44	**1,000**	400	1,000,000	1,000,000	100,000	30%	38%	**34%**	16%	5%	35%	24%	21%
Scenario #2.45	**1,000**	500	2,000,000	2,000,000	200,000	28%	34%	**31%**	10%	4%	34%	27%	26%
Scenario #2.46	**1,000**	600	3,000,000	3,000,000	400,000	24%	35%	**30%**	6%	3%	30%	26%	34%
Scenario #2.47	**1,000**	50	3,000,000	3,000,000	400,000	63%	33%	**48%**	7%	0%	30%	27%	35%
Scenario #2.48	**1,000**	600	10,000	3,000,000	400,000	20%	14%	**17%**	9%	4%	1%	37%	48%
Scenario #2.49	**1,000**	600	3,000,000	10,000	400,000	9%	39%	**24%**	9%	4%	40%	1%	47%
Scenario #2.50	**1,000**	600	3,000,000	3,000,000	2,000	13%	14%	**14%**	10%	5%	45%	40%	0%

Notes:

- Each scenario includes a different mix of dwelling units, hotel rooms and non-residential development.
- Using the ITE 9th Edition handbook, AM and PM Peak Hour trip generation rates are applied to each land use and each development scenario. This results in the total AM and PM Peak Hour trips. Using the direction distribution provided in the ITE handbook, the "entering" and "exiting" trips are determined.
- The resulting trips are entered into the NCHRP internal capture model which outputs the internal capture percentages for both AM and PM Peak Hour.
- The average internal capture shown in the tab above reflects the average of the AM and PM Peak Hour internal capture.
- The trip distribution illustrates the proportion of trip that is attributed to each land use in each scenario. The scenarios which include a balanced distribution of trip tend to yield higher internal capture.

Table A-18
Comparison of Mixed-Use Internal Capture

Secnario	Single Family DU's	Hotel Rooms	Retail Sq Ft	Office Sq Ft	Restaurant Sq Ft	AM Peak Hr: IC %	PM Peak Hr: IC %	Average Internal Capture %	Trip Distribution				
									Single Family	Hotel	Retail	Office	Restaurant
Scenario #3.01	**5,000**	50	10,000	10,000	2,000	1%	3%	**2%**	95%	1%	2%	2%	1%
Scenario #3.02	**5,000**	60	10,000	10,000	2,000	1%	3%	**2%**	94%	1%	2%	2%	1%
Scenario #3.03	**5,000**	75	10,000	10,000	2,000	1%	3%	**2%**	94%	1%	2%	2%	1%
Scenario #3.04	**5,000**	90	10,000	10,000	2,000	1%	3%	**2%**	94%	2%	2%	2%	1%
Scenario #3.05	**5,000**	120	10,000	10,000	2,000	1%	3%	**2%**	93%	2%	2%	2%	1%
Scenario #3.06	**5,000**	200	10,000	10,000	2,000	1%	3%	**2%**	92%	3%	2%	2%	1%
Scenario #3.07	**5,000**	300	10,000	10,000	2,000	1%	4%	**3%**	91%	5%	2%	2%	1%
Scenario #3.08	**5,000**	400	10,000	10,000	2,000	1%	4%	**3%**	89%	6%	2%	2%	1%
Scenario #3.09	**5,000**	500	10,000	10,000	2,000	1%	4%	**3%**	88%	8%	2%	1%	1%
Scenario #3.10	**5,000**	600	10,000	10,000	2,000	1%	4%	**3%**	87%	9%	2%	1%	1%
Scenario #3.11	**5,000**	50	20,000	10,000	2,000	1%	4%	**3%**	93%	1%	3%	2%	1%
Scenario #3.12	**5,000**	50	50,000	10,000	2,000	2%	6%	**4%**	91%	1%	6%	2%	1%
Scenario #3.13	**5,000**	50	80,000	10,000	2,000	2%	7%	**5%**	89%	1%	8%	2%	1%
Scenario #3.14	**5,000**	50	100,000	10,000	2,000	2%	7%	**5%**	88%	1%	9%	1%	1%
Scenario #3.15	**5,000**	50	300,000	10,000	2,000	3%	11%	**7%**	80%	1%	18%	1%	0%
Scenario #3.16	**5,000**	50	500,000	10,000	2,000	3%	14%	**9%**	75%	1%	23%	1%	0%
Scenario #3.17	**5,000**	50	1,000,000	10,000	2,000	3%	17%	**10%**	66%	1%	32%	1%	0%
Scenario #3.18	**5,000**	50	2,000,000	10,000	2,000	3%	21%	**12%**	55%	1%	43%	1%	0%
Scenario #3.19	**5,000**	50	3,000,000	10,000	2,000	3%	23%	**13%**	49%	1%	49%	1%	0%
Scenario #3.20	**5,000**	50	10,000	20,000	2,000	1%	3%	**2%**	94%	1%	2%	2%	1%
Scenario #3.21	**5,000**	50	10,000	50,000	2,000	2%	3%	**3%**	93%	1%	2%	3%	1%
Scenario #3.22	**5,000**	50	10,000	80,000	2,000	2%	4%	**3%**	92%	1%	2%	4%	1%
Scenario #3.23	**5,000**	50	10,000	100,000	2,000	2%	4%	**3%**	91%	1%	2%	5%	1%
Scenario #3.24	**5,000**	50	10,000	300,000	2,000	3%	5%	**4%**	86%	1%	2%	11%	1%
Scenario #3.25	**5,000**	50	10,000	500,000	2,000	3%	5%	**4%**	81%	1%	2%	15%	0%
Scenario #3.26	**5,000**	50	10,000	1,000,000	2,000	3%	5%	**4%**	72%	1%	2%	25%	0%
Scenario #3.27	**5,000**	50	10,000	2,000,000	2,000	3%	5%	**4%**	60%	1%	1%	38%	0%
Scenario #3.28	**5,000**	50	10,000	3,000,000	2,000	3%	4%	**4%**	52%	1%	1%	46%	0%
Scenario #3.29	**5,000**	50	10,000	10,000	5,000	2%	4%	**3%**	94%	1%	2%	2%	1%
Scenario #3.30	**5,000**	50	10,000	10,000	7,000	2%	5%	**4%**	93%	1%	2%	2%	2%
Scenario #3.31	**5,000**	50	10,000	10,000	10,000	2%	5%	**4%**	93%	1%	2%	2%	3%
Scenario #3.32	**5,000**	50	10,000	10,000	15,000	2%	6%	**4%**	91%	1%	2%	2%	4%
Scenario #3.33	**5,000**	50	10,000	10,000	30,000	3%	8%	**6%**	88%	1%	2%	1%	8%
Scenario #3.34	**5,000**	50	10,000	10,000	50,000	4%	10%	**7%**	84%	1%	2%	1%	12%
Scenario #3.35	**5,000**	50	10,000	10,000	100,000	7%	12%	**10%**	74%	1%	2%	1%	22%
Scenario #3.36	**5,000**	50	10,000	10,000	200,000	10%	15%	**13%**	61%	1%	1%	1%	36%
Scenario #3.37	**5,000**	50	10,000	10,000	400,000	14%	18%	**16%**	45%	0%	1%	1%	53%
Scenario #3.38	**5,000**	60	20,000	20,000	5,000	2%	5%	**4%**	92%	1%	3%	2%	1%
Scenario #3.39	**5,000**	75	50,000	50,000	7,000	4%	7%	**6%**	88%	1%	6%	3%	2%
Scenario #3.40	**5,000**	90	80,000	80,000	10,000	5%	10%	**8%**	84%	2%	8%	4%	2%
Scenario #3.41	**5,000**	120	100,000	100,000	15,000	6%	12%	**9%**	81%	2%	9%	4%	4%
Scenario #3.42	**5,000**	200	300,000	300,000	30,000	11%	19%	**15%**	68%	3%	15%	8%	6%
Scenario #3.43	**5,000**	300	500,000	500,000	50,000	15%	24%	**20%**	59%	3%	18%	11%	9%
Scenario #3.44	**5,000**	400	1,000,000	1,000,000	100,000	20%	31%	**26%**	46%	3%	22%	16%	13%
Scenario #3.45	**5,000**	500	2,000,000	2,000,000	200,000	25%	37%	**31%**	33%	3%	25%	20%	19%
Scenario #3.46	**5,000**	600	3,000,000	3,000,000	400,000	27%	44%	**36%**	24%	3%	24%	22%	28%
Scenario #3.47	**5,000**	50	3,000,000	3,000,000	400,000	57%	41%	**49%**	24%	0%	25%	22%	29%
Scenario #3.48	**5,000**	600	10,000	3,000,000	400,000	23%	19%	**21%**	31%	3%	1%	28%	37%
Scenario #3.49	**5,000**	600	3,000,000	10,000	400,000	16%	48%	**32%**	30%	3%	30%	1%	36%
Scenario #3.50	**5,000**	600	3,000,000	3,000,000	2,000	10%	23%	**17%**	33%	3%	33%	30%	0%

Notes:

- Each scenario includes a different mix of dwelling units, hotel rooms and non-residential development.
- Using the ITE 9th Edition handbook, AM and PM Peak Hour trip generation rates are applied to each land use and each development scenario. This results in the total AM and PM Peak Hour trips. Using the direction distribution provided in the ITE handbook, the "entering" and "exiting" trips are determined.
- The resulting trips are entered into the NCHRP internal capture model which outputs the internal capture percentages for both AM and PM Peak Hour.
- The average internal capture shown in the tab above reflects the average of the AM and PM Peak Hour internal capture.
- The trip distribution illustrates the proportion of trips that is attributed to each land use in each scenario. The scenarios which include a balanced distribution of trips tend to yield higher internal capture.

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Table A-19 illustrates the projected internal capture reduction for local example developments. These development levels were derived from the County's Comprehensive Plan Future Land Use Element. As shown, both developments are weighted toward residential in terms of trips and result in a limited internal capture.

Table A-19

Orange County Internal Capture Example

Secnario	Single Family DU's	Hotel Rooms	Retail Sq Ft	Office Sq Ft	AM Peak Hr: IC %	PM Peak Hr: IC %	Average Internal Capture %	Trip Distribution			
								Single Family	Hotel	Retail	Office
Innovation Place	5,500	200	1,235,000	2,267,000	9%	18%	**14%**	49%	1%	24%	25%
Sunbridge	7,400	500	880,000	5,470,000	8%	12%	**10%**	45%	2%	13%	40%

Source: NCHRP 684 Internal Capture Model

Development details for Innovation Place as shown in FLU 8.1.4 of the County's Comprehensive Plan

Development details for Sunbridge as provided by staff via the "Sunbridge Fact Sheet"

APPENDIX B
Cost Component Calculations

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/CEI
- Roadway Capacity
- Transit Capital Costs

Design

The design cost per lane mile was based on a review of recently completed and ongoing projects in Orange County. As shown in Table B-1, projects in projects in Orange County averaged approximately $340,000 per lane mile for design. When compared to a local construction cost of approximately $2.75 million (excluding CEI; as shown in Table B-5), design is equivalent to approximately 12 percent of the construction cost per lane mile. This ratio falls within the range observed in several other recent impact fee studies in Florida. As shown in Table B-2, design factors from other communities ranged from 6 percent to 14 percent with a weighted average of 11 percent.

For purposes of this study, the design cost for county roads was calculated at $340,000, or approximately 12 percent of the construction cost (excluding CEI) per lane mile.

Table B-1

Design Cost for County Roads – Orange County

CIP #	Project Name	From	To	Year	Improvement	Length	Lanes Added	Lane Miles Added	Design Cost	Cost per Lane Mile
3017	Rock Springs Rd	Ponkan Rd	Kelly Park Rd	1996	2 to 4 Lanes	2.10	2	4.20	$1,466,024	$349,053
3038a	Clarcona-Ocoee Rd	Ocoee-Apopka Rd	Hiawassee Rd	2000	2 to 4 Lanes	5.08	2	10.16	$2,106,461	$207,329
3045	Holden Ave	JYP	OBT	2003	0/2 to 4 Lanes	1.24	2/4	3.50	$1,295,324	$370,093
3096a	Kennedy Blvd	All American Blvd	Wymore Rd	2000	2 to 4 Lanes	2.03	2	4.06	$1,641,051	$404,200
3097	All American Blvd	Edgewater Dr	Forest City Rd	2005	2 to 4 Lanes	1.06	2	2.12	$1,361,667	$642,296
5001a	John Young Pkwy	SR 528	FL Turnpike	2009	4 to 6 Lanes	2.34	2	4.68	$816,979	$174,568
5023	Edgewater Dr	Clarcona-Ocoee Rd	Pine Hills Rd	2005	2 to 4 Lanes	1.51	2	3.02	$2,107,966	$698,002
5024a	Econ Tr	Lake Underhill	SR 50	2008	2 to 4 Lanes	2.40	2	4.80	$3,150,355	$656,324
5027a	Texas Ave	Oak Ridge Rd	Holden Ave	2008	2 to 4 Lanes	1.76	2	3.52	$1,419,796	$403,351
5029a	Valencia College Ln	Goldenrod Rd	Econlockhatchee Tr	2007	2 to 4 Lanes	1.90	2	3.80	$2,153,633	$566,746
5059c	Woodbury Rd	S. of SR 50	Challenger Pkwy	2008	2 to 4 Lanes	0.65	2	1.30	$538,566	$414,282
5062a	Alafaya Tr	Avalon Park Blvd	Mark Twain Blvd	2005	2 to 4 Lanes	3.83	2	7.66	$1,879,773	$245,401
5066a	CR 535 Seg A	Magnolia Park Ct	SR 429	2007	2 to 4 Lanes	1.37	2	2.74	$1,003,106	$366,097
5066b	CR 535 Seg C&E	Ficquette Rd	Butler Ridge Rd	2007	2 to 4 Lanes	1.10	2	2.20	$945,254	$429,661
5067	CR 535 Seg F	Overstreet Rd	Fossick Rd	2013	2 to 4 Lanes	0.60	2	1.20	$289,032	$240,860
5068	Reams Rd	Delmar	Taborfield	2013	2 to 4 Lanes	0.36	2	0.72	$166,519	$231,276
5085a	Boggy Creek Rd	Osceola Co. Line	SR 417	2008	2 to 4 Lanes	1.19	2	2.38	$1,614,195	$678,233
5090b	Lake Underhill	Goldenrod Rd	Chickasaw Tr	2008	2 to 4 Lanes	0.69	2	1.38	$670,883	$486,147
5090d	Lake Underhill	Econlockhatchee Tr	Rouse Rd	2014	2 to 4 Lanes	1.87	2	3.74	$1,602,515	$428,480
5091	Wildwood	International Dr	Palm Pkwy	2011	2 to 4 Lanes	1.87	2	3.74	$1,795,605	$480,108
5101	Narcoossee Rd	Osceola Co. Line	SR 417	2008	2 to 6 Lanes	3.80	4	15.20	$820,000	$53,947
5102	Sand Lake Rd	President's Dr	FL Mall	2001	4 to 6 Lanes	1.00	2	2.00	$896,820	$448,410
5107	International Dr	Westwood Blvd	Westwood Blvd	2010	4 to 6 Lanes	2.20	2	4.40	$1,015,146	$230,715
5110	Taft-Vineland Rd	Central FL Pkwy	John Young Pkwy	2007	2 to 4 Lanes	0.50	2	1.00	$555,370	$555,370
5111	Wetherbee Rd	Balcombe Rd	Orange Ave	2010	2 to 4 Lanes	1.50	2	3.00	$958,400	$319,467
5140	Ficquette Rd	Summerlake Blvd	Overstreet Rd	2018	2 to 4 Lanes	1.50	2	3.00	$1,368,055	$456,018
Total								**99.52**	**$33,638,495**	**$340,000**

Source: Orange County Transportation Planning Division; Community, Environment & Development Services Department and Orange County Development Engineering Division. The data shown represent the full detail that was available.

Table B-2

Design Cost Factor for County Roads – Recent Impact Fee Studies

Year	City/County	City/County Roadways (Cost per Lane Mile)		
		Design	Constr.	Design Ratio
2012	Osceola	$371,196	$2,651,400	14%
2012	City of Orlando	$288,000	$2,400,000	12%
2012	City of Sarasota	$240,000	$2,400,000	10%
2013	Hernando	$198,000	$1,980,000	10%
2013	Charlotte	$220,000	$2,200,000	10%
2014	Indian River	$159,000	$1,598,000	10%
2015	Collier	$270,000	$2,700,000	10%
2015	Brevard	$242,000	$2,023,000	12%
2015	Sumter	$210,000	$2,100,000	10%
2015	Marion	$167,000	$2,668,000	6%
2015	Palm Beach	$224,000	$1,759,000	13%
2016	Hillsborough	$348,000	$2,897,000	12%
2016	St. Lucie	$220,000	$2,200,000	10%
2017	Clay	$239,000	$2,385,000	10%
2018	City of Tampa	$403,000	$3,100,000	13%
2018	City of Hallandale Beach	$171,000	$1,710,000	10%
2018	City of Oviedo	$319,000	$2,900,000	11%
2018	Collier	$385,000	$3,500,000	11%
Average		**$259,678**	**$2,398,411**	**11%**

Source: Recent impact fee studies conducted throughout Florida

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 construction, build a new road.

To estimate the ROW cost for Orange County, Tindale Oliver conducted a review of recently completed ROW acquisitions along capacity expansion projects in Orange County and reviewed ROW-to-construction cost ratios from recent transportation impact fee studies from other counties in Florida. As shown in Table B-3, recent ROW costs from 17 Orange County improvements indicated a weighted average cost of approximately $1.20 million per lane mile. This cost was then compared to the weighted average construction cost per added lane mile ($2.75 million, shown in Table B-5) for recent Orange County improvement projects, calculating a ROW-to-construction ratio of approximately 44 percent. This ratio is within the range of the ROW-to-construction factors for recent studies throughout Florida, which ranged from 26 percent to 60 percent with an average of 41 percent (see Table B-4 for additional detail).

Table B-3

Right-of-Way Cost for County Roads – Orange County

CIP #	Project Name	From	To	Year	Improvement	Length	Lanes Added	Lane Miles Added	ROW Cost	Cost per Lane Mile
3017	Rock Springs Rd	Ponkan Rd	Kelly Park Rd	2008	2 to 4 Lanes	2.10	2	4.20	$1,893,491	$450,831
3018a	Rouse Rd	Lake Underhill	Corporate Blvd	2011	2 to 4 Lanes	4.15	2	8.30	$26,918,176	$3,243,154
3038a	Clarcona-Ocoee Rd	Ocoee-Apopka Rd	Hiawassee Rd	2009	2 to 4 lanes	5.08	2	10.16	$15,082,963	$1,484,544
3045	Holden Ave	JYP	OBT	2015	0/2 to 4 Lanes	1.24	2/4	3.50	$12,874,389	$3,678,397
3097	All American Blvd	Edgewater Dr	Forest City Rd	TBD	2 to 4 Lanes	1.06	2	2.12	$11,288,484	$5,324,757
5024b	Econ Trail	SR 408	SR 50	2015	2 to 4 Lanes	1.376	2	2.75	$1,312,402	$477,237
5029c	Valencia College Ln	OOCEA	Econlockhatchee Tr	2013	2 to 4 Lanes	0.90	2	1.80	$5,334,487	$2,963,604
5062a	Alafaya Tr	Avalon Park Blvd	Mark Twain Blvd	2011	2 to 4 Lanes	3.83	2	7.66	$723,164	$94,408
5066a	CR 535 Seg A	Magnolia Park Ct	SR 429	2011	2 to 4 Lanes	1.37	2	2.74	$2,552,940	$931,730
5066b	CR 535 Seg C&E	Fiquette Rd	Butler Ridge Rd	2008	2 to 4 Lanes	1.10	2	2.20	$1,960,704	$891,229
5067	CR 535 Seg F	Overstreet Rd	Fossick Rd	2016	2 to 4 Lanes	0.60	2	1.20	$110,485	$92,071
5068	Reams Rd	Delmar	Taborfield	2015	2 to 4 Lanes	0.36	2	0.72	$13,884	$19,283
5085c	Boggy Creek Rd North	BCID Intersection	SR 417	-	2 to 4 Lanes	0.21	2	0.42	$883,168	$2,102,781
5089b	Destination Pkwy 1A	International Dr	Tradeshow Blvd	2008	2 to 4 Lanes	0.35	2	0.70	$1,758,440	$2,512,057
5090b	Lake Underhill	Goldenrod Rd	Chickasaw Tr	2012	2 to 4 Lanes	0.69	2	1.38	$30,686	$22,236
5101	Narcoossee Rd	Osceola Co. Line	SR 417	2012	2 to 6 Lanes	3.80	4	15.20	$201,064	$13,228
5107	International Dr	Westwood Blvd	Westwood Blvd	2013	4 to 6 Lanes	2.20	2	4.40	$22,425	$5,097
Total								**69.45**	**$82,961,352**	**$1,200,000**

Source: Orange County Transportation Planning Division; Community, Environment & Development Services Department and Orange County Development Engineering Division. The data shown represent the full detail that staff was able to provide

Table B-4

Right-of-Way Cost Factor for County – Recent Impact Fee Studies

Year	City/County	City/County Roadways (Cost per Lane Mile)		
		ROW	Constr.	ROW Ratio
2012	Osceola	$1,087,074	$2,651,400	41%
2012	City of Orlando	$1,080,000	$2,400,000	45%
2012	City of Sarasota	$620,000	$2,400,000	26%
2013	Hernando	$811,800	$1,980,000	41%
2013	Charlotte	$1,034,000	$2,200,000	47%
2014	Indian River	$656,000	$1,598,000	41%
2015	Collier	$863,000	$2,700,000	32%
2015	Brevard	$708,000	$2,023,000	35%
2015	Sumter	$945,000	$2,100,000	45%
2015	Marion	$1,001,000	$1,668,000	60%
2015	Palm Beach	$721,000	$1,759,000	41%
2016	Hillsborough	$1,448,000	$2,897,000	50%
2016	St. Lucie	$990,000	$2,200,000	45%
2017	Clay	$954,000	$2,385,000	40%
2018	Collier	$1,208,000	$3,500,000	35%
Average		**$941,792**	**$2,297,427**	**41%**

Source: Recent impact fee studies conducted throughout Florida

Construction/CEI

The construction/CEI cost for county roads (curb & gutter, urban section design) was based on Orange County projects and the cost of recent projects in other communities in Florida. As shown in Table B-5, the review of construction data calculated a weighted average cost of $3.00 million per lane mile. It should be noted that the construction cost data in Table B-5 include construction engineering and inspection (CEI) costs. Based on the CEI-to-construction cost ratios observed in recent impact fee studies throughout Florida (approximately 9 percent), the CEI and construction portions of the cost per lane mile figure were estimated.

- Construction ≈ $2,750,000
- CEI ≈ $250,000

In addition to Orange County improvements, recent bids/completed projects from other communities throughout Florida were reviewed to increase the sample size of data. This review, as shown in Table B-6, included approximately 147 lane miles of improvements across 13 different counties, averaging $2.87 million per lane mile. However, the construction cost data for these improvements do not include associated CEI costs. With CEI estimated at approximately nine percent of construction costs (based on recently completed impact fee studies throughout Florida), the statewide figure would increase to approximately $3.10 million per lane mile for County roads.

Based on the recent Orange County projects and supported by the projects from throughout Florida, a construction cost of **$3.00 million** per lane mile was used in the impact fee calculation.

Table B-5

Construction/CEI Cost for County Roads – Orange County

CIP #	Project Name	From	To	Year	Improvement	Length	Lanes Added	Lane Miles Added	Construction/ CEI Cost	Cost per Lane Mile
3018a	Rouse Rd	Lake Underhill Rd	SR 50	2013	2 to 4 Lanes	1.55	2	3.10	$8,343,305	$2,691,389
3038a	Clarcona-Ocoee Rd	SR 429	Clark Rd	2012	2 to 4 Lanes	2.13	2	4.26	$8,608,970	$2,020,885
3045	Holden Ave	John Young Pkwy	Orange Blossom Tr	2019	0/2 to 4 Lanes	1.24	2/4	3.50	$20,657,990	$5,902,283
3095	Palm Pkwy/AVR Connector	Palm Pkwy	Apopka-Vineland Rd	2019	0 to 4 Lanes	1.50	4	6.00	$7,927,033	$1,321,172
5001a	John Young Parkway	SR 528	FL Turnpike	2012	4 to 6 Lanes	2.34	2	4.68	$14,108,710	$3,014,682
5024b	Econ Trail	SR 408	SR 50	2012	2 to 4 Lanes	1.376	2	2.75	$8,805,928	$3,202,156
5067	CR 535 Seg F	Overstreet Rd	Fossick Rd	2014	2 to 4 Lanes	0.60	2	1.20	$3,586,534	$2,988,778
5068	Reams Rd	Delmar Ave	Taborfield Ave	2017	2 to 4 Lanes	0.36	2	0.72	$3,746,796	$5,203,883
5089c	Destination Pkwy 1B/2A	Tradeshow Blvd	Lake Cay	2017	2 to 4 Lanes	0.78	2	1.56	$6,714,729	$4,304,313
5090b	Lake Underhill Rd	Goldenrod Rd	Chickasaw Tr	2013	2 to 4 Lanes	0.69	2	1.38	$7,002,038	$5,073,941
5107	International Dr	Westwood Blvd	Westwood Blvd	2015	4 to 6 Lanes	2.20	2	4.40	$18,435,028	$4,189,779
-	Porter Rd	Avalon Rd	Hamlin Groves Tr	2018	2 to 4 lanes	1.06	2	2.12	$3,118,145	$1,470,823
-	Innovation Way Seg 3B	Magnolia Woods Blvd	Yellow Jasmine Dr	2018	0 to 2 lanes	0.30	2	0.61	$596,909	$978,539
-	Boggy Creek Rd North	South Access Rd	Wetherbee Rd	2019	2 to 4 lanes	1.29	2	2.58	$9,434,917	$3,656,945
-	Hamlin Groves Ph I	New Independence Pkwy	N. approx 2800 LF	2017	0 to 4 Lanes	0.62	4	2.48	$2,272,939	$916,508
Total (Construction & CEI)								**41.34**	**$123,359,971**	**$3,000,000**
Estimated CEI Portion[(1)]										**$250,000**
Estimated Construction Portion[(1)]										**$2,750,000**

1) The CEI portion was estimated based on the CEI-to-construction cost ratios observed in several recent impact fee studies throughout Florida, which average approximately 9% of the construction costs (per lane mile)

Source: Orange County Transportation Planning Division; Community, Environment & Development Services Department and Orange County Development Engineering Division. The data shown represent the full detail that staff was able to provide

Table B-6
Construction Cost for County Roads - Improvements from Other Jurisdictions throughout Florida

County	District	Description	From	To	Year	Status	Feature	Design	Length	Lanes Added	Lane Miles Added	Construction Cost	Construction Cost per Lane Mile
Indian River	4	Oslo Rd Ph. III	43rd Ave	58th Ave	2012	Bid	2 to 4	Urban	1.15	2	2.30	$3,812,202	$1,657,479
Indian River	4	66th Ave	SR 60	49th St	2012	Bid	2 to 4	Urban	3.05	2	6.10	$20,773,389	$3,405,474
Polk	1	Kathleen Rd (CR 35A) Ph. II	Galloway Rd	Duff Rd	2012	Bid	2 to 4	Urban	3.00	2	6.00	$17,813,685	$2,968,948
Polk	1	Bartow Northern Connector Ph. I	US 98	US 17	2012	Bid	0 to 4	Urban	2.00	4	8.00	$11,255,736	$1,406,967
Volusia	5	Tymber Creek Rd	S. of SR 40	N. of Peruvian Ln	2012	Bid	2 to 4	Urban	0.89	2	1.78	$5,276,057	$2,964,077
Palm Beach	4	Jog Rd	N. of SR 710	N. of Florida's Turnpike	2012	Bid	0 to 4	Urban	0.70	4	2.80	$3,413,874	$1,219,241
Palm Beach	4	West Atlantic Ave	W. of Lyons Rd	Starkey Rd	2012	Bid	2 to 4	Urban	0.80	2	1.60	$8,818,727	$5,511,704
Palm Beach	4	60th St N & SR 7 Ext.	E. of Royal Palm Beach Blvd	SR 7	2012	Bid	0 to 2	Urban	1.50	2	3.00	$3,821,404	$1,273,801
Brevard	5	Babcock St	S. of Foundation Park Blvd	Malabar Rd	2013	Bid	2 to 4	Urban	12.40	2	24.80	$56,000,000	$2,258,065
Collier	1	Collier Blvd (CR 951)	Golden Gate Blvd	Green Blvd	2013	Bid	4 to 6	Urban	2.00	2	4.00	$17,122,640	$4,280,660
Marion	5	SW 110th St	US 41	SW 200th Ave	2013	Bid	0 to 2	Urban	0.11	2	0.22	$438,765	$1,994,386
Marion	5	NW 35th St	NW 35th Avenue Rd	NW 27th Ave	2013	Bid	0 to 4	Urban	0.50	4	4.60	$8,616,236	$1,873,095
Marion	5	NW 35th St	NW 27th Ave	US 441	2013	Bid	2 to 4	Urban	1.30	2			
Sumter	5	C-466A, Ph. III	US 301 N	Powell Rd	2013	Bid	2 to 3/4	Urban	1.10	2	2.20	$4,283,842	$1,947,201
Collier	1	Golden Gate Blvd	Wilson Blvd	Desoto Blvd	2014	Bid	2 to 4	Urban	2.40	2	4.80	$16,003,504	$3,334,063
Brevard	5	St. Johns Heritage Pkwy	SE of I-95 Intersection	US 192 (Space Coast Pkwy)	2014	Bid	0 to 2	Sub-Urb	3.11	2	6.22	$16,763,567	$2,695,107
Hillsborough	7	Turkey Creek Rd	Dr. MLK Blvd	Sydney Rd	2014	Bid	2 to 4	Urban	1.40	2	2.80	$6,166,000	$2,202,143
Sarasota	1	Bee Ridge Rd	Mauna Loa Blvd	Iona Rd	2014	Bid	2 to 4	Urban	2.68	2	5.36	$14,066,523	$2,624,351
St. Lucie	4	W Midway Rd (CR 712)	Selvitz Rd	South 25th St	2014	Bid	2 to 4	Urban	1.00	2	2.00	$6,144,000	$3,072,000
Lake	5	N Hancock Rd Ext.	Old 50	Gatewood Dr	2014	Bid	0/2 to 4	Urban	1.50	2/4	5.00	$8,185,574	$1,637,115
Polk	1	CR 655 & CR 559A	Pace Rd & N of CR 559A	N of CR 559A & SR 599	2014	Bid	2 to 4	Urban	2.60	2	5.20	$10,793,552	$2,075,683
Volusia	5	Howland Blvd	Courtland Blvd	N of SR 415	2014	Bid	2 to 4	Urban	2.08	2	4.16	$11,110,480	$2,670,788
Hillsborough	7	Citrus Park Extension	Sheldon Dr	Countryway Blvd	2015	Bid	0 to 4	Urban	2.70	4	10.80	$46,942,585	$4,346,536
Polk	1	Ernie Caldwell Blvd	Pine Tree Tr	US 17/92	2015	Bid	0 to 4	Urban	2.41	4	9.64	$19,535,391	$2,026,493
Volusia	5	LPGA Blvd	Jimmy Ann Dr/Grand Reserve	Derbyshire Rd	2016	Bid	2 to 4	Urban	0.68	2	1.36	$3,758,279	$2,763,440
St. Lucie	4	W Midway Rd (CR 712)	W. of South 25th St	E. of SR 5 (US 1)	2016	Bid	2 to 4	Urban	1.77	2	3.54	$24,415,701	$6,897,091
Volusia	5	Howland Blvd	Providence Blvd	Elkcam Blvd	2017	Bid	2 to 4	Urban	2.15	2	4.30	$10,850,000	$2,523,256
Volusia	5	Orange Camp Rd	MLK Blvd	I-4 in DeLand	2017	Bid	2 to 4	Urban	0.75	2	1.50	$10,332,000	$6,888,000
Lake	5	CR 466A, Ph. IIIA	Poinsettia Ave	Century Ave	2018	Bid	2 to 4	Urban	0.42	2	0.84	$3,062,456	$3,645,781
Lee	1	Alico Rd	Ben Hill Griffin Pkwy	E. of Airport Haul Rd	2018	Bid	2 to 4	Urban	1.78	2	3.56	$18,062,562	$5,073,753
Lee	1	Homestead Rd	S. of Sunrise Blvd	N. of Alabama Rd	2018	Bid	2 to 4	Urban	2.25	2	4.50	$14,041,919	$3,120,426
Hillsborough	7	Van Dyke Rd	Suncoast Pkwy	Whirley Ave	2018	Estimate	2 to 4	Urban	2.05	2	4.10	$20,000,000	$4,878,049
Total									**Count:**	**32**	**147.08**	**$421,680,650**	**$2,870,000**

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

Roadway Capacity

As shown in Table B-7, the average capacity per lane mile was based on the projects in the Metroplan 2040 Long Range Transportation Plan's Cost Feasible and Needs Plans. This listing of projects reflects the mix of improvements that will yield the vehicle-miles of capacity (VMC) that will be built in Orange County. The resulting weighted average capacity per lane mile of approximately 9,000 was used in the transportation impact fee calculation.

Table B-7
Metroplan 2040 Long Range Transportation Plan – Cost Feasible and Needs Plan Improvements

Jurisdiction	Description	From	To	Improvement	Length	Lanes Added	Lane Miles Added	Initial Capacity	Future Capacity	Added Capacity	Vehicle Miles of Capacity Added
County/City	SR 15 (Narcoossee Rd)	SR 528 (Beachline Expwy)	Lee Vista Blvd	Widen to 6 Lanes	1.32	2	2.64	35,820	53,910	18,090	23,879
County/City	Central Florida Pkwy	International Dr	SR 423 (John Young Pkwy)	Widen to 6 Lanes	1.94	2	3.88	35,820	53,910	18,090	35,095
County/City	International Dr	Hawaiian Ct	SR 482	Widen to 6 Lanes	2.05	2	4.10	35,820	53,910	18,090	37,085
County/City	Apopka-Vineland Rd	CR 535	Fenton Ave	Widen to 6 Lanes	1.43	2	2.86	35,820	53,910	18,090	25,869
County/City	Landstar Blvd	Osceola Co. Line	SR 417	Widen to 6 Lanes	1.53	2	3.06	35,820	53,910	18,090	27,678
County/City	Apopka-Vineland Rd	Darlene Rd	Kilgore Rd	Widen to 6 Lanes	1.34	2	2.68	35,820	53,910	18,090	24,241
County/City	New Independence Pkwy/Wellness Way	Lake Co. Line	SR 429	New/Widen 4 Lanes	1.07/0.45	2	5.00	0	29,160	29,160	44,323
County/City	Alafaya Tr	Huckleberry Finn Dr	Lake Underhill Rd	Widen to 6 Lanes	0.28	2	0.56	35,820	53,910	18,090	5,065
County/City	Apopka-Vineland Rd	Kilgore Rd	SR 482	Widen to 6 Lanes	0.75	2	1.50	29,160	45,000	15,840	11,880
County/City	Hiawassee Rd	SR 50 (Colonial Dr)	Silver Star Rd	Widen to 6 Lanes	1.76	2	3.52	35,820	53,910	18,090	31,838
County/City	Apopka-Vineland Rd	Fenton Ave	Darlene Rd	Widen to 6 Lanes	1.01	2	2.02	35,820	53,910	18,090	18,271
County/City	Universal Blvd	SR 482	Pointe Plaza Ave	Widen to 6 Lanes	1.00	2	2.00	29,160	45,000	15,840	15,840
County/City	Central Florida Pkwy	SR 423 (John Young Pkwy)	Orange Blossom Tr	Widen to 6 Lanes	1.23	2	2.46	35,820	53,910	18,090	22,251
County/City	International Dr	SR 482	Kirkman Rd	Widen to 6 Lanes	1.39	2	2.78	29,160	45,000	15,840	22,018
County/City	International Dr South	Westwood Blvd	Hawaiian Ct	Widen to 6 Lanes	2.50	2	5.00	35,820	53,910	18,090	45,225
County/City	Turkey Lake Rd	Sand Lake Commons Blvd	SR 482	Widen to 6 Lanes	1.63	2	3.26	35,820	53,910	18,090	29,487
County/City	Boggy Creek Rd	Beacon Park Blvd	SR 417	Widen to 6 Lanes	1.56	2	3.12	27,360	41,220	13,860	21,622
County/City	Clarke Rd	White Rd	SR 50	Widen to 6 Lanes	0.80	2	1.60	35,820	53,910	18,090	14,472
County/City	Universal Blvd	SR 482	Carrier Dr	Widen to 6 Lanes	1.00	2	2.00	30,420	45,810	15,390	15,390
County/City	Conroy Rd	Millenia Blvd	Eastgate Dr	Widen to 6 Lanes	0.29	2	0.58	14,040	30,420	16,380	4,750
County/City	Turkey Lake Rd	Central Florida Pkwy	Sand Lake Commons Blvd	Widen to 6 Lanes	1.18	2	2.36	35,820	53,910	18,090	21,346
County/City	Apopka-Vineland Rd	Conroy-Windermere Rd	Westover Roberts Rd	Widen to 6 Lanes	1.77	2	3.54	35,820	53,910	18,090	32,019
County/City	Avalon Rd (CR 545)	Seidel Rd	McKinney Rd	Widen to 4 Lanes	3.88	2	7.76	15,930	35,820	19,890	77,173
County/City	Oakland Ave	Tubb St	Avalon Rd	Widen to 4 Lanes	1.12	2	2.24	14,040	29,160	15,120	16,934
County/City	Avalon Rd (CR 545)	Tilden Rd	Marsh Rd	Widen to 4 Lanes	0.73	2	1.46	15,930	35,820	19,890	14,520
County/City	Avalon Rd (CR 545)	McKinney Rd	Tilden Rd	Widen to 4 Lanes	2.26	2	4.52	15,930	35,820	19,890	44,951
County/City	Hiawassee Rd	Clarcona-Ocoee Rd	John Land Apopka Expwy	Widen to 6 Lanes	0.58	2	1.16	35,820	53,910	18,090	10,492
County/City	Apopka-Vineland Rd	SR 482	Conroy-Windermere Rd	Widen to 6 Lanes	3.15	2	6.30	30,420	45,000	14,580	45,927
County/City	Avalon Rd (CR 545)	Flamingo Crossings Blvd	Seidel Rd	Widen to 4 Lanes	0.49	2	0.98	15,930	35,820	19,890	9,746
County/City	Avalon Rd (CR 545)	US 192	Hartzog Rd	Widen to 4 Lanes	0.97	2	1.94	15,930	35,820	19,890	19,293
County/City	Clarcona-Ocoee Rd	Apopka-Vineland Rd	Hiawassee Rd	Widen to 6 Lanes	1.37	2	2.74	35,820	53,910	18,090	24,783
County/City	Clarcona-Ocoee Rd	Clarke Rd	Apopka-Vineland Rd	Widen to 6 Lanes	1.17	2	2.34	27,360	41,220	13,860	16,216
County/City	Lake Underhill Rd (CR 15)	E Anderson St (CR 15)	Gaston Foster Rd	Widen to 4 Lanes	1.20	2	2.40	14,040	30,420	16,380	19,656
County/City	Ocoee-Apopka Rd	SR 438	Fullers Cross Rd	Widen to 4 Lanes	1.50	2	3.00	12,780	27,360	14,580	21,870
County/City	Wymore Rd	Lee Rd	Kennedy Blvd	Widen to 4 Lanes	0.89	2	1.78	15,930	35,820	19,890	17,702
County/City	Ocoee-Apopka Rd	McCormick Rd	Binion Rd	Widen to 4 Lanes	0.65	2	1.30	14,300	51,000	36,700	23,855
County/City	Glenridge Way	Winter Park Rd	Lakemont Ave	Widen to 4 Lanes	1.14	2	2.28	14,040	29,160	15,120	17,237
County/City	Taft-Vineland Rd	American Eagle Way	US 441	Widen to 4 Lanes	0.21	2	0.42	35,820	53,910	18,090	3,799
County/City	Boggy Creek Rd	Wetherbee Rd	Tradeport Dr	Widen to 4 Lanes	1.32	2	2.64	15,930	35,820	19,890	26,255
County/City	Avalon Rd (CR 545)	SR 50	Oakland Ave	Widen to 4 Lanes	0.27	2	0.54	15,930	35,820	19,890	5,370
County/City	Econlockhatchee Tr	Lee Vista Blvd	Curry Ford Rd	Widen to 4 Lanes	2.25	2	4.50	14,040	29,160	15,120	34,020
County/City	Mercy Dr	Old Winter Garden Rd	W Princeton St	Widen to 4 Lanes	1.67	2	3.34	14,040	30,420	16,380	27,355
County/City	Reams Rd	Summerlake Park Blvd	Center Dr	Widen to 4 Lanes	1.95	2	3.90	15,930	35,820	19,890	38,786
County/City	Boggy Creek Rd	SR 417 (Greenway)	Wetherbee Rd	Widen to 4 Lanes	2.58	2	5.16	15,930	35,820	19,890	51,316
County/City	Sadler Ave	Lake County Line	US 441	Widen to 4 Lanes	2.37	2	4.74	12,780	27,360	14,580	34,555
County/City	Geneva St	Bluford Ave	Bowness Rd	Widen to 4 Lanes	0.17	2	0.34	14,040	29,160	15,120	2,570
County/City	Clarke Rd	Hackney-Prairie Rd	AD Mims Rd	Widen to 6 Lanes	0.72	2	1.44	27,360	41,220	13,860	9,979
County/City	Clarcona Rd	McCormick Rd	Keene Rd	Widen to 4 Lanes	1.01	2	2.02	12,780	27,360	14,580	14,726
County/City	Round Lake Rd	Sadler Ave	Kelly Park Rd	Widen to 4 Lanes	0.50	2	1.00	14,300	51,000	36,700	18,350
County/City	Boggy Creek Rd	Dowden Rd	Landstreet Rd	Widen to 4 Lanes	0.59	2	1.18	14,040	29,160	15,120	8,921
County/City	Ocoee-Apopka Rd	West Rd	McCormick Rd	Widen to 4 Lanes	1.33	2	2.66	14,300	51,000	36,700	48,811
County/City	Ocoee-Apopka Rd	Binion Rd	Keene Rd	Widen to 4 Lanes	0.65	2	1.30	14,300	51,000	36,700	23,855
County/City	Jones Ave	US 441	Lake Co. Line	Widen to 4 Lanes	3.17	2	6.34	12,780	27,360	14,580	46,219
County/City	Chuluota Rd (CR 419)	Lake Pickett Rd	SR 50	Widen to 4 Lanes	1.95	2	3.90	12,870	45,900	33,030	64,409
County/City	Story Rd	9th St	Carter Rd	Widen to 4 Lanes	0.64	2	1.28	14,040	29,160	15,120	9,677
County/City	Roberson Rd	Windermere Rd	Maguire Rd	Widen to 4 Lanes	1.00	2	2.00	12,780	27,360	14,580	14,580
County/City	Clarke Rd	Clarcona-Ocoee Rd	Hackney-Prairie Rd	Widen to 4 Lanes	0.78	2	1.56	12,780	27,360	14,580	11,372
County/City	Reams Rd	Center Dr	CR 535	Widen to 4 Lanes	1.94	2	3.88	15,930	35,820	19,890	38,587
County/City	Story Rd	Carter Rd	Bowness Rd	Widen to 4 Lanes	1.13	2	2.26	14,040	29,160	15,120	17,086
County/City	Wallace Rd	Apopka-Vineland Rd	Dr. Phillips Blvd	Widen to 4 Lanes	0.50	2	1.00	15,930	35,820	19,890	9,945
County/City	Plymouth-Sorrento Rd	Schopke Rd	SR 429	Widen to 4 Lanes	2.80	2	5.60	29,970	35,820	5,850	16,380
County/City	Lake Pickett Rd	Percival Rd	South Tanner Rd	Widen to 4 Lanes	1.25	2	2.50	12,780	27,360	14,580	18,225
County/City	Ponkan Rd	Round Lake Rd	Plymouth-Sorrento Rd	Widen to 4 Lanes	2.62	2	5.24	12,870	27,360	14,490	37,964
County/City	Ocoee-Apopka Rd	Fullers Cross Rd	West Rd	Widen to 4 Lanes	0.53	2	1.06	12,780	27,360	14,580	7,727
County/City	Chuluota Rd (CR 419)	Seminole Co.	Lake Pickett Rd	Widen to 4 Lanes	1.79	2	3.58	14,300	51,000	36,700	65,693
County/City	Kelly Park Rd	Round Lake Rd	Plymouth-Sorrento Rd	Widen to 4 Lanes	2.03	2	4.06	12,870	27,360	14,490	29,415
County/City	Raleigh St	Poppy Ave	Willie May's Pkwy	Widen to 4 Lanes	0.64	2	1.28	14,040	30,420	16,380	10,483
County/City	Lake Pickett Rd	SR 50	Percival Rd	Widen to 4 Lanes	1.07	2	2.14	15,930	35,820	19,890	21,282
County/City	Lakewood Ave	Fullers Cross Rd	Pat's Lane	Widen to 4 Lanes	0.28	2	0.56	12,780	27,360	14,580	4,082
County/City	Pope St	Young Pine Rd	Innovation Rd	Widen to 4 Lanes	1.95	2	3.90	15,930	35,820	19,890	38,786
County/City	Young Pine Rd	Pope Rd	Lee Vista Blvd	Widen to 4 Lanes	0.80	2	1.60	15,930	35,820	19,890	15,912
County/City	Bowness Rd/Kissimmee Ave	Story Rd/Geneva St	Kissimmee Ave	Widen to 4 Lanes	0.19	2	0.38	14,040	29,160	15,120	2,873
County/City	Rose Ave	Beggs Rd	Maitland Blvd	Widen to 4 Lanes	0.99	2	1.98	15,930	35,820	19,890	19,691
County/City	Valencia College Ln	Frontage Rd	Econlockhatchee Tr	Widen to 4 Lanes	1.01	2	2.02	15,930	35,820	19,890	20,089
County/City	Wallace Rd	Dr. Phillips Blvd	Turkey Lake Rd	Widen to 4 Lanes	1.02	2	2.04	14,040	29,160	15,120	15,422
County/City	White Rd	Montgomery Ave	Clarke Rd	Widen to 4 Lanes	0.64	2	1.28	14,040	29,160	15,120	9,677
County/City	Windermere Rd	Roberson Rd	Maguire Rd	Widen to 4 Lanes	1.83	2	3.66	12,780	27,360	14,580	26,681
County/City	Apopka-Vineland Rd	AD Mims Rd	Clarcona-Ocoee Rd	Widen to 4 Lanes	1.67	2	3.34	12,780	27,360	14,580	24,349
County/City	Boggy Creek Rd	Tradeport Dr	Dowden Rd	Widen to 4 Lanes	1.31	2	2.62	15,930	35,820	19,890	26,056
County/City	Lake Margaret Dr	Bumby Ave	Semoran Blvd	Widen to 4 Lanes	2.60	2	5.20	14,040	29,160	15,120	39,312
County/City	Winegard Rd	Sand Lake Rd	Lancaster Rd	Widen to 4 Lanes	0.85	2	1.70	14,040	29,160	15,120	12,852
County/City	Lakeville Rd	Beggs Rd	Apopka Blvd	Widen to 4 Lanes	1.78	2	3.56	12,780	27,360	14,580	25,952
County/City	Pershing Ave	Bumby Ave	Conway Gardens Rd	Widen to 4 Lanes	0.75	2	1.50	14,040	30,420	16,380	12,285
County/City	Lakeville Rd	Clarcona-Ocoee Rd	Beggs Rd	Widen to 4 Lanes	0.83	2	1.66	12,780	27,360	14,580	12,101
County/City	S Rio Grande Ave	Long St	W Anderson St	Widen to 4 Lanes	0.06	2	0.12	15,930	35,820	19,890	1,193
County/City	Apopka-Vineland Rd	I-4 WB Ramp	CR 535	Widen to 8 Lanes	0.58	2	1.16	53,910	72,090	18,180	10,544
County/City	Boggy Creek Rd	Jeff Fuqua Blvd	Wetherbee Rd	Widen to 4 Lanes	1.30	2	2.60	53,910	72,090	18,180	23,634
County/City	CR 535	Buena Vista Dr	Equestrian Dr	Widen to 6 Lanes	1.17	2	2.34	35,820	53,910	18,090	21,165
County/City	Curry Ford Rd	Goldenrod Rd	Dean Rd	Widen to 6 Lanes	3.10	2	6.20	35,820	53,910	18,090	56,079
County/City	Dean Rd	University Blvd	McCulloch Rd	Widen to 4 Lanes	1.02	2	2.04	15,930	35,820	19,890	20,288
County/City	Goldenrod Rd	Lee Vista Blvd	0.29 miles N of Lee Vista Blvd	Widen to 6 Lanes	0.29	2	0.58	35,820	53,910	18,090	5,246
County/City	John Young Pkwy	Osceola Co. Line	Town Center Blvd	Widen to 8 Lanes	1.77	2	3.54	53,910	72,090	18,180	32,179
County/City	John Young Pkwy	Town Center Blvd	Deerfield Blvd	Widen to 8 Lanes	0.64	2	1.28	53,910	72,090	18,180	11,635
County/City	John Young Pkwy	Central Florida Pkwy	Interstate 4	Widen to 8 Lanes	7.30	2	14.60	53,910	72,090	18,180	132,714
County/City	John Young Pkwy	Interstate 4	SR 50	Widen to 8 Lanes	3.20	2	6.40	53,910	72,090	18,180	58,176
County/City	Kennedy Blvd	Forest City Rd	Keller Rd	Widen to 4 Lanes	1.02	2	2.04	15,930	35,820	19,890	20,288
County/City	Kennedy Blvd	Keller Rd	Wymore Rd	Widen to 4 Lanes	0.74	2	1.48	15,930	35,820	19,890	14,719
County/City	Lake Margaret Dr	Bumby Ave	Semoran Blvd	Widen to 4 Lanes	2.60	2	5.20	14,040	30,420	16,380	42,588
County/City	Nova Rd (CR 532)	Osceola Co. Line	SR 520	Widen to 4 Lanes	2.63	2	5.26	12,870	27,360	14,490	38,109
County/City	Orange Ave	Osceola Co. Line	Town Center Blvd	Widen to 4 Lanes	1.22	2	2.44	15,930	35,820	19,890	24,266
County/City	Orange Ave	Taft-Vineland Rd	Landstreet Rd	Widen to 6 Lanes	1.08	2	2.16	30,420	45,000	14,580	15,746
County/City	Orange Ave	Landstreet Rd	SR 482	Widen to 6 Lanes	1.06	2	2.12	35,820	53,910	18,090	19,175
County/City	Palm Pkwy/Turkey Lake Rd	SR 535	Central Florida Pkwy	Widen to 6 Lanes	2.66	2	5.32	35,820	53,910	18,090	48,119
County/City	Sand Lake Rd	Apopka-Vineland Rd	Turkey Lake Rd	Widen to 6 Lanes	1.33	2	2.66	35,820	53,910	18,090	24,060
County/City	Silver Star Rd	Mercy Dr	SR 441 (Orange Blossom Tr)	Widen to 4 Lanes	1.33	2	2.66	15,930	35,820	19,890	26,454
County/City	Tradeport Dr	Earhart Dr	SR 528 (BeachLine Expwy)	Widen to 6 Lanes	1.05	2	2.10	35,820	53,910	18,090	18,995
County/City	West Lake Butler Rd	Winter Garden-Vineland Rd	McKinnon Rd	Widen to 4 Lanes	0.50	2	1.00	12,780	27,360	14,580	7,290
Total:							**297.88**				2,656,493
										VMC Added per Lane Mile:	**9,000**

Source: Metroplan 2040 Long Range Transportation Plan, Tech Memo #3, Table 9; Needs Plan

Transit Capital Costs – Multi-Modal Fee

To convert the roadway impact fee into a multi-modal fee, the marginal cost of adding transit infrastructure needs to be considered. This section details the difference in cost per person-mile of capacity between expanding a roadway without transit amenities versus expanding a roadway with transit amenities. This calculation also accounts for the change in roadway person-miles of capacity that occurs when a bus is on the road.

First, Table B-8 calculates the person-miles of capacity added for each new transit vehicle on the road. This calculation adjusts for the fact that buses have a significantly higher person-capacity than passenger vehicles. This table also identifies transit capital cost variables that will be used to calculate the added capital cost of constructing/expanding a roadway with transit facilities.

Next, Table B-9 combines the roadway VMC and the transit PMC to calculate the marginal change in cost per PMC. First, the roadway characteristics, including cost and capacity, were used to calculate the roadway cost per VMC for a generic 26-mile roadway segment. Then, an adjustment factor was applied to recognize that incorporating transit along a segment of roadway decreases the vehicle-capacity as the bus makes intermittent stops and interrupts the free-flowing traffic. As shown in Table B-9, the bus blockage adjustment factor is much higher for a 2-lane roadway than for a 4-lane roadway. On a 2-lane road, all cars get caught behind the bus during a stop, while on a 4-lane roadway, there is an unobstructed travel lane that cars can use to pass-by or maneuver around the slower transit vehicle. This adjusted VMC was then converted to PMC using the vehicle-miles to person-miles adjustment factor (1.40) previously discussed in this report. The additional person-capacity from the buses was added to the adjusted roadway PMC. The person-miles of capacity that a transit system would add to the stretch of roadway (Table B-8) mitigates the decrease in vehicle-miles of capacity due to the bus blockage adjustments.

Next, the capital cost of transit infrastructure was added to the capital cost of the roadway expansion for both new road construction (0 to 2 lanes) and lane addition (2 to 4 lanes). With the transit infrastructure included, the updated cost per PMC was calculated, which now reflects the total cost of building a new road with transit or expanding a roadway and adding transit amenities. When compared to the cost per PMC for simply building/expanding a roadway without transit, the added cost of transit is between two (2) percent and five (5) percent.

As a final step, the increased costs were then weighted by the lane mile distribution of new road construction and lane addition improvements in the Metroplan 2040 Long Range Transportation Plan. As shown, the plan calls for a higher number of lane addition improvements through 2040.

When the marginal cost of transit is included and weighted by this ratio, the resulting percent change is approximately 2.66 percent. Essentially, adding transit does not have a significant effect on the cost per person-mile of capacity for new road construction and lane addition improvements.

As it is currently structured, the transit model detailed in Tables B-8 and B-9 assumes that transit-miles and road-miles will be added to the system at the same rate. If the County builds more transit-miles, this will increase the bus traffic on existing roads, adding more stops, higher stop frequency, and creating additional bus blockage. As a result, the capital cost per person-mile for a roadway with transit would increase in relation to the ratio of added transit-miles vs. roadway-miles. For example, if the transit-mile investment was double that of roadway construction/expansion, the 2.66 percent change calculated in Table B-9 would increase to approximately 5.32 percent. The annual construction figures for transit-miles and road-miles should be tracked by the County and adjusted for in subsequent transportation impact fee update studies.

Table B-8
Multi-Modal Cost per Person-Mile of Capacity

Input	Local Transit	
Transit Person-Miles of Capacity Calculation		**Source:**
Vehicle Capacity[1]	50	1) Source: Local transit is assumed to have 40 seats with a 25 percent standing room capacity equivalent
Number of Vehicles (20% fleet margin)[2]	2	2) Cycle time (Item 9) divided by headway time (Item 6) increased by 20 percent to accommodate the required fleet margin
Service Span (hours)[3]	16	3) Source: Assumption based on current LYNX routes
Cycles/Hour (aka Peak Vehicles)[4]	1.00	4) Headway time (Item 6) divided by 60
Cycles per Day[5]	16	5) Service span (Item 3) multiplied by the cycles/hour (Item 4)
Headway Time (minutes)[6]	60	6) Source: Assumption based on current LYNX routes
Speed (mph)[7]	14	7) Source: Integrated National Transit Database Analysis System (INTDAS). 6-yr average
Round Trip Length (miles)[8]	26.0	8) Source: Average trip length of current LYNX routes
Cycle Time (minutes)[9]	111	9) Round trip length (Item 8) divided by speed (Item 7) multiplied by 60
Total Person-Miles of Capacity[10]	20,800	10) Vehicle capacity (Item 1) multiplied by the cycles per day (Item 5) multiplied by the round trip length (Item 8)
Load Factor/System Capacity[11]	30%	11) Source: Optimistic assumption based on future goals
Adjusted Person-Miles of Capacity[12]	**6,240**	12) Total person-miles of capacity (Item 10) multiplied by the load factor (Item 11)
Capital Cost Variables		
Stops per Mile (w/o Shelter)[13]	3	13) Source: Model assumes 3 bench stops per mile
Shelters per Mile[14]	1	14) Source: Model assumes 1 shelter stop per mile
Vehicle Cost[15]	$600,000	15) Source: Assumption based on local characteristics and industry knowledge
Simple Bus Stop[16]	$10,000	16) Source: Assumption based on local characteristics and industry knowledge
Sheltered Bus Stop[17]	$30,000	17) Source: Assumption based on local characteristics and industry knowledge

Table B-9
Multi-Modal Fee: Transit Component Model

Item	New Road Construction		Lane Addtions		
	Roadway	Transit	Roadway	Transit	
Roadway Characteristics:					**Source:**
Roadway Cost per Mile[(1)]	$9,080,000		$9,080,000		1) Source: Table 1, adjusted to cost "per mile"
Roadway Segment Length (miles)[(2)]	26.0		26.0		2) Source: Average length of LYNX route
Roadway Segment Cost[(3)]	$236,080,000	**PMC**	$236,080,000	**PMC**	3) Roadway cost per mile (Item 1) multiplied by the roadway segment length (Item 2)
Average Capacity Added (per mile)[(4)]	18,000	25,200	18,000	25,200	4) Source: Table 2, adjusted to capacity "per mile"
VMC/PMC Added (entire segment)[(5)]	468,000	655,200	468,000	655,200	5) Roadway segment length (Item 2) multiplied by the average capacity added (Item 4) for both VMC and PMC
Roadway Cost per VMC/PMC[(6)]	$504.44	**$360.32**	$504.44	**$360.32**	6) Roadway segment cost (Item 3) divided by the VMC/PMC added (Item 5) individually
Transit Capacity:					
Adjustment for Bus Blockage[(7)]	3.2%	-	1.6%	-	7) Source: 2010 Highway Capacity Manual, Equation 18-9
VMC/PMC Added (transit deduction)[(8)]	14,976	20,966	7,488	10,483	8) VMC added (Item 5) multiplied by the adjustment for bus blockage (Item 7). For PMC, multiply the VMC by 1.40 persons per vehicle
VMC/PMC Added (less transit deduction)[(9)]	453,024	634,234	460,512	644,717	9) VMC/PMC added (entire segment) (Item 5) less the VMC/PMC added (transit deduction) (Item 8) for VMC and PMC individually
PMC Added (transit addition ONLY)[(10)]		6,240		6,240	10) Source: Table B-8, Adjusted Person-Miles of Capacity (Item 12)
Net PMC Added (transit effect included)[(11)]		640,474		650,957	11) PMC added (less transit deduction) (Item 9) plus the PMC added (transit addition ONLY) (Item 10)
Road/Transit Cost per PMC (Road Capital)[(12)]		$368.60		$362.67	12) Road segment cost (Item 3) divided by the net PMC added (transit effect included) (Item 11)
Transit Infrastructure:					
Buses Needed[(13)]	2	$1,200,000	2	$1,200,000	13) Number of vehicles (see Table B-8, Item 2) multiplied by the vehicle cost (see Table B-8, Item 15)
Stops per mile (both sides of street)[(14)]	3	$1,560,000	3	$1,560,000	14) Stops per mile (3) multiplied by the roadway segment length (Item 2) multiplied by the cost per stop (Table B-8, Item 16)
Shelters per mile (both sides of street)[(15)]	1	$1,560,000	1	$1,560,000	15) Shelters per mile (1) multiplied by the roadway segment length (Item 2) multiplied by the cost per shelter (Table B-8, Item 17)
Total infrastructure[(16)]		$4,320,000		$4,320,000	16) Sum of buses needed (Item 13), stops needed (Item 14), and shelters needed (Item 15)
Multi-Modal Cost per PMC:					
Road/Transit Cost per PMC[(17)]		**$375.35**		**$369.30**	17) Sum of the roadway segment cost (Item 3) and the total transit infrastructure cost (Item 16) divided by the net PMC added (Item 11)
Percent Change[(18)]		**4.17%**		**2.49%**	18) Percent difference between the road/transit cost per PMC (Item 17) and the Roadway cost per PMC (Item 6)
Weighted Multi-Modal Cost per PMC:					
Lane Mile Distribution w/Transit Facilities[(19)]		10%		90%	19) Source: Estimate based on mix of Cost Feasible and Needs Plan improvements
Weighted Roadway Cost per PMC[(20)]		$36.03		$324.29	20) Roadway cost per PMC (Item 6) multiplied by the lane mile distribution (Item 19)
Weighted Road/Transit Cost per PMC[(21)]		$37.53		$332.37	21) Road/Transit cost per PMC (Item 17) multiplied by the lane mile distribution (Item 19)
Weighted Average Multi-Modal Cost per PMC:					
Weighted Average Roadway Cost per PMC (new road construction and lane additions)[(22)]				$360.32	22) Sum of the weighted roadway cost per PMC (Item 20) for new road construction and lane additions
Weighted Average Road/Transit Cost per PMC (new road construction and lane additions)[(23)]				$369.90	23) Sum of the weighted road/transit cost per PMC (Item 21) for new road construction and lane additions
Percent Change[(24)]				**2.66%**	24) Percent difference between the weighted average road/transit cost per PMC (Item 23) and the weighted average roadway cost per PMC (Item 22)

APPENDIX C
Credit Component Calculations

Appendix C: Credit Component

This appendix presents the detailed calculations for the credit component. Of the available funding sources, County fuel taxes that are collected in Orange 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.
- Orange County currently dedicates these revenues to capacity improvements and operations/maintenance.

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.
- Orange County currently dedicates these revenues to capacity improvements and operations/maintenance.

3. 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.
- Orange County currently dedicates a small portion to capacity expansion, with most of these revenues going towards operations/maintenance.

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 2019-20 data represent projected fuel tax distributions to Orange 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 $7.2 million of annual revenue will be generated for the County from one penny of fuel tax in Orange County.

Table C-1
Estimated Fuel Tax Distribution Allocated to Capital Programs for Orange County & Municipalities, FY 2019-20[1]

Tax	Amount of Levy per Gallon	Total Distribution	Distribution per Penny
Constitutional Fuel Tax	$0.02	$12,989,743	$6,494,872
County Fuel Tax	$0.01	$5,714,513	$5,714,513
1st Local Option (1-6 cents)	$0.06	$46,070,352	$7,678,392
Total	**$0.09**	**$64,774,608**	
Weighted Average per Penny[2]			**$7,197,179**

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 - Roadways

A revenue credit for the annual expenditures on roadway capacity-expansion projects in Orange County is presented below. The components of the credit are as follows:

- City (Orlando) capital project funding (cash funding)

- County capital project funding (cash funding)
    - INVEST, fuel tax, proportionate fair share fund
    - LYNX capital contribution
    - Ad Valorem funding (separate credit calculations are included in Appendix D)
- State capital project funding

The annual expenditures from each revenue source (except for ad valorem tax revenues) 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. In the case of ad valorem tax revenues used toward capacity expansion projects, the credit is based on average taxable value of each land use. These calculations are included in Appendix D.

City Capital Project Funding (Roads ONLY)

A review of Orlando's future roadway financing programs indicate that the City is primarily funding roadway capacity-expansion improvements with fuel tax revenues. As shown in Table C-2, a City credit of 0.1 pennies will be included in the roadway impact fee calculation.

Table C-2
City Fuel Tax Equivalent Pennies - Roadways

Source	Cost of Projects	Number of Years	Revenue from 1 Penny[2]	Equivalent Pennies[3]
Fuel Tax Expenditures (FY 2019-2023)[1]	$2,580,000	5	$7,197,179	$0.001
Total				**$0.001**

1) Source: Table C-8
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 (Roads ONLY)

A review of the County's future roadway financing programs indicated that a combination of fuel tax, INVEST, and proportionate fair share revenues are used to fund roadway capacity expansion projects, in addition to ad valorem funds (see Appendix D) and impact fee funds (not credit eligible). As shown in Table C-3, Orange County uses 4.9 equivalent pennies for capacity-expansion projects such as new road construction, lane additions, and intersection improvements.

Table C-3
County Fuel Tax Equivalent Pennies - Roadways

Source	Cost of Projects	Number of Years	Revenue from 1 Penny[3]	Equivalent Pennies[4]
Fuel Tax/Prop. Share Exp. (FY 2019-2023)[1]	$43,060,482	5	$7,197,179	$0.012
INVEST, CIP funds[2]	$132,953,070	5	$7,197,179	$0.037
Total	**$176,013,552**			**$0.049**

1) Source: Table C-9
2) Source: Table C-9
3) Source: Table C-1
4) Cost of projects divided by number of years divided by revenue from 1 penny (Item 3) divided by 100

State Capital Project Funding (Roads ONLY)

In the calculation of the equivalent pennies of fuel tax from the State, expenditures on roadway capacity-expansion spanning a 10-year period (from FY 2010 to FY 2019) were reviewed. From these expenditures, a list of improvements was developed, including lane additions, new road construction, intersection improvements, interchanges, traffic signal projects, etc. The use of a 10-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 the county over short periods of time.

The total cost of the historical roadway capacity-expansion projects:

- FY 2010-2014 work plan equates to 9.1 pennies
- FY 2015-2019 work plan equates to 8.0 pennies

The combined weighted average over the 16-year period of state expenditure for capacity-expansion roadway projects results in a total of 9.3 equivalent pennies. Table C-4 documents this calculation. The specific projects that were used in the equivalent penny calculations are summarized in Table C-4.

Table C-4
State Fuel Tax Equivalent Pennies - Roadways

Source	Cost of Projects	Number of Years	Revenue from 1 Penny[3]	Equivalent Pennies[4]
Historical Work Program (FY 2015-2019)[1]	$286,550,946	5	$7,197,179	$0.080
Historical Work Program (FY 2010-2014)[2]	$328,449,775	5	$7,197,179	$0.091
Total	**$615,000,721**	**10**	**$7,197,179**	**$0.085**

1) Source: Table C-10
2) Source: Table C-10
3) Source: Table C-1
4) Cost of projects divided by number of years divided by revenue from 1 penny (Item 3) divided by 100

Capital Improvement Credit – Multi-Modal

For the multi-modal fee, the capital improvement credit includes the roadway expenditures previously detailed along with the capacity-expansion expenditures for multi-modal improvements in Orange County.

City Capital Project Funding (Multi-Modal)

A review of Orlando's future transportation financing programs indicate that the City is primarily funding capacity-expansion improvements with fuel tax revenues. As shown in Table C-5, a City credit of 0.3 pennies will be included in the multi-modal transportation impact fee calculation.

Table C-5
City Fuel Tax Equivalent Pennies – Multi-Modal

Source	Cost of Projects	Number of Years	Revenue from 1 Penny[3]	Equivalent Pennies[4]
Fuel Tax Expenditures (FY 2019-2023)[1]	$12,561,000	5	$7,197,179	$0.003
Total				**$0.003**

1) Source: Table C-8
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 (Multi-Modal)

As shown in Table C-6, when capacity funding for multimodal projects is considered, Orange County uses 5.4 equivalent pennies from non-impact fee and non-ad valorem funding for projects such as new road construction, lane additions, transit lanes, sidewalks, and intersection improvements. A separate ad valorem credit analysis is located in Appendix D.

Table C-6
County Fuel Tax Equivalent Pennies – Multi-Modal

Source	Cost of Projects	Number of Years	Revenue from 1 Penny[4]	Equivalent Pennies[5]
Fuel Tax/Prop. Share Exp. (FY 2019-2023)[1]	$53,060,482	5	$7,197,179	$0.015
INVEST, CIP funds[2]	$132,953,070	5	$7,197,179	$0.037
LYNX Capital Contribution[3]	$1,793,000	1	$7,197,179	$0.002
Total	**$187,806,552**			**$0.054**

1) Source: Table C-9
2) Source: Table C-9
3) Source: LYNX Funding Detail Report, September 2019
4) Source: Table C-1
5) Cost of projects divided by number of years divided by revenue from 1 penny (Item 3) divided by 100

State Capital Project Funding (Multi-Modal)

In the calculation of the equivalent pennies of fuel tax from the State, expenditures on transportation capacity-expansion spanning a 10-year period (from FY 2010 to FY 2019) were reviewed. From these, a list of improvements was developed, including lane additions, new road construction, intersection improvements, interchanges, traffic signal projects, vehicle acquisition, capital for fixed route service, sidewalks etc.

Several of the transit expenditures did not contain enough detail to determine if the expenditure was capacity expansion or operations/maintenance. For example, vehicle purchases are grouped into a single expenditure without indicating if the vehicles are replacements or are associated with expanded service. Therefore, the total transit expenditures were adjusted to 60 percent to account for the portion of expenditures associated with operations/maintenance. The use of a 60 percent adjustment factor was based on the distribution of Section 5307 expenditures projected in the County's latest Transit Development Plan.

The total cost of the historical transportation capacity-expansion projects:

- FY 2010-2014 work plan equates to 13.4 pennies
- FY 2015-2019 work plan equates to 14.6 pennies

The combined weighted average over the 10-year period of state expenditure for multi-modal capacity-expansion projects results in a total of 14.0 equivalent pennies. Table C-7 documents this calculation. The specific projects that were used in the equivalent penny calculations are summarized in Tables C-10 and C-11.

Table C-7
State Fuel Tax Equivalent Pennies

Source	Cost of Projects	Number of Years	Revenue from 1 Penny[3]	Equivalent Pennies[4]
Historical Work Program (FY 2015-2019)[1]	$525,208,503	5	$7,197,179	$0.146
Historical Work Program (FY 2010-2014)[2]	$483,685,935	5	$7,197,179	$0.134
Total	**$1,008,894,438**	**10**	**$7,197,179**	**$0.140**

1) Source: Table C-11
2) Source: Table C-11
3) Source: Table C-1
4) Cost of projects divided by number of years divided by revenue from 1 penny (Item 3) divided by 100

Table C-8
City of Orlando - Capital Improvement Program, FY 2018/19 to FY 2022/23

ID	Project Name	Road Capacity	Multi-Modal Capacity	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	Total
94-812-008	Bicycle Plan Implementation	-	Yes	$150,000	$150,000	$150,000	$150,000	$150,000	**$750,000**
08-660-001	New Traffic Signal Locations	Yes	Yes	$100,000	$370,000	$370,000	$370,000	$370,000	**$1,580,000**
81-755-004	Regional Computerized Signal System	Yes	Yes	$100,000	$100,000	$100,000	$100,000	$100,000	**$500,000**
19-TSP-002	Robinson Street "Complete Streets"	-	Yes	$0	$0	$6,481,000	$0	$0	**$6,481,000**
84-722-039	School Safety Sidewalk Program	-	Yes	$100,000	$100,000	$100,000	$100,000	$100,000	**$500,000**
05-734-026	Traffic Counts and Travel Time Studies	Yes	Yes	$100,000	$100,000	$100,000	$100,000	$100,000	**$500,000**
19-TSP-001	Virginia Drive Improvements	-	Yes	$250,000	$0	$500,000	$500,000	$1,000,000	**$2,250,000**
Total - Roads				**$300,000**	**$570,000**	**$570,000**	**$570,000**	**$570,000**	**$2,580,000**
Total - Multi-Modal				**$800,000**	**$820,000**	**$7,801,000**	**$1,320,000**	**$1,820,000**	**$12,561,000**

Source: City of Orlando CIP, FY 2019-2023

Table C-9

Orange County - Capital Improvement Program, FY 2018/19 to FY 2022/23

Project Number	Project Title	Road Capacity	Multi-Modal Capacity	Funding	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	Total
2722	Intersection WID/CW	Yes	Yes	Fuel Tax/Prop. Share	$3,500,100	$3,000,100	$3,000,100	$3,000,100	$3,000,100	**$15,500,500**
2752	R. Crotty Pkwy (436-Dean)	Yes	Yes	INVEST	$400,000	$0	$3,625,526	$0	$0	**$4,025,526**
2766	ROW & Drainage	Yes	Yes	Fuel Tax/Prop. Share	$5,000	$5,000	$5,000	$5,000	$5,000	**$25,000**
2841	Sidewalk Program C-W	-	Yes	Fuel Tax/Prop. Share	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	**$10,000,000**
3073	Kirkman Rd Extension Study	Yes	Yes	Ad Valorem	$100	$0	$0	$0	$0	**$100**
3074	International Dr Ultimate Tran Study	Yes	Yes	Ad Valorem	$1,000,000	$0	$0	$0	$0	**$1,000,000**
3096	Kennedy Blvd (Forest Cty - I-4)	Yes	Yes	INVEST	$0	$600,000	$5,000,000	$6,100,000	$1,700,000	**$13,400,000**
		Yes	Yes	Fuel Tax/Prop. Share	$3,500,000	$3,000,000	$3,500,000	$0	$0	**$10,000,000**
3097	All American (OBT - Forest Cty)	Yes	Yes	Fuel Tax/Prop. Share	$2,200,000	$300,000	$4,309,688	$400,000	$0	**$7,209,688**
5001	John Young Pkwy/6-Lane	Yes	Yes	Ad Valorem	$100	$500,000	$100	$0	$0	**$500,200**
5004	Chuluota Rd	Yes	Yes	INVEST	$619,000	$1,228,000	$3,995,600	$3,488,400	$0	**$9,331,000**
		Yes	Yes	Fuel Tax/Prop. Share	$69,274	$0	$0	$0	$0	**$69,274**
5005	McCulloch Rd	Yes	Yes	INVEST	$796,272	$1,946,160	$1,946,160	$375,280	$3,604,928	**$8,668,800**
5006	CR 545 Village H ROW	Yes	Yes	Fuel Tax/Prop. Share	$155,920	$0	$0	$0	$0	**$155,920**
5024	Econ Trail (Lk Underhill - SR 50)	Yes	Yes	INVEST	$2,500,000	$10,700,000	$9,800,000	$347,669	$0	**$23,347,669**
5027	Texas Ave (Oak Rdg - Holden)	Yes	Yes	INVEST	$0	$2,479,176	$900,000	$0	$0	**$3,379,176**
5033	Raleigh St Impr (Kirkman Rd to Ivey Ln)	Yes	Yes	Fuel Tax/Prop. Share	$1,250,000	$0	$0	$0	$0	**$1,250,000**
5059	Woodbury Rd Study	Yes	Yes	Fuel Tax/Prop. Share	$100	$0	$0	$0	$0	**$100**
5070	I-Drive Transit Lanes	-	Yes	Ad Valorem	$5,000,000	$9,000,000	$4,532,955	$500,000	$0	**$19,032,955**
5084	Holden Heights Ph. IV	Yes	Yes	Fuel Tax/Prop. Share	$50,000	$0	$0	$0	$0	**$50,000**
5085	Boggy Creek Rd	Yes	Yes	INVEST	$3,731,005	$4,025,000	$238,727	$0	$0	**$7,994,732**
5089	Destination Pkwy	Yes	Yes	Ad Valorem	$220,000	$0	$0	$0	$0	**$220,000**
5090	Lk Uhill (Chickasaw - Rouse)	Yes	Yes	INVEST	$1,950,000	$650,000	$5,500,000	$9,300,000	$3,900,000	**$21,300,000**
5095	Pedestrian Enhancements	-	Yes	Ad Valorem	$600,000	$400,000	$400,000	$400,000	$400,000	**$2,200,000**
5109	Legacy - Holden Ave (JYP - OBT)	Yes	Yes	Ad Valorem	$3,242,748	$0	$0	$0	$0	**$3,242,748**
5121	Legacy - Texas Ave	Yes	Yes	Ad Valorem	$4,554,929	$0	$0	$0	$0	**$4,554,929**
5122	Legacy - Valencia College Ln	Yes	Yes	Ad Valorem	$48,478	$0	$0	$0	$0	**$48,478**
5139	Reams (Summerlk - Taborfld)	Yes	Yes	INVEST	$1,639,700	$2,139,700	$4,270,600	$4,364,167	$12,160,000	**$24,574,167**
5140	Ficquette (Summerlk - Overst)	Yes	Yes	INVEST	$1,000,000	$2,000,000	$4,000,000	$5,200,000	$4,732,000	**$16,932,000**
2720	Signal Installation CW	Yes	Yes	Fuel Tax/Prop. Share	$1,760,000	$1,760,000	$1,760,000	$1,760,000	$1,760,000	**$8,800,000**
Total - Roadway (Fuel Tax/Prop. Share):					$12,490,394	$8,065,100	$12,574,788	$5,165,100	$4,765,100	**$43,060,482**
Total - Roadway (INVEST):					$12,635,977	$25,768,036	$39,276,613	$29,175,516	$26,096,928	**$132,953,070**
Total - Roadway (Ad Valorem):					$9,066,355	$500,000	$100	$0	$0	**$9,566,455**
Total - Roadway					**$34,192,726**	**$34,333,136**	**$51,851,501**	**$34,340,616**	**$30,862,028**	**$185,580,007**
Total - Multi-Modal (Fuel Tax/Prop. Share):					$14,490,394	$10,065,100	$14,574,788	$7,165,100	$6,765,100	**$53,060,482**
Total - Multi-Modal (INVEST):					$12,635,977	$25,768,036	$39,276,613	$29,175,516	$26,096,928	**$132,953,070**
Total - Multi-Modal (Ad Valorem):					$14,666,355	$9,900,000	$4,933,055	$900,000	$400,000	**$30,799,410**
Total - Multi-Modal:					**$41,792,726**	**$45,733,136**	**$58,784,456**	**$37,240,616**	**$33,262,028**	**$216,812,962**

Source: Orange County Transportation Planning Division; Community, Environment & Development Services Department

Table C-10

Florida Department of Transportation, District 5 – Orange County Work Program FY 2010 to FY 2019, Roadways ONLY

ID	Description	Wkmx Description	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Total
238429-5	SR 50 FROM LAKE CO LINE TO EAST OF TURNPIKE RAMPS	ADD LANES & RECONSTRUCT	$0	$0	$433	$9,002	$184	$0	$0	$0	$0	$0	**$9,619**
239203-2	SR 50 FROM W OF SR 436 TO 0.2 MILE W OF SR 417 (GRWY)	ADD LANES & REHABILITATE PVMNT	$2,538,607	$571,271	$3,750	$5,401	$0	$0	$0	$0	$0	$0	**$3,119,029**
239203-3	SR 50 FROM 0.3MI E OF S R417 (GRWY) TO CR 425 (DEAN RD)	ADD LANES & REHABILITATE PVMNT	$9,269,279	$10,606,271	$9,094,227	$9,004,786	$9,000,000	$9,000,000	$9,000,000	$9,000,000	$7,400,597	$0	**$81,375,160**
239203-4	SR 50 (COLONIAL DR) FROM E OF CR 425 (DEAN RD) TO E OF OLD CHENEY HWY	ADD LANES & REHABILITATE PVMNT	$693,407	$497,837	$183,839	$252,054	$50,206,209	$130,371	$413,836	$2,384,646	$49,381	$57,344	**$54,868,924**
239203-7	SR 50 EAST OF OLD CHENEY HWY TO CHULUOTA RD	ADD LANES & REHABILITATE PVMNT	$0	$0	$0	$0	$0	$2,741,400	$31,929	$6,252	$2,053	$2,960	**$2,784,594**
239203-8	SR 50 CHULUOTA RD TO SR 520	ADD LANES & REHABILITATE PVMNT	$0	$0	$0	$0	$0	$2,866,925	$28,392	$10,163	$2,362	$10,536	**$2,918,378**
239266-3	SR 15 (HOFFNER RD) FROM N OF LEE VISTA BLVD TO W OF SR 436	ADD LANES & RECONSTRUCT	$105,975	$745,829	$112,730	$51,039	$641,092	$23,393,682	$124,821	$2,420,755	$323,806	$1,452,553	**$29,372,282**
239266-4	SR 15 HOFFNER AVE FROM W OF SR 436 TO CONWAY ROAD	ADD LANES & RECONSTRUCT	$0	$0	$0	$0	$0	$10,734,891	$34,045	$1,246,538	$208,870	$367,739	**$12,592,083**
239288-1	SR 435 KIRKMAN ROAD FROM 1700' S. OF CONROY RD TO SR 50	ADD LANES & RECONSTRUCT	$106,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$106,000**
239304-1	SR 530 (US 192) FROM LAKE CO LINE TO E OF SECRET LAKE DR	ADD LANES & RECONSTRUCT	$15,756	$3,918	$106,077	$8,678,226	$968,150	$30,467	$621	$0	$0	$0	**$9,803,215**
239422-1	SR 434 FOREST CITY FROM SR 424 EDGEWATER DR TO SEMINOLE CO LINE	ADD LANES & RECONSTRUCT	$0	$11,754	$1,604,769	$28,076	$39,956	$15,135	$1,608,585	$323,145	$672,297	$706,416	**$5,010,133**
239496-2	SR 423/434 EXTENSION FROM SHADER RD TO SR 424 (EDGEWATER DR)	NEW ROAD CONSTRUCTION	$332,031	$45,266,588	$922,689	$282,468	$144,930	$1,019	$0	$0	$0	$0	**$46,949,725**
239496-3	SR 423 (JOHN YOUNG PARKWAY) WIDENING FROM SR 50 TO SHADER RD	ADD LANES & RECONSTRUCT	$0	$3,810	$2,390,502	$224,889	$317,366	$103,977	$83,215	$1,066,809	$29,846,940	$730,222	**$34,767,730**
239535-2	SR 50 FROM E RAMPS TPK TO AVALON RD	ADD LANES & RECONSTRUCT	$296,541	$78,287	$8,224,102	$89,883	$148,166	$8,558	$6,637	$1,009	$152	$0	**$8,853,335**
239535-3	SR 50 SR 429 (WESTERN BELTWAY) TO E OF WEST OAKS MALL	ADD LANES & RECONSTRUCT	$1,067,414	$94,226	$225,080	$615,552	$277,930	$29,102,430	$1,321,839	$4,626,346	$1,602,799	$972,841	**$39,906,457**
239535-4	SR 50 FROM GOOD HOMES RD TO PINE HILLS RD	ADD LANES & RECONSTRUCT	$1,551,880	$567,377	$937,461	$49,241	$138,384	$0	$0	$0	$391	$368	**$3,245,102**
239535-5	SR 50 FROM E OF WEST OAKS MALL TO W OF GOOD HOMES RD	ADD LANES & RECONSTRUCT	$0	$31,246	$14,137,919	$306,796	$1,130,853	$505,650	$43,120	$22,063	$17,892	$3,525	**$16,199,064**
407143-2	SR 482 FROM E END OF BRIDGE OVER TURNPIKE TO ORANGE BLOSSOM TRAIL	ADD LANES & REHABILITATE PVMNT	$1,178	$13	$649	$0	$0	$0	$0	$0	$0	$0	**$1,840**
407143-3	SR 482(SAND LAKE RD) FROM TURKEY LAKE RD TO PRESIDENTS DR	ADD LANES & RECONSTRUCT	$2,153,052	$13,480,514	$2,178,718	$1,605,096	$59,115	$19,119	$9,510	$1,774,907	$350	$8,824	**$21,289,205**
407143-4	SR 482 SAND LAKE RD FROM W OF INTERNATIONAL DR TO UNIVERSAL BLVD	ADD LANES & RECONSTRUCT	$0	$0	$0	$0	$617,706	$7,248	$10,216,205	$174,501	$627,887	$1,198,450	**$12,841,997**
407143-5	SR 482 SAND LAKE RD FROM UNIVERSAL BLVD TO W OF JOHN YOUNG PARKWAY	ADD LANES & RECONSTRUCT	$0	$0	$0	$0	$7,086	$1,331,046	$37,399,820	$240,924	$1,400,353	$1,826,069	**$42,205,298**
407143-6	JOHN YOUNG PARKWAY AT SR 482 SAND LAKE RD OVERPASS	ADD LANES & RECONSTRUCT	$0	$873	$427	$0	$0	$19,314	$23,105,275	$16,786	$292,793	$541,142	**$23,976,610**
408429-2	SR 15/600 (US 17/92) ORLANDO AVE FROM S OF NOTTINGHAM ST TO MONROE AVE	URBAN CORRIDOR IMPROVEMENTS	$0	$0	$0	$0	$0	$0	$0	$0	$2,582,329	$212,641	**$2,794,970**
410983-1	SR 50 FROM W OF AVALON RD SR 429 (WESTERN BELTWAY)	ADD LANES & RECONSTRUCT	$18,339,966	$457,105	$960,554	$8,491	$2,194	$291	$0	$0	$0	$0	**$19,768,601**
413019-5	ORANGE TRAFFIC ENGINEERING CONTRACTS	TRAFFIC SIGNALS	$633,047	$662,626	$683,206	$724,904	$839,419	$786,206	$1,386,543	$1,993,862	$2,080,041	$2,080,577	**$11,870,431**
414999-1	SR 50 FROM PETE PARRISH/SILVERTON TO SPRINGDALE RD	TRAFFIC SIGNALS	$0	$0	$5,624	$684,026	$103,097	$87,707	$617	$0	$0	$26,034	**$907,105**
414999-2	SR 50 AT MERCY DRIVE	TRAFFIC SIGNALS	$0	$0	$0	$0	$241,335	$42,294	$622	$0	$0	$25,344	**$309,595**
416368-1	SR 527/SR 426 PEDESTRIAN CORRIDOR FROM 17-92 (MILLS) TO LAKEMONT	INTERSECTION IMPROVEMENT	$489,640	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$489,640**
416724-1	ORANGE COUNTYWIDE ADVANCE ROW ACQUISITION	RIGHT OF WAY - FUTURE CAPACITY	$1,391	$6,887,799	$10,230,153	$14,082,226	$6,031,130	$1,210,674	$955,519	$763,131	$2,701	$385,012	**$40,549,736**
417258-1	INTERNATIONAL DRIVE FROM OAK RIDGE ROAD TO W OF UNIVERSAL BLVD	TRAFFIC OPS IMPROVEMENT	$300,185	$0	$0	$5,170,540	$2,642	$3,657	$604	$69	$0	$0	**$5,477,697**
421217-2	SR 482 (MCCOY RD) @ GONDOLA DR TRAFFIC SIGNAL INSTALLATION	TRAFFIC SIGNALS	$65,431	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$65,431**
422223-1	SR 438 (SILVERSTAR) @ ORANGE AVE/INTERSECTION PEDESTRIAN SAFETY IMPROV	ADD LEFT TURN LANE(S)	$0	$306,429	$52,754	$0	$0	$0	$0	$0	$0	$0	**$359,183**
423029-1	SR 535 AT INTERNATIONAL DRIVE	TRAFFIC SIGNALS	$0	$0	$0	$0	$0	$0	$0	$927,740	$11,289	$38,334	**$977,363**
423856-1	SR 15/600 (US 17/92) AT HORATIO AVE INTERSECT TRAFFIC OPS IMPROVEMENT	TRAFFIC OPS IMPROVEMENT	$0	$0	$1,076,155	$486,009	$188,038	$2,786	$207	$0	$0	$0	**$1,753,195**
424217-1	SR 414 (MAITLAND BLVD) FROM SR 400 (I-4) TO CR 427 (MAITLAND AVE)	ADD LANES & REHABILITATE PVMNT	$0	$350,829	$97,141	$45,994	$1,545,007	$528,965	$30,054	$325,673	$331,008	$8,739,598	**$11,994,269**
424530-1	SR 500 US 441 FROM OAKRIDGE RD TO 34TH STREET	TRAFFIC OPS IMPROVEMENT	$0	$0	$2,652,603	$66,106	$309	$0	$0	$0	$0	$6,920	**$2,725,938**
425833-1	OPTICOM GPS SYSTEM ORLANDO CITYWIDE ON-SYSTEM SIGNALS	TRAFFIC CONTROL DEVICES/SYSTEM	$1,086,024	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$1,086,024**
425833-2	OPTICOM GPS SYSTEM ORLANDO CITYWIDE OFF-SHS INTERSECTIONS	TRAFFIC CONTROL DEVICES/SYSTEM	$600,691	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$600,691**
426341-1	EXPAND/UPGRADE REGIONAL COMPUTERIZED ITS DOWNTOWN ORLANDO SYSTEM	OTHER ITS	$3,154,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$3,154,100**
427046-2	ORANGE COUNTY TRAFFIC SIGNAL RETIMING COUNTYWIDE	TRAFFIC SIGNAL UPDATE	$473,850	$488,100	$488,844	$488,478	$510,057	$691,989	$0	$0	$0	$0	**$3,141,318**
427046-5	TRAFFIC SIGNAL RETIMING (ORANGE, OSCEOLA, SEMINOLE)	TRAFFIC SIGNAL UPDATE	$0	$0	$0	$0	$0	$0	$1,243,119	$0	$0	$0	**$1,243,119**
427047-1	SR 500 (US 441) FROM LANDSTREET ROAD TO OAKRIDGE ROAD	INTERSECTION IMPROVEMENT	$0	$3,094	$2,342,935	$237,831	$16,569	$0	$0	$0	$0	$0	**$2,600,429**
427114-1	INTERSECTION MAQUIRE ROAD AND PARK AVENUE NEW ROUNDABOUT WINDERMER	NEW ROAD CONSTRUCTION	$245,983	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$245,983**
427851-2	NORTH THISTLE LANE FROM N OF OLD COLONY RD TO S OF MOWHAWK TRAIL	INTERSECTION IMPROVEMENT	$0	$42,707	$93,812	$714	$0	$0	$0	$0	$0	$0	**$137,233**
428093-1	KELLER ROAD AT WESTHALL LANE	TRAFFIC SIGNAL UPDATE	$176,029	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$176,029**
428184-1	WATERFORD CHASE PARK WAY AT AVALON PARK BLVD INTERSECTION	INTERSECTION IMPROVEMENT	$297,687	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$297,687**
428588-1	SR 551 (GOLDENROD) & EDGEWATER DR TRAFFIC CONTROL SYSTEM (2 LOCATIONS)	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$293,784	$840	$0	$0	$0	$0	$0	$0	$159	**$294,783**
428952-1	SR 434 FROM N OF SR 50 TO W OF STRATEGY BLVD	TRAFFIC OPS IMPROVEMENT	$0	$0	$20,106	$14,583	$1,106,814	$909	$0	$19	$0	$134	**$1,142,565**
428986-1	CITYWIDE FIBER OPTIC CABLE WITHIN ORLANDO CITY LIMITS	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$409,240	$0	$0	$0	$0	$0	$0	$0	$0	**$409,240**
428986-2	CITYWIDE FIBER OPTIC CABLE WITHIN ORLANDO CITY LIMITS	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$249,118	$0	$0	$0	$0	$0	$0	$0	$0	**$249,118**
429611-1	FORT CHRISTMAS ROAD AT WHEELER ROAD	INTERSECTION IMPROVEMENT	$0	$0	$130,317	$0	$845,116	$1,158	$740	$0	$0	$0	**$977,331**
430027-1	ORANGE COUNTYWIDE ATMS PROJECT ON SYSTEM/OFF SYSTEM	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$5,092,967	$3,115	$3,386	$42	$0	$0	$0	$0	**$5,099,510**
430155-1	SR 50 OUTFALL SURVEY	PRELIMINARY ENGINEERING	$0	$0	$655	$0	$0	$0	$0	$0	$0	$0	**$655**
430201-1	CITY OF ORLANDO REGIONAL COMPUTERIZED SIGNAL SYSTEM	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$3,799,075	$2,269	$2,219	$42	$0	$0	$0	$0	**$3,803,605**
430569-1	SR 438 (SILVER STAR RD) FROM 2ND STREET TO SILVER CREST BLVD	INTERSECTION IMPROVEMENT	$0	$252,178	$16,956	$1,035,118	$88,862	$97	$0	$0	$0	$0	**$1,393,211**
431081-1	WEKIVA PARKWAY LINE AND GRADE ORANGE COUNTY SEGMENT	NEW ROAD CONSTRUCTION	$0	$0	$1,868,548	$82,647	$9,655	$91	$234	$99	$0	$101	**$1,961,375**
431163-4	SR 46 (WEKIVA PKWY) REALIGNMENT LAKE CO. LINE TO SYS INTERCH WITH SR 42	NEW ROAD CONSTRUCTION	$0	$0	$0	$367	$0	$0	$63	$0	$0	$2,569	**$2,999**
431184-1	SR 527 (ORANGE AVE) FROM IVANHOE BLVD TO SR 15/600	PRELIMINARY ENGINEERING	$0	$0	$1,822	$0	$0	$0	$0	$0	$0	$0	**$1,822**
432064-1	US 17-92 FROM PARK AVENUE TO PACKWOOD AVENUE	TRAFFIC SIGNAL UPDATE	$0	$0	$141,000	$0	$0	$0	$0	$0	$0	$0	**$141,000**
432076-1	ORANGE-LYNX FUNDING OPPORTUNITY #: FTA-2012-006-TPM-VTCL	TRANSIT IMPROVEMENT	$0	$0	$0	$1,056,800	$0	$0	$0	$0	$0	$0	**$1,056,800**

Table C-10 (continued)

Florida Department of Transportation, District 5 – Orange County Work Program FY 2010 to FY 2019, Roadways ONLY

ID	Description	Wkmx Description	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Total
432226-1	SR 426 AT SR 436	TRAFFIC OPS IMPROVEMENT	$0	$0	$0	$0	$243,219	$1,208,021	$61,325	$0	$0	$0	**$1,512,565**
433130-1	ORLANDO SUNRAIL STATION ROAD IMPROVEMENTS (TWO LOCATIONS)	TRAFFIC OPS IMPROVEMENT	$0	$0	$0	$3,940,480	$92,960	$0	$0	$0	$0	$0	**$4,033,440**
433621-1	SR 414 (MAITLAND BLVD) FROM SR 434 WB AT MAITLAND SUMMIT BLVD	ADD TURN LANE(S)	$0	$0	$0	$341,130	$5,251	$0	$0	$0	$0	$0	**$346,381**
433648-1	SR 527 (ORANGE AVE) FROM S OF LAKE GATLIN RD RD TO NORTH OF HOLDEN AVE	TRAFFIC OPS IMPROVEMENT	$0	$0	$0	$608,313	$25,808	$45,317	$2,459,948	$105,804	$184,055	$6,854	**$3,436,099**
433663-1	SAND LAKE RD/TPK INTERCHANGE (SR 482/SR 91) (MP 257)	INTERCHANGE (NEW)	$0	$0	$0	$0	$0	$0	$0	$6,866	$0	$0	**$6,866**
434694-1	SR 552 AT SR 436	ADD TURN LANE(S)	$0	$0	$0	$0	$6,175	$278,951	$27,355	$779,069	$74,103	$241	**$1,165,894**
434917-1	SR 482/US 441 (ADAPTIVE SIGNALS) COUNTY WIDE	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$2,506,139	$1	$0	$0	$0	$0	**$2,506,140**
435525-1	GATLIN AVE AND KENNEDY AVE & GATLIN AVE AND ARROW RD IMPROVEMENTS	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,337,700	**$1,337,700**
435526-1	SR 434 (ALAFAYA TRAIL) AT CORPORATE BLVD	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$218,351	$8	$135	$379	$0	$289,500	**$508,373**
435527-1	POWERS DRIVE AT NORTH LANE	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$201,000	**$201,000**
435529-1	ORANGE COUNTY ATMS AT VARIOUS LOCATIONS COUNTYWIDE	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$3,299,999	$32	$66,560	$0	$0	$0	**$3,366,591**
435554-1	VINELAND AVENUE AT SR 535	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$298,841	$8	$135	$352	$0	$0	**$299,336**
435587-1	WALLACE RD AT DR PHILLIPS BLVD	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$1,429,695	$68,459	**$1,498,154**
436346-1	UCF BIG DATA RESEARCH	ADV TRAVELER INFORMATION SYSTM	$0	$0	$0	$0	$0	$0	$100,000	$100,000	$100,000	$200,000	**$500,000**
436508-1	US 441 (SR 500/600) FROM S OF SAND LAKE RD TO KALEY ST	TRAFFIC SIGNALS	$0	$0	$0	$0	$0	$302,400	$0	$0	$0	$0	**$302,400**
437175-1	SR 535/VINELAND RD FROM ORANGE/OSCEOLA COUNTY LINE TO I-4	PD&E/EMO STUDY	$0	$0	$0	$0	$0	$0	$113,920	$0	$129,819	$0	**$243,739**
437508-1	ORLANDO CITYWIDE PEDESTRIAN TRAFFIC SIGNALS	TRAFFIC SIGNALS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$443,000	**$443,000**
437592-1	SR 600/SR 500/US 441/US 17-92 FROM S OF SR 482 (SAND LAKE RD) TO N OF SR 482	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$8,213	$769,582	$14,815	$1,521,339	**$2,313,949**
437597-1	SR 50/WEST COLONIAL DR FROM WEST OF CARTER ROAD TO EAST OF CARTER ROAD	TRAFFIC OPS IMPROVEMENT	$0	$0	$0	$0	$0	$0	$175,209	$7,655	$732	$6,375	**$189,971**
439074-1	CITY OF ORLANDO TRAFFIC SIGNAL UPGRADES	ATMS - ARTERIAL TRAFFIC MGMT	$0	$0	$0	$0	$0	$0	$398,910	$0	$0	$0	**$398,910**
439133-1	SR 15 @ CURRY FORD RD	TRAFFIC SIGNAL UPDATE	$0	$0	$0	$0	$0	$0	$0	$0	$357,003	$13,869	**$370,872**
440314-1	PD&E FOR COLONIAL PARKWAY (SR 504) - WOODBURY ROAD TO SR 520	PD&E/EMO STUDY	$0	$0	$0	$0	$0	$0	$0	$1,988	$0	$0	**$1,988**
440821-2	UCF AUTOMATED SHUTTLE SERVICE	ITS COMMUNICATION SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$840,000	**$840,000**
441197-1	SR 426 (FAIRBANKS AVE) FROM SR 15 (US 17/92/SR 600/ORLANDO AVE) TO WARD	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$22,804	$40,671	**$63,475**
441395-1	US 441 AT ROSAMOND DRIVE	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$441,506	**$441,506**
441400-1	SADLER RD @ US 441	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$493,464	**$493,464**
441402-1	CR 439/TURKEY LAKE RD @ VINELAND RD	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$187,518	**$187,518**
441490-1	UNIVERSITY BLVD @ DEAN RD	INTERSECTION IMPROVEMENT	$0	$0	$0	$0	$0	$0	$0	$0	$493,134	$20,000	**$513,134**
441616-1	ORANGE COUNTY ATM PHASE #4 - COUNTYWIDE ROADS	ITS COMMUNICATION SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$377,115	**$377,115**
442087-1	SR 552 AT FREDRICA DRIVE (SIGNALIZATION)	TRAFFIC SIGNALS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$310,000	**$310,000**
442088-1	SR 50 AT O-BERRY HOOVER RD - SIGNALS INSTALLATION	TRAFFIC SIGNALS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$300,000	**$300,000**
442544-1	CITY OF ORLANDO ATSPM TRAFFIC CONTROL DEVICES	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$479,825	$500,000	**$979,825**
442545-1	ORANGE COUNTY ATSPM EQUIPMENT TRAFFIC CONTROL DEVICES	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,089,937	**$1,089,937**
442548-1	CITY OF ORLANDO ATMS MODULE TRAFFIC CONTROL DEVICES	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$160,000	**$160,000**
442549-1	ORANGE COUNTY ATMS MODULE TRAFFIC CONTROL DEVICES/SYSTEM PROJECT	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$186,400	**$186,400**
442550-1	METROPLAN AREA REMOTE ATSPM EQUIPMENT TRAFFIC CONTROL DEVICES/SYSTEM	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$449,409	**$449,409**
442687-1	ICM FOR METROPLAN AREA SIGNAL DEVICE INSTALLATION	TRAFFIC CONTROL DEVICES/SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$475,000	$843,530	**$1,318,530**
442739-1	ADAPTIVE TRAFFIC SIGNAL INTERFACE WITH TRAIN AVL	ITS COMMUNICATION SYSTEM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$250,000	**$250,000**
442740-1	ORLANDO ATCMTD COMMUNICATIONS SERVICES	OTHER ITS	$0	$0	$0	$0	$0	$0	$0	$0	$100,000	$111,427	**$211,427**
442741-1	CONNECTED AND AUTONOMOUS VEHICLE ATCMTD RESEARCH	OTHER ITS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$250,000	**$250,000**
442742-1	ATCMTD MOBILITY AND SAFETY BEFORE AND AFTER STUDY	OTHER ITS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$100,000	**$100,000**
443817-1	SR 435 KIRKMAN RD EXT TO CARRIER DR INTERSECTION	NEW ROAD CONSTRUCTION	$0	$0	$0	$0	$0	$0	$0	$0	$20,052	$20,000	**$40,052**
Total - Roadways			**$43,995,144**	**$82,362,823**	**$69,879,439**	**$50,282,650**	**$81,929,719**	**$85,202,878**	**$90,457,882**	**$29,097,132**	**$51,337,328**	**$30,455,726**	**$615,000,721**
Total - Roadways - Timeframe Summary						FY 2010-2014:	**$328,449,775**				FY 2015-2019:	**$286,550,946**	**$615,000,721**

Source: FDOT, District 5

Table C-11
Florida Department of Transportation, District 5 – Orange County Work Program FY 2010 to FY 2019, Multi-Modal ONLY

ID	Description	Wkmx Description	Adjustment	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Total
246538-1	ORANGE-CFRTA/LYNX FIXED ROUTE SECTION 5309 OPERATIONS FACILITY	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$12,800,000	$0	$0	$0	$0	$0	$0	$0	**$12,800,000**
246543-1	ORANGE-CFRTA/LYNX SEC 5307 PURCHASE VEHICLE & HIGHWAY EQUIPMENT	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$15,437,000	$0	**$15,437,000**
246544-1	ORANGE-CFRTA/LYNX FIXED ROUTE SECTION 5309 OPERATIONS FACILITY	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$12,000,000	$0	$12,000,000	$0	$0	$0	**$24,000,000**
246556-1	ORANGE-CFRTA/LYNX EXPANSION OF OPERATING CENTER LAND ACQ, ENG & CONST	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,300,000	**$3,300,000**
246572-1	ORANGE-CFRTA/LYNX CAPITAL ASSIST/TRANSIT EN HANCEMENT/SECTION #5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$18,000,000	$9,000,000	**$27,000,000**
246572-2	ORANGE-CFRTA/LYNX FTA SECTION 5307 LAND ACQ, ENGINEERING & CONST	PTO STUDIES	60%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,000,000	**$3,000,000**
246594-1	ORANGE-CFRTA/LYNX PURCHASE OF COMMUTER VANS FTA SECTION 5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$5,340,000	$0	**$5,340,000**
246594-2	ORANGE-CFRTA/LYNX PURCHASE OF COMMUTER VANS SECTION #5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$5,568,000	$1,500,000	**$7,068,000**
246595-1	ORANGE-CFRTA/LYNX FACILITY IMPROVE EQUIPMNT FTA SECTION #5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$4,000,000	$6,000,000	**$10,000,000**
246595-2	ORANGE-CFRTA/LYNX FACILITY IMPROVE/EQUIP SECTION # 5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$1,000,000	$0	$2,000,000	$1,000,000	$0	$0	**$4,000,000**
246620-1	ORANGE-CFRTA/LYNX PURCH VEHICLES/HWY EQUIPM FTA SECTION 5307/5309	CAPITAL FOR FIXED ROUTE	60%	$2,357,585	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$2,357,585**
406928-1	ORANGE-LYNX SR 50 UCF CONNECTOR ALTERNATIVES ANALYSIS	URBAN CORRIDOR IMPROVEMENTS	60%	$0	$0	$0	$1,200,000	$0	$0	$0	$0	$0	$0	**$1,200,000**
406930-1	ORANGE-LYNX ALTERNATIVES ANALYSIS US 192 CORRIDOR	URBAN CORRIDOR IMPROVEMENTS	60%	$0	$0	$800,000	$0	$0	$0	$0	$0	$0	$0	**$800,000**
408228-1	KISSIMMEE/OSCEOLA CTY/INTERMODAL CENTER FTA SECTION 5309	PUBLIC TRANSPORTATION STATION	60%	$0	$0	$500,000	$0	$0	$0	$0	$0	$0	$0	**$500,000**
414749-1	ORANGE-LYNX/CAPITAL FIXED RTE/MAINT, SUPPORT & FUEL FTA SECTION #5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$120,358,806	$37,123,761	**$157,482,567**
414749-2	ORANGE-LYNX CAPITAL FIXED ROUTE/MAINT & SUPPO RT SECTION 5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$12,000,000	$1,000,000	**$13,000,000**
415259-1	ORANGE-REG TRANSIT SYSTEM MODELING STUDY	PTO STUDIES	60%	$240,000	$0	$238,509	$0	$0	$0	$0	$0	$0	$0	**$478,509**
416169-1	LYNX SECTION 5307 FIXED ROUTE PROJECT PURCHASE BUS/EQUIPMENT	CAPITAL FOR FIXED ROUTE	60%	$22,322,980	$22,345,100	$22,560,412	$0	$0	$0	$0	$0	$0	$0	**$67,228,492**
416169-2	LYNX SECTION 5307 FIXED ROUTE PROJECT PURCHASE BUS/EQUIPMENT	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$24,595,950	$0	$0	$0	$0	$0	$0	**$24,595,950**
419774-1	CHURCH STREET IMPROVEMENTS	SIDEWALK	-	$399,504	$0	$12,118,109	$1,672	$70,629	$2,394	$1,326	$647	$284	$0	**$12,594,565**
420638-1	METROPLAN ORLANDO MP O SECTION 5303 UPWP	PTO STUDIES	60%	$666,874	$675,364	$0	$0	$0	$0	$0	$0	$0	$0	**$1,342,238**
422430-1	ORANGE- METROPLAN ORLANDO PLANNING STUDIES SECTION 5303	PTO STUDIES	60%	$0	$0	$703,475	$717,251	$904,789	$905,123	$884,439	$0	$0	$0	**$4,115,077**
424253-1	CFRT (LYNX) SECTION 5309 CAPITAL IMPROVEMENTS	FIXED GUIDEWAY IMPROVEMENTS	60%	$0	$0	$0	$3,250,000	$3,500,000	$0	$0	$0	$3,750,000	$350,000	**$10,850,000**
424253-2	CFRT (LYNX) SECTION #5309 CAPITAL IMPROVEMENTS	FIXED GUIDEWAY IMPROVEMENTS	60%	$0	$0	$0	$0	$3,250,000	$0	$0	$0	$0	$0	**$3,250,000**
424255-1	CFTA (LYNX) SECTION 5309 LYMMO UPGRADE	FIXED GUIDEWAY IMPROVEMENTS	60%	$0	$0	$0	$750,000	$0	$800,000	$0	$0	$1,200,000	$400,000	**$3,150,000**
424255-2	CFTA (LYNX) ORLANDO EAST-WEST/CIRCULATOR SYST EM/FTA SECTION 5309	FIXED GUIDEWAY IMPROVEMENTS	60%	$0	$0	$8,926,000	$0	$0	$0	$0	$0	$0	$0	**$8,926,000**
424255-3	CFTA (LYNX) SECTION #5309 LYMMO UPGRADE	FIXED GUIDEWAY IMPROVEMENTS	60%	$0	$0	$0	$0	$0	$500,000	$0	$0	$1,500,000	$500,000	**$2,500,000**
424335-1	CENTRAL FLORIDA REG. TRANS AUTH LYNX/FTA BUS PURCHS/FTA SECTION 5309	CAPITAL FOR FIXED ROUTE	60%	$0	$4,193,528	$0	$0	$0	$0	$0	$0	$0	$0	**$4,193,528**
424337-1	CITY OF ORLANDO ANALYSIS FOR EAST-WEST CIRCULATOR/FTA SECT #5309	PTO STUDIES	60%	$0	$926,000	$0	$0	$0	$0	$0	$0	$0	$0	**$926,000**
425442-1	LYNX CFRTA SECTION 5307 CAPITAL FOR BUSES/EQUIPMENT/GRANT #FL-95-2016	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$15,370,766	$15,701,000	$16,419,364	$13,888,094	$7,106,587	$7,106,587	**$75,592,398**
426102-1	ARRA SECTION 5307 LYNX URBAN CAPITAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$2,250,000	$0	$0	$0	$0	$0	$0	$0	**$2,250,000**
426104-1	ARRA SECTION 5307 LYNX URBAN CAPITAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$8,500,000	$0	$0	$0	$0	$0	$0	$0	**$8,500,000**
426106-1	ARRA SECTION 5307 LYNX URBAN CAPITAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$5,344,615	$0	$0	$0	$0	$0	$0	$0	**$5,344,615**
426107-1	ARRA SECTION 5307 LYNX URBAN CAPTIAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$4,920,000	$0	$0	$0	$0	$0	$0	$0	**$4,920,000**
426159-1	ARRA SECTION 5307 LYNX URBAN CAPITAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$2,060,000	$0	$0	$0	$0	$0	$0	$0	**$2,060,000**
426163-1	ARRA SECTION 5307 LYNX URBAN CAPITAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$2,000,000	$0	$0	$0	$0	$0	$0	$0	**$2,000,000**
426358-1	ARRA SECTION 5307 LYNX URBAN CAPITAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$4,000,000	$0	$0	$0	$0	$0	$0	$0	**$4,000,000**
426359-1	ARRA SECTION 5307 LYNX URBAN CAPITAL FOR FIXED ROUTE PROJECTS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$500,000	$0	$0	$0	$0	$0	$0	$0	**$500,000**
426791-1	ORANGE CO WINTER PARK SECTION 5309	INTERMODAL HUB CAPACITY	60%	$0	$0	$950,000	$0	$0	$0	$0	$0	$0	$0	**$950,000**
427851-1	ARAPAHO TRAIL FROM ALGONQUIN TRAIL TO THUNDERBIRD TRAIL	SIDEWALK	-	$0	$42,974	$149,276	$209	$0	$0	$0	$0	$0	$0	**$192,459**
428046-1	CITYWIDE ORLANDO SIDEWALK IMPROVEMENT PH I & II VARIED LOCATION	SIDEWALK	-	$0	$1,999,998	$1,600	$440	$2,362,912	$862,343	$2,914	$996	$0	$0	**$5,231,203**
428525-1	FLEET PEEPLES PARK MULTI-USE TRAIL	SIDEWALK	-	$79,201	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$79,201**
429054-1	US 441 FROM S OF GORE ST TO S OF CENTRAL BLVD	SIDEWALK	-	$0	$0	$0	$1,038,506	$162,509	$38,669	$0	$0	$0	$130,427	**$1,370,111**
429202-1	CENTRAL FL REGIONAL TRANS AUTHORITY DBA LYNX SEC 5309 URBAN TRAIL	URBAN CORRIDOR IMPROVEMENTS	60%	$0	$0	$1,233,132	$0	$0	$0	$0	$0	$0	$0	**$1,233,132**
430250-1	CFRTA DBA LYNX FUNDING OPPORTUNITY #: DTOS59-10-RA-TIGER2	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$13,000,000	$0	$0	$0	$0	$0	$0	**$13,000,000**
430294-1	ORANGE-LYNX FTA SECTION 5307	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$2,000,000	$0	$0	$0	$0	$0	$0	**$2,000,000**
430456-1	SR 436 FROM CURRY FORD RD TO OLD CHENEY HWY	SIDEWALK	-	$0	$1,400,000	$963,997	$276,600	$1,360	$456	$21	$0	$0	$0	**$2,642,434**
430672-1	ORLANDO SIDEWALKS VARIOUS LOCATIONS ON STATE ROADS	SIDEWALK	-	$0	$0	$712,922	$1,729,302	$206,452	$10,472	$0	$0	$0	$0	**$2,659,148**
431405-1	ORANGE-METROPLAN ORL PLANNING STUDIES SECTION 5303	PTO STUDIES	60%	$0	$0	$0	$0	$0	$0	$0	$917,245	$939,736	$971,408	**$2,828,389**
431529-1	BROOKSHIRE ELEMENTARY SCHOOL SIDEWALKS MULTIPLE LOCATIONS	SIDEWALK	-	$0	$0	$0	$7,198	$30	$94,336	$1,527	$0	$0	$0	**$103,091**
432139-1	LYNX SECTION 5307 FIXED ROUTE PROJECT PURCHASE EQUIPMENT	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$5,270,000	$0	$0	$0	$0	$0	$0	**$5,270,000**
433130-2	COLUMBIA STREET FROM SLIGH BLVD TO ORANGE AVE	FIXED GUIDEWAY IMPROVEMENTS	60%	$0	$0	$0	$0	$0	$1,500,000	$0	$0	$0	$0	**$1,500,000**
433340-1	ORANGE-LYNX (CFRTA) STATE OF GOOD REPAIR GRAN T FOR VEHICLES	PURCHASE VEHICLES/EQUIPMENT	60%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,360,000	**$3,360,000**
435250-1	CFRTA SECTION 5307 CAPITAL FOR BUSES AND EQUIPMENT	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$18,351,700	**$18,351,700**
435452-1	METROPLAN ORLANDO STUDY	PTO STUDIES	60%	$0	$0	$0	$0	$21,500	$0	$0	$0	$0	$0	**$21,500**
435555-1	CITY OF ORLANDO ECONOMIC DEVELOPMENT TRAN SPORTATION FUND GRANT	SIDEWALK	-	$0	$0	$0	$0	$201,462	$0	$0	$0	$0	$0	**$201,462**
435567-1	METROPLAN ORLANDO BICYCLE/PEDESTRIAN COUNT PROJECT	PTO STUDIES	60%	$0	$0	$0	$0	$5,000	$0	$0	$0	$0	$0	**$5,000**
435712-1	CENTRAL FL REGIONAL TRANSPORTATION AUTHORITY DBA LYNX	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$12,539,110	$7,628,338	**$20,167,448**
437280-1	ORANGE-LYNX CENTRAL FL REG TRANSP BUS & BUS FAC PROG LADDERS OF OPP	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$9,390,860	$0	**$9,390,860**
437575-1	ORANGE BLOSSOM TRAIL PHASE 2A FROM 30TH STREET TO GORE STREET	SIDEWALK	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,221,053	**$1,221,053**
437739-1	SR 50/EAST COLONIAL DRIVE FROM SR 417 SB RAMPS TO CONSTANTINE STREET	SIDEWALK	-	$0	$0	$0	$0	$0	$0	$245,644	$10,043	$1,095	$6,314	**$263,096**
437997-1	ORANGE-CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY LYNX SEC 5339	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$134,367	$0	$0	$0	**$134,367**
441066-1	SR 482/ SAND LAKE RD FROM LAKE GLORIA BLVD TO ORANGE AVE	SIDEWALK	-	$0	$0	$0	$0	$0	$0	$0	$452,487	$109,166	$2,442,029	**$3,003,682**
444932-1	ORANGE-LYNX EXPANSION OF LYNX OPERATIONS CENTER	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,500,000	**$2,500,000**
444934-1	ORANGE-LYNX PURCHASE OF FAREBOXES	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,200,000	**$1,200,000**
445597-1	ORANGE-LYNX FTA EMERGENCY RELIEF PROGRAM-ER RESILIENCE FUNDS	CAPITAL FOR FIXED ROUTE	60%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,300,000	**$1,300,000**
Total - Multi-Modal (Unadjusted):				**$26,066,144**	**$31,582,964**	**$92,232,047**	**$53,837,128**	**$39,057,409**	**$20,414,793**	**$31,689,602**	**$16,269,512**	**$217,240,644**	**$108,391,617**	**$636,781,860**
Total - Bike/Ped:				$478,705	$3,442,972	$13,945,904	$3,053,927	$3,005,354	$1,008,670	$251,432	$464,173	$110,545	$3,799,823	**$29,561,505**
Total - Transit (Adjusted):				$15,352,463	$16,883,995	$46,971,686	$30,469,921	$21,631,233	$11,643,674	$18,862,902	$9,483,203	$130,278,059	$62,755,076	**$364,332,212**
Total - Multi-Modal (Adjusted):				$15,831,168	$20,326,967	$60,917,590	$33,523,848	$24,636,587	$12,652,344	$19,114,334	$9,947,376	$130,388,604	$66,554,899	**$393,893,717**
Multi-Modal - Timeframe Summary (Adjusted):							FY 2010-2014:	$155,236,160				FY 2015-2019:	$238,657,557	$393,893,717
Roadways - Timeframe Summary (from Table C-10):							FY 2010-2014:	$328,449,775				FY 2015-2019:	$286,550,946	$615,000,721
Total - Timeframe Summary:							FY 2010-2014:	**$483,685,935**				FY 2015-2019:	**$525,208,503**	$1,008,894,438

Source: FDOT, District 5

Table C-12
Average Motor Vehicle Fuel Efficiency – Excluding Interstate Travel

Travel Vehicle Miles of Travel (VMT) @			
	22.3	**6.5**	
Other Arterial Rural	320,839,000,000	46,784,000,000	367,623,000,000
Other Rural	302,342,000,000	31,207,000,000	333,549,000,000
Other Urban	1,566,682,000,000	95,483,000,000	1,662,165,000,000
Total	***2,189,863,000,000***	***173,474,000,000***	***2,363,337,000,000***

Percent VMT

@ 22.3 mpg	@ 6.5 mpg
87%	13%
91%	9%
94%	6%
93%	**7%**

Fuel Consumed			
	Gallons @ 22.3 mpg	Gallons @ 6.5 mpg	
Other Arterial Rural	14,387,399,103	7,197,538,462	21,584,937,565
Other Rural	13,557,937,220	4,801,076,923	18,359,014,143
Other Urban	70,254,798,206	14,689,692,308	84,944,490,514
Total	***98,200,134,529***	***26,688,307,693***	***124,888,442,222***

Total Mileage and Fuel	
2,363,337	**miles (millions)**
124,888	**gallons (millions)**
18.92	**mpg**

Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2017*, Section V, Table VM-1
Annual Vehicle Distance Traveled in Miles and Related Data - 2017 by Highway Category and Vehicle Type
http://www.fhwa.dot.gov/policyinformation/statistics.cfm

Source: See Table C-13

Table C-13
Annual Vehicle Distance Traveled in Miles and Related Data (2017) - By Highway Category and Vehicle Type[1/]

Published March 2019 — 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)									
2017	Interstate Rural	142,445	1,128	1,775	44,928	10,103	52,171	**187,373**	**62,274**	252,550
2017	Other Arterial Rural	228,664	2,661	2,109	92,175	16,814	29,970	**320,839**	**46,784**	372,393
2017	Other Rural	213,923	2,728	1,986	88,419	16,563	14,644	**302,342**	**31,207**	338,262
2017	All Rural	585,032	6,517	5,870	225,522	43,480	96,785	810,554	140,265	963,206
2017	Interstate Urban	400,339	2,596	2,628	99,803	18,617	43,228	**500,142**	**61,844**	567,210
2017	Other Urban	1,235,430	11,036	8,730	331,253	54,006	41,478	**1,566,682**	**95,483**	1,681,932
2017	All Urban	1,635,769	13,632	11,358	431,056	72,622	84,705	2,066,824	157,328	2,249,142
2017	Total Rural and Urban[(5)]	2,220,801	20,149	17,227	656,578	116,102	181,490	2,877,378	297,593	3,212,347
2017	Number of motor vehicles registered[(2)]	193,672,370	8,715,204	983,231	56,880,878	9,336,998	2,892,218	250,553,248	12,229,216	272,480,899
2017	Average miles traveled per vehicle	11,467	2,312	17,521	11,543	12,435	62,751	11,484	24,335	11,789
2017	Person-miles of travel[(4)] (millions)	3,709,919	23,382	365,220	1,106,303	116,102	181,490	4,816,223	297,593	5,502,417
2017	Fuel consumed (thousand gallons)	91,712,165	458,429	2,350,323	37,466,749	15,599,855	30,363,561	129,178,914	45,963,416	177,951,081
2017	Average fuel consumption per vehicle (gallons)	474	53	2,390	659	1,671	10,498	516	3,758	653
2017	Average miles traveled per gallon of fuel consumed	24.2	44.0	7.3	17.5	7.4	6.0	**22.3**	**6.5**	18.1

(1) The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), 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 (WM) 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-Axles and at least 6 tires or a gross vehicle weight rating exceeding 10,000 lbs.

(4) Starting with 2009 VM-1, vehicle occupancy is estimated by the FHWA from the 2009 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 travelled = 1 person-mile traveled.

(5) VMT data are based on the latest HPMS data available; it may not match previous published results.

APPENDIX D
Ad Valorem Credit

Appendix D: Ad Valorem Credit

This appendix presents the detailed ad valorem credit calculations for each land use in Orange County's transportation impact fee schedule.

Residential Land Uses

In determining the ad valorem credit for residential land uses, the study evaluated the taxable values for new residential properties in Orange County. For this analysis, residential buildings constructed since 2009 were classified as "new". The following data was reviewed for each residential land uses:

- Weighted average, median, minimum, and maximum taxable value per square foot for new properties (built since 2009) and all properties within Orange County; and
- Professional judgement based on extensive impact fee experience in other communities in Florida.

It should be noted that the ad valorem revenues used towards transportation capital projects is a fixed amount and not a percentage of the County's ad valorem revenues. Over the next five years and beyond, this amount will be limited to $6.2 million per year (multi-modal) or $1.9 million per year (roads only)[4]. As presented in Table D-1, the taxable value of a new home ($334,000) was used to calculate the present value of the ad valorem credit. The resulting 1-mil taxes are brought to present value based on an interest rate of 4.0 percent, which is consistent with current market trends and the interest rate at which the County is likely to borrow. Table D-1 also provides the portion of the 1-mil collections that would be used toward transportation capital expansion projects. It is estimated that Orange County will spend five (5) percent of a mil of ad valorem revenue to fund multi-modal capacity expansion projects and two (2) percent of a mil for roadway capacity expansion projects. Tables D-2 through D-10 present this same analysis for the other residential land uses in the Orange County transportation impact fee schedule.

Note:

- Multi-Family ad valorem credit was used for Student Housing. For Student Housing per bedroom, estimated three bedrooms per dwelling unit.
- Multi-Family ad valorem credit was used for Mid-Rise/High-Rise with 1st floor Commercial.
- Condominium ad valorem credit (Tables D-5 and D-10) was used for Timeshare.

[4] Additional detail can be found in Appendix C, Table C-9

Table D-1

1-Mil Credit Calculation for Single Family Homes - MULTI-MODAL

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$6,160,000
Percentage of millage used for transportation capacity expansion projects[5]	5%
Average taxable value of a new home[6]	$334,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$334,000	n/a	$334,000	$334.00	$17	$17
2021					$16	$15
2022					$15	$14
2023					$14	$13
2024					$14	$12
2025					$13	$11
2026					$12	$10
2027					$11	$9
2028					$11	$8
2029					$10	$7
2030					$10	$7
2031					$9	$6
2032					$9	$5
2033					$8	$5
2034					$8	$4
2035					$7	$4
2036					$7	$4
2037					$7	$3
2038					$6	$3
2039					$6	$3
2040					$6	$3
2041					$5	$2
2042					$5	$2
2043					$5	$2
2044					$4	$2
2045					$4	$2
Total					**$239**	**$173**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for multi-modal transportation capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new homes (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-2

1-Mil Credit Calculation for Multi-Family Apartments - MULTI-MODAL

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$6,160,000
Percentage of millage used for transportation capacity expansion projects[5]	5%
Average taxable value of a multi-family unit[6]	$179,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$179,000	n/a	$179,000	$179.00	$9	$9
2021					$9	$8
2022					$8	$7
2023					$8	$7
2024					$7	$6
2025					$7	$6
2026					$6	$5
2027					$6	$5
2028					$6	$4
2029					$5	$4
2030					$5	$3
2031					$5	$3
2032					$5	$3
2033					$4	$3
2034					$4	$2
2035					$4	$2
2036					$4	$2
2037					$3	$2
2038					$3	$2
2039					$3	$1
2040					$3	$1
2041					$3	$1
2042					$3	$1
2043					$2	$1
2044					$2	$1
2045					$2	$1
Total					**$126**	**$90**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for multi-modal transportation capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new apartments (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-3

1-Mil Credit Calculation for Mobile Homes - MULTI-MODAL

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$6,160,000
Percentage of millage used for transportation capacity expansion projects[5]	5%
Average taxable value of a mobile home[6]	$67,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$67,000	n/a	$67,000	$67.00	$3	$3
2021					$3	$3
2022					$3	$2
2023					$3	$2
2024					$2	$2
2025					$2	$2
2026					$2	$2
2027					$2	$2
2028					$2	$1
2029					$2	$1
2030					$2	$1
2031					$2	$1
2032					$2	$1
2033					$1	$1
2034					$1	$1
2035					$1	$1
2036					$1	$1
2037					$1	$1
2038					$1	$1
2039					$1	$0
2040					$1	$0
2041					$1	$0
2042					$1	$0
2043					$1	$0
2044					$1	$0
2045					$1	$0
Total					**$42**	**$29**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for multi-modal transportation capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new mobile homes (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-4

1-Mil Credit Calculation for Retirement Homes - MULTI-MODAL

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$6,160,000
Percentage of millage used for transportation capacity expansion projects[5]	5%
Average taxable value of a retirement home (per du)[6]	$190,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$190,000	n/a	$190,000	$190.00	$10	$10
2021					$9	$9
2022					$9	$8
2023					$8	$8
2024					$8	$7
2025					$8	$6
2026					$7	$6
2027					$7	$5
2028					$6	$5
2029					$6	$4
2030					$6	$4
2031					$5	$3
2032					$5	$3
2033					$5	$3
2034					$5	$3
2035					$4	$2
2036					$4	$2
2037					$4	$2
2038					$4	$2
2039					$3	$2
2040					$3	$1
2041					$3	$1
2042					$3	$1
2043					$3	$1
2044					$3	$1
2045					$2	$1
Total					**$140**	**$100**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for multi-modal transportation capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new retirement home unit (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-5

1-Mil Credit Calculation for Condominiums - MULTI-MODAL

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$6,160,000
Percentage of millage used for transportation capacity expansion projects[5]	5%
Average taxable value of a condominium (per du)[6]	$284,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$284,000	n/a	$284,000	$284.00	$15	$15
2021					$14	$14
2022					$13	$12
2023					$13	$11
2024					$12	$10
2025					$11	$9
2026					$11	$8
2027					$10	$8
2028					$10	$7
2029					$9	$6
2030					$9	$6
2031					$8	$5
2032					$8	$5
2033					$7	$4
2034					$7	$4
2035					$6	$4
2036					$6	$3
2037					$6	$3
2038					$5	$3
2039					$5	$2
2040					$5	$2
2041					$5	$2
2042					$4	$2
2043					$4	$2
2044					$4	$2
2045					$4	$1
Total					**$211**	**$150**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for multi-modal transportation capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new condo unit (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-6

1-Mil Credit Calculation for Single Family Homes – ROADS ONLY

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$1,913,000
Percentage of millage used for transportation capacity expansion projects[5]	2%
Average taxable value of a new home[6]	$334,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$334,000	n/a	$334,000	$334.00	$5	$5
2021					$5	$5
2022					$4	$4
2023					$4	$4
2024					$4	$3
2025					$4	$3
2026					$4	$3
2027					$3	$3
2028					$3	$2
2029					$3	$2
2030					$3	$2
2031					$3	$2
2032					$3	$2
2033					$2	$1
2034					$2	$1
2035					$2	$1
2036					$2	$1
2037					$2	$1
2038					$2	$1
2039					$2	$1
2040					$2	$1
2041					$2	$1
2042					$1	$1
2043					$1	$1
2044					$1	$1
2045					$1	$0
Total					**$70**	**$52**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for roadway capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new homes (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-7

1-Mil Credit Calculation for Multi-Family Apartments - ROADS ONLY

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$1,913,000
Percentage of millage used for transportation capacity expansion projects[5]	2%
Average taxable value of a multi-family unit[6]	$179,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$179,000	n/a	$179,000	$179.00	$3	$3
2021					$3	$3
2022					$3	$2
2023					$3	$2
2024					$2	$2
2025					$2	$2
2026					$2	$2
2027					$2	$2
2028					$2	$1
2029					$2	$1
2030					$2	$1
2031					$2	$1
2032					$2	$1
2033					$1	$1
2034					$1	$1
2035					$1	$1
2036					$1	$1
2037					$1	$1
2038					$1	$1
2039					$1	$0
2040					$1	$0
2041					$1	$0
2042					$1	$0
2043					$1	$0
2044					$1	$0
2045					$1	$0
Total					**$42**	**$29**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for roadway capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new apartments (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-8

1-Mil Credit Calculation for Mobile Homes - ROADS ONLY

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$1,913,000
Percentage of millage used for transportation capacity expansion projects[5]	2%
Average taxable value of a mobile home[6]	$67,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$67,000	n/a	$67,000	$67.00	$1	$1
2021					$1	$1
2022					$1	$1
2023					$1	$1
2024					$1	$1
2025					$1	$1
2026					$1	$1
2027					$1	$1
2028					$1	$0
2029					$1	$0
2030					$1	$0
2031					$1	$0
2032					$1	$0
2033					$0	$0
2034					$0	$0
2035					$0	$0
2036					$0	$0
2037					$0	$0
2038					$0	$0
2039					$0	$0
2040					$0	$0
2041					$0	$0
2042					$0	$0
2043					$0	$0
2044					$0	$0
2045					$0	$0
Total					**$14**	**$8**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for roadway capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new mobile homes (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-9

1-Mil Credit Calculation for Retirement Homes - ROADS ONLY

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$1,913,000
Percentage of millage used for transportation capacity expansion projects[5]	2%
Average taxable value of a retirement home (per du)[6]	$190,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$190,000	n/a	$190,000	$190.00	$3	$3
2021					$3	$3
2022					$3	$2
2023					$3	$2
2024					$2	$2
2025					$2	$2
2026					$2	$2
2027					$2	$2
2028					$2	$1
2029					$2	$1
2030					$2	$1
2031					$2	$1
2032					$2	$1
2033					$1	$1
2034					$1	$1
2035					$1	$1
2036					$1	$1
2037					$1	$1
2038					$1	$1
2039					$1	$0
2040					$1	$0
2041					$1	$0
2042					$1	$0
2043					$1	$0
2044					$1	$0
2045					$1	$0
Total					**$42**	**$29**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for roadway capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new retirement home unit (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Table D-10

1-Mil Credit Calculation for Condominiums - ROADS ONLY

Item	Figure
Total Allocation from the General Fund FY 2018/19[1]	$531,499,459
County General Fund Millage[2]	4.4347
Revenues Generated from 1-mil[3]	$119,850,150
Annual ad valorem revenue that goes to transportation capacity[4]	$1,913,000
Percentage of millage used for transportation capacity expansion projects[5]	2%
Average taxable value of a condominium (per du)[6]	$284,000
Annual increase in the countywide taxable values[7]	5.8%

Year	Taxable Value	Market Value	Value Used for Credit	1-Mil Tax	Ad Valorem for Transportation	Present Value
2020	$284,000	n/a	$284,000	$284.00	$5	$5
2021					$5	$5
2022					$4	$4
2023					$4	$4
2024					$4	$3
2025					$4	$3
2026					$4	$3
2027					$3	$3
2028					$3	$2
2029					$3	$2
2030					$3	$2
2031					$3	$2
2032					$3	$2
2033					$2	$1
2034					$2	$1
2035					$2	$1
2036					$2	$1
2037					$2	$1
2038					$2	$1
2039					$2	$1
2040					$2	$1
2041					$2	$1
2042					$1	$1
2043					$1	$1
2044					$1	$1
2045					$1	$0
Total					**$70**	**$52**
Interest Rate[8]						**4.0%**

1) Source: Orange County FY 2019 Adopted Budget
2) Total millage assessed to residents within Orange County applied to the General Fund
3) Total projected allocation from the general fund (Item 1) divided by the County's millage rate (Item 2)
4) Source: Avg annual ad valorem revenues for roadway capacity from FY 2019-2023; Table C-9
5) Annual ad valorem revenues for capacity expansion (Item 4) divided by the revenue generated by 1-mil (Item 3)
6) Source: Average taxable value for new condo unit (built since 2009) in Orange County
7) Source: Review of average annual increase in countywide taxable values for Orange County (2000-2019)
8) Source: Interest rate estimated for new bond issues in Orange County

Non-Residential Land Uses

Table D-11 provides an explanation of ad valorem credit calculated for non-residential land uses. To determine the taxable value of a unit for each land use, the taxable value of recently built properties (2009 to present) was compared to the taxable value for all properties in the County database, for each respective land use. Based on a review of factors such as the weighted average, median, minimum, and maximum values per square foot, a unit value was estimated for each land use or a comparable land use category was identified. It should be noted that the 1-mil credit calculations for these land uses represent broad estimated and are based on the Consultant's experience in other jurisdictions and knowledge of the industry.

In calculating the present value of non-residential land uses, an annual value increase of approximately six (6) percent was used for commercial, institutional, and industrial land uses based on a review of the annual increase in taxable values for the respective land use category from 2000 to 2019 in Orange County.

Table D-11

1-Mil Credit Calculation for Non-Residential Land Uses

ITE LUC	Land Use	Unit	Taxable Value of Unit[1]	1-Mil Credit[2]				Methodology
				Multi-Modal		Roads ONLY		
				Annual	Total	Annual	Total	
	Lodging:							
310	Hotel/Tourist Hotel	room	$94,000	$5	$81	$2	$33	Estimates an average size of 400 sq ft per room and an average cost of $235 per sq ft
320	Motel	room	$70,500	$4	$65	$1	$17	Estimates an average size of 300 sq ft per room and an average cost of $235 per sq ft
	Recreational:							
430	Golf Course	acre	$220,000	$11	$179	$4	$65	Cost per acre is estimated at $220,000 based on the value of vacant commercial land in Orange County
437	Bowling Alley	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
444	Movie Theater	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
491	Racquet Club	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
492	Health Club	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
	Instituttional:							
522	School	1,000 sf	$170,000	$9	$146	$3	$48	Based on taxable value of recently built private schools ($170 per sq ft)
560	Public Assembly	1,000 sf	-	$0	$0	$0	$0	Public assembly land uses are exempt from paying property taxes
565	Day Care	1,000 sf	$190,000	$10	$163	$3	$48	Comparable to General Office ($190 per sq ft)
590	Library	1,000 sf	-	$0	$0	$0	$0	Library land uses are exempt from paying property taxes
	Medical:							
610	Hospital	bed	$16,000	$1	$17	$0	$0	Estimates an average size of 100 sq ft per bed (accounting for surrounding area) and an average cost of $160 per sq ft
620	Nursing Home	1,000 sf	$165,000	$8	$130	$3	$48	Based on taxable value of recently built Homes for the Aged ($165 per sq ft)
640	Animal Hospital/Veterinary Clinic	1,000 sf	$190,000	$10	$163	$3	$48	Comparable to General Office ($190 per sq ft)
	Office:							
710	General Office 50,000 sf or less	1,000 sf	$190,000	$10	$163	$3	$48	Based on taxable value of recently built Office Buildings ($190 per sq ft)
710	General Office 50,001-100,000 sf	1,000 sf	$190,000	$10	$163	$3	$48	Based on taxable value of recently built Office Buildings ($190 per sq ft)
710	General Office 100,001-200,000 sf	1,000 sf	$190,000	$10	$163	$3	$48	Based on taxable value of recently built Office Buildings ($190 per sq ft)
710	General Office greater than 200,000 sf	1,000 sf	$190,000	$10	$163	$3	$48	Based on taxable value of recently built Office Buildings ($190 per sq ft)
720	Small Medical/Dental Office (10,000 sf or less)	1,000 sf	$190,000	$10	$163	$3	$48	Comparable to General Office ($190 per sq ft)
720	Medical/Dental Office	1,000 sf	$190,000	$10	$163	$3	$48	Comparable to General Office ($190 per sq ft)
732	Post Office	1,000 sf	$190,000	$10	$163	$3	$48	Comparable to General Office ($190 per sq ft)
	Retail:							
815	Free-Standing Discount Store	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
816	Hardware/Paint	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
820	Retail/Tourist Retail: 50,000 sfgla or less	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: 50,001-100,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: 100,001-200,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: 200,001-300,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: 300,001-400,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: 400,001-500,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
820	Retail/Tourist Retail: greater than 1,200,000 sfgla	1,000 sfgla	$185,000	$10	$163	$3	$48	Based on taxable value of recently built Retail land uses ($185 per sq ft)
840/841	New/Used Auto Sales	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
850	Supermarket	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
853	Convenience Market w/Gas Pumps	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
862	Home Improvement Superstore	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
863	Electronics Superstore	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
880/881	Pharmacy/Drug Store with and w/o Drive-Thru	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)

Table D-11 (continued)

1-Mil Credit Calculation for Non-Residential Land Uses

ITE LUC	Land Use	Unit	Taxable Value of Unit[1]	1-Mil Credit[2]				Methodology
				Multi-Modal		Roads ONLY		
				Annual	Total	Annual	Total	
	Services:							
911	Bank/Savings Walk-In	1,000 sf	$550,000	$28	$456	$9	$146	Based on taxable value of recently built Bank land uses ($550 per sq ft)
912	Bank/Savings Drive-In	1,000 sf	$550,000	$28	$456	$9	$146	Based on taxable value of recently built Bank land uses ($550 per sq ft)
925	Drinking Place	1,000 sf	$185,000	$10	$163	$3	$48	Comparable to Retail land use ($185 per sq ft)
931	Quality Restaurant	1,000 sf	$360,000	$19	$309	$6	$98	Based on taxable value of recently built Restaurant land uses ($360 per sq ft)
932	High-Turnover Restaurant	1,000 sf	$360,000	$19	$309	$6	$98	Based on taxable value of recently built Restaurant land uses ($360 per sq ft)
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	$440,000	$23	$374	$7	$115	Based on taxable value of recently built Fast Food Restaurant land uses ($440 per sq ft)
942	Auto Service	1,000 sf	$150,000	$8	$130	$2	$33	Based on taxable value of recently built Auto Sales/Repair land uses ($150 per sq ft)
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	$15,355	$1	$17	$0	$0	Estimates that 1,000 sq ft of space can accommodate 4 rows and 3 fueling positions per row and an average cost of $185 per sq ft based on the Retail land use
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	$15,355	$1	$17	$0	$0	
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	$15,355	$1	$17	$0	$0	
947	Self-Service Car Wash	wash stn.	$60,125	$3	$48	$1	$17	Estimates the sq ft per service bay is 325 ft (25 x 13 ft) and a cost of $185 per sq ft based on the Retail land use
	Industrial:							
110	General Light Industrial	1,000 sf	$80,000	$4	$65	$1	$17	Comparable to Manufacturing land use ($80 per sq ft)
140	Manufacturing	1,000 sf	$80,000	$4	$65	$1	$17	Based on taxable value of recently built Manufacturing land uses ($80 per sq ft)
150	Warehousing	1,000 sf	$75,000	$4	$65	$1	$17	Based on taxable value of recently built Warehouse land uses ($75 per sq ft)
151	Mini-Warehouse	1,000 sf	$75,000	$4	$65	$1	$17	Comparable to Warehousing land use ($75 per sq ft)
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	$75,000	$4	$65	$1	$17	Comparable to Warehousing land use ($75 per sq ft)

1) Source: Based on information from the Orange County 2019 NAL parcel database
2) Present value of the ad valorem credit to be applied to the transportation impact fee

APPENDIX E
Calculated Impact Fee Schedule

Appendix E: Calculated Impact Fee Schedule

This appendix presents the detailed impact fee calculations for each land use in Orange County's transportation impact fee schedule.

Table E-1 presents a summary of current Orange County impact fee rates and the calculated rates for each option. If the County opts to keep the current fee districts, the updated fee rates will come from Table E-2 (Urban) and Table E-3 (Non-Urban). If the County elects to move to three fee districts, the updated impact fee rates are shown in Table E-2 (Urban), Table E-3 (Suburban), and Table E-4 (Rural).

Table E-1
Impact Fee Rate Summary

ITE LUC	Land Use	Unit	2012 Calculated (100%)[1]		Current Adopted (56%)[2]		Calculated Rates (100%)		
			Non-AMA	AMA	Non-AMA	AMA	Urban[3]	Non-Urban/ Suburban[4]	Rural[5]
	RESIDENTIAL:								
210	Single Family (Detached) - 1,200 sf or less	du	$6,961	$6,716	$3,898	$3,761	$6,425	$7,973	$9,113
210	Single Family (Detached) - 1,201 to 2,000 sf	du	$6,961	$6,716	$3,898	$3,761	$8,218	$10,138	$11,586
210	Single Family (Detached) - 2,001 to 3,500 sf	du	$6,961	$6,716	$3,898	$3,761	$10,163	$12,509	$14,294
210	Single Family (Detached) - greater than 3,500 sf	du	$6,961	$6,716	$3,898	$3,761	$10,640	$13,082	$14,949
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 Floors)	du	$4,507	$4,348	$2,524	$2,435	$5,937	$7,303	$8,349
221	Multi-Family Housing (Mid-Rise, 3-10 Floors)	du	$4,507	$4,348	$2,524	$2,435	$4,395	$5,421	$6,198
222	Multi-Family Housing (High-Rise, >10 Floors)	du	$2,854	$2,756	$1,598	$1,543	$3,580	$4,430	$5,066
225	Student Housing (Adjacent to Campus)	bedroom	-	-	-	-	$1,246	$1,555	$1,780
225	Student Housing (Over 1/2 Mile from Campus)	bedroom	-	-	-	-	$2,410	$2,973	$3,399
231	Mid-Rise Residential w/1st Floor Commercial	du	-	-	-	-	$2,744	$3,417	$3,909
232	High-Rise Residential w/1st Floor Commercial	du	-	-	-	-	$1,571	$1,986	$2,274
240	Mobile Home Park	du	$2,565	$2,480	$1,436	$1,389	$3,054	$3,755	$4,292
251	Senior Adult Housing - Detached (Retirement Community/Age-Restricted Single-Family)	du	$2,275	$2,203	$1,274	$1,234	$2,975	$3,704	$4,236
252	Senior Adult Housing - Attached (Retirement Community/Age-Restricted Single-Family)	du	$2,275	$2,203	$1,274	$1,234	$2,220	$2,803	$3,208
265	Time Share	du	$3,707	$3,570	$2,076	$1,999	$5,343	$6,660	$7,619
	LODGING:								
310	Hotel/Tourist Hotel	room	$3,532	$3,410	$1,978	$1,910	$3,033	$3,519	$3,746
320	Motel	room	$2,519	$2,419	$1,411	$1,355	$1,440	$1,713	$1,823
	RECREATIONAL:								
430	Golf Course	acre	$4,049	$3,901	$2,267	$2,185	$2,841	$3,388	$3,608
437	Bowling Alley	1,000 sf	$20,722	$19,984	$11,604	$11,191	$7,992	$9,284	$9,881
443	Movie Theater	1,000 sf	$19,912	$19,103	$11,151	$10,698	$20,895	$24,343	$25,929
491	Racquet Club	1,000 sf	$9,117	$8,783	$5,106	$4,918	$12,734	$14,714	$15,658
492	Health/Fitness Club	1,000 sf	$21,382	$20,620	$11,974	$11,547	$22,427	$25,811	$27,464
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	-	-	-	-	$8,010	$9,357	$9,961
	INSTITUTIONAL:								
522	School	1,000 sf	$12,453	$12,025	$6,974	$6,734	$6,998	$8,166	$8,696
560	Public Assembly	1,000 sf	$8,239	$7,943	$4,614	$4,448	$3,284	$3,767	$4,010
565	Day Care	1,000 sf	$12,576	$12,038	$7,043	$6,741	$9,446	$11,107	$11,834
590	Library	1,000 sf	$21,456	$20,694	$12,015	$11,589	$31,734	$36,269	$38,581
	MEDICAL:								
610	Hospital	bed	$7,086	$6,827	$3,968	$3,823	$15,641	$17,887	$19,028
620	Nursing Home	1,000 sf	$659	$634	$369	$355	$1,899	$2,288	$2,439
640	Animal Hospital/Veterinary Clinic	1,000 sf	$15,930	$15,351	$8,921	$8,597	$4,047	$4,841	$5,160
	OFFICE:								
710	General Office 50,000 sf or less	1,000 sf	$9,953	$9,596	$5,574	$5,374	$8,132	$10,037	$11,473
710	General Office 50,001-100,000 sf	1,000 sf	$8,479	$8,170	$4,748	$4,575	$7,953	$9,834	$11,241
710	General Office 100,001-200,000 sf	1,000 sf	$7,232	$6,974	$4,050	$3,905	$7,790	$9,633	$11,011
710	General Office greater than 200,000 sf	1,000 sf	$6,169	$5,947	$3,455	$3,330	$7,621	$9,425	$10,775
720	Small Medical/Dental Office (10,000 sf or less)	1,000 sf	$23,035	$22,225	$12,900	$12,446	$18,872	$23,107	$26,402
720	Medical/Dental Office	1,000 sf	$23,035	$22,225	$12,900	$12,446	$27,101	$33,099	$37,817
732	Post Office	1,000 sf	$36,621	$35,318	$20,508	$19,778	$42,201	$51,502	$58,845
	RETAIL:								
815	Free-Standing Discount Store	1,000 sf	$10,507	$10,069	$5,884	$5,639	$11,105	$12,981	$13,826
816	Hardware/Paint Store	1,000 sf	$6,033	$5,770	$3,378	$3,231	$1,079	$1,404	$1,499
820	Retail/Tourist Retail: 50,000 sfgla or less	1,000 sfgla	$10,178	$9,741	$5,700	$5,455	$10,051	$11,818	$12,594
820	Retail/Tourist Retail: 50,001-100,000 sfgla	1,000 sfgla	$10,956	$10,493	$6,135	$5,876	$11,052	$12,926	$13,769
820	Retail/Tourist Retail: 100,001-200,000 sfgla	1,000 sfgla	$9,780	$9,368	$5,477	$5,246	$10,052	$11,763	$12,529
820	Retail/Tourist Retail: 200,001-300,000 sfgla	1,000 sfgla	$9,476	$9,090	$5,307	$5,090	$9,852	$11,532	$12,282
820	Retail/Tourist Retail: 300,001-400,000 sfgla	1,000 sfgla	$9,230	$8,857	$5,169	$4,960	$9,676	$11,312	$12,047
820	Retail/Tourist Retail: 400,001-500,000 sfgla	1,000 sfgla	$9,170	$8,796	$5,135	$4,926	$9,667	$11,301	$12,035
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla	1,000 sfgla	$9,498	$9,139	$5,319	$5,118	$10,244	$11,928	$12,699
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla	1,000 sfgla	$9,664	$9,292	$5,412	$5,204	$10,475	$12,188	$12,975
820	Retail/Tourist Retail: greater than 1,200,000 sfgla	1,000 sfgla	$9,883	$9,499	$5,534	$5,319	$10,770	$12,517	$13,323
840/841	New/Used Auto Sales	1,000 sf	$11,207	$10,786	$6,276	$6,040	$11,875	$13,755	$14,639
850	Supermarket	1,000 sf	$13,609	$13,034	$7,621	$7,299	$16,070	$18,789	$20,016
853	Convenience Market w/Gas Pumps	1,000 sf	$36,448	$34,734	$20,411	$19,451	$33,899	$39,800	$42,428
862	Home Improvement Superstore	1,000 sf	$5,462	$5,238	$3,059	$2,933	$6,359	$7,492	$7,981
863	Electronics Superstore	1,000 sf	$2,682	$2,542	$1,502	$1,424	$5,427	$6,440	$6,865
880/881	Drug Store	1,000 sf	$19,928	$19,173	$11,160	$10,737	$8,915	$10,476	$11,162
	SERVICES:								
911	Bank/Savings Walk-In	1,000 sf	$20,581	$19,733	$11,525	$11,050	$8,404	$10,094	$10,758
912	Bank/Savings Drive-In	1,000 sf	$20,581	$19,733	$11,525	$11,050	$14,868	$17,571	$18,719
925	Drinking Place	1,000 sf	$6,739	$6,411	$3,774	$3,590	$15,293	$17,918	$19,094
931	Quality Restaurant	1,000 sf	$25,452	$24,447	$14,253	$13,690	$27,456	$31,864	$33,925
932	High-Turnover Restaurant	1,000 sf	$30,310	$29,132	$16,974	$16,314	$31,604	$36,650	$39,017
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	$68,684	$65,731	$38,463	$36,809	$74,592	$86,876	$92,547
942	Auto Service	1,000 sf	$12,306	$11,876	$6,891	$6,651	$9,708	$11,271	$11,998
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	$8,321	$7,957	$4,660	$4,456	$9,798	$11,409	$12,154
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	$8,321	$7,957	$4,660	$4,456	$11,709	$13,620	$14,511
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	$8,321	$7,957	$4,660	$4,456	$13,136	$15,287	$16,286
947	Self-Service Car Wash	wash station	$18,197	$17,421	$10,190	$9,756	$20,980	$24,344	$25,929
	INDUSTRIAL:								
110	General Light Industrial	1,000 sf	$3,863	$3,728	$2,163	$2,088	$3,117	$3,857	$4,410
140	Manufacturing	1,000 sf	$2,116	$2,043	$1,185	$1,144	$2,447	$3,049	$3,487
150	Warehouse	1,000 sf	$1,977	$1,903	$1,107	$1,066	$1,050	$1,347	$1,541
151	Mini-Warehouse	1,000 sf	$707	$682	$396	$382	$578	$780	$893
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	$707	$682	$396	$382	$839	$1,075	$1,231

1) Source: *Orange County Transportation Impact Fee Update, November 29, 2012*
2) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees were adopted at 42 percent in 2012 and increased to 56 percent in 2014
3) Source: Table E-2
4) Source: Table E-3
5) Source: Table E-4

Highlight indicates a new land use or re-alignment of uses. Additional explanation is provided on page 7.

Table E-2
Calculated Multi-Modal Impact Fee Schedule – Urban Fee District

	Gasoline Tax								Unit Cost per Lane Mile:	$4,540,000						Interstate/Toll Facility Adjustment Factor:	36.1%	
	$$ per gallon to capital:	$0.197		City Revenues:	$0.003				Average VMC per Lane Mile:	9,000						Cost per VMC:	$504.44	
	Facility life (years):	25		County Revenues:	$0.054				Fuel Efficiency:	18.92 mpg								
	Interest rate:	4.0%		State Revenues:	$0.140				Effective days per year:	365								

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Residential:																		
210	Single Family (Detached) - 1,200 sf or less	du	6.15	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	16.27	$8,207	$103	$1,609	$173	**$6,425**	$3,898	65%
210	Single Family (Detached) - 1,201 to 2,000 sf	du	7.81	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	20.66	$10,422	$130	$2,031	$173	**$8,218**	$3,898	111%
210	Single Family (Detached) - 2,001 to 3,500 sf	du	9.63	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	25.48	$12,851	$161	$2,515	$173	**$10,163**	$3,898	161%
210	Single Family (Detached) - greater than 3,500 sf	du	10.07	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	26.64	$13,438	$168	$2,625	$173	**$10,640**	$3,898	173%
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 floors)	du	7.32	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	14.92	$7,527	$96	$1,500	$90	**$5,937**	$2,524	135%
221	Multi-Family Housing (Mid-Rise, 3-10 floors)	du	5.44	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	11.09	$5,594	$71	$1,109	$90	**$4,395**	$2,524	74%
222	Multi-Family Housing (High-Rise, >10 floors)	du	4.45	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	9.07	$4,576	$58	$906	$90	**$3,580**	$1,598	124%
225	Student Housing (Adjacent to Campus)	bedroom	3.15	ITE 10th Edition	2.55	1.25	3.19	3.69	Same as LUC 220 (adjusted)	100%	n/a	3.21	$1,620	$22	$344	$30	**$1,246**	-	-
225	Student Housing (Over 1/2 mile from Campus)	bedroom	3.97	ITE 10th Edition	3.83	1.25	4.79	5.29	Same as LUC 220 (adjusted)	100%	n/a	6.08	$3,065	$40	$625	$30	**$2,410**	-	-
231	Mid-Rise Residential w/1st floor Commercial	du	3.44	ITE 10th Edition	5.10	1.25	6.38	6.88	Same as LUC 220	100%	n/a	7.01	$3,537	$45	$703	$90	**$2,744**	-	-
232	High-Rise Residential w/1st floor Commercial	du	2.01	ITE 10th Edition (adjusted)	5.10	1.25	6.38	6.88	Same as LUC 220	100%	n/a	4.10	$2,067	$26	$406	$90	**$1,571**	-	-
240	Mobile Home Park	du	4.17	Appendix A: LUC 240	4.60	1.25	5.75	6.25	Appendix A: LUC 240	100%	n/a	7.66	$3,864	$50	$781	$29	**$3,054**	$1,436	113%
251	Senior Adult Housing - Detached (Retirement Community/Age-Restricted Single Family)	du	3.50	Appendix A: LUC 251	5.42	1.25	6.78	7.28	Appendix A: LUC 251	100%	n/a	7.58	$3,825	$48	$750	$100	**$2,975**	$1,274	134%
252	Senior Adult Housing - Attached (Retirement Community/Age-Restricted Single Family)	du	3.33	Appendix A: LUC 252	4.34	1.25	5.43	5.93	Same as LUC 251 (adjusted)[5]	100%	n/a	5.78	$2,914	$38	$594	$100	**$2,220**	$1,274	74%
265	Time Share	du	8.63	ITE 10th Edition	3.97	1.25	4.96	5.46	Previous Report	100%	n/a	13.68	$6,899	$90	$1,406	$150	**$5,343**	$2,076	157%
	Lodging:																		
310	Hotel/Tourist Hotel	room	5.55	Appendix A: LUC 310	6.26	1.05	6.57	7.07	Appendix A: LUC 310	66%	Appendix A: LUC 310	7.69	$3,879	$49	$765	$81	**$3,033**	$1,978	53%
320	Motel	room	3.35	ITE 10th Edition	4.34	1.05	4.56	5.06	Appendix A: LUC 320	77%	Appendix A: LUC 320	3.76	$1,896	$25	$391	$65	**$1,440**	$1,411	2%
	Recreational:																		
430	Golf Course	acre	3.74	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	90%	Based on LUC 710	7.47	$3,770	$48	$750	$179	**$2,841**	$2,267	25%
437	Bowling Alley	1,000 sf	13.00	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	90%	Based on LUC 710	20.22	$10,201	$131	$2,046	$163	**$7,992**	$11,604	-31%
444	Movie Theater with or without Matinee	1,000 sf	82.30	Appendix A: LUC 444	2.24	1.05	2.35	2.85	Appendix A: LUC 444	87%	Appendix A: LUC 444	53.76	$27,119	$388	$6,061	$163	**$20,895**	$11,151	87%
491	Racquet Club	1,000 sf	19.70	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	94%	Same as LUC 492	32.01	$16,146	$208	$3,249	$163	**$12,734**	$5,106	149%
492	Health/Fitness Club	1,000 sf	34.50	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	94%	Appendix A: LUC 492	56.06	$28,276	$364	$5,686	$163	**$22,427**	$11,974	87%
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	21.33	Appendix A: LUC N/A Dance Studio	3.37	1.05	3.54	4.04	Appendix A: LUC N/A Specialty Retail	85%	Appendix A: LUC N/A Specialty Retail	20.51	$10,344	$139	$2,171	$163	**$8,010**	-	-
	Institutional:																		
522	School	1,000 sf	20.17	ITE 10th Edition	3.31	1.05	3.48	3.98	50% of LUC 210: Travel Demand Model	80%	Based on LUC 710 (adjusted)[6]	17.94	$9,050	$122	$1,906	$146	**$6,998**	$6,974	0%
560	Public Assembly	1,000 sf	6.95	ITE 10th Edition	3.91	1.05	4.11	4.61	Midpoint of LUC 710 & LUC 820 (App. A)	90%	Based on LUC 710	8.21	$4,143	$55	$859	$0	**$3,284**	$4,614	-29%
565	Day Care	1,000 sf	49.63	Appendix A: LUC 565	2.03	1.05	2.13	2.63	Appendix A: LUC 565	73%	Appendix A: LUC 565	24.66	$12,437	$181	$2,828	$163	**$9,446**	$7,043	34%

Table E-2 (continued)
Calculated Multi-Modal Impact Fee Schedule – Urban Fee District

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Institutional:																		
590	Library	1,000 sf	72.05	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	49%	Previous Report	78.39	$39,545	$500	$7,811	$0	**$31,734**	$12,015	164%
	Medical:																		
610	Hospital	bed	22.32	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	78%	Midpoint of LUC 310 & LUC 720	38.66	$19,501	$246	$3,843	$17	**$15,641**	$3,968	294%
620	Nursing Home	1,000 sf	6.64	ITE 10th Edition	2.59	1.05	2.72	3.22	Appendix A: LUC 620	89%	Appendix A: LUC 620	5.14	$2,591	$36	$562	$130	**$1,899**	$369	415%
640	Animal Hospital/Veterinary Clinic	1,000 sf	24.20	Appendix A: LUC 640	1.90	1.05	2.00	2.50	Appendix A: LUC 640	70%	Appendix A: LUC 640	10.82	$5,460	$80	$1,250	$163	**$4,047**	$8,921	-55%
	Office:																		
710	General Office 50,000 sf or less[4]	1,000 sf	10.83	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	20.50	$10,341	$131	$2,046	$163	**$8,132**	$5,574	46%
710	General Office 50,001-100,000 sf[4]	1,000 sf	10.61	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	20.08	$10,131	$129	$2,015	$163	**$7,953**	$4,748	68%
710	General Office 100,001-200,000 sf[4]	1,000 sf	10.39	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	19.67	$9,921	$126	$1,968	$163	**$7,790**	$4,050	92%
710	General Office greater than 200,000 sf[4]	1,000 sf	10.18	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	19.27	$9,721	$124	$1,937	$163	**$7,621**	$3,455	121%
720	Small Medical/Dental Office (10,000 sf or less)	1,000 sf	23.83	Appendix A: LUC 720 Small Medical/Dental	5.55	1.25	6.94	7.44	Appendix A: LUC 720	89%	Appendix A: LUC 720	47.03	$23,722	$300	$4,687	$163	**$18,872**	$12,900	46%
720	Medical/Dental Office	1,000 sf	34.12	Appendix A: LUC 720	5.55	1.25	6.94	7.44	Appendix A: LUC 720	89%	Appendix A: LUC 720	67.33	$33,966	$429	$6,702	$163	**$27,101**	$12,900	110%
732	Post Office	1,000 sf	103.94	ITE 10th Edition	5.15	1.25	6.44	6.94	Same as LUC 710	49%	Previous Report	104.79	$52,862	$672	$10,498	$163	**$42,201**	$20,508	106%
	Retail:																		
815	Free-Standing Discount Store	1,000 sf	53.12	ITE 10th Edition	2.40	1.05	2.52	3.02	Same as LUC 820 (100-200k)	67%	Same as LUC 820 (100-200k)	28.66	$14,455	$204	$3,187	$163	**$11,105**	$5,884	89%
816	Hardware/Paint	1,000 sf	9.14	ITE 10th Edition	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	3.21	$1,617	$24	$375	$163	**$1,079**	$3,378	-68%
820	Retail/Tourist Retail: 50,000 sfgla or less[4]	1,000 sfgla	75.05	ITE 10th equation	1.87	1.05	1.96	2.46	Appendix A: Figure A-2	56%	Appendix A: Figure A-3	26.32	$13,276	$196	$3,062	$163	**$10,051**	$5,700	76%
820	Retail/Tourist Retail: 50,001-100,000 sfgla[4]	1,000 sfgla	60.12	ITE 10th equation	2.29	1.05	2.40	2.90	Appendix A: Figure A-2	62%	Appendix A: Figure A-3	28.58	$14,418	$205	$3,203	$163	**$11,052**	$6,135	80%
820	Retail/Tourist Retail: 100,001-200,000 sfgla[4]	1,000 sfgla	48.16	ITE 10th equation	2.40	1.05	2.52	3.02	Appendix A: Figure A-2	67%	Appendix A: Figure A-3	25.98	$13,105	$185	$2,890	$163	**$10,052**	$5,477	84%
820	Retail/Tourist Retail: 200,001-300,000 sfgla[4]	1,000 sfgla	42.30	ITE 10th equation	2.52	1.05	2.65	3.15	Appendix A: Figure A-2	71%	Appendix A: Figure A-3	25.43	$12,827	$180	$2,812	$163	**$9,852**	$5,307	86%
820	Retail/Tourist Retail: 300,001-400,000 sfgla[4]	1,000 sfgla	38.58	ITE 10th equation	2.64	1.05	2.77	3.27	Appendix A: Figure A-2	73%	Appendix A: Figure A-3	24.93	$12,573	$175	$2,734	$163	**$9,676**	$5,169	87%
820	Retail/Tourist Retail: 400,001-500,000 sfgla[4]	1,000 sfgla	35.92	ITE 10th equation	2.75	1.05	2.89	3.39	Appendix A: Figure A-2	75%	Appendix A: Figure A-3	24.88	$12,548	$174	$2,718	$163	**$9,667**	$5,135	88%
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla[4]	1,000 sfgla	28.78	ITE 10th equation	3.34	1.05	3.51	4.01	Appendix A: Figure A-2	81%	Appendix A: Figure A-3	26.14	$13,188	$178	$2,781	$163	**$10,244**	$5,319	93%
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla[4]	1,000 sfgla	27.14	ITE 10th equation	3.57	1.05	3.75	4.25	Appendix A: Figure A-2	82%	Appendix A: Figure A-3	26.66	$13,450	$180	$2,812	$163	**$10,475**	$5,412	94%
820	Retail/Tourist Retail: greater than 1,200,000 sfgla[4]	1,000 sfgla	25.84	ITE 10th equation	3.80	1.05	3.99	4.49	Appendix A: Figure A-2	83%	Appendix A: Figure A-3	27.34	$13,792	$183	$2,859	$163	**$10,770**	$5,534	95%
840/841	New/Used Auto Sales	1,000 sf	24.58	Appendix A: LUC 840/841	4.60	1.05	4.83	5.33	Appendix A: LUC 840/841	79%	Appendix A: LUC 840/841	29.97	$15,116	$197	$3,078	$163	**$11,875**	$6,276	89%
850	Supermarket	1,000 sf	106.64	Appendix A: LUC 850	2.08	1.05	2.18	2.68	Appendix A: LUC 850	56%	Appendix A: LUC 850	41.59	$20,982	$304	$4,749	$163	**$16,070**	$7,621	111%
853	Convenience Market w/Gas Pumps	1,000 sf	626.25	Appendix A: LUC 853	1.51	1.05	1.59	2.09	Appendix A: LUC 853	28%	Appendix A: LUC 853	89.08	$44,935	$696	$10,873	$163	**$33,899**	$20,411	66%
862	Home Improvement Superstore	1,000 sf	30.74	ITE 10th Edition	2.40	1.05	2.52	3.02	Same as LUC 820 (100-200k)	67%	Same as LUC 820 (100-200k)	16.58	$8,365	$118	$1,843	$163	**$6,359**	$3,059	108%
863	Electronics Superstore	1,000 sf	41.05	ITE 10th Edition	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	14.40	$7,262	$107	$1,672	$163	**$5,427**	$1,502	261%
880/881	Drug Store	1,000 sf	104.37	Appendix A: LUC 880/881	2.08	1.05	2.18	2.68	Appendix A: LUC 880/881	32%	Appendix A: LUC 880/881	23.26	$11,734	$170	$2,656	$163	**$8,915**	$11,160	-20%

Table E-2 (continued)
Calculated Multi-Modal Impact Fee Schedule – Urban Fee District

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Services:																		
911	Bank/Savings Walk-In	1,000 sf	59.39	ITE 10th Edition (adjusted)	2.46	1.05	2.58	3.08	Same as LUC 912	46%	Same as LUC 912	22.52	$11,360	$160	$2,500	$456	**$8,404**	$11,525	-27%
912	Bank/Savings Drive-In	1,000 sf	102.66	Appendix A: LUC 912	2.46	1.05	2.58	3.08	Appendix A: LUC 912	46%	Appendix A: LUC 912	38.93	$19,636	$276	$4,312	$456	**$14,868**	$11,525	29%
925	Drinking Place	1,000 sf	113.60	ITE 10th Edition (adjusted)	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	39.84	$20,096	$297	$4,640	$163	**$15,293**	$3,774	305%
931	Quality Restaurant	1,000 sf	86.03	Appendix A: LUC 931	3.14	1.05	3.30	3.80	Appendix A: LUC 931	77%	Appendix A: LUC 931	69.84	$35,232	$478	$7,467	$309	**$27,456**	$14,253	93%
932	High-Turnover Restaurant	1,000 sf	106.26	Appendix A: LUC 932	3.17	1.05	3.33	3.83	Appendix A: LUC 932	71%	Appendix A: LUC 932	80.27	$40,490	$549	$8,577	$309	**$31,604**	$16,974	86%
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	482.53	Appendix A: LUC 934	2.05	1.05	2.15	2.65	Appendix A: LUC 934	58%	Appendix A: LUC 934	192.25	$96,978	$1,409	$22,012	$374	**$74,592**	$38,463	94%
942	Auto Service	1,000 sf	28.19	Appendix A: LUC 942	3.62	1.05	3.80	4.30	Appendix A: LUC 942	72%	Appendix A: LUC 942	24.64	$12,431	$166	$2,593	$130	**$9,708**	$6,891	41%
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	172.01	ITE 10th Edition	1.90	1.05	2.00	2.50	Appendix A: LUC 944/945	23%	Appendix A: LUC 944/945	25.28	$12,752	$188	$2,937	$17	**$9,798**	$4,660	110%
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	205.36	ITE 10th Edition	1.90	1.05	2.00	2.50	Appendix A: LUC 944/945	23%	Appendix A: LUC 944/945	30.18	$15,225	$224	$3,499	$17	**$11,709**	$4,660	151%
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	230.52	ITE 10th Edition	1.90	1.05	2.00	2.50	Same as LUC 945	23%	Same as LUC 945	33.88	$17,090	$252	$3,937	$17	**$13,136**	$4,660	182%
947	Self-Service Car Wash	wash stn.	108.00	ITE 10th Edition	2.18	1.05	2.29	2.79	Appendix A: LUC 947	68%	Appendix A: LUC 947	53.73	$27,105	$389	$6,077	$48	**$20,980**	$10,190	106%
	Industrial:																		
110	General Light Industrial	1,000 sf	4.96	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	7.89	$3,979	$51	$797	$65	**$3,117**	$2,163	44%
140	Manufacturing	1,000 sf	3.93	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	6.25	$3,153	$41	$641	$65	**$2,447**	$1,185	106%
150	Warehousing	1,000 sf	1.74	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	2.77	$1,396	$18	$281	$65	**$1,050**	$1,107	-5%
151	Mini-Warehouse	1,000 sf	1.49	Appendix A: LUC 151	3.51	1.05	3.69	4.19	Midpoint of LUC 710 & LUC 820 <50k	92%	Same as LUC 710	1.62	$815	$11	$172	$65	**$578**	$396	46%
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	1.40	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	2.23	$1,123	$14	$219	$65	**$839**	$396	112%

1) Initial trip length multiplied by the trip length adjustment factor
2) Net PMT 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
3) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees were adopted at 42 percent in 2012 and phased to 56 percent in 2014. Senior Adult Housing – Detached (LUC 251) rate is shown for Senior Adult Housing – Attached (LUC 252). Mini-Warehouse (LUC 151) rate is shown for High-Cube Warehouse (LUC 154)
4) The trip rates for office and retail/shopping center use an end-point regression value
5) The trip length for Senior Adult Housing Detached was based on the trip length for LUC 252, but was then adjusted by 80% based on the relationship of the trip lengths for LUC 210 (Single Family Detached) and LUC 220 (Multi-Family)
6) The percent new trips for schools was estimated at 90 percent, based on LUC 710, but then adjusted to 80% to provide a conservative fee rate. This adjustment reflects the nature of the elementary and middle school uses where attendees are unable to drive and are dropped off by parents on their way to another destination

*Refer to the Trip Characteristics Database section of Appendix A for additional support detail and backup information

Table E-3
Calculated Transportation Impact Fee Schedule – Non-Urban/Suburban Fee District

	Gasoline Tax									Unit Cost per Lane Mile:	$4,540,000						Interstate/Toll Facility Adjustment Factor:	36.1%	
	$$ per gallon to capital:	$0.135		City Revenues:	$0.001					Average VMC per Lane Mile:	8,100	8,550					Cost per VMC (Residential/Office/Industrial):	$560.49	
	Facility life (years):	25		County Revenues:	$0.049					Fuel Efficiency:	18.92 mpg						Cost per VMC (Other Non-Residential):	$530.99	
	Interest rate:	4.0%		State Revenues:	$0.085					Effective days per year:	365								

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Residential:																		
210	Single Family (Detached) - 1,200 sf or less	du	6.15	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	16.27	$9,119	$70	$1,094	$52	**$7,973**	$3,898	105%
210	Single Family (Detached) - 1,201 to 2,000 sf	du	7.81	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	20.66	$11,580	$89	$1,390	$52	**$10,138**	$3,898	160%
210	Single Family (Detached) - 2,001 to 3,500 sf	du	9.63	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	25.48	$14,279	$110	$1,718	$52	**$12,509**	$3,898	221%
210	Single Family (Detached) - greater than 3,500 sf	du	10.07	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	26.64	$14,931	$115	$1,797	$52	**$13,082**	$3,898	236%
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 floors)	du	7.32	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	14.92	$8,363	$66	$1,031	$29	**$7,303**	$2,524	189%
221	Multi-Family Housing (Mid-Rise, 3-10 floors)	du	5.44	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	11.09	$6,215	$49	$765	$29	**$5,421**	$2,524	115%
222	Multi-Family Housing (High-Rise, >10 floors)	du	4.45	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	9.07	$5,084	$40	$625	$29	**$4,430**	$1,598	177%
225	Student Housing (Adjacent to Campus)	bedroom	3.15	ITE 10th Edition	2.55	1.25	3.19	3.69	Same as LUC 220 (adjusted)	100%	n/a	3.21	$1,799	$15	$234	$10	**$1,555**	-	-
225	Student Housing (Over 1/2 mile from Campus)	bedroom	3.97	ITE 10th Edition	3.83	1.25	4.79	5.29	Same as LUC 220 (adjusted)	100%	n/a	6.08	$3,405	$27	$422	$10	**$2,973**	-	-
231	Mid-Rise Residential w/1st floor Commercial	du	3.44	ITE 10th Edition	5.10	1.25	6.38	6.88	Same as LUC 220	100%	n/a	7.01	$3,930	$31	$484	$29	**$3,417**	-	-
232	High-Rise Residential w/1st floor Commercial	du	2.01	ITE 10th Edition (adjusted)	5.10	1.25	6.38	6.88	Same as LUC 220	100%	n/a	4.10	$2,296	$18	$281	$29	**$1,986**	-	-
240	Mobile Home Park	du	4.17	Appendix A: LUC 240	4.60	1.25	5.75	6.25	Appendix A: LUC 240	100%	n/a	7.66	$4,294	$34	$531	$8	**$3,755**	$1,436	161%
251	Senior Adult Housing - Detached (Retirement Community/Age-Restricted Single Family)	du	3.50	Appendix A: LUC 251	5.42	1.25	6.78	7.28	Appendix A: LUC 251	100%	n/a	7.58	$4,249	$33	$516	$29	**$3,704**	$1,274	191%
252	Senior Adult Housing - Attached (Retirement Community/Age-Restricted Single Family)	du	3.33	Appendix A: LUC 252	4.34	1.25	5.43	5.93	Same as LUC 251 (adjusted)[5]	100%	n/a	5.78	$3,238	$26	$406	$29	**$2,803**	$1,274	120%
265	Time Share	du	8.63	ITE 10th Edition	3.97	1.25	4.96	5.46	Previous Report	100%	n/a	13.68	$7,665	$61	$953	$52	**$6,660**	$2,076	221%
	Lodging:																		
310	Hotel/Tourist Hotel	room	5.55	Appendix A: LUC 310	6.26	1.05	6.57	7.07	Appendix A: LUC 310	66%	Appendix A: LUC 310	7.69	$4,083	$34	$531	$33	**$3,519**	$1,978	78%
320	Motel	room	3.35	ITE 10th Edition	4.34	1.05	4.56	5.06	Appendix A: LUC 320	77%	Appendix A: LUC 320	3.76	$1,996	$17	$266	$17	**$1,713**	$1,411	21%
	Recreational:																		
430	Golf Course	acre	3.74	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	90%	Based on LUC 710	7.47	$3,969	$33	$516	$65	**$3,388**	$2,267	49%
437	Bowling Alley	1,000 sf	13.00	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	90%	Based on LUC 710	20.22	$10,738	$90	$1,406	$48	**$9,284**	$11,604	-20%
444	Movie Theater with or without Matinee	1,000 sf	82.30	Appendix A: LUC 444	2.24	1.05	2.35	2.85	Appendix A: LUC 444	87%	Appendix A: LUC 444	53.76	$28,546	$266	$4,155	$48	**$24,343**	$11,151	118%
491	Racquet Club	1,000 sf	19.70	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	94%	Same as LUC 492	32.01	$16,996	$143	$2,234	$48	**$14,714**	$5,106	188%
492	Health/Fitness Club	1,000 sf	34.50	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	94%	Appendix A: LUC 492	56.06	$29,765	$250	$3,906	$48	**$25,811**	$11,974	116%
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	21.33	Appendix A: LUC N/A Dance Studio	3.37	1.05	3.54	4.04	Appendix A: LUC N/A Specialty Retail	85%	Appendix A: LUC N/A Specialty Retail	20.51	$10,889	$95	$1,484	$48	**$9,357**	-	-
	Institutional:																		
522	School	1,000 sf	20.17	ITE 10th Edition	3.31	1.05	3.48	3.98	50% of LUC 210: Travel Demand Model	80%	Based on LUC 710 (adjusted)[6]	17.94	$9,526	$84	$1,312	$48	**$8,166**	$6,974	17%
560	Public Assembly	1,000 sf	6.95	ITE 10th Edition	3.91	1.05	4.11	4.61	Midpoint of LUC 710 & LUC 820 (App. A)	90%	Based on LUC 710	8.21	$4,361	$38	$594	$0	**$3,767**	$4,614	-18%
565	Day Care	1,000 sf	49.63	Appendix A: LUC 565	2.03	1.05	2.13	2.63	Appendix A: LUC 565	73%	Appendix A: LUC 565	24.66	$13,092	$124	$1,937	$48	**$11,107**	$7,043	58%

Table E-3 (continued)
Calculated Transportation Impact Fee Schedule – Non-Urban/Suburban Fee District

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Institutional:																		
590	Library	1,000 sf	72.05	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	49%	Previous Report	78.39	$41,627	$343	$5,358	$0	**$36,269**	$12,015	202%
	Medical:																		
610	Hospital	bed	22.32	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	78%	Midpoint of LUC 310 & LUC 720	38.66	$20,527	$169	$2,640	$0	**$17,887**	$3,968	351%
620	Nursing Home	1,000 sf	6.64	ITE 10th Edition	2.59	1.05	2.72	3.22	Appendix A: LUC 620	89%	Appendix A: LUC 620	5.14	$2,727	$25	$391	$48	**$2,288**	$369	520%
640	Animal Hospital/Veterinary Clinic	1,000 sf	24.20	Appendix A: LUC 640	1.90	1.05	2.00	2.50	Appendix A: LUC 640	70%	Appendix A: LUC 640	10.82	$5,748	$55	$859	$48	**$4,841**	$8,921	-46%
	Office:																		
710	General Office 50,000 sf or less[4]	1,000 sf	10.83	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	20.50	$11,491	$90	$1,406	$48	**$10,037**	$5,574	80%
710	General Office 50,001-100,000 sf[4]	1,000 sf	10.61	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	20.08	$11,257	$88	$1,375	$48	**$9,834**	$4,748	107%
710	General Office 100,001-200,000 sf[4]	1,000 sf	10.39	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	19.67	$11,024	$86	$1,343	$48	**$9,633**	$4,050	138%
710	General Office greater than 200,000 sf[4]	1,000 sf	10.18	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	19.27	$10,801	$85	$1,328	$48	**$9,425**	$3,455	173%
720	Small Medical/Dental Office (10,000 sf or less)	1,000 sf	23.83	Appendix A: LUC 720 Small Medical/Dental	5.55	1.25	6.94	7.44	Appendix A: LUC 720	89%	Appendix A: LUC 720	47.03	$26,358	$205	$3,203	$48	**$23,107**	$12,900	79%
720	Medical/Dental Office	1,000 sf	34.12	Appendix A: LUC 720	5.55	1.25	6.94	7.44	Appendix A: LUC 720	89%	Appendix A: LUC 720	67.33	$37,740	$294	$4,593	$48	**$33,099**	$12,900	157%
732	Post Office	1,000 sf	103.94	ITE 10th Edition	5.15	1.25	6.44	6.94	Same as LUC 710	49%	Previous Report	104.79	$58,736	$460	$7,186	$48	**$51,502**	$20,508	151%
	Retail:																		
815	Free-Standing Discount Store	1,000 sf	53.12	ITE 10th Edition	2.40	1.05	2.52	3.02	Same as LUC 820 (100-200k)	67%	Same as LUC 820 (100-200k)	28.66	$15,216	$140	$2,187	$48	**$12,981**	$5,884	121%
816	Hardware/Paint	1,000 sf	9.14	ITE 10th Edition	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	3.21	$1,702	$16	$250	$48	**$1,404**	$3,378	-58%
820	Retail/Tourist Retail: 50,000 sfgla or less[4]	1,000 sfgla	75.05	ITE 10th equation	1.87	1.05	1.96	2.46	Appendix A: Figure A-2	56%	Appendix A: Figure A-3	26.32	$13,975	$135	$2,109	$48	**$11,818**	$5,700	107%
820	Retail/Tourist Retail: 50,001-100,000 sfgla[4]	1,000 sfgla	60.12	ITE 10th equation	2.29	1.05	2.40	2.90	Appendix A: Figure A-2	62%	Appendix A: Figure A-3	28.58	$15,177	$141	$2,203	$48	**$12,926**	$6,135	111%
820	Retail/Tourist Retail: 100,001-200,000 sfgla[4]	1,000 sfgla	48.16	ITE 10th equation	2.40	1.05	2.52	3.02	Appendix A: Figure A-2	67%	Appendix A: Figure A-3	25.98	$13,795	$127	$1,984	$48	**$11,763**	$5,477	115%
820	Retail/Tourist Retail: 200,001-300,000 sfgla[4]	1,000 sfgla	42.30	ITE 10th equation	2.52	1.05	2.65	3.15	Appendix A: Figure A-2	71%	Appendix A: Figure A-3	25.43	$13,502	$123	$1,922	$48	**$11,532**	$5,307	117%
820	Retail/Tourist Retail: 300,001-400,000 sfgla[4]	1,000 sfgla	38.58	ITE 10th equation	2.64	1.05	2.77	3.27	Appendix A: Figure A-2	73%	Appendix A: Figure A-3	24.93	$13,235	$120	$1,875	$48	**$11,312**	$5,169	119%
820	Retail/Tourist Retail: 400,001-500,000 sfgla[4]	1,000 sfgla	35.92	ITE 10th equation	2.75	1.05	2.89	3.39	Appendix A: Figure A-2	75%	Appendix A: Figure A-3	24.88	$13,208	$119	$1,859	$48	**$11,301**	$5,135	120%
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla[4]	1,000 sfgla	28.78	ITE 10th equation	3.34	1.05	3.51	4.01	Appendix A: Figure A-2	81%	Appendix A: Figure A-3	26.14	$13,882	$122	$1,906	$48	**$11,928**	$5,319	124%
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla[4]	1,000 sfgla	27.14	ITE 10th equation	3.57	1.05	3.75	4.25	Appendix A: Figure A-2	82%	Appendix A: Figure A-3	26.66	$14,158	$123	$1,922	$48	**$12,188**	$5,412	125%
820	Retail/Tourist Retail: greater than 1,200,000 sfgla[4]	1,000 sfgla	25.84	ITE 10th equation	3.80	1.05	3.99	4.49	Appendix A: Figure A-2	83%	Appendix A: Figure A-3	27.34	$14,518	$125	$1,953	$48	**$12,517**	$5,534	126%
840/841	New/Used Auto Sales	1,000 sf	24.58	Appendix A: LUC 840/841	4.60	1.05	4.83	5.33	Appendix A: LUC 840/841	79%	Appendix A: LUC 840/841	29.97	$15,912	$135	$2,109	$48	**$13,755**	$6,276	119%
850	Supermarket	1,000 sf	106.64	Appendix A: LUC 850	2.08	1.05	2.18	2.68	Appendix A: LUC 850	56%	Appendix A: LUC 850	41.59	$22,086	$208	$3,249	$48	**$18,789**	$7,621	147%
853	Convenience Market w/Gas Pumps	1,000 sf	626.25	Appendix A: LUC 853	1.51	1.05	1.59	2.09	Appendix A: LUC 853	28%	Appendix A: LUC 853	89.08	$47,300	$477	$7,452	$48	**$39,800**	$20,411	95%
862	Home Improvement Superstore	1,000 sf	30.74	ITE 10th Edition	2.40	1.05	2.52	3.02	Same as LUC 820 (100-200k)	67%	Same as LUC 820 (100-200k)	16.58	$8,805	$81	$1,265	$48	**$7,492**	$3,059	145%
863	Electronics Superstore	1,000 sf	41.05	ITE 10th Edition	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	14.40	$7,644	$74	$1,156	$48	**$6,440**	$1,502	329%
880/881	Drug Store	1,000 sf	104.37	Appendix A: LUC 880/881	2.08	1.05	2.18	2.68	Appendix A: LUC 880/881	32%	Appendix A: LUC 880/881	23.26	$12,352	$117	$1,828	$48	**$10,476**	$11,160	-6%

Table E-3 (continued)
Calculated Transportation Impact Fee Schedule – Non-Urban/Suburban Fee District

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Services:																		
911	Bank/Savings Walk-In	1,000 sf	59.39	ITE 10th Edition (adjusted)	2.46	1.05	2.58	3.08	Same as LUC 912	46%	Same as LUC 912	22.52	$11,958	$110	$1,718	$146	**$10,094**	$11,525	-12%
912	Bank/Savings Drive-In	1,000 sf	102.66	Appendix A: LUC 912	2.46	1.05	2.58	3.08	Appendix A: LUC 912	46%	Appendix A: LUC 912	38.93	$20,670	$189	$2,953	$146	**$17,571**	$11,525	52%
925	Drinking Place	1,000 sf	113.60	ITE 10th Edition (adjusted)	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	39.84	$21,153	$204	$3,187	$48	**$17,918**	$3,774	375%
931	Quality Restaurant	1,000 sf	86.03	Appendix A: LUC 931	3.14	1.05	3.30	3.80	Appendix A: LUC 931	77%	Appendix A: LUC 931	69.84	$37,086	$328	$5,124	$98	**$31,864**	$14,253	124%
932	High-Turnover Restaurant	1,000 sf	106.26	Appendix A: LUC 932	3.17	1.05	3.33	3.83	Appendix A: LUC 932	71%	Appendix A: LUC 932	80.27	$42,622	$376	$5,874	$98	**$36,650**	$16,974	116%
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	482.53	Appendix A: LUC 934	2.05	1.05	2.15	2.65	Appendix A: LUC 934	58%	Appendix A: LUC 934	192.25	$102,082	$966	$15,091	$115	**$86,876**	$38,463	126%
942	Auto Service	1,000 sf	28.19	Appendix A: LUC 942	3.62	1.05	3.80	4.30	Appendix A: LUC 942	72%	Appendix A: LUC 942	24.64	$13,085	$114	$1,781	$33	**$11,271**	$6,891	64%
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	172.01	ITE 10th Edition	1.90	1.05	2.00	2.50	Appendix A: LUC 944/945	23%	Appendix A: LUC 944/945	25.28	$13,424	$129	$2,015	$0	**$11,409**	$4,660	145%
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	205.36	ITE 10th Edition	1.90	1.05	2.00	2.50	Appendix A: LUC 944/945	23%	Appendix A: LUC 944/945	30.18	$16,026	$154	$2,406	$0	**$13,620**	$4,660	192%
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	230.52	ITE 10th Edition	1.90	1.05	2.00	2.50	Same as LUC 945	23%	Same as LUC 945	33.88	$17,990	$173	$2,703	$0	**$15,287**	$4,660	228%
947	Self-Service Car Wash	wash stn.	108.00	ITE 10th Edition	2.18	1.05	2.29	2.79	Appendix A: LUC 947	68%	Appendix A: LUC 947	53.73	$28,532	$267	$4,171	$17	**$24,344**	$10,190	139%
	Industrial:																		
110	General Light Industrial	1,000 sf	4.96	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	7.89	$4,421	$35	$547	$17	**$3,857**	$2,163	78%
140	Manufacturing	1,000 sf	3.93	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	6.25	$3,503	$28	$437	$17	**$3,049**	$1,185	157%
150	Warehousing	1,000 sf	1.74	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	2.77	$1,551	$12	$187	$17	**$1,347**	$1,107	22%
151	Mini-Warehouse	1,000 sf	1.49	Appendix A: LUC 151	3.51	1.05	3.69	4.19	Midpoint of LUC 710 & LUC 820 <50k	92%	Same as LUC 710	1.62	$906	$7	$109	$17	**$780**	$396	97%
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	1.40	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	2.23	$1,248	$10	$156	$17	**$1,075**	$396	171%

1) Initial trip length multiplied by the trip length adjustment factor
2) 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
3) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees were adopted at 42 percent in 2012 and phased to 56 percent in 2014. Senior Adult Housing – Detached (LUC 251) rate is shown for Senior Adult Housing – Attached (LUC 252). Mini-Warehouse (LUC 151) rate is shown for High-Cube Warehouse (LUC 154)
4) The trip rates for office and retail/shopping center use an end-point regression value
5) The trip length for Senior Adult Housing Detached was based on the trip length for LUC 252, but was then adjusted by 80% based on the relationship of the trip lengths for LUC 210 (Single Family Detached) and LUC 220 (Multi-Family)
6) The percent new trips for schools was estimated at 90 percent, based on LUC 710, but then adjusted to 80% to provide a conservative fee rate. This adjustment reflects the nature of the elementary and middle school uses where attendees are unable to drive and are dropped off by parents on their way to another destination

*Refer to the Trip Characteristics Database section of Appendix A for additional support detail and backup information

Table E-4
Calculated Transportation Impact Fee Schedule – Rural Fee District

	Gasoline Tax								Unit Cost per Lane Mile:	$4,540,000						Interstate/Toll Facility Adjustment Factor:	36.1%	
	$$ per gallon to capital:	$0.135		City Revenues:	$0.001				Average VMC per Lane Mile:	7,200	8,100					Cost per VMC (Residential/Office/Industrial):	$630.56	
	Facility life (years):	25		County Revenues:	$0.049				Fuel Efficiency:	18.92 mpg						Cost per VMC (Other Non-Residential):	$560.49	
	Interest rate:	4.0%		State Revenues:	$0.085				Effective days per year:	365								

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Residential:																		
210	Single Family (Detached) - 1,200 sf or less	du	6.15	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	16.27	$10,259	$70	$1,094	$52	**$9,113**	$3,898	134%
210	Single Family (Detached) - 1,201 to 2,000 sf	du	7.81	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	20.66	$13,028	$89	$1,390	$52	**$11,586**	$3,898	197%
210	Single Family (Detached) - 2,001 to 3,500 sf	du	9.63	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	25.48	$16,064	$110	$1,718	$52	**$14,294**	$3,898	267%
210	Single Family (Detached) - greater than 3,500 sf	du	10.07	PUMS Tiering Analysis (Appendix A)	6.62	1.25	8.28	8.78	Appendix A: LUC 210	100%	n/a	26.64	$16,798	$115	$1,797	$52	**$14,949**	$3,898	284%
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 floors)	du	7.32	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	14.92	$9,409	$66	$1,031	$29	**$8,349**	$2,524	231%
221	Multi-Family Housing (Mid-Rise, 3-10 floors)	du	5.44	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	11.09	$6,992	$49	$765	$29	**$6,198**	$2,524	146%
222	Multi-Family Housing (High-Rise, >10 floors)	du	4.45	ITE 10th Edition	5.10	1.25	6.38	6.88	Appendix A: LUC 220/221/222	100%	n/a	9.07	$5,720	$40	$625	$29	**$5,066**	$1,598	217%
225	Student Housing (Adjacent to Campus)	bedroom	3.15	ITE 10th Edition	2.55	1.25	3.19	3.69	Same as LUC 220 (adjusted)	100%	n/a	3.21	$2,024	$15	$234	$10	**$1,780**	-	-
225	Student Housing (Over 1/2 mile from Campus)	bedroom	3.97	ITE 10th Edition	3.83	1.25	4.79	5.29	Same as LUC 220 (adjusted)	100%	n/a	6.08	$3,831	$27	$422	$10	**$3,399**	-	-
231	Mid-Rise Residential w/1st floor Commercial	du	3.44	ITE 10th Edition	5.10	1.25	6.38	6.88	Same as LUC 220	100%	n/a	7.01	$4,422	$31	$484	$29	**$3,909**	-	-
232	High-Rise Residential w/1st floor Commercial	du	2.01	ITE 10th Edition (adjusted)	5.10	1.25	6.38	6.88	Same as LUC 220	100%	n/a	4.10	$2,584	$18	$281	$29	**$2,274**	-	-
240	Mobile Home Park	du	4.17	Appendix A: LUC 240	4.60	1.25	5.75	6.25	Appendix A: LUC 240	100%	n/a	7.66	$4,831	$34	$531	$8	**$4,292**	$1,436	199%
251	Senior Adult Housing - Detached (Retirement Community/Age-Restricted Single Family)	du	3.50	Appendix A: LUC 251	5.42	1.25	6.78	7.28	Appendix A: LUC 251	100%	n/a	7.58	$4,781	$33	$516	$29	**$4,236**	$1,274	232%
252	Senior Adult Housing - Attached (Retirement Community/Age-Restricted Single Family)	du	3.33	Appendix A: LUC 252	4.34	1.25	5.43	5.93	Same as LUC 251 (adjusted)[5]	100%	n/a	5.78	$3,643	$26	$406	$29	**$3,208**	$1,274	152%
265	Time Share	du	8.63	ITE 10th Edition	3.97	1.25	4.96	5.46	Previous Report	100%	n/a	13.68	$8,624	$61	$953	$52	**$7,619**	$2,076	267%
	Lodging:																		
310	Hotel/Tourist Hotel	room	5.55	Appendix A: LUC 310	6.26	1.05	6.57	7.07	Appendix A: LUC 310	66%	Appendix A: LUC 310	7.69	$4,310	$34	$531	$33	**$3,746**	$1,978	89%
320	Motel	room	3.35	ITE 10th Edition	4.34	1.05	4.56	5.06	Appendix A: LUC 320	77%	Appendix A: LUC 320	3.76	$2,106	$17	$266	$17	**$1,823**	$1,411	29%
	Recreational:																		
430	Golf Course	acre	3.74	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	90%	Based on LUC 710	7.47	$4,189	$33	$516	$65	**$3,608**	$2,267	59%
437	Bowling Alley	1,000 sf	13.00	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	90%	Based on LUC 710	20.22	$11,335	$90	$1,406	$48	**$9,881**	$11,604	-15%
444	Movie Theater with or without Matinee	1,000 sf	82.30	Appendix A: LUC 444	2.24	1.05	2.35	2.85	Appendix A: LUC 444	87%	Appendix A: LUC 444	53.76	$30,132	$266	$4,155	$48	**$25,929**	$11,151	133%
491	Racquet Club	1,000 sf	19.70	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	94%	Same as LUC 492	32.01	$17,940	$143	$2,234	$48	**$15,658**	$5,106	207%
492	Health/Fitness Club	1,000 sf	34.50	ITE 10th Edition (adjusted)	5.15	1.05	5.41	5.91	Same as LUC 710	94%	Appendix A: LUC 492	56.06	$31,418	$250	$3,906	$48	**$27,464**	$11,974	129%
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	21.33	Appendix A: LUC N/A Dance Studio	3.37	1.05	3.54	4.04	Appendix A: LUC N/A Specialty Retail	85%	Appendix A: LUC N/A Specialty Retail	20.51	$11,493	$95	$1,484	$48	**$9,961**	-	-
	Institutional:																		
522	School	1,000 sf	20.17	ITE 10th Edition	3.31	1.05	3.48	3.98	50% of LUC 210: Travel Demand Model	80%	Based on LUC 710 (adjusted)[6]	17.94	$10,056	$84	$1,312	$48	**$8,696**	$6,974	25%
560	Public Assembly	1,000 sf	6.95	ITE 10th Edition	3.91	1.05	4.11	4.61	Midpoint of LUC 710 & LUC 820 (App. A)	90%	Based on LUC 710	8.21	$4,604	$38	$594	$0	**$4,010**	$4,614	-13%
565	Day Care	1,000 sf	49.63	Appendix A: LUC 565	2.03	1.05	2.13	2.63	Appendix A: LUC 565	73%	Appendix A: LUC 565	24.66	$13,819	$124	$1,937	$48	**$11,834**	$7,043	68%

Table E-4 (continued)
Calculated Transportation Impact Fee Schedule – Rural Fee District

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Institutional:																		
590	Library	1,000 sf	72.05	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	49%	Previous Report	78.39	$43,939	$343	$5,358	$0	**$38,581**	$12,015	221%
	Medical:																		
610	Hospital	bed	22.32	ITE 10th Edition	6.62	1.05	6.95	7.45	Same as LUC 210	78%	Midpoint of LUC 310 & LUC 720	38.66	$21,668	$169	$2,640	$0	**$19,028**	$3,968	380%
620	Nursing Home	1,000 sf	6.64	ITE 10th Edition	2.59	1.05	2.72	3.22	Appendix A: LUC 620	89%	Appendix A: LUC 620	5.14	$2,878	$25	$391	$48	**$2,439**	$369	561%
640	Animal Hospital/Veterinary Clinic	1,000 sf	24.20	Appendix A: LUC 640	1.90	1.05	2.00	2.50	Appendix A: LUC 640	70%	Appendix A: LUC 640	10.82	$6,067	$55	$859	$48	**$5,160**	$8,921	-42%
	Office:																		
710	General Office 50,000 sf or less[4]	1,000 sf	10.83	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	20.50	$12,927	$90	$1,406	$48	**$11,473**	$5,574	106%
710	General Office 50,001-100,000 sf[4]	1,000 sf	10.61	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	20.08	$12,664	$88	$1,375	$48	**$11,241**	$4,748	137%
710	General Office 100,001-200,000 sf[4]	1,000 sf	10.39	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	19.67	$12,402	$86	$1,343	$48	**$11,011**	$4,050	172%
710	General Office greater than 200,000 sf[4]	1,000 sf	10.18	ITE 10th equation	5.15	1.25	6.44	6.94	Appendix A: LUC 710	92%	Appendix A: LUC 710	19.27	$12,151	$85	$1,328	$48	**$10,775**	$3,455	212%
720	Small Medical/Dental Office (10,000 sf or less)	1,000 sf	23.83	Appendix A: LUC 720 Small Medical/Dental	5.55	1.25	6.94	7.44	Appendix A: LUC 720	89%	Appendix A: LUC 720	47.03	$29,653	$205	$3,203	$48	**$26,402**	$12,900	105%
720	Medical/Dental Office	1,000 sf	34.12	Appendix A: LUC 720	5.55	1.25	6.94	7.44	Appendix A: LUC 720	89%	Appendix A: LUC 720	67.33	$42,458	$294	$4,593	$48	**$37,817**	$12,900	193%
732	Post Office	1,000 sf	103.94	ITE 10th Edition	5.15	1.25	6.44	6.94	Same as LUC 710	49%	Previous Report	104.79	$66,079	$460	$7,186	$48	**$58,845**	$20,508	187%
	Retail:																		
815	Free-Standing Discount Store	1,000 sf	53.12	ITE 10th Edition	2.40	1.05	2.52	3.02	Same as LUC 820 (100-200k)	67%	Same as LUC 820 (100-200k)	28.66	$16,061	$140	$2,187	$48	**$13,826**	$5,884	135%
816	Hardware/Paint	1,000 sf	9.14	ITE 10th Edition	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	3.21	$1,797	$16	$250	$48	**$1,499**	$3,378	-56%
820	Retail/Tourist Retail: 50,000 sfgla or less[4]	1,000 sfgla	75.05	ITE 10th equation	1.87	1.05	1.96	2.46	Appendix A: Figure A-2	56%	Appendix A: Figure A-3	26.32	$14,751	$135	$2,109	$48	**$12,594**	$5,700	121%
820	Retail/Tourist Retail: 50,001-100,000 sfgla[4]	1,000 sfgla	60.12	ITE 10th equation	2.29	1.05	2.40	2.90	Appendix A: Figure A-2	62%	Appendix A: Figure A-3	28.58	$16,020	$141	$2,203	$48	**$13,769**	$6,135	124%
820	Retail/Tourist Retail: 100,001-200,000 sfgla[4]	1,000 sfgla	48.16	ITE 10th equation	2.40	1.05	2.52	3.02	Appendix A: Figure A-2	67%	Appendix A: Figure A-3	25.98	$14,561	$127	$1,984	$48	**$12,529**	$5,477	129%
820	Retail/Tourist Retail: 200,001-300,000 sfgla[4]	1,000 sfgla	42.30	ITE 10th equation	2.52	1.05	2.65	3.15	Appendix A: Figure A-2	71%	Appendix A: Figure A-3	25.43	$14,252	$123	$1,922	$48	**$12,282**	$5,307	131%
820	Retail/Tourist Retail: 300,001-400,000 sfgla[4]	1,000 sfgla	38.58	ITE 10th equation	2.64	1.05	2.77	3.27	Appendix A: Figure A-2	73%	Appendix A: Figure A-3	24.93	$13,970	$120	$1,875	$48	**$12,047**	$5,169	133%
820	Retail/Tourist Retail: 400,001-500,000 sfgla[4]	1,000 sfgla	35.92	ITE 10th equation	2.75	1.05	2.89	3.39	Appendix A: Figure A-2	75%	Appendix A: Figure A-3	24.88	$13,942	$119	$1,859	$48	**$12,035**	$5,135	134%
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla[4]	1,000 sfgla	28.78	ITE 10th equation	3.34	1.05	3.51	4.01	Appendix A: Figure A-2	81%	Appendix A: Figure A-3	26.14	$14,653	$122	$1,906	$48	**$12,699**	$5,319	139%
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla[4]	1,000 sfgla	27.14	ITE 10th equation	3.57	1.05	3.75	4.25	Appendix A: Figure A-2	82%	Appendix A: Figure A-3	26.66	$14,945	$123	$1,922	$48	**$12,975**	$5,412	140%
820	Retail/Tourist Retail: greater than 1,200,000 sfgla[4]	1,000 sfgla	25.84	ITE 10th equation	3.80	1.05	3.99	4.49	Appendix A: Figure A-2	83%	Appendix A: Figure A-3	27.34	$15,324	$125	$1,953	$48	**$13,323**	$5,534	141%
840/841	New/Used Auto Sales	1,000 sf	24.58	Appendix A: LUC 840/841	4.60	1.05	4.83	5.33	Appendix A: LUC 840/841	79%	Appendix A: LUC 840/841	29.97	$16,796	$135	$2,109	$48	**$14,639**	$6,276	133%
850	Supermarket	1,000 sf	106.64	Appendix A: LUC 850	2.08	1.05	2.18	2.68	Appendix A: LUC 850	56%	Appendix A: LUC 850	41.59	$23,313	$208	$3,249	$48	**$20,016**	$7,621	163%
853	Convenience Market w/Gas Pumps	1,000 sf	626.25	Appendix A: LUC 853	1.51	1.05	1.59	2.09	Appendix A: LUC 853	28%	Appendix A: LUC 853	89.08	$49,928	$477	$7,452	$48	**$42,428**	$20,411	108%
862	Home Improvement Superstore	1,000 sf	30.74	ITE 10th Edition	2.40	1.05	2.52	3.02	Same as LUC 820 (100-200k)	67%	Same as LUC 820 (100-200k)	16.58	$9,294	$81	$1,265	$48	**$7,981**	$3,059	161%
863	Electronics Superstore	1,000 sf	41.05	ITE 10th Edition	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	14.40	$8,069	$74	$1,156	$48	**$6,865**	$1,502	357%
880/881	Drug Store	1,000 sf	104.37	Appendix A: LUC 880/881	2.08	1.05	2.18	2.68	Appendix A: LUC 880/881	32%	Appendix A: LUC 880/881	23.26	$13,038	$117	$1,828	$48	**$11,162**	$11,160	0%

Table E-4 (continued)
Calculated Transportation Impact Fee Schedule – Rural Fee District

ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source*	Initial Trip Length	Trip Length Adj. Factor	Assessable Trip Length[1]	Total Trip Length	Trip Length Source*	% New Trips	% New Trips Source*	Net VMT[2]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee[3]	% Change
	Services:																		
911	Bank/Savings Walk-In	1,000 sf	59.39	ITE 10th Edition (adjusted)	2.46	1.05	2.58	3.08	Same as LUC 912	46%	Same as LUC 912	22.52	$12,622	$110	$1,718	$146	**$10,758**	$11,525	-7%
912	Bank/Savings Drive-In	1,000 sf	102.66	Appendix A: LUC 912	2.46	1.05	2.58	3.08	Appendix A: LUC 912	46%	Appendix A: LUC 912	38.93	$21,818	$189	$2,953	$146	**$18,719**	$11,525	62%
925	Drinking Place	1,000 sf	113.60	ITE 10th Edition (adjusted)	1.87	1.05	1.96	2.46	Same as LUC 820 (<50k)	56%	Same as LUC 820 (<50k)	39.84	$22,329	$204	$3,187	$48	**$19,094**	$3,774	406%
931	Quality Restaurant	1,000 sf	86.03	Appendix A: LUC 931	3.14	1.05	3.30	3.80	Appendix A: LUC 931	77%	Appendix A: LUC 931	69.84	$39,147	$328	$5,124	$98	**$33,925**	$14,253	138%
932	High-Turnover Restaurant	1,000 sf	106.26	Appendix A: LUC 932	3.17	1.05	3.33	3.83	Appendix A: LUC 932	71%	Appendix A: LUC 932	80.27	$44,989	$376	$5,874	$98	**$39,017**	$16,974	130%
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	482.53	Appendix A: LUC 934	2.05	1.05	2.15	2.65	Appendix A: LUC 934	58%	Appendix A: LUC 934	192.25	$107,753	$966	$15,091	$115	**$92,547**	$38,463	141%
942	Auto Service	1,000 sf	28.19	Appendix A: LUC 942	3.62	1.05	3.80	4.30	Appendix A: LUC 942	72%	Appendix A: LUC 942	24.64	$13,812	$114	$1,781	$33	**$11,998**	$6,891	74%
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	172.01	ITE 10th Edition	1.90	1.05	2.00	2.50	Appendix A: LUC 944/945	23%	Appendix A: LUC 944/945	25.28	$14,169	$129	$2,015	$0	**$12,154**	$4,660	161%
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	205.36	ITE 10th Edition	1.90	1.05	2.00	2.50	Appendix A: LUC 944/945	23%	Appendix A: LUC 944/945	30.18	$16,917	$154	$2,406	$0	**$14,511**	$4,660	211%
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	230.52	ITE 10th Edition	1.90	1.05	2.00	2.50	Same as LUC 945	23%	Same as LUC 945	33.88	$18,989	$173	$2,703	$0	**$16,286**	$4,660	249%
947	Self-Service Car Wash	wash stn.	108.00	ITE 10th Edition	2.18	1.05	2.29	2.79	Appendix A: LUC 947	68%	Appendix A: LUC 947	53.73	$30,117	$267	$4,171	$17	**$25,929**	$10,190	154%
	Industrial:																		
110	General Light Industrial	1,000 sf	4.96	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	7.89	$4,974	$35	$547	$17	**$4,410**	$2,163	104%
140	Manufacturing	1,000 sf	3.93	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	6.25	$3,941	$28	$437	$17	**$3,487**	$1,185	194%
150	Warehousing	1,000 sf	1.74	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	2.77	$1,745	$12	$187	$17	**$1,541**	$1,107	39%
151	Mini-Warehouse	1,000 sf	1.49	Appendix A: LUC 151	3.51	1.05	3.69	4.19	Midpoint of LUC 710 & LUC 820 <50k	92%	Same as LUC 710	1.62	$1,019	$7	$109	$17	**$893**	$396	126%
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	1.40	ITE 10th Edition	5.15	1.05	5.41	5.91	Same as LUC 710	92%	Same as LUC 710	2.23	$1,404	$10	$156	$17	**$1,231**	$396	211%

1) Initial trip length multiplied by the trip length adjustment factor
2) 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
3) Source: Orange County Planning Division; Community, Environment & Development Services Department. Fees were adopted at 42 percent in 2012 and phased to 56 percent in 2014. Senior Adult Housing – Detached (LUC 251) rate is shown for Senior Adult Housing – Attached (LUC 252). Mini-Warehouse (LUC 151) rate is shown for High-Cube Warehouse (LUC 154)
4) The trip rates for office and retail/shopping center use an end-point regression value
5) The trip length for Senior Adult Housing Detached was based on the trip length for LUC 252, but was then adjusted by 80% based on the relationship of the trip lengths for LUC 210 (Single Family Detached) and LUC 220 (Multi-Family)
6) The percent new trips for schools was estimated at 90 percent, based on LUC 710, but then adjusted to 80% to provide a conservative fee rate. This adjustment reflects the nature of the elementary and middle school uses where attendees are unable to drive and are dropped off by parents on their way to another destination

*Refer to the Trip Characteristics Database section of Appendix A for additional support detail and backup information

APPENDIX F
Traffic Impact Studies:
PM Peak Hour Pass-By Rates

Appendix F: Traffic Impact Studies: PM Peak Hour Pass-By Rates

This appendix presents the PM peak hour pass-by rates that Orange County uses for traffic impact fee studies. This table is included for informational purposes only and is not related to the transportation impact fee study rate calculations.

The pass-by rates presented are used for specific site impact analysis to ensure safety and public welfare guidelines are met prior to the development of a given site. Though similar in name to the percent new trips values used in the impact fee calculation, these pass-by rates do not provide a comparable measure and are only used for traffic impact studies of specific sites.

Table F-1
PM Peak Hour Pass-By Rates

ITE LUC	Land Use	Unit	% New Trips	% Pass-by
	RESIDENTIAL:			
210	Single Family (Detached)	du	100%	0%
220	Multi-Family Housing/Townhouse (Low-Rise, 1-2 Floors)	du	100%	0%
221	Multi-Family Housing (Mid-Rise, 3-10 Floors)	du	100%	0%
222	Multi-Family Housing (High-Rise, >10 Floors)	du	100%	0%
225	Student Housing (ITE - Adjacent to Campus)	bedroom	100%	0%
225	Student Housing (ITE - Over 1/2 Mile from Campus)	bedroom	100%	0%
231	Mid-Rise Residential w/1st Floor Commercial	du	100%	0%
232	High-Rise Residential w/1st Floor Commercial	du	100%	0%
240	Mobile Home Park	du	100%	0%
251	Senior Adult Housing - Detached (Retirement Community/Age-Restricted Single-Family)	du	100%	0%
252	Senior Adult Housing - Attached (Retirement Community/Age-Restricted Single-Family)	du	100%	0%
265	Time Share	du	100%	0%
	LODGING:			
310	Hotel/Tourist Hotel	room	100%	0%
320	Motel	room	100%	0%
	RECREATIONAL:			
430	Golf Course	acre	100%	0%
437	Bowling Alley	1,000 sf	100%	0%
444	Movie Theater	1,000 sf	100%	0%
491	Racquet Club	1,000 sf	100%	0%
492	Health/Fitness Club	1,000 sf	100%	0%
n/a	Dance Studio (Martial Arts/Music Lessons)	1,000 sf	100%	0%
	INSTITUTIONAL:			
522	School	1,000 sf	100%	0%
560	Public Assembly	1,000 sf	100%	0%
565	Day Care	1,000 sf	100%	0%
590	Library	1,000 sf	100%	0%
	MEDICAL:			
610	Hospital	bed	100%	0%
620	Nursing Home	1,000 sf	100%	0%
640	Animal Hospital/Veterinary Clinic	1,000 sf	100%	0%
	OFFICE:			
710	General Office 50,000 sf or less	1,000 sf	100%	0%
710	General Office 50,001-100,000 sf	1,000 sf	100%	0%
710	General Office 100,001-200,000 sf	1,000 sf	100%	0%
710	General Office greater than 200,000 sf	1,000 sf	100%	0%
720	Small Medical/Dental Office (10,000 sf or less)	1,000 sf	100%	0%
720	Medical/Dental Office	1,000 sf	100%	0%
732	Post Office	1,000 sf	100%	0%
	RETAIL:			
815	Free-Standing Discount Store	1,000 sf	83%	17%
816	Hardware/Paint Store	1,000 sf	74%	26%
820	Retail/Tourist Retail: 50,000 sfgla or less	1,000 sfgla	66%	34%
820	Retail/Tourist Retail: 50,001-100,000 sfgla	1,000 sfgla	66%	34%
820	Retail/Tourist Retail:100,001-200,000 sfgla	1,000 sfgla	66%	34%
820	Retail/Tourist Retail: 200,001-300,000 sfgla	1,000 sfgla	66%	34%
820	Retail/Tourist Retail: 300,001-400,000 sfgla	1,000 sfgla	66%	34%
820	Retail/Tourist Retail: 400,001-500,000 sfgla	1,000 sfgla	66%	34%
820	Retail/Tourist Retail: 500,001-1,000,000 sfgla	1,000 sfgla	66%	34%
820	Retail/Tourist Retail: 1,000,001-1,200,000 sfgla	1,000 sfgla	66%	34%
820	Retail/Tourist Retail: greater than 1,200,000 sfgla	1,000 sfgla	66%	34%
840/841	New/Used Auto Sales	1,000 sf	100%	0%
850	Supermarket	1,000 sf	64%	36%
853	Convenience Market w/Gas Pumps	1,000 sf	36%	64%
862	Home Improvement Superstore	1,000 sf	52%	48%
863	Electronics Superstore	1,000 sf	61%	39%
880/881	Drug Store	1,000 sf	47%	53%

Table F-1 (continued)
PM Peak Hour Pass-By Rates

ITE LUC	Land Use	Unit	% New Trips	% Pass-by
	SERVICES:			
911	Bank/Savings Walk-In	1,000 sf	100%	0%
912	Bank/Savings Drive-In	1,000 sf	53%	47%
925	Drinking Place	1,000 sf	100%	0%
931	Quality Restaurant	1,000 sf	56%	44%
932	High-Turnover Restaurant	1,000 sf	57%	43%
934	Fast Food Restaurant w/Drive-Thru	1,000 sf	50%	50%
942	Auto Service	1,000 sf	100%	0%
944	Gas Station with or w/o Convenience Market <2,000 sq ft	fuel pos.	43%	57%
945	Gas Station w/Convenience Market 2,000-2,999 sq ft	fuel pos.	43%	57%
960	Gas Station w/Convenience Market 3,000+ sq ft	fuel pos.	43%	57%
947	Self-Service Car Wash	wash station	100%	0%
	INDUSTRIAL:			
110	General Light Industrial	1,000 sf	100%	0%
140	Manufacturing	1,000 sf	100%	0%
150	Warehouse	1,000 sf	100%	0%
151	Mini-Warehouse	1,000 sf	100%	0%
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 sf	100%	0%

Source: ITE Trip Generation Handbook, 3rd Edition and Orange County