ALTERNATIVE TO CONCURRENCY

MIAMI LAKES

Growing Beautifully

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Executive Summary

Miami Lakes is to create an alternative to concurrency program in order to assist in managing growth and incentivizing the implementation of a multimodal transportation network. This report discusses the reasons why this is important, like traffic, the concept of mobility, and the evolution of concurrency. It details the data collection and analysis utilized to evaluate options and make a recommendation, and finally suggests a program methodology and an implementation plan.

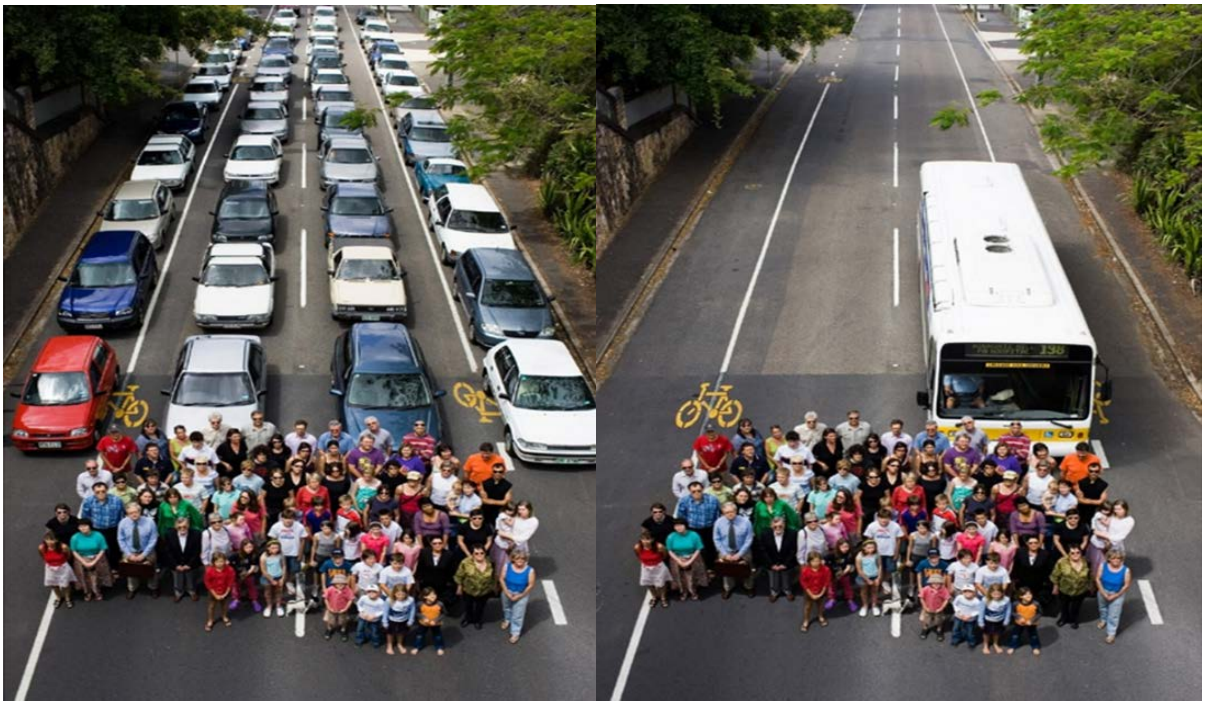
Traffic

A primary issue in every city in our county is traffic. Congestion on our roads is ever worsening, so much so that moving around is not only time consuming and frustrating, but it is placing an economic burden on our workers, employers and is contributing to a negative impact on our quality of life.

As a high growth State, Florida has grappled with effectively managing growth for decades. Recently the State loosened its growth management rules. Concurrency, or the practice of having supporting infrastructure in place at the time of development, has been made discretionary. Progressive communities realize that managing growth is imperative. Yet the old methods of supplying transportation concurrency need to be changed, to keep with future methods of supplying mobility.

Mobility

Since the early part of our development as a county, the ability to move about town has been provided by roads. Almost all communities which developed at the time of Miami Dade County, in the post WWII era, have roadway based infrastructure systems. The fact is that the capacity on these roadways is running out. Regionally we are at a crisis point. Additional capacity is needed. This can come in many forms. It will be provided, yet cities must choose which form they prefer. We could expand our roadway systems. This would entail adding more automobile lanes on the network. This would typically be done beside, above or below the existing lanes. Or we could use the existing automobile lanes differently, by using higher capacity vehicles, like transit, while diversifying the transportation system by making space for other modes like walking and biking on the existing right of way space. By utilizing alternative modes, roadway space can be consumed more efficiently, enabling them to move more people in the existing space, ultimately requiring less costly upgrades to the physical systems. Miami Lakes, like a small but growing number of progressive communities has taken the approach of providing multimodal mobility. This means capacity for cars, bicycles, pedestrians and transit all on our rights of way, as appropriate.



Without alternative modes, roadways would be filled with vehicles which take up more space, driving for more and more demand for ROW to be developed, and funded by development fees.

Concurrency

Currently, the Town may assess fees based on roadway concurrency, levying a fee based on future needs and LOS maintenance. The Town is moving to consider an alternative to concurrency by employing a mobility based fee. State law says the Town of Miami Lakes is allowed to enact Concurrency, or it may choose not to use Concurrency, and utilize an alternative system to assess fees.

Recent legislation also allows for flexibility for how fees are collected. It allows the pooling of multiple fees to fund a single, regionally significant system. However, fees cannot be utilized to fund operations and maintenance. State statutes also require that the collection of fees must be based on the most recent local data. The levels of service that communities desire to live up to, must be reasonable.

The Evolution

With the new approach to providing mobility, must come a new approach to managing growth. Transportation Concurrency until very recently time has been completely roadway based. Historically cities set roadway levels of service (LOS A, B, C, D, E, F) and attempted to maintain those by adding to the roadways automobile capacity by funding automobile projects. By the late 1990's traditional capacity in urban areas began to run out, and the negative effects of no growth threatened the economies of local communities. Concurrency evolved and was expanded, to count capacity on an areawide basis, as opposed to road by road. The Transportations Concurrency Management Areas moved in a more multimodal direction. Today, in order to ensure that the multimodal projects being planned, levels of service in each of these modes, needs to be codified in local comprehensive plans. Then concurrency systems to measure and track remaining capacities in each mode need to be put in place to assist in funding the capital improvement programs that would implement these projects.

HOW FLORIDA'S GROWTH HAS LED TO TRANSPORTATION CHALLENGES

As the economy rebounds and cities compete for appropriate development, better, more efficient, more effective and more business friendly methods of reviewing development and implementing concurrency must be sought. This system being suggested herein will streamline the development review process, provide flexibility for the developers, and resulting in higher quality development.

Implementing such a system is a relatively complex undertaking, requiring an assessment of the law, data collection and analysis of the transportation and land use systems, the setting of goals, objectives and policies, the development of methodologies and the implementation of a management system, through processes and the modification of the Comprehensive Plan and Land Development Code.

The primary goals of this effort are:

- To implement a multimodal concurrency program
- To incentivize high quality multimodal oriented development design

This project seeks to assure that the multimodal transportation infrastructure, necessary to support the Town's prescribed level of service standards as adopted in its comprehensive plan, is in place at the time of development. It further seeks to have developments contribute to the funding and implementation of those projects in order to mitigate the developments impact to the multimodal transportation network. Additionally the project will incentivize quality multimodal oriented urban design.

Under this system, a bank of multimodal projects and the cost of their implementation will be arrived at by projecting needs across all modes into the future, based on anticipated development as defined on the City's Future Land Use Map. Facilities whose level of service fall below those thresholds placed in the Comprehensive Plan, will be brought into compliance. The cost of those projects will be divided by the number of trips anticipated to result from the development over the planning horizon, as specified in the Comprehensive Plan, Land Development Code and Future Land Use Map, and a cost per trip will be arrived at.

As part of a proportionate fair-share system, developers will be required to contribute a certain dollar amount based on the number of trips they ultimately generate. The Town will implement its master plan with these funds. Developers will have the opportunity to gain credits which will enable them to lessen the amount paid, by implement one or more multimodal oriented urban design aspects, or policy initiatives at their development site.

Money generated by this program will go into a dedicated mobility fund, which will be used to implement the projects in the project bank. The result of all this will be a flexible system which will incentivize higher quality development and the building of a multimodal transportation system.

Analysis

This effort has been underpinned though the collection and analysis of data. The Town's existing transportation projects reports such as the Transportation Master Plan (TMP), Greenways and Trails Master Plan, Safe Route to School, and the Green Transportation Alternatives Program (TAP) were each reviewed to determine the Town's transportation infrastructure needs. Each of these reports categorizes projects into various modal categories including: roadway, bike/pedestrian, transit, and Policy (TDM), which were further analyzed by class, location and cost to create the impact fees formula. Land use data was collected regarding the existing land use and the future land use of each parcel within the Town, to better determine the future potential population and needs.

The Law

There was also an analysis of the law and what it allows, as well as methodological approaches to achieving the goals.

Concurrency, while now discretionary, is allowed. The law states that fees that can be levied by local governments per state statutes are separate from Miami-Dade County's, and must meet proportionality rules. The law additionally, explicitly encourages alternatives/multimodal policies to be adopted. It listed things ranging from credits to mixed use development and establishing multimodal LOS. The law leaves much of the defining language that to the local governments, and allows for the pooling of multiple fees for regionally significant transit facilities. Miami Lakes is utilizing these provisions.

Identification of Strategies

Five options were evaluated for the implementation of an alternative to concurrency plan.

1. "Conditional" Concurrency:

   An attempt to achieve mode split standards. An indirect approach to funding multimodal projects. Difficult to execute.

2. Mobility Fee (Standards – Consumption Based):

   Based on "person trips". Each development charged the incremental value of the facilities needed to service it. Difficult to estimate.

3. Mobility Fee (Plans - Based):

   Based on adopted plans allowing for specific projects derived from local need, analysis and professional standards. Each infrastructure has its own capacity, and level of service

standard to be achieved. Fee based on cost of implementing plans in order to accommodate future growth. Meets the Dual Rational Nexus test.

4. Multimodal Concurrency Fee:

   Concurrency expanded for multimodal LOS, based on a weighted average of each mode, adding up to 100%. Allows more freedom in the funding scheme. Perpetuates predominant mode of travel. Costly to implement.

5. Multimodal Impact Fee and Roadway Impact Fee Hybrid:

   Combings two methodologies. Total trips estimated for a development, impact then projected and fees assed per mode. Each fee can be different. Trip transfer credits can be purchased by developer based on policies. Potential for underfunding. Easy to implement.

Recommendation

After reviewing the various options for changes to the current concurrency system, it is recommended that Alternative 3 provides the method most likely to provide the results desired by the goals and policy direction that serves as the impetus behind this study. Key factors for this evaluation include ease of implementation and administration, ease of fee upkeep/updates, technical defensibility, and enforceability. This provides for a directed and more certain approach to alternative modes funding, with incentives for desired development. While the other alternatives can achieve one or the other of these goals to varying levels of ease and success, Alternative 3 provides, the best option to achieve both the primary and secondary goals in an understandable and relatively easy to implement manner. Thus, the following methodology builds upon the review of alternatives and expands on the Alternative 3 for implementation purposes.

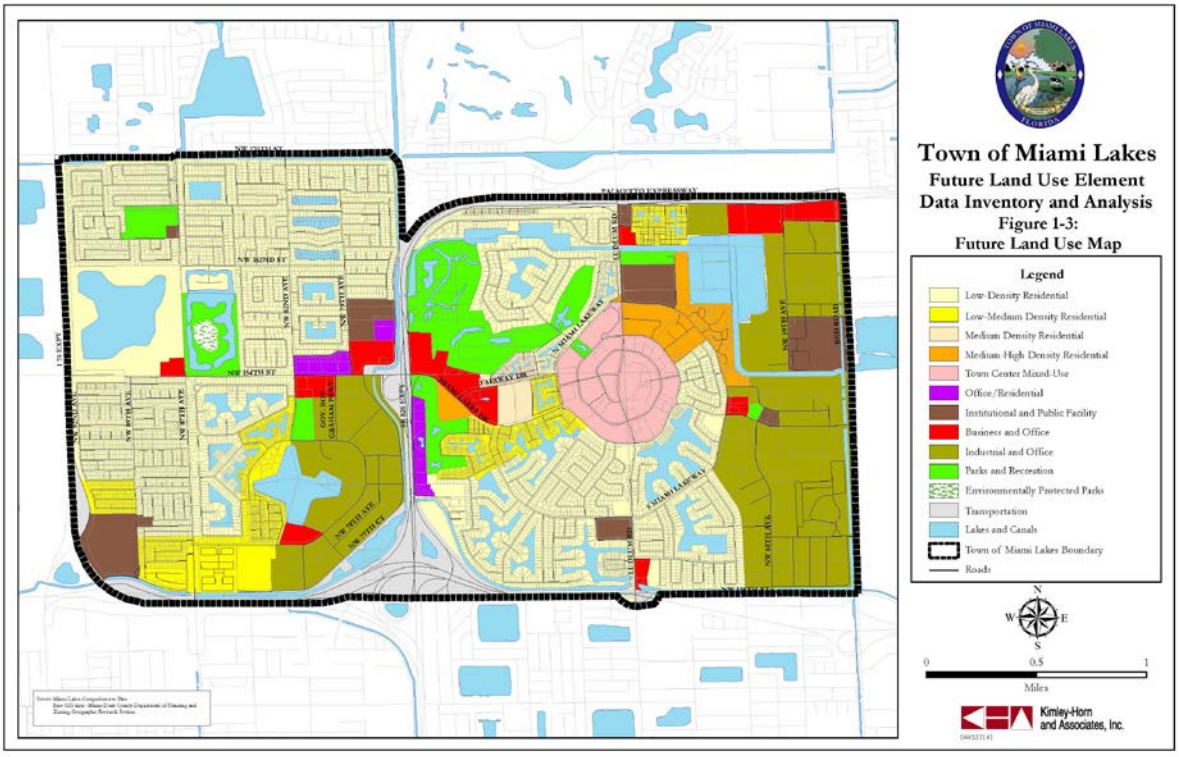
Methodology

Development of alternative 3 requires the calculation of the overall cost for the projects necessary for a viable multi-modal system in Miami Lakes, divided by the amount of development anticipated in the 20 year planning horizon to arrive at a determination of a per person trip cost.

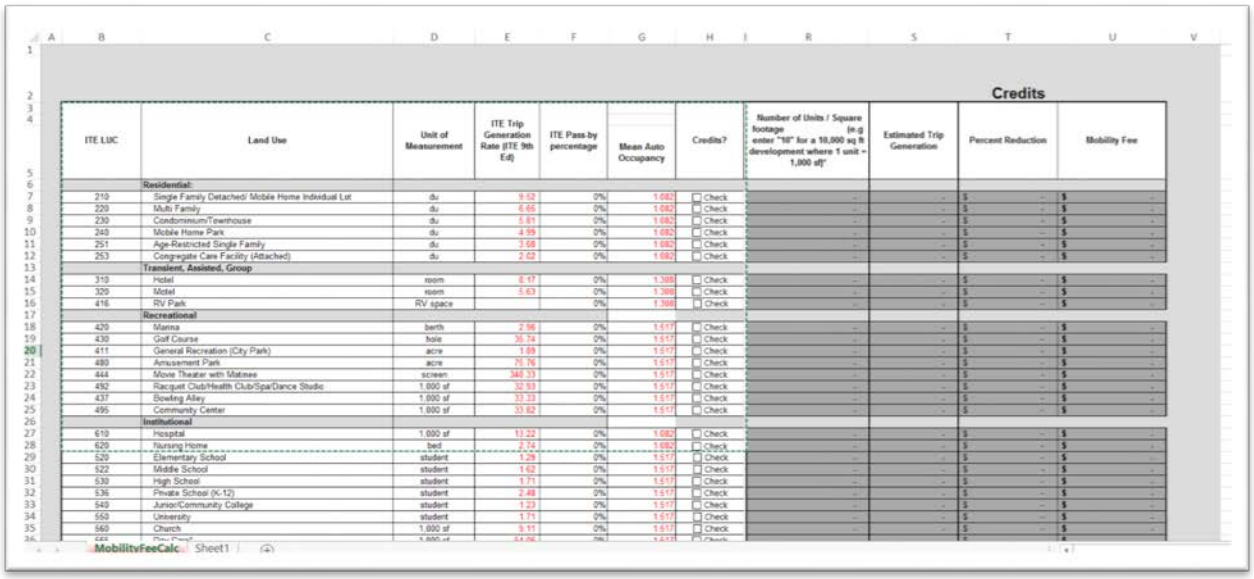
This project moves away from more traditional means of solely looking at vehicular trips, while taking into account that pedestrian and bicycling activities have justifiable demands on the need for facilities development. The implementation of a fee for this effort must meet the dual rational nexus test, and thus any methodology utilized must be justifiable under in regards to the capital improvement needs, the expenditures of the funds collected and the benefits accrued as a result.

The list of transportation infrastructure improvements was developed utilizing the Town's existing transportation projects reports such as the Transportation Master Plan (TMP), Greenways and Trails Master Plan, Safe Route to School, and the Green Transportation Alternatives Program (TAP). Each of these reports categorizes projects into various modal categories including: roadway, bike/pedestrian, transit, and Policy (TDM), which were further analyzed by class, location and cost to create the impact fees formula. This coupled with the Capital Improvement Element (CIE) such as roadway widening, roadway reconstruction, road resurfacing, lighting, traffic signals, roadway drainage, intersection improvements, roadway landscaping, sidewalks, bike paths came to a total cost of $ 12,625,443. It is recommended that this project list be updated in the near future with a multimodal transportation master plan focused on the provision of alternative mode projects.

To determine the future amount of development, socio economic data was evaluated in light of the Future Land Use Map. The Town is projected to add over 1,000 dwelling units, over 11,000 sf of Commercial, and over 243,000 sf of industrial use in the 20 year planning horizon. This equates to over 163,000 trips per day. This equates to a fee of $81.90 per trip. Over the years this will be factored up for inflation.



Applicants will be able to gain trip reduction credits, by voluntarily providing site specific urban design, multimodal, amenities, or transportation demand management techniques.



Credits

ITE LUC	Land Use	Unit of Measurement	ITE Trip Generation Rate (ITE 9th Ed)	ITE Pass-by percentage	Mean Auto Occupancy	Credits?	Number of Units / Square footage (e.g enter "10" for a 10,000 sq ft development where 1 unit = 1,000 sf)*	Estimated Trip Generation	Percent Reduction	Mobility Fee
	Residential:									
210	Single Family Detached/ Mobile Home Individual Lot	du	9.52	0%	1.082	☐ Check	-	-	$ -	$ -
220	Multi Family	du	6.65	0%	1.082	☐ Check	-	-	$ -	$ -
230	Condominium/Townhouse	du	5.81	0%	1.082	☐ Check	-	-	$ -	$ -
240	Mobile Home Park	du	4.99	0%	1.082	☐ Check	-	-	$ -	$ -
251	Age-Restricted Single Family	du	3.68	0%	1.082	☐ Check	-	-	$ -	$ -
253	Congregate Care Facility (Attached)	du	2.02	0%	1.082	☐ Check	-	-	$ -	$ -
	Transient, Assisted, Group									
310	Hotel	room	8.17	0%	1.388	☐ Check	-	-	$ -	$ -
320	Motel	room	5.63	0%	1.388	☐ Check	-	-	$ -	$ -
416	RV Park	RV space		0%	1.388	☐ Check	-	-	$ -	$ -
	Recreational									
420	Marina	berth	2.96	0%	1.517	☐ Check	-	-	$ -	$ -
430	Golf Course	hole	35.74	0%	1.517	☐ Check	-	-	$ -	$ -
411	General Recreation (City Park)	acre	1.89	0%	1.517	☐ Check	-	-	$ -	$ -
480	Amusement Park	acre	70.76	0%	1.517	☐ Check	-	-	$ -	$ -
444	Movie Theater with Matinee	screen	340.33	0%	1.517	☐ Check	-	-	$ -	$ -
492	Racquet Club/Health Club/Spa/Dance Studio	1,000 sf	32.93	0%	1.517	☐ Check	-	-	$ -	$ -
437	Bowling Alley	1,000 sf	33.33	0%	1.517	☐ Check	-	-	$ -	$ -
495	Community Center	1,000 sf	33.82	0%	1.517	☐ Check	-	-	$ -	$ -
	Institutional									
610	Hospital	1,000 sf	13.22	0%	1.082	☐ Check	-	-	$ -	$ -
620	Nursing Home	bed	2.74	0%	1.082	☐ Check	-	-	$ -	$ -
520	Elementary School	student	1.29	0%	1.517	☐ Check	-	-	$ -	$ -
522	Middle School	student	1.62	0%	1.517	☐ Check	-	-	$ -	$ -
530	High School	student	1.71	0%	1.517	☐ Check	-	-	$ -	$ -
536	Private School (K-12)	student	2.48	0%	1.517	☐ Check	-	-	$ -	$ -
540	Junior/Community College	student	1.23	0%	1.517	☐ Check	-	-	$ -	$ -
550	University	student	1.71	0%	1.517	☐ Check	-	-	$ -	$ -
560	Church	1,000 sf	9.11	0%	1.517	☐ Check	-	-	$ -	$ -

MobilityFeeCalc | Sheet1

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Process

It is anticipated that the development review process in the future will resemble the following work flow.

All applications will include:

- Pre-application meeting
- Submittal of application, including trip generation statement (to be reviewed by Town traffic engineer)
- Assessment of fee (to be paid prior to receiving building permits)
- Staff review
- Town Council approval (where applicable)
- Payment of alternative to concurrency fee
- Receipt of permits
- Construction
- Inspection
- Certificate of occupancy
- Business tax receipt

Implementation and Next Steps

Implementation of an Alternative to Concurrency plan is a multi-step process which begins with amendments to the current land development regulations and adoption of local ordinances in regards to a mobility based impact fee. Next steps include:

- Comprehensive Plan Amendments: (Planning Department)
    - Policies related to measurement of concurrency
    - Level of service standards for bicycle, pedestrian, and transit facilities.

- Land Development Code: (Planning Department)
    - Adoption of ordinance codifying the process
        - Specify process, tracking procedures, update procedures

- Establishment of Funds Account and Fee Update: (Finance Department)
- Establish new development review procedures (Planning Department)

Introduction

As the economy rebounds and cities compete for appropriate development, better, more efficient, more effective and more business friendly methods of reviewing development and implementing concurrency must be sought. This system will streamline the development review process, provide flexibility for the developers, and resulting in higher quality development.

The Town of Miami Lakes is located in northwest Miami-Dade County, with a population of 30, 791 (2014 est.) and approximately 1,500 businesses. Access into the town is achieved primarily via the Palmetto Expressway (SR-826), I-75 and the Gratigny Expressway. Within the Town of Miami Lakes, only Miami Lakes Drive/NW 154th Street connects the Town east to west. Mobility within the Township is hindered not only by this factor, but also by the situation of the various major highways in relation to the Town's development.

Traffic congestion is the most common concern for both residents and businesses in the Town of Miami Lakes according to a surveys conducted by the Town in 2014. The Town recognizes that assuring adequate mobility for residents, workers, and visitors requires a focus on all modes of transportation. The need for this comes from the realization that the mobility problems resulting in extreme congestion is getting progressively worse and cannot be solved with traditional roadway projects. The other modes will need to have viable infrastructure put in place to receive the shift in users as people seek more efficient modes of travel. Mobility options must be provided.

The Town faces a pressing need to ensure that existing transportation infrastructure and systems are maintained as to function at optimal capacity, while at the same time, finding ways to finance further developments through the provision of infrastructure necessary for the development of a multi-modal system, including: bicycling, transit, and pedestrian facilities. The implementation of practical solutions to improve traffic flow and transit operations that can be executed over the short and medium terms is crucial. This study recommends new policies to be emplaced to achieve the desired end objectives of alternative transportation program implementation.

The Goals of the new policies to be enacted include:

- To implement a multimodal concurrency program
- To incentivize high quality multimodal oriented development design

The process of the Town beginning to implement more multimodal projects involves compiling the existing planned projects into a multi-modal transportation master plan. The resulting "project bank" identifies projects by location and cost. This set of projects, developed to address transportation needs, as the basis for the proportionate fair share contribution assigned to each development. Ultimately it is acknowledged that this plan will contain efforts that run a spectrum

of projects that are highly capital oriented and quantifiable to highly policy oriented and less quantifiable.

This project seeks to assure that the multimodal transportation infrastructure, necessary to support the city's prescribed level of service standards as adopted in its comprehensive plan, is in place at the time of development. It further seeks to have developments contribute to the funding and implementation of those projects in order to mitigate the developments impact to the multimodal transportation network. Additionally the project will incentivize quality multimodal oriented urban design.

Under this system, the project bank and the cost of its implementation will be arrived at by projecting needs across all modes into the future, based on anticipated development capacities as defined on the City's Future Land Use Map. Facilities whose level of service falls below, those thresholds in the Comprehensive Plan, will be brought into compliance. The cost of those projects will be divided by the number of trips anticipated to result from the development over the planning horizon, as specified in the City's Comprehensive Plan, Land Development Code and Future Land Use Map, and a cost per trip will be arrived at. As part of a proportionate fair-share system, developers will be required to contribute a certain dollar amount based on the number of trips they ultimately generate. The Town will implement its master plan with these funds. Developers will have the opportunity to gain credits which will enable them to lessen the amount paid, by implementing one or more multimodal oriented urban design aspects, or policy initiatives at their development site.

Money generated by this program will go into a dedicated mobility fund, which will be used to implement the projects in the project bank. The result of all this will be a flexible system which will incentivize higher quality development and the building of a multimodal transportation system.

Data Collection and Existing Conditions Analysis:

Transportation Infrastructure:

The Town's existing transportation projects reports such as the Transportation Master Plan (TMP), Greenways and Trails Master Plan, Safe Route to School, and the Green Transportation Alternatives Program (TAP) were each reviewed to determine the Town's transportation infrastructure needs. Each of these reports categorizes projects into various modal categories including: roadway, bike/pedestrian, transit, and Policy (TDM), which were further analyzed by class, location and cost to create the impact fees formula. Additional data was then collected regarding infrastructure cost, as well as any projects the Town should deem necessary to meet its multi-modal transportation goals.

Land Use:

Land use data was collected regarding the existing land use and the future land use of each parcel within the Town, to better determine the future potential population and needs. When applicable, properties with vested rights were reviewed, as their approved qualities of the development may be different than that of the maximums expected in a future land use calculation. Given the size of the Town (6.4 square mi.), as well as the specific qualities of the transportation network, particularly in regards to Miami Lakes Drive/NW 154th Street, there was no need to subsector the community in this analysis.

Background and Understanding of Florida State Statutes:

To evaluate the conditions of implementing an impact fee or eliminating concurrency, an evaluation of what was permissible under Florida State Statutes was undertaken. Initial evaluation of potential concurrency alternative frameworks for pedestrian, bicycling, and transit projects focused on the following questions of Florida State Statutes:

> (1) Under what conditions are "mobility" fees and impact fees assessed? And
> (2) What are the limitations and applicability of existing statutes, including "fair share" rules, of replacing the concurrency and associated impact fee systems with a credit or mobility alternative transportation based impact fee systems ("Alternative to Concurrency")?

Fees that can be levied by local governments per state statutes are separate from Miami-Dade County's, and must meet proportionality rules. Assessment of future impact fees for alternative transportation concurrency will most likely still require a reliance on roadway impact as the baseline for assessment, given statutory considerations, but a credit system can be developed and is permissible. This system must clearly distinguish between an impact reduction and an impact fee reduction, and must further create an appropriate weight systems within the existing framework to meet policy objectives.

Issue Diagnostic Statement:

The Town of Miami Lakes is reviewing the system under which concurrency related fees for developments are assessed in regards to transportation impacts. Currently, the Town may assess fees based on roadway concurrency, levying a fee based on assessment of future needs and LOS maintenance. The Town is moving to consider an alternative to concurrency by employing a mobility based fee. Though termed differently, mobility fees or alternative systems to concurrency, may be termed "impact fees," and review of the allowable processes under Florida State Statutes should be undertaken for consideration of legislative constraints on changes. Specifically, the following must be answered:

1. Do concurrency and alternative to concurrency program structures, if they levy a cost, qualify as an impact fee?
2. Under what conditions can such fees be assessed?
3. What additional changes, such as credit systems, may be created under this guidelines, and does the rule of proportionality still apply to the new fee structure?

Review of Applicable Statutes and Regulations On Alternative Mobility-Fee Based Schedules:

Statutory Requirements:

Legislative changes in 2011 removed concurrency requirements at the state level. Under current statutes, local municipalities may elect to utilize or not utilize concurrency. Local governments are also encouraged by statutes to provide for a discount of impacts or an exemption of impacts for locally desirable developments. Likewise, reduction of impact fees or local access fees to encourage multimodal development is also acceptable. However, legislation has not been enacted to impose any new types of development fee.

What the law did:

1. Removed Transportation Concurrency as a State mandated requirement.
2. Allowed for local governments to enact Concurrency requirements, but they do not have to if they do not want to.

In brief, the Town of Miami Lakes is allowed to enact Concurrency, or it may choose not to use Concurrency, and utilize an alternative system to assess fees.

What this law did not do was change the concept of an impact fee.

1. A mobility fee is still an impact fee, and thus subject to the **dual rational nexus test**. Both are charges on new developments' impacts on transportation facilities. However, you can use different metrics based on local definitions and local controls.

2. Proportionate share rules, and the adoption of fee structures justified by professionally acceptable reasoning would still apply in both cases, in my opinion. Metrics still needs to be in the policy documents as a result (comp plan). You can apply the proportionate share to a regionally significant transit facilities (Though this is loosely defined.)

3. The Town can only charge for future deficiencies. Also, once certain phases of development are finished, those impacts paid for are considered locked in.

4. You still have to be careful with how a fee is constructed so that it is construable as an impact fee, not a levy (which would be a tax, and therefore not allowed).

Current legislation also allows for the pooling of multiple fees to fund a single, regionally significant system. However, impact fees cannot be utilized to fund operations and maintenance. State statutes also require that the collection of impact fees must be based on the most recent local data (163.31801 (3) (a)), be assessed and implemented in separate accounting fund (163.31801 (3) (b)), and must "Limit administrative charges for the collection of impact fees to actual costs." (163.31801 (3) (c)). For implementation purposes, a ninety (90) day notice period is necessary to impose a new or increased impact fee (163.31801 (3) (a)).

Under the current rules, local governments are allowed to repeal transportation concurrency. In doing so, these governments may elect to have an alternative mobility funding system. However, this funding system "may not be used to deny, time, or phase an application for site plan approval, plat approval, final subdivision approval, building permits or the functional equivalent of such approvals provided that the developer agrees to pay for the development's identified transportation impacts via the funding mechanism implemented by the local government." In addition, a "mobility fee-based funding system must comply with the dual rational nexus test applicable to impact fees." (Florida State Statutes – 163.3180).

Discussion:

The Town of Miami Lakes, may, under current state statutes, elect to remove its concurrency fee system. At the core of the discussion, however, is the concept of impact fees, which may be assessed with or without a concurrency system. Outside of concurrency based fees, "mobility fees," such as those found in Pasco County, FL, and road impact fees currently exist. These fees fall under the aegis of impact fees, and any new fees, because the Florida State legislature has not authorized a new development fee, would fall under this same categorization and the applicable rules. In addition, fixes for existing issues are limited to either grants or local *ad valorum* taxes. Fees must be structured in a way so as not be to classifiable as a "tax."

A mobility-fee system has a need for the dual rational nexus test to be applied. Specifically, this entails the determination that the development's impacts necessitate the need for (1) additional capital facilities **need**ed based on the growth in population generated by the development; and (2) that the expenditures of the funds collected translate to the **benefits** accruing to the subdivision – Hollywood, Inc. v. Broward County, 431 So.2d 606 (Fla. 4th DCA 1983).

Essentially, this means that in the repeal of concurrency, to assess impact fees, an alternate, rationally justifiable system must be enacted. In this, it is important to understand that concurrency provided one format for systemic evaluation, and that any alternative system would be subject to the same scrutiny in the application of state police power. Resulting systems thus may be held to some of the same rationale, whether through plans or standards based methodology. Furthermore, general rules regarding mobility fees as well as impact fees are vague, and may be subject to additional considerations of limitations.

Potential Limitations:

Statutory Requirements:
Concurrency is a valid form of impact fees assessment based on Florida statutes, but prescribes specific conditions under which this may happen. The process involves the adoption of a reasonable level of service for specific roadways, and the application of evaluable, professionally acceptable measures of proportional share fee assessment for new developments. Under current Concurrency rules, applicants cannot be held responsible for additional costs to reduce or eliminate existing deficiencies. Under current concurrency rules, local governments are prohibited from requiring payment or construction of transportation facilities whose costs "would be greater than a development's proportionate share of the improvements" (163.3180 (2)(b)).

In addition, applicants will "receive a credit on a dollar-for-dollar basis for impact fees, mobility fees, and other transportation concurrency mitigation requirements paid or payable in the future for the project. The credit shall be reduced up to 20 percent by the percentage share that the project's traffic represents of the added capacity of the selected improvement, or by the amount specified by local ordinance, whichever yields the greater credit." (163.3180 (5)(h)2e).

Discussion:
The review of concurrency as a standard for how fees are assessed is an important aspect of mobility fee funding. Even with the repeal of concurrency, arguably, the dual rational nexus test, indicating need, and benefit, would translate, as it does for concurrency, into the need to address the proportional impact as the rational, justifiable basis for assessing impact fees.

Statutes and the aforementioned discussion support the idea that any credit system must be semi-voluntary: the overall assessment must have a specific, professionally arrived at baseline, with alternative programs permissible for implementation, but which, under the statutes, cannot be enforced much past the agreement of the developer to pay the full roadway impact amount as a condition for approval. For new developments, the acceptance and finalization of development phasing will essentially lock in the developer's share. In the case of any assessed impacts, without an additional raise in fees to account for all modes, it must be accepted that any potential vehicular

facilities deficiencies become the responsibility of the local agency, and can only be corrected, if needed, through new *ad valorum* taxes.

Assessed impact fees must be used for the specific purpose that they are dedicated for, and alternative transportation fees must therefore be placed in their own separate funds, a fact reinforced by impact fee legislation. Thus, incentive based systems must be built into the credit assessment ratios. These can be related to the relative costs of the improvements per individual, with a weight scale provided for a relative cost and demand ratio. Successful implementation of such programs is thus dependent on either providing a 1 to 1 credit ratio for the actual construction, by the developer, or the improvements, or a discounted credit fund into a distinct district fund. In this way, land use development can be guided towards specific forms via application of weighted policy scales.

The difference between the reductions of impact fees versus the discounting or exemption of impact poses an important distinction in the policy background of any proposed alternative to concurrency program. In both instances, the total actual fees assessed to the developer would be lowered; however, with the former method, there is more flexibility than the later for the system to be a semi-voluntary system; the application of credit in the system would be assessed differently, as will the monetary contributions towards specific improvements in each case. The construction of any policy must be appropriately worded to account for this small, but vital difference.

General Overview of Impact Fee Methodologies:

Impact Fees generally fall into one of two categories: Standards-Based (incremental expansion or consumption based) and plan-based (improvements-driven). Most Florida jurisdictions utilize standards-based methodologies, but either can be applied to transportation impact fee structures.

Standards Based:

Standards based methodology for impact fees may utilize a level-of-service standards as a basis to measure the costs of new development. In Miami-Dade County, this tends to be implemented on a concurrency basis. Under this approach, no specific list of planned projects are necessary – simply, potential impact of development is weighed against the vehicular trips. If the addition results in a change in the LOS, then a mitigating project will eventually be needed if the LOS falls below the set level of standard, and fees will be assessed so that these projects may be eventually built.

No master plans are needed for these "concurrency" impact fees, save that a standard is adopted in a Comprehensive Plan and/or the Land Development Regulations. Under this plan, the assumption is that capital facilities will be expanded to maintain this standards in reaction to the community's growth, and assumes that there is little or no excess capacity to accommodate future growth. Standards based methodologies, however, do allow for the adoption and utilization of an LOS which may be higher or lower than the existing LOS; with roads, a lower than existing LOS may be used to shift focuses in transportation infrastructure development as a matter of local transportation and development policies. This is a particular viable option where there is already a significant amount of excess capacity, and have been used provide support for instances where lower fees are desired to stimulate development as a matter of local policy.

Standards-based methodology allow for a fee based on "consumption." How this works is that a new development is assed the fee based on the cost to replace the capacity that it will "consume" within the system. For example, if a development will utilize 10 vehicle-miles of travel per day (VMT), then that impact must be provided for in the implementation of improvements that will create 10 vehicular miles of capacity (VMC). However, most roadway systems that function well have more than one VMC for each VMT, which represents excess capacity needed in a system. Some impact fee systems will therefore use a ratio higher than 1:1, but less than the existing ratio; however, these tend to apply more to places that have not been fully developed, and thus have a high level of excess capacity. For areas where infill development is expected, such as with Miami Lakes, a ratio which accounts for the existing VMC/VMT ratio may be more appropriate if a standards based methodology is employed.

Advantages of a standards-based approach include simplicity, since this assessment is not based on build-out scenarios or long range planning; stability, since changes in the project listings as master plans are updated do not affect a standards based system unless the standards are directly

changed; and clarity if a system-wide approach is taken, by avoiding the potential issues related to addressing existing deficiencies, which is not permissible under current impact fee legislation.

Drawbacks of this approach include the potential underestimation of costs to account for growth. This can be most easily seen with plan based methodologies, which have a tendency to result in higher fees than consumption based methodologies, as these tend to only charge for the capacity consumed, ignoring the need to proportionally keep excess capacity within a system. At times, this brushing aside of excess capacity also reduces the capability to accommodate other forms of travel in ways that a plan based methodology, with set projects, is able to better address. To account for this, standards-based plans utilizing a consumption-based approach should be designed in a way as to be aggressive in pursuing ways to maintain appropriate levels of excess system capacity.

Plan Based Methodology:

Plan based methodologies, in contrast to the generalized system-wide adopted levels of service of standards based impact fees, rely on a list of planned projects in a long range master plan or build-out analysis document. Supporting these projects generally is a location ally based LOS standard, and takes the costs of these projects in consideration of the fee. This cost is then compared to the expected growth during the same time period of project implementation, allowing for a calculation to be made regarding the proportionate share of development. Methodologically, the project lists range in defensibility, with current project lists being less defensible than a long range master plan or build-out plan, due to the need to establish correlation between growth and the need for infrastructure. Thus, stronger impact fee systems will generally incorporate a long-range master plan from which projects are funneled into the existing capital improvements program.

Plan-based methodologies seldom account for the cost of existing excess capacity, as the focus on future incurrence of costs will generally exclude any future costs to retire debt on existing capacity. Fees therefore cannot exceed the existing level of service. Jurisdictions changing the assessment of fees by using different standards and underlying standards must therefore be careful to separate these items administratively. Contributions towards funding sources can be seen in examples where a revenue credit calculation is necessary to account for this contribution to remedying existing deficiencies.

Generally, an adopted standard must still be in place which serves as the justification of need, allowing for the dual rational nexus test, namely connecting need and effect, to be accounted for. The omission of this critical component is sometimes found in impact fee studies, rendering those findings indefensible when challenged, and is an issue should be addressed in the planning phases of any impact fee study.

Advantages of the plan include ease of comprehension, since these plans take the basis of using a set planned cost versus a set planned growth, both of which are intrinsically measurable through evaluation of a specific project list and land use conditions regarding density and what currently

exists; accounting for excess capacity by location; and as previously mentioned, better assessment of the entire costs of growth as compared to standards based impact fees.

Drawbacks to a plan-based methodology for impact fees include relative inflexibility to respond to changes in patterns and levels of development, requiring a new study to determine new projects for implementation of capacity growth; additional costs necessary in order to update the master plans as necessary; and general complexities in fee assessment and administration due to the need to separate existing deficiencies in order to adequately determine projects within the overall capital improvements program which can have impact fee monies applied.

Mobility Fees

Mobility fees were originally adopted by communities in the state with the thought that like traditional road impact fees, new development would be charged, and the funds would be used to mitigate the impact of that development, while taking into account the roadway improvements necessary to do so. These fees would replace the more traditional concurrency systems already in place, which were geared towards assessing impact on vehicular trips generated.

After 2011, with transportation concurrency no longer a Florida mandate, mobility fees were being promoted as an alternative fee which would allow for multi-modal project funding, with additional potential to diversify the fee based on distance/geography and jurisdiction. For Florida, this translated more into County-wide efforts than mobility fee on a highly local level – thus, therefore most examples of its application in Florida are County-based. However, the option of employing a mobility fee is particularly important for those local communities where increased roadway capacity is no longer a viable option; these communities would have to adopt alternative means of assessing fees for infrastructure for alternative measures of capacity – namely, the capacities of pedestrian, bicycling, and transit infrastructure not normally funded by roadway impact fees. In addition, because the state statute does not implicitly allow mobility fees as a separate item, these fall under the aegis of impact fees, and those applicable rules apply.

Multi-Modal Transportation Funding

Transportation impact fees can be structured so that the fees are able to be spent on improvements other than projects which expand roadway vehicular capacity. A transportation impact fee may be used to fund pedestrian, bicycle and transit improvements, including sidewalks, trails, crosswalks, bikeways, bus shelters, dedicated rapid bus lanes, light rails lines and stops, and other justifiable items. While most states will only generally authorize transportation impact fees only for road capacity improvements, there are no such restrictions in Florida. In Florida, impact fees are authorized by statute and covered by case law. Though plan-based methodology is also permissible under the law. Examples of consumption-based road methodologies used for impact fee assessment include the systems employed in Lee, Citrus, and Polk counties. For communities like Miami Lakes, a key aspect of adopting a multimodal impact fee lies in the justification of

infrastructure or alternative assessments of capacity. The point must be made that multimodal improvements, such as sidewalks, bicycling facilities and other transportation infrastructure on and off the roadways free up vehicular capacity in a system, instead focusing on the overall capacity of the system. The rationale for this can be found in the addition of alternative capacity for multiple types of networks that provide similar connectivity and site accessibility. By extension, this connectivity and accessibility aspect of the professional justification has also influenced how methodology can be constructed for both plan and consumption based methodologies.

Pasco County's county-wide, consumption-based road impact fee methodology included bicycle and pedestrian infrastructure costs by noting that sidewalks and bicycle lanes are already included in the typical roadway cross-sections. Estimating that these improvements amount to about 5% of total roadway costs, their adoption study noted that mobility fees could fund these developments as they could serve in meeting the travel demands as evaluated for incoming development.

Geographic Basis for Fee Differences

Eastern and western Miami Lakes is separated by the Palmetto Expressway, and poses the question of geographic basis for impact fees. Mobility and impact fees have the ability to charge different fees in different areas of a jurisdiction. This can be utilized to spur specific development or account for different costs in maintaining the networks in different areas.

Generally, to accomplish this, a plan based methodology must be utilized, as applications of these fees trend towards utilization of existing excess capacity to alter the fees. In addition, geographically based fee differences need to be large to direct growth towards a specific area. With smaller areas, there may be difficulties with establishing the nexus between demand and capacity, so that service areas should be large. Miami Lakes, by virtue of this, should establish one service area to account for the fees, given its size.

Identification of Strategies

Five options were evaluated for the implementation of an alternative to concurrency plan.

1. "Conditional" Concurrency
2. Mobility Fee (Standards – Consumption Based)
3. Mobility Fee (Plans – Based)
4. Multimodal Concurrency Fee
5. Multimodal Impact Fee and Roadway Impact Fee Hybrid

A sixth option is to do nothing, but in the absence of action, funding a shift towards multimodality in the transportation system will have to be a result of increase in *ad valorum* taxes, grants – which are not always readily available, or a combination of both. This option naturally does not achieve the long range goals envisioned by the Town.

Discussion of Alternative 1: Conditional Concurrency

How it works:

Under this option, concurrency would be under a roadway and multimodal system. The concurrency, however, would be based on modal split standards, by adopting an additional concurrency standard as a subset quality of existing thresholds. The LOS of a roadway may meet a specific standard through any variety of means – roadway widening, intersection improvements, etc. A sub-prescription of methods to achieve that standard would build upon the existing framework. This subset of the overall standard may require, as an example that the share of Single Occupancy Vehicle trips drop below an adopted standard amount or that multi-modal aspects reach a prescribed percent. How this can be achieved may be evaluated through the implementation of specific development qualities or infrastructure which allows for a shift in the modal split, similar to how studies are completed to argue for reductions in parking requirements for transit-oriented and other developments. This could be based on a traffic study utilizing a transportation model. Development would then be approved or disapproved based on the ability to meet both the overall concurrency standard and associated substandard, which would be tied into the development of alternative transportation modes.

Advantages and Disadvantages:

Utilization of an already familiar system will allow for easy adaptability and explanation, since the additional qualifications fall under existing, amended guidelines. On face value, with appropriately constructed conditions, this option allows for the fulfillment of funding for alternative transportation mode infrastructure in that that funding becomes the rational basis for the shifting

on assumptions to meet the standardized requirements. However, this method ultimately takes an indirect approach towards implementation of alternative mode transportation.

The effectiveness of guiding the modal split as a direct input, rather than as a direct consequence, is more variable than with other methods, because mode choice carries a higher weight on the function of the system as a whole than on the actions of an individual developer. This method would be subject to either more expensive data collection to verify on a case-by-case basis, or elsewise be very difficult to execute. The ease of usage is thus low, and would thus create an administratively challenging approach.

Discussion of Option 2: (Standards – Consumption Based)

How it works:

Under this option, concurrency as a whole would be eliminated in favor of a Mobility fee. Ultimately the fee will still have to be justified, thus, an alternative measure must be adopted than vehicle trips. Currently, LOS calculations operate on a 1 car per traveler basis. Capacity, or need thereof, however, is related to number of persons in transit, or trips in occurrence. Each type of infrastructure development has its own capacity which allows for the fulfilling of the demand created by population growth, establishing the rational nexuses in regards to demand and benefit. This fee will be based on a build out model which evaluates the overall system on a right-of-way capacity basis. This takes the approach of a seat capacity or a person capacity basis translated to a trip basis, taken on a time basis. A bus, naturally, carries more seatwise than a carpool per space taken, which in turn carries more than an SOV. The capacity of a sidewalk may be construed as being related to the width of the sidewalk in relation to average space needed and average walking speed. The speed and quantity in which these trips are moved create the capacity need. A vehicular heavy modal split will require more capacity because of the slower move through speed per space taken.

Essentially, the fee will charge for the consumption of the capacity needed to accommodate the development. Each new development will be charged for the incremental value of the transportation facility or service need that is generated by the development. The development of this fee may be based on either the corridors, or it can be a uniform plan-based multi-modal fee.

Service levels inherently influence travel choices, especially with transit, walking and bicycling. With this alternative, the capacity measurements needed would be shifted through a shift in funding for alternative modes, which we would assume to correspond to change the predictions of trip mode over time. The development permit would depend on meeting a minimum capacity resulting from the payment of the appropriate fees for all modes of transportation.

Advantages and Disadvantages:

Theoretically, this approach allows for a close and justifiable view as to the needs for adequate transportation facilities; as opposed to the current model, this approach allows for the measure of capacity for all modes, essential in establishing community needs. Overall, this incentivizes the person capacity of the network, translating into a capacity to be built within the right-of-way. As an additional benefit, this approach would allow for better crediting for shared ride transit options. However, the data input required to implement implies a costly measure to enact. This measure, in addition, seems to benefit transit and carpooling more than bicycling and pedestrian infrastructure, but this is dependent on the existing network, and in some cases, this quality may more reinforce the existing modal split, offering little change from the status quo over time. A workaround involving a minimum capacity would be necessary to enact modal change, but this may run counter to the rational justification behind the fee assessments.

Mobility fees are generally assumed to be less than roadway impact fees. However, this is not necessarily true. All other things being equal, adding other modes to a roadway impact fee, as opposed to shifting the fees by mode, generally tend to increase the fees assessed, not decrease. Further, it has not been demonstrated that other modal improvements will result in more capacity per dollar spent; thus, cost effectiveness across different modes as built into this model may vary.

At the same time, it is far more difficult to estimate the amount of shared rides, and thus the actual capacity necessary for the roadways. Adopting a higher seat capacity will allow for development to process with lower fees, and would allow for the congestion to worsen with less roadway improvements, but this does not necessarily translate into a shift between monies for different modes as Miami Lakes desires. In a regional capacity, a mobility fee may allow for better long range commute through the assistance in transit and items such as HOVs, but may have a more limited effect in this form for a smaller, single jurisdiction area.

Furthermore, travel forecasting does not necessarily provide a solid ability to provide for the ridership benefits of minor improvements to the system, such as bus shelters, benches, bus pullouts, and others, which inherently are qualitative. Actual shared ride use is also a difficult prediction, and poses an additional issue because it more likely reduces a fee based on less usage, and does not direct monies towards bicycle and pedestrian infrastructure. Lastly, this method provides what seems to be a highly quantitative approach to a problem that is intrinsically both qualitative and quantitative in nature. Combined with other aspects of this approach, its effectiveness in guiding modal change is somewhat limited.

Discussion of Alternative 3: (Plans – Based)

How it works:

Under this option, concurrency as a whole would be eliminated in favor of a Mobility fee. Ultimately the fee will still have to be justified, thus, as with Alternative Two, an alternative measure must be adopted than vehicle trips. However, whereas Alternative 2 directly applies the metric on consumption for proportional fair share, alternative 3 utilizes the adopted Plans of the Town, allowing for specific projects to be the basis for determination of local need. These plans, in turn are derived from professional standards establishing the Town's needs, providing a valid justification for the fee assessments. Each type of infrastructure development has its own capacity which allows for the fulfilling of the demand created by population growth, establishing the rational nexuses in regards to demand and benefit. The fee would be based on the cost of the improvements deemed necessary on a project basis to accommodate all of the growth in the area, and distributed on a proportionate share basis through the calculation of trips generated by the overall growth and the development's portion of those trips generated.

Advantages and Disadvantages:

Overall, this approach incentivizes the person capacity of the network, indirectly translating into a capacity to be built within the right-of-way. Utilizing a straightforward, land-use based approach that does not include vehicular concurrency would also eliminate the need for traffic studies and streamline this aspect of development review processes. The utilization of a cost and associated project trips relationship in this manner has been utilized within the state of Florida, and meets the dual rational nexus test. The generation of a single number as a fee across the various modes being assessed as one fee will also allow for fee credit systems to be easily implemented.

Mobility fees are generally assumed to be less than roadway impact fees. However, this is not necessarily true. All other things being equal, adding other modes to a roadway impact fee, as opposed to shifting the fees by mode, generally tend to increase the fees assessed, not decrease. However, a mobility fee which ignores roadway improvements will result in a lower overall fee, due to the relative cost differences in project implementation. Compared to a consumption based methodology, there may a clear difference from project based methodologies depending on the choice and relative cost of local projects designed to accommodate community needs.

Discussion of Alternative 4: Multimodal Concurrency Fee

How it works:

Under this option, concurrency would be expanded to include multimodal LOS. The baseline LOS for evaluation and fee assessment would be based on a combined LOS which takes the LOS for each mode, and combines them on a modal split basis. The combined LOS can be calculated by assigning a value to each LOS grade, and creating a weighted average based on modal split.

To accomplish this, the LOS for each mode is multiplied by a weighted percentage. This weighted percentage should add up to 100%. i.e. Cars is 70%, walking is 10%, etc. The formula for the multimodal LOS would be: (Roadway LOS times %) + (Bike LOS times %) + (Transit LOS times %) + (Pedestrian times %) = Number (A = 1, B = 2, etc.).

Development may proceed on the basis of selecting specific improvements from the City's planned improvement which will affect the level of service for any of the modes within a set distance from the property. The premise of this is that as the LOS rises for any of the alternative modes, the overall multimodal LOS will also rise. Under this system, development permits will be issued if the combined LOS is better or equal to the adopted LOS.

To encourage additional changes in development standards, the weight system for the LOS can be modified as well in a justifiable manner. For example, a mixed-use development might find that its modal share is drastically different than a regular run of the mill development – thus, the LOS can be reasonably and justifiably shifted to reflect this different modal share. Maybe a regular development is 5% walking, but a really solid development, with appropriate amenities, might be 10%.

Advantages and Disadvantages:

This approach allows for the imposition of service standards related to the provision of pedestrian and bicycling infrastructure, and allows more freedom of choice in the funding scheme. Under this system, improvements can be made to any system or through a combination of improvements to multiple systems. At the same time, because this system allows for a choice, there is relatively less control over preferred modes of development, and alternative means would have to be implemented in order to guide towards any policy preference for a particular mode.

From an equality standpoint, this approach can link the importance of the mode to the actual justification, that is, the actual mode of travel. While normally a strength, without additional changes to peg the LOS to the goal LOS, it is a weakness in regards to policies which aim to develop specific modes of travel, and the result would more align with the status quo. This is less than an issue for communities with more developed systems than for communities trying to implement infrastructure to reach a critical mass to make a specific mode viable.

To implement this approach, however, a baseline LOS must be developed, which would involve data collection that can be costly. In addition, the complexity of having multiple LOS calculations may render this approach difficult to explain. Lastly, the separation of the various modes as alternatives to vehicular traffic may dilute the impact that funding for the alternative modes may have. While this could lead to more funding for those modes, the opposite is equally true, as the investment amounts may reach a parity point under certain circumstances that provide no additional benefit, and thus incentive, for the shifting of funds from one mode to another.

Discussion of Alternative 5: Multimodal Impact Fee and Roadway Impact Fee Hybrid – Transfer of Trip Credits

How it works:

Alternative 4 entails the utilization of both a Roadway LOS and a multimodal aspect comprised of Bicycle, Pedestrian, and Transit LOS ratings. Under this plan, for a development, the overall trips generated resulting in multimodal and roadway needs will be assessed. A traffic impact study will be required, which will establish the impact of the development. This will translate to a Roadways Fee and a Multimodal Fee, based on the overall number of trips, applied each to the cost per trip model, which will be derived from a project and population build out model. The cost per trip for each fee will be different, as they will be based on the projects: Roadway projects and the Roadway LOS for the roadways fee, and Bicycle, Pedestrian and Roadway projects for the multimodal fee. As each fee will be assessed differently, they will have different benchmarks, and different policy goal sets to be established by the Town. The multimodal fee's projects will be based on a level of service to be obtained and adopted for Bicycle, Pedestrian, and Transit projects.

In this process, developer can purchase "Trip Transfer Credits" based on existing qualities of the development. This transfer of trips from roadway to multimodal assessments may be conducted on a 1 to 1 or other ratio basis, depending on policy preferences, and may be capped based on specific qualities of the development, such as mixed-use, internal circulation, bicycle racks and pathways, etc. Conditions allowing for trip transfers result in a lowering of fees assessed by virtue of the per unit cost differentials for project implementation seen between different modes. Developments can qualify for the trip transfer by meeting specific conditions as set for by the Town's policy.

Advantages and Disadvantages:

As with Alternative 3, this strategy is moderately costly at inception: there is a need to determine the LOS for the existing rights of way for Bicycle, Pedestrian, and Transit options, in addition to maintaining the vehicular base LOS standards for the existing roadways. Justification for the fee, however, must take into account that roadway LOS does not entirely include the other modes, and all trips are assumed to be vehicular in nature. These trips must therefore be segmented out.

This method, however, cannot be partially implemented, unlike with Alternative 1 and others. In the absence of checks and balances, there is nothing to prevent a developer from contributing fully to the lowest funding option, in which case there is potential for underfunding. Additionally, where the adoption of this method results in additional bonuses which may be built into the system, the local jurisdiction must accept that any deliberate underfunding resulting must be treated as a "previously existing deficiency" for future projects, and thus any provided bonuses, as opposed to a mobility fee, will have to be absorbed through other financial means.

The strategy allows for multimodality to be implemented by the Town via funding into a multimodal development fund. By allowing for additional standards to be placed based on an assessed "bonus," specific development may be incentivized. Alternative mode transportation funding is naturally encouraged by the differential in per unit cost incurred by vehicular modes versus pedestrian, bicycling, and transit modes. As this transfer is a bonus, the level at which the credit occurs is at the discretion of the municipality in application of methodology to achieve stated public policy goals.

Lastly, this Alternative has a relatively easy implementation, and the constraint of options and a clear delineation of specific developmental aspects allows for a balanced focus between corridor and site specific development.

Recommendation

After reviewing the various options for changes to the current concurrency system, we find that Alternative 3 provides the method most likely to provide the results desired by the goals and policy direction that serves as the impetus behind this study. Key factors for this evaluation include ease of implementation and administration, ease of fee upkeep/updates, technical defensibility, and enforceability.

The concurrency methodology employed in this study is focused primarily on a multilevel approach including density, intensity, development patterns, roadway networks and multimodal alternatives. Ultimately, however, this study has as its primary goal the funding for implementation of the alternative modes system, and as a secondary, subset of this goal, the encouragement of better development standards.

Specifically, the approach undertaken must result in direct intervention and guidance towards multimodal funding, which Alternative 1 does not adequately provide. While Alternative 2, like Alternative 5, provides more incentive to alternative modes, in application to Miami Lakes and its current levels of infrastructure, Alternative 2 is more likely to encourage transit than the desired pedestrian and bicycling modes. Alternative 2 thus is more suited for implementation as a subsequent phase, as the community evolves beyond the need to provide the infrastructure needed for critical mass to effect modal shift. Alternatives 4 and 5 are highly complex, and were not selected because of the difficulty in explanation to developers, as well in addition, provided for the potential for a shift back to a roadway focus in funding, which the Town does not desire in its plans. In addition, while it provides a direct policy intervention to guide towards funding for alternative modes, the non-separation of roadway fees as a separate entity, a key aspect of that option, allows for more uncertainty as to whether a developer will be guided to prioritize alternate mode in funding.

At the same time, Alternative 3 provides for a directed and more certain approach to alternative modes funding, with incentives in development. While the other alternatives can achieve one or the other of these goals to varying levels of ease and success, Alternative 3 provides, in our opinion, the best option to achieve both the primary and secondary goals in an understandable and relatively easy to implement manner. Thus, the following methodology builds upon the review of alternatives and expands on the Alternative 3 for implementation purposes.

Methodology

Development of alternative 3 requires the calculation of the overall cost for the projects necessary for a viable multi-modal system in Miami Lakes, and a determination of a per person trip cost.

The list of transportation infrastructure improvements was developed utilizing the Town's existing transportation projects reports such as the Transportation Master Plan (TMP), Greenways and Trails Master Plan, Safe Route to School, and the Green Transportation Alternatives Program

(TAP). Each of these reports categorizes projects into various modal categories including: roadway, bike/pedestrian, transit, and Policy (TDM), which were further analyzed by class, location and cost to create the impact fees formula.

This project moves away from more traditional means of solely looking at vehicular trips, taking into account that pedestrian and bicycling activities have justifiable demands on the need for facilities development. The implementation of an impact fee for this effort must meet the dual rational nexus test, and thus any methodology utilized must be justifiable under in regards to the capital improvement needs, the expenditures of the funds collected and the benefits accrued as a result. The needs component of this test is covered by this methodology in two forms: the list of projects establishing expected infrastructure improvements necessitated by future development and establishing the metrics by which we assess the creation of this need, namely, the growth of traffic resulting from further population growth or commercial and industrial developments.

This future growth is regulated by the future land use designations of the Town, which prescribes a maximum build-out each parcel in the community.

Therefore, the following determinations were made as part of the method to compute impact fees:

1. Existing development versus build-out development.

2. Trip generation rates for resulting land use increases using daily trip rates.

3. Transportation improvement costs as determined by several Miami Lakes transportation project reports such as the Transportation Master Plan (TMP), Greenways and Trails Master Plan, Safe Route to School, and the Green Transportation Alternatives Program (TAP) and codified into this study.

Additional steps to the methodology were then included to account for changes in costs and administration needs over time.

To determine the number of trips future development was expected to generate, we examined the Town's existing condition. This included looking at existing land use and the vested rights of property within the town, which was then compared to a build-out model based on the future land use. The future land designation provide for a maximum density for development. We utilized the build-out model as an uppermost level of growth within the municipality. By taking the difference in population and assigning a trip factor based on the land use as found in the ITE Trip Generation Manual, we were able to come up with an estimate of potential future vehicular trips. This was then modified utilizing the Household Travel Survey data, using a vehicular occupancy factor to convert vehicular to person trips. These future trips provide the need that serve as a justification for the development of infrastructure improvements within the community. Consequently, we then

utilized this number in conjunction with the cost of the transportation need to determine the cost per trip in terms of improvement implementation.

To determine the transportation cost, we first determined the projects needing funding. This was done through a review of transportation projects. Each project was pulled out and complied into a list and had a specific value assigned to it. As these items were from different years, we equalized the cost using inflation factors. We will discuss this inflation cost further in the methodology. We then combined all those costs into one system needs cost.

Method to Compute Impact Fees

The following is the recommended methodology to construct and maintain the impact fees system:

1. Determine increase in socio-economic data from base year to target future year (20 years). Determination of this factor is based upon the difference between current development levels and future development levels. To accomplish this, the future land use must be employed and compared to existing development.

   The following was found to be the increase:

   Residential (FLU Build Out – 2010 Housing Units): 18,172 dwelling units (du). This number, though permissible under current legislation, is unrealistically high given the already predominantly built-out nature of the community, with no impetus towards this theoretically allowed level of growth.

      *Alternative Build-out analysis based on the Comprehensive Plan indicates 1,600 du overall, and 1,019 du for 2025. For the purposes of this analysis, we will utilize the 1,019 du figure as it relates most to expected projected growth.

   Commercial: 260.4 acres (11,343 SF)

   Industrial: 555.9 acres (243,500 SF)

2. Determine trip generation rates for resulting land use increases from step 1 above using daily trip rates (weekday) from ITE Trip Gen Handbook 9th Edition and Household Survey Model.

   Residential: 196,332 trips/*7,337 trips

   Commercial: 622,109 trips

   Industrial: 17,995 trips

   Total daily trips = 836,436 trips per day/*647,441 trips

However, a proportion of this must be taken to relate to the same timeframe as the existing current projects, as this is for 20 years and the CIP is for 5 years.

Assuming 25% for the buildout, the daily trips generated is 209,109/*161,860 daily trips.

3. Compute transportation improvement costs from the Town's Capital Improvement Element (CIE), Transportation Master Plan (TMP), the Town's transportation mobility plans, and Unfunded Projects from the MPO's Long Range Transportation Plan (LRTP).

   Using the compiled transportation projects master list, an aggregate cost to complete all the projects can be constructed. In considering the various projects that can be built, it is important to consider that there are projects which may have funding that is reasonably expected from outside funding sources, including grants. In cases where this funding is reasonably expected, these projects should not be included in the computation of costs.

   Rationale: **Not Included** =Projects fully funded in the MPO's Transportation Improvement Program (TIP) and those from their LRTP where funding is reasonably expected (federal, state, county and other). **Included =** Projects included in the City's Transportation Master Plan (TMP) and the Capital Improvement Element (CIE) such as roadway widening, roadway reconstruction, road resurfacing, lighting, traffic signals, roadway drainage, intersection improvements, roadway landscaping, sidewalks, bike paths.

   Total Costs = $ 12,625,443

4. Compute Total Cost per Daily Trip

   For the purposes of this calculation, we are utilizing the

   Total cost per daily trip is indicated by the expected daily trips based on comprehensive plan projections, as opposed to the designated build out, as this is a more accurate representation of expected development in the time period.

Total Cost per daily trip = $ 12,625,443 / 161,860 trips = $ 78.00 per trip

5. Add 5 % administrative costs

Administrative costs are necessary due to the requirements of administration, including specialized accounting and additional considerations in site plan review processes. 5% is a standard estimate utilized by other municipalities in assessing impact fees; however, an alternative rate, accounting for staffing and specific procedural costs unique to each municipality's operations, can be established through the auditing of department processes to determine actual and potential administrative costs.

Person Trip Cost = $78.00 x 1.05 = $ 81.90 per daily trip

6. Multiply amount from step 6 above yearly to account for inflation cost.

   The costs as noted in this report are current for 2015. However, as these projects will be carried over multiple years, inflation factors must be included to prevent financial loss to the Town. Accounting for inflation allows pricing to be current, and accurate assessments for fees allows for the projects to be appropriately funded. This inflation factor can be found at http://www.dot.state.fl.us/planning/policy/costs/inflation.pdf and is attached to this report in the appendix.

   * Source: FDOT Work Program inflation factors.

7. Update the cost obtained in step # 4 on a regular basis to take into account inflation, updates to the Town's TMP, CIE and the MPO's LRTP, and new development as they are approved and as mobility fees are collected.

   This step involves an annual update through a brief review of what has been funding, and updating the list of projects. Project costs can then be adjusted through a flat calculation. This is necessary as impact fee assessments must hold to scrutiny and be justifiable.

Credits System for TDM and Good Development:

Development trip credits give an opportunity for additional funding to be provided for mobility projects. The usage of a points system cannot necessarily be used to hinder development that may occur by right, but can be used to provide a financially based incentive towards specific development.

In order to incentivize high quality development, the Town should have development standards that can be applied to each development. These standards will not be individually mandatory, but a certain number of them will need to be incorporated into each development for it to be eligible for reduction in transportation oriented fees. For a development to be approved they will need to incorporate a certain number or percentage of them, or, the Town can elect to assign a threshold by which the trips can be transferred, and at what ratio.

To better create ease of usage, it is recommended that specific point values based on policy weights be assigned to each of these particular qualities. What is more desired overall by the Town should have a higher points rating under this system. These standards will be the site specific issues such as, connectivity, density, location of density, mix of uses, pedestrian and bicycle amenities, and other policy issues. More specifically, these could be the location of bike racks, or the presence

of bike lockers and showers. The presence of sidewalks, implementation of flexible work hours, staggered work times, carpool and van pool programs, or sponsoring of transit facilities and transit routes may also be considered.

Each method is assigned a trip value. To attract the applicants to utilizing these, the trip value of the applied development standards incorporated into each project will be subtracted from the trip generation of the project. Due to the diminishing returns encountered with each successive strategy employed, it is suggested that the Town cap the trip credit at 30% of the overall trips for each development. Alternatively, each amenity may be assigned a standard points value. These points may be assigned thresholds, at the Town's discretion, associated with % of trips reduced.

The following table represents a listing of credits for developmental qualities which the Town may choose to employ.

Improvement or Action	Type of eligible project	Credit available (daily trips)	Special requirements
Bicycle parking spaces on-site	All types of development/uses other than single family and two-family projects. However, bicycle parking spaces developed as part of a single family or two family development as part of common areas may, at the discretion of the Administrative Official, be eligible so long as said bicycle parking spaces are accessible to the general public.	0.5 trips per bicycle parking space not located on a site adjacent to a designated greenway. 1.0 trips per bicycle parking space located on a site adjacent to a designated greenway.	All bicycle parking spaces used for mobility fee credit shall be over and above those otherwise required by the LDC or which are provided as part of another incentive program under the LDC. In order to receive mobility fee credits for bicycle parking spaces, said spaces be must accessible to the general public and so located on the site as to encourage bicycle use, as determined by the Administrative Official.
Mixed-Use Development	Projects that include at least two different general types of land uses (i.e. residential, commercial, office and industrial) wherein no one use category exceeds 75 percent of the total floor area.	Up to ten percent of daily trips, at the discretion of the Administrative Official.	Applicants must demonstrate that the mixed use project is so designed to achieve internal trip capture and encouragement of alternative modes. The percent of daily trips credited shall be based on the level of mitigation of transportation impacts expected due to the mixed use nature of the development.

Preferred parking for carpools	Nonresidential development	3 trips for preferred carpool parking space, up to ten percent of daily trips.	Preferred parking for carpools shall be demonstrated to be advantaged over other parking spaces at the facility.
Pedestrian throughways and bicycle facilities.	All	Maximum of three percent of daily trips.	Applicant must demonstrate that the proposed pedestrian throughway will contribute to creating a safe, comfortable and convenient pedestrian and bicycle network in Miami Lakes, or will help to complete a designated greenway. Any such facility receiving a mobility fee credit shall be accessible to the general public. One or more easements for public access may be required, at the discretion of the Administrative Official.
Placing parking in the rear	Nonresidential, mixed use and multifamily residential development	Maximum of three percent of daily trips.	The amount of credit given shall be based on the proportion of parking placed in the rear of the building. All parking must be placed in the rear in order to receive the full three percent credit.
Flexible work arrangements and/or staggered work arrangements	Nonresidential development and uses	Up to five percent of daily trips	
Employer provided transit passes	Any property or use, other than single family, two-family and townhouse properties, which has employees on site.	One percent for each pass purchased.	One transit pass shall equal a Miami-Dade County transit pass that will allow an employee to access the site for work for one year. Employers must demonstrate good faith in encouraging use of transit, and making reasonable scheduling accommodation to account for transit schedules.
Developer or employer sponsored transit	Office and industrial development or uses cumulatively accounting for at least 150 employees. More than one employer on a single site or on more than one site that are located within one-quarter mile of a central point may jointly apply to receive this credit.	Up to 3.5 percent of daily trips	The applicant or applicants for developer or employer sponsored transit shall submit a plan to be considered for approval by the Administrative Official.

Implementation

Legislative:

Implementation of an Alternative to Concurrency plan is a multi-step process which begins with amendments to the current land development regulations and adoption of local ordinances in regards to a mobility based impact fee. Additionally, the Town should adopt level of service standards for bicycle, pedestrian, and transit facilities.

The model contained within the recommendations is adjustable as a standard formula, and updates to the fee can be effected by Town staff over time. As a general implementation recommendation, Town Staff should direct, as a matter of standard procedure, any efforts to update transportation master planning or comprehensive planning updates to consider necessary changes to the impact fee program.

Dedicated Funds Account and Fee Update:

The establishment of an impact fee, per Florida Statutes, must be accounted for by a municipality through the creation of a specific account into which these fees are attributed and maintained, and is an administrative function which should be exercised by the Town's Finance Department. Upon adoption, planning department procedures in site plan review will change, and information should be made available to the public as necessary. Projects already submitted for consideration in the site plan review process at the time of policy adoption should be will be subject to the new fees if the building permits and/or certificate of occupancy have not been issued.

To keep the fee accurate as time progresses, an annual adjustment based on inflation should be made to the assessments of the remaining transportation projects. This adjustment can come from a variety of sources – the Bureau of Labor Statistics maintains a Consumer Price Index as a benchmark, as does the Florida Department of Transportation, in regards to transportation projects, in the form of a Work program inflation factor; the current model accounts for this change by recommending an annual change rate based on the Florida Department of Transportation's rate, given its closer relationship with transportation infrastructure development.

Regular Review and Plan Updates:

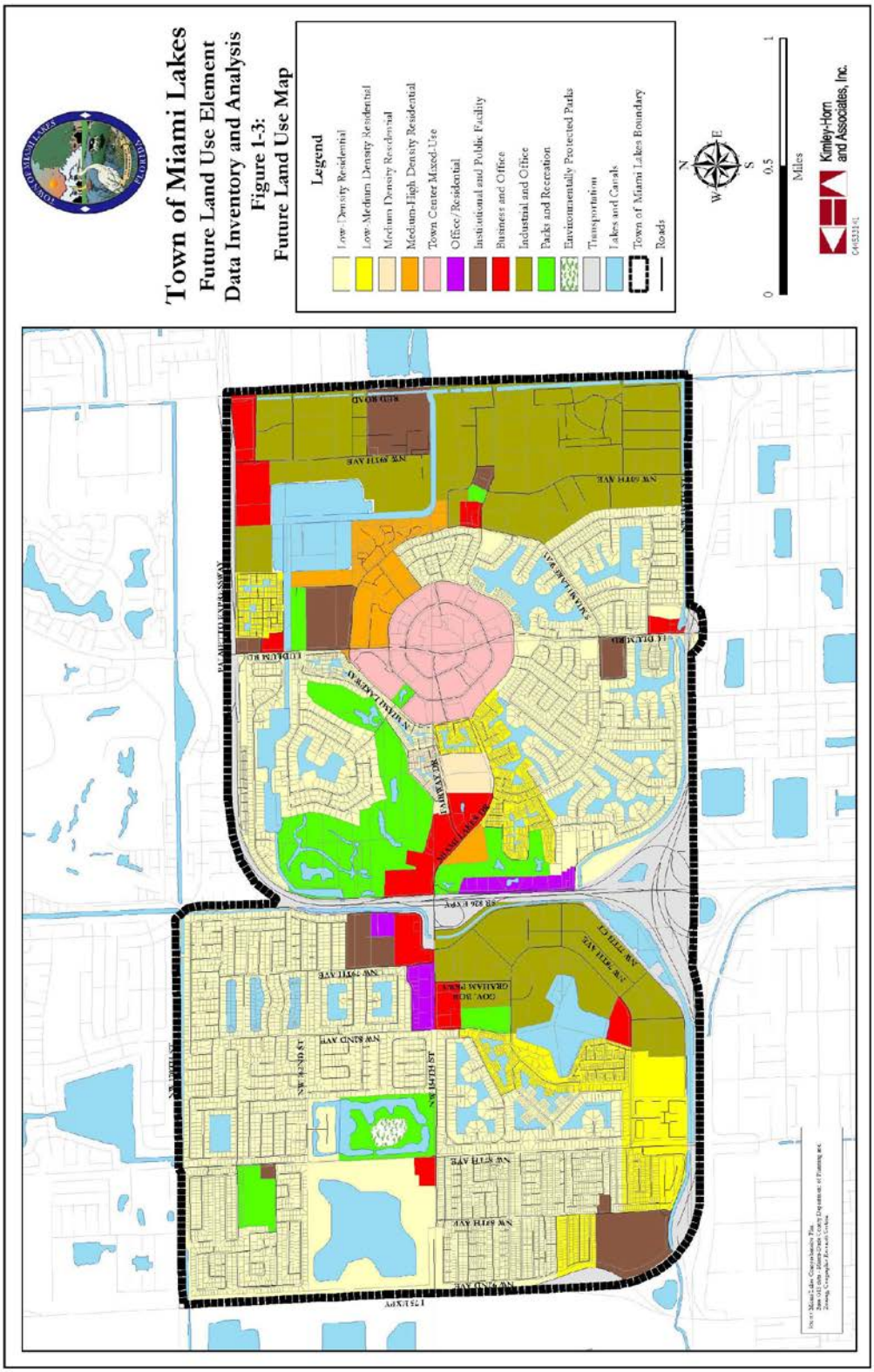
As projects become fully funded, they should be removed from the list of planned infrastructure requiring funding. These projects, once implemented, will thus not be impacted by annual increases based on inflation. As newer development is approved and funding from the impact is assessed, the impact of that development, both in population growth and trips generated, as well as the fees assessed, count towards both ends of the fee's model structure, which is based on cost per trips generated. The application of reduction of both trips and fees assessed keeps the fees model in equation; as long as the fees assessed are based on trips. Fees offered for bonuses in development create a special assessment situation which must be considered in the funding formula. In these cases, secured and paid funding for infrastructure should be specifically earmarked for financing. However, it is recommended that for multi-year plans, assessments are only applied upon receipt of associated monies to be earmarked for infrastructure.

Review of other jurisdictions within Florida as well as Florida State Statutes indicates that periodic review of existing fees is required. This review should, at minimum, cover the build-out model for any changes, as well as review the appropriateness of the listing of projects. An examination of other Floridian jurisdictions, such as Manatee County, among others, indicate that a standard three to five years' timeframe is generally observed between reassessments of their programs. Timed correctly, part of this assessment coincides with each municipality's need to update either a Transportation Master Plan or the Comprehensive Plan. As each of these efforts must take into account change in population over time, as well as the transportation projects necessary for inclusion into the Capital Improvements Program, these are natural points during which the impact fees can be reassessed, and combining this overlapping researching into one process may result in administrative efficiency and cost savings in administering this policy.

Lastly, as the impact fee is contingent on the trips generated versus the infrastructure necessary to support the incoming population, as large scale amendments to the future land use accrue, staff should carefully evaluate and consider amendments to the fee in order retain appropriate levels of justification relative to the changes in the build out model utilized in the designation of the fee.

Appendix

A. Future Land Use Map
B. Existing Land Use
C. Project List derived from Master Planning
D. Build Out Calculations
E. Household Travel Survey
F. Trip Generation Spreadsheet


Town of Miami Lakes
Future Land Use Element
Data Inventory and Analysis
Figure 1-3:
Future Land Use Map
Legend
Low Density Residential
Low-Medium Density Residential
Medium Density Residential
Medium-High Density Residential
Town Center Mixed-Use
Office/Residential
Institutional and Public Facility
Business and Office
Industrial and Office
Parks and Recreation
Environmentally Protected Parks
Transportation
Lakes and Canals
Town of Miami Lakes Boundary
Roads
N
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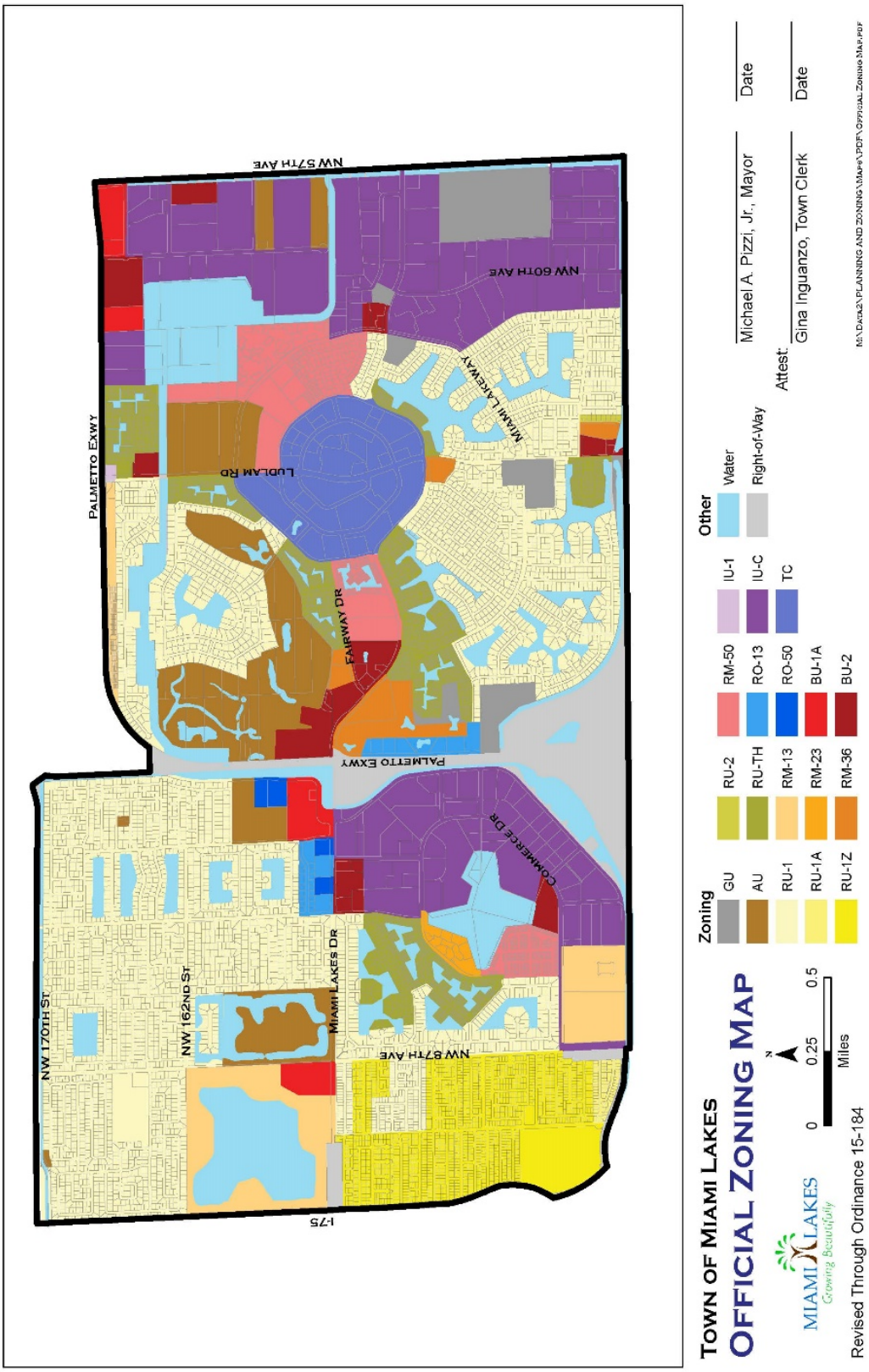
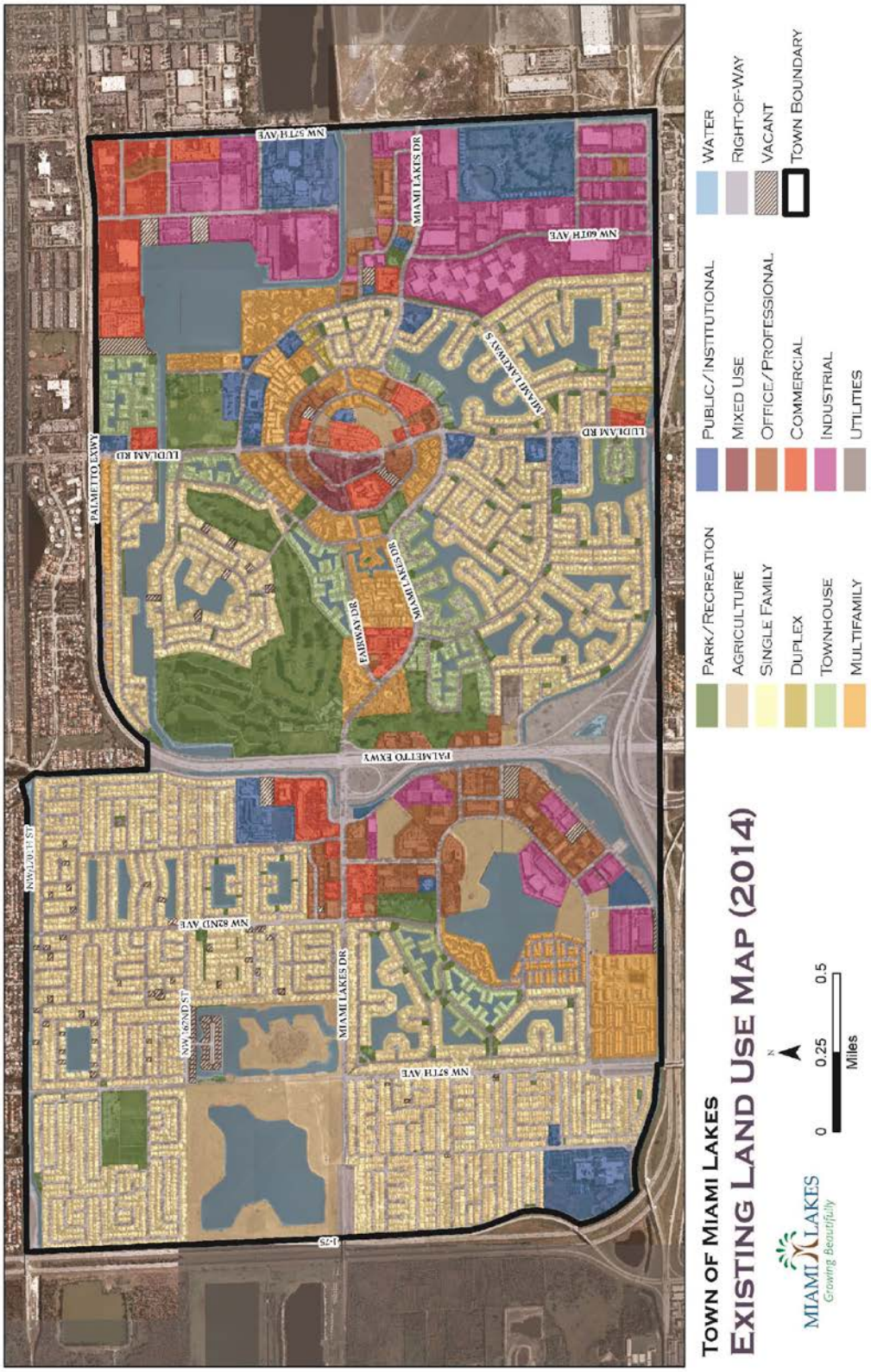
1
Miles
Kimley-Horn and Associates, Inc.

B: Zoning Map



MIAMI LAKES
Growing Beautifully

C: Existing Land Use



MIAMI LAKES
Growing Beautifully

D: Project List derived from Master Planning

Study	Project Description	Location	Street Name	From	To	Cost Estimate	Cost Estimate (After Applicable Inflation)	Quantity	Unit	Modal Category
Miami Lakes Greenways and Trails Master Plan 2014	Bike Lane Only	NW 158th Street	NW 158th Street	NW 59th Avenue	NW 57th Avenue	$5,200.00	$5,252.00	0.26	Miles	Bicycle Lane
Miami Lakes Greenways and Trails Master Plan 2014	**Bike Lane plus Sidewalk** - Add Bike lanes (w/o drai	NW 60th Avenue **This street doesn	NW 60th Avenue	Miami Lakes Drive	NW 138th Street	$446,600.00	$451,066.00	0.77	Miles	Bicycle Lane
Miami Lakes Greenways and Trails Master Plan 2014	**Bike Lane plus Sidewalk** - Add Bike lanes (w/o drainage/curb alterations) plus sidewalk to north side of road (1 side)	NW 163rd Street	NW 163rd Street	NW 58th Avenue	NW 57th Avenue	$85,800.00	$86,658.00	0.26	Miles	Bicycle Lane
Miami Lakes Greenways and Trails Master Plan 2014	Bike Lane plus Sidewalk - Add Bike lanes (w/o drair	NW 59th Avenue **This street does	NW 59th Avenue	NW 158th Street	NW 167 Street	$125,400.00	$126,654.00	0.38	Miles	Bicycle Lane
Transportation Master Plan 2004	Construct bicycle lanes	Miami Lakes Dr	Miami Lakes Dr			$200,000.00	$318,000.00			Bicycle Lane
Transportation Master Plan 2004	Construct bicycle lanes	NW 154th St	NW 154th St			$75,000.00	$119,250.00			Bicycle Lane
Transportation Master Plan 2004**	Construct bicycle lanes	NW 87th Ave	NW 87th Ave	**Current Bike lane only goes from NW 154th and to NW 162nd**		$175,000.00	$278,250.00			Bicycle Lane
Miami Lakes GREEN TAP 2014	ADA Master Plan					$50,006.00	$50,506.06			General
Transportation Master Plan 2004	Develop external site access and internal circulation plans for schools	Town-wide				$80,000.00	$127,200.00			General
Miami Lakeway Safe Route To School 2008 (Preliminary	Landscape	Miami Lakeway North and Miami Lakeway South (east of NW 67th Avenue)	Miami Lakeway	East of NW 67th Ave		$10,000.00	$11,700.00			Landscape
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	Big Cypress Drive	Big Cypress Drive	Twin Sabal Drive	S. Miami Lakeway	$52,000.00	$52,520.00	0.52	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	Commerce Way/Oak Lane	Commerce Way/Oak Lane	NW 87th Avenue	NW 79th Court	$11,900.00	$12,019.00	11.9	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	NW 146th Terrace	NW 146th Terrace	NW 92nd Avenue	NW 89th Avenue	$2,100.00	$2,121.00	0.21	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	NW 149th Terrace	NW 149th Terrace	NW 92nd Avenue	NW 87th Avenue	$4,900.00	$4,949.00	0.49	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	NW 153rd Terrace	NW 153rd Terrace	NW 92nd Avenue	NW 89th Avenue	$2,500.00	$2,525.00	0.25	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	NW 79th Court	NW 79th Court	Oak Lane	NW 154th Street	$3,000.00	$3,030.00	0.3	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	NW 80th Avenue	NW 80th Avenue	NW 77th Court/Palmetto Frontage Road	Commerce Way/Oak Lane	$15,000.00	$15,150.00	0.15	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	NW 92nd Avenue	NW 92nd Avenue	NW 146th Terrace	NW 153rd Terrace	$4,500.00	$4,545.00	0.45	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements** - Pavement markings and signing improvements; Add Bike Sharrows	Twin Sabal/Sabal/Leaning Pine Drive	Twin Sabal/Sabal/Leaning Pine Drive	Big Cypress Drive	Bamboo Street	$6,400.00	$6,464.00	0.64	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements Plus Sidewalk** - Pavement Markings and signing improvements; Add Bike Sharrows plus add sidewalk on south side	W 142nd Street	NW 142nd Street	NW 60th Avenue	NW 57th Avenue	$98,800.00	$99,788.00	0.38	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements plus Traffic Calming** - Pavement markings and signing improvements; Add Bike Sharrows plus traffic calming along corridor	NW 146th Street	NW 146th Street	NW 89th Avenue	NW 87th Avenue	$7,600.00	$7,676.00	0.38	Miles	Roadway Improvements
Miami Lakes Greenways and Trails Master Plan 2014	**On-Street Striping and Sign Improvements plus Traffic Calming** - Pavement markings and signing improvements; Add Bike Sharrows plus traffic calming along corridor	NW 89th Avenue Palmetto	NW 89th Avenue Palmetto	Frontage Road	NW 154th Street	$17,600.00	$17,776.00	0.88	Miles	Roadway Improvements
Miami Lakeway Safe Route To School 2008 (Preliminary	Bollards	Miami Lakeway North and Miami Lakeway South (east of NW 67th Avenue)	Miami Lakeway	East of NW 67th Ave		$15,000.00	$17,550.00	30	each	Roadway Improvements
Miami Lakeway Safe Route To School 2008 (Preliminary	Pavement Markings	Miami Lakeway North and Miami Lakeway South (east of NW 67th Avenue)	Miami Lakeway	East of NW 67th Ave		$5,000.00	$5,850.00			Roadway Improvements
Transportation Master Plan 2004	Capacity Enhancements	Palmetto Expwy Interchanges	Palmetto Expwy Interchange	at Ludlam Road		Funded by FDOT	Funded by FDOT			Roadway Improvements

Transportation Master Plan 2004	Capacity Enhancements	Palmetto Expwy Interchanges	Palmetto Expwy Interchange	at Red Road		Funded by FDOT	Funded by FDOT			Roadway Improvements
Transportation Master Plan 2004	Extend eastbound left-turn lane	Miami Lakeway North	Miami Lakeway North	at Ludlam Road		$50,000.00	$79,500.00			Roadway Improvements
Transportation Master Plan 2004	Extend westbound right-turn lane	Miami Lakeway North	Miami Lakeway North	at Ludlam Road		$50,000.00	$79,500.00			Roadway Improvements
Transportation Master Plan 2004	Implement a Speed Management Plan. Possible enhancements include traffic circles and textured crosswalks at intersections.	Residential Sections of Miami Lakeway North and Miami Lakeway South				$250,000.00	$397,500.00			Roadway Improvements
Transportation Master Plan 2004	Implement Corridor Study Recommenddations	NW 82nd Ave Corridor Study	NW 82nd Ave	****None of recommendations implemented****		$150,000.00	$238,500.00			Roadway Improvements
Transportation Master Plan 2004	Monitor the NW 154th Street Corridor Following Implementation of FDOT Improvements to Determine if Further Capacity Improvements are Needed including Signal Re-Optimization	NW 154th Street	NW 154th Street	**Not all recommendations implemented. Still needed: **reconstruct sidewalks/add ramps **4 ft bicycle lanes**		$20,000.00	$31,800.00			Roadway Improvements
Follow up to adove item (added 08/04/15)	Optimize traffic signals	NW 154 Street	NW 154th St	NW 87th Avenue	NW 67th Avenue					Roadway Improvements
Transportation Master Plan 2004	Optimize traffic signals	Vicinity of Palmetto Expressway	Ludlam Road			$15,000.00	$23,850.00			Roadway Improvements
Transportation Master Plan 2004	Optimize traffic signals	Vicinity of Palmetto Expressway	Red Road			$15,000.00	$23,850.00			Roadway Improvements
Miami Lakes GREEN TAP 2014	ADA Intersections w curb maps, domes, and crosswalk striping					$84,990.00	$85,839.90	10	Each	Sidewalk
Miami Lakes GREEN TAP 2014	New sidewalks and Sidewalks Improvements					$509,004.00	$514,094.04	18852	LF	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Path** (Off-Street - Along Street)	NW 154th Street	NW 154th Street	NW 89th Avenue	NW 87th Avenue	$62,500.00	$63,125.00	0.25	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Path** (Off-Street - Along Street)	NW 162nd Street	NW 162nd Street	NW 87th Avenue	NW 82nd Avenue	$125,000.00	$126,250.00	0.5	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Path** (Off-Street - Along Street)	NW 77th Avenue/NW 167th Street	NW 77th Avenue/NW 167th Street	Miami Lakes Drive	NW 57th Avenue	$640,000.00	$646,400.00	2.56	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Shared-Use Path** (Off-Street - Along Canal)	Canal/NW 139th Street	Canal/NW 139th Street	NW 60th Avenue	NW 142nd Street	$285,000.00	$287,850.00	0.57	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Shared-Use Path** (Off-Street - Along Canal)	Canal/NW 170th Street	Canal/NW 170th Street	West of NW 89th Avenue	NW 89th Avenue	$130,000.00	$131,300.00	0.26	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Shared-Use Path** (Off-Street - Along Canal)	Canal/NW 77th Court (North of NW 154th Street)	Canal/NW 77th Court (North of NW 154th Street)	NW 154th Street	NW 76th Place	$365,000.00	$368,650.00	0.73	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Shared-Use Path** (Off-Street - Along Canal)	Canal/NW 77th Court (South of NW 154th Street)	Canal/NW 77th Court (South of NW 154th Street)	West of NW 89th Avenue	NW 154th Street	$1,060,000.00	$1,070,600.00	2.12	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Add Shared-Use Path** (Off-Street - Along Canal)	Canal/South of Bamboo Street	Canal/South of Bamboo Street	Bamboo Street	NW 67th Avenue	$300,000.00	$303,000.00	0.6	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Intersection Corner and Sign Improvements** - Corner improvements including widening the curb ramp to be the width of the path and to add signage to mark off paths as bike routes	Miami Lakes Drive	Miami Lakes Drive	NW 89th Avenue	NW 57th Avenue	$1,025,000.00	$1,035,250.00	41	Each	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Intersection Corner and Sign Improvements** - Corner improvements including widening the curb ramp to be the width of the path and to add signage to mark off paths as bike routes	NW 67th Avenue	NW 67th Avenue	W 84th Street	NW 167th Street	$375,000.00	$378,750.00	15	Each	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Widen Narrow Path** to 10 to 12 feet	NW 87th Avenue	NW 87th Avenue	SR 924	NW 154th Street	$247,500.00	$249,975.00	0.99	Miles	Sidewalk
Miami Lakes Greenways and Trails Master Plan 2014	**Widen Narrow Path** to 10 to 12 feet	S. Miami Lakeway	S. Miami Lakeway	Miami Lakes Drive	Miami Lakes Drive	$40,000.00	$40,400.00	1.6	Miles	Sidewalk
Miami Lakeway Safe Route To School 2008 (Preliminary	Benches	Miami Lakeway North and Miami Lakeway South (east of NW 67th Avenue)	Miami Lakeway	East of NW 67th Ave		$5,000.00	$5,850.00	10	each	Sidewalk
Miami Lakeway Safe Route To School 2008 (Preliminar	Greenway Trail and safe route to school	Miami Lakeway North and Miami Lakeway South (east of NW 67th Avenue)	Miami Lakeway	East of NW 67th Ave		$280,500.00	$328,185.00	8500	Feet	Sidewalk
Transportation Master Plan 2004	Create a Network of Shared Use Paths in the Eastern Portion of the Town	Eastern Portion of Town				$400,000.00	$636,000.00			Sidewalk
Transportation Master Plan 2004	FDOT Imprvements - changes to lane configuration, sidewalks, bicycle lanes, pedestrian signal heads, crosswalks	NW 154th St (Vicinity of Palmetto Expy)	NW 154th St			Funded by FDOT	Funded by FDOT			Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 139th St	NW 57th Ct	NW 60th Ave	$54,000.00	$85,860.00	3600	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 57th Ct	NW 139th St	NW 142nd St	$34,500.00	$54,855.00	2300	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 58th Ave	NW 139th St	NW 142nd St	$34,500.00	$54,855.00	2300	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 58th Ct	NW 139th St	NW 142nd St	$34,500.00	$54,855.00	2300	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 59th Ave	NW 139th St	NW 142nd St	$34,500.00	$54,855.00	2300	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 142nd St	NW 57th Ct	NW 60th Ave	$54,000.00	$85,860.00	3600	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 60th Ave	NW 139th St	Miami Lakes Dr	$121,500.00	$193,185.00	8100	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 57th Ct	Miami Lakes Dr	NW 151st St	$9,000.00	$14,310.00	600	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 59th Ct	Miami Lakes Dr	NW 151st St	$12,000.00	$19,080.00	800	LF	Sidewalk

Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 151st St	NW 57th Ct	NW 59th Ct	$36,000.00	$57,240.00	2400	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 60th Ave	NW 151st St	NW 153rd St	$27,000.00	$42,930.00	1800	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park East	NW 153rd St	NW 60th Ave	Miami Lakes Dr	$21,000.00	$33,390.00	1400	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 82nd Ave.	Northern Entrance to P-Lot	Commerce Way	$7,500.00	$11,925.00	500	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 80th Ave.	NW 77th Ct.	Commerce Way	$21,000.00	$33,390.00	1400	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 77th Ct.	NW 82nd Ave.	NW 154th St.	$97,500.00	$155,025.00	6500	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 78th Ave.	NW 80th Ave.	NW 148th St.	$79,500.00	$126,405.00	5300	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	Commerce Way	NW 82nd Ave.	NW 148th St.	$43,500.00	$69,165.00	2900	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 146th St.	Commerce Way	NW 77th Ct.	$13,500.00	$21,465.00	900	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 148th St.	Commerce Way	NW 77th Ct.	$24,000.00	$38,160.00	1600	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	Oak Ln.	NW 148th St.	NW 79th Ct.	$12,000.00	$19,080.00	800	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 79th Ct.	Oak Ln.	NW 154th St.	$22,500.00	$35,775.00	1500	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Business Park West	NW 149th St.	Oak Ln.	NW 77th Ct.	$33,000.00	$52,470.00	2200	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Technical Education Center	NW 59th Ave.	Biscayne Canal	NW 165th Ter.	$106,500.00	$169,335.00	7100	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Technical Education Center	NW 59th Ave.	NW 165th Street	NW 167th St.	$6,000.00	$9,540.00	400	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Technical Education Center	NW 158th St.	NW 59th Ave.	Red Rd.	$39,000.00	$62,010.00	2600	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Technical Education Center	NW 159th St.	NW 59th Ave.	Red Rd.	$19,500.00	$31,005.00	1300	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Technical Education Center	NW 163rd St.	NW 59th Ave.	Red Rd.	$40,500.00	$64,395.00	2700	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Technical Education Center	58th Ave.	NW 163rd St.	NW 165th Street	$22,500.00	$35,775.00	1500	LF	Sidewalk
Transportation Master Plan 2004	Sidewalk Additions	Miami Lakes Technical Education Center	NW 165th Street	NW 59th Ave.	Red Rd.	$39,000.00	$62,010.00	2600	LF	Sidewalk
Miami Lakeway Safe Route To School 2008 (Preliminary	Signage	Miami Lakeway North and Miami Lakeway South (east of NW 67th Avenue)	Miami Lakeway	East of NW 67th Ave		$6,000.00	$7,020.00	30	each	Signage
Transportation Master Plan 2004	Construct Bus Shelters with benches	Miami Lakes Dr West (eastbound)	Miami Lakes Dr West (eastbound)	west of Miami Lakeway South		$15,000.00	$23,850.00			Transit
Transportation Master Plan 2004	Construct Bus Shelters with benches	NW 154th St (eastbound)	NW 154th St (eastbound)	west of NW 79th Ave		$15,000.00	$23,850.00			Transit
Buses		4					$1,600,000.00			Transit
Bus Shetlers	10 shelters	Varies					$250,000.00			Transit

$12,625,443.00

Color Code	
Yellow	Completed
Orange	Partially Completed; Items not completed listed
Red	The location provided cannot be found or the item no longer applies
Blue	Item added
No fill	Item **NOT** completed

E: Build Out Calculations

LU	DESCRIPTIO	Area	Acres	KHAcres
7	BUSINESS AND OFFICE	244,360.32	5.61	5.61
7	BUSINESS AND OFFICE	402,346.17	9.24	9.24
7	BUSINESS AND OFFICE	419,036.09	9.62	9.62
7	BUSINESS AND OFFICE	274,545.12	6.30	6.30
7	BUSINESS AND OFFICE	55,961.16	1.28	1.28
7	BUSINESS AND OFFICE	71,651.86	1.64	1.64
7	BUSINESS AND OFFICE	103,342.75	2.37	2.37
7	BUSINESS AND OFFICE	277,555.96	6.37	6.37
7	BUSINESS AND OFFICE	1,105.47	0.03	0.03
7	BUSINESS AND OFFICE	1,862,517.11	42.76	42.76
7	BUSINESS AND OFFICE	6,721.03	0.15	0.15
7	BUSINESS AND OFFICE	247,021.04	5.67	5.67
7	BUSINESS AND OFFICE	171,066.62	3.93	3.93
7	BUSINESS AND OFFICE	236,503.87	5.43	5.43
7	BUSINESS AND OFFICE	1,599,731.96	36.72	36.72
			137.13	
10	ENVIRONMENTALLY PROTECTED PARKS	190,690.91	**4.38**	4.38
8	INDUSTRIAL AND OFFICE	35,701.89	0.82	0.82
8	INDUSTRIAL AND OFFICE	730,190.45	16.76	16.76
8	INDUSTRIAL AND OFFICE	226,516.49	5.20	5.20
8	INDUSTRIAL AND OFFICE	8,291,058.36	190.34	190.34
8	INDUSTRIAL AND OFFICE	11,800,252.40	270.90	270.90
8	INDUSTRIAL AND OFFICE	9,225,351.55	211.78	211.78
			695.80	
6	INSTITUTIONAL AND PUBLIC FACILITY	1,862,168.14	42.75	42.75
6	INSTITUTIONAL AND PUBLIC FACILITY	883,554.17	20.28	20.28
6	INSTITUTIONAL AND PUBLIC FACILITY	94,621.77	2.17	2.17
6	INSTITUTIONAL AND PUBLIC FACILITY	1,261,123.14	28.95	28.95
6	INSTITUTIONAL AND PUBLIC FACILITY	168,236.15	3.86	3.86
6	INSTITUTIONAL AND PUBLIC FACILITY	173,160.83	3.98	3.98
6	INSTITUTIONAL AND PUBLIC FACILITY	481,208.16	11.05	11.05
6	INSTITUTIONAL AND PUBLIC FACILITY	1,826,334.86	41.93	41.93
			154.97	
1	LOW-DENSITY	908,753.09	20.86	20.86
1	LOW-DENSITY	1,546,398.20	35.50	35.50
1	LOW-DENSITY	20,261.81	0.47	0.47
1	LOW-DENSITY	48,157.10	1.11	1.11
1	LOW-DENSITY	209,009.25	4.80	4.80
1	LOW-DENSITY	17,645.63	0.41	0.41
1	LOW-DENSITY	600,491.19	13.79	13.79
1	LOW-DENSITY	846.93	0.02	0.02
1	LOW-DENSITY	1,568.17	0.04	0.04
1	LOW-DENSITY	26,245.22	0.60	0.60
1	LOW-DENSITY	156,453.07	3.59	3.59
1	LOW-DENSITY	9,671,418.32	222.03	222.03
1	LOW-DENSITY	13,981,147.75	320.96	320.96
1	LOW-DENSITY	14,266,161.70	327.51	327.51
1	LOW-DENSITY	9,542,944.49	219.08	219.08
1	LOW-DENSITY	247,803.84	5.69	5.69
1	LOW-DENSITY	34,387,015.01	789.42	789.42
			1,965.85	
2	LOW-MEDIUM DENSITY	102,390.12	2.35	2.35
2	LOW-MEDIUM DENSITY	2,983,217.80	68.49	68.49
2	LOW-MEDIUM DENSITY	184,682.47	4.24	4.24
2	LOW-MEDIUM DENSITY	371,370.25	8.53	8.53
2	LOW-MEDIUM DENSITY	3,433,010.22	78.81	78.81
2	LOW-MEDIUM DENSITY	101,218.27	2.32	2.32
2	LOW-MEDIUM DENSITY	66,473.06	1.53	1.53
2	LOW-MEDIUM DENSITY	12,832.28	0.29	0.29
2	LOW-MEDIUM DENSITY	59,896.43	1.38	1.38
2	LOW-MEDIUM DENSITY	43,567.33	1.00	1.00
2	LOW-MEDIUM DENSITY	190,954.10	4.38	4.38
2	LOW-MEDIUM DENSITY	1,300,960.16	29.87	29.87
2	LOW-MEDIUM DENSITY	2,628,782.92	60.35	60.35
2	LOW-MEDIUM DENSITY	9,746.77	0.22	0.22
2	LOW-MEDIUM DENSITY	843,573.29	19.37	19.37
2	LOW-MEDIUM DENSITY	94,537.87	2.17	2.17
2	LOW-MEDIUM DENSITY	38,804.17	0.89	0.89
			286.18	
3	MEDIUM DENSITY	2,946.65	0.07	0.07
3	MEDIUM DENSITY	1,533,855.73	35.21	35.21
			35.28	
4	MEDIUM-HIGH DENSITY	272,720.96	6.26	6.26
4	MEDIUM-HIGH DENSITY	171,995.07	3.95	3.95
4	MEDIUM-HIGH DENSITY	24,191.86	0.56	0.56
4	MEDIUM-HIGH DENSITY	3,736,865.81	85.79	85.79
			96.55	
5	OFFICE/RESIDENTIAL	172,346.11	3.96	3.96
5	OFFICE/RESIDENTIAL	73,679.53	1.69	1.69
5	OFFICE/RESIDENTIAL	179,905.64	4.13	4.13
5	OFFICE/RESIDENTIAL	512,774.71	11.77	11.77
5	OFFICE/RESIDENTIAL	522,402.26	11.99	11.99
5	OFFICE/RESIDENTIAL	168,004.96	3.86	3.86
5	OFFICE/RESIDENTIAL	23,603.79	0.54	0.54
5	OFFICE/RESIDENTIAL	81,667.49	1.87	1.87
5	OFFICE/RESIDENTIAL	34,005.57	0.78	0.78
			40.60	
9	PARKS AND RECREATION	692,023.64	15.89	15.89
9	PARKS AND RECREATION	113,036.15	2.59	2.59
9	PARKS AND RECREATION	635,187.69	14.58	14.58
9	PARKS AND RECREATION	27,123.77	0.62	0.62
9	PARKS AND RECREATION	4,465.97	0.10	0.10
9	PARKS AND RECREATION	124,816.80	2.87	2.87
9	PARKS AND RECREATION	403,071.53	9.25	9.25
9	PARKS AND RECREATION	502,976.02	11.55	11.55
9	PARKS AND RECREATION	6,640,812.19	152.45	152.45
9	PARKS AND RECREATION	203,143.63	4.66	4.66
9	PARKS AND RECREATION	1,116,198.12	25.62	25.62
9	PARKS AND RECREATION	47,598.66	1.09	1.09
9	PARKS AND RECREATION	129,937.70	2.98	2.98
9	PARKS AND RECREATION	402,990.35	9.25	9.25
9	PARKS AND RECREATION	78,940.92	1.81	1.81
9	PARKS AND RECREATION	127,620.06	2.93	2.93
9	PARKS AND RECREATION	34,070.96	0.78	0.78
			259.05	
13	TOWN CENTER MIXED-USE	3,307,899.65	75.94	75.94
13	TOWN CENTER MIXED-USE	3,228,870.69	74.12	74.12
			150.06	
11	TRANSPORTATION	169,739.01	3.90	3.90
11	TRANSPORTATION	324,663.50	7.45	7.45
11	TRANSPORTATION	460,226.08	10.57	10.57
11	TRANSPORTATION	573,152.63	13.16	13.16
11	TRANSPORTATION	189,174.02	4.34	4.34
11	TRANSPORTATION	408,940.05	9.39	9.39
11	TRANSPORTATION	1,874,344.79	43.03	43.03
11	TRANSPORTATION	277,899.96	6.38	6.38
11	TRANSPORTATION	124,221.08	2.85	2.85
11	TRANSPORTATION	135,475.39	3.11	3.11
11	TRANSPORTATION	211,074.70	4.85	4.85
11	TRANSPORTATION	38,420.51	0.88	0.88
11	TRANSPORTATION	6,694,583.75	153.69	153.69
11	TRANSPORTATION	27,083.34	0.62	0.62
11	TRANSPORTATION	24,885.09	0.57	0.57
11	TRANSPORTATION	2,141,118.28	49.15	49.15
1	TRANSPORTATION	353,300.23	8.11	8.11
			322.05	

Total Acreage per Land Use Catergory	
	Acres
Residential	**2,414.41**
Commercial	**200.69**
Industrial	**695.80**
Public/Institutional	**154.97**
Parks & Rec	**263.42**
Transportation	**322.05**
TOTAL	**4,051.34**

Total BUILT Acreage per Land Use Catergory		
	Sq Ft	Acres
Residential	29,772,311	683.5
Commercial	1,336,254	30.7
Industrial	6,207,281	142.5
Mixed Use	306,122	7.0
Office/ Professional	2,193,529	50.4
Public/ Institutional	1,036,237	23.8

Total Max Allowed Built Capacity		
Residential	28,869.7	D/U
Commercial		

Town's Max Allowed Density (Comp Plan)		
Res Low-Desnity	6	D/U per Acre
Res Low-Med Density	13	D/U per Acre
Res Med Density	25	D/U per Acre
Res Med-High Density	60	D/U per Acre
Commercial	0.57	FAR
Industrial	varies per zoning district	
Office	2.00	FAR
Census Data (existing)		
Housing Units, 2010	**10,698**	
Persons per Household, 2009-2013	**3.12**	

11,795.1 Max Allowed Built capacity (Dweling units)

3,720.3 Max Allowed Built capacity (Dweling units)

882.0 Max Allowed Built capacity (Dweling units)

5,793.1 Max Allowed Built capacity (Dweling units)

Residentia 27.06443281
Office: 13.53221654
Total: 40.59664934

676.6 Max Allowed Built capacity (Dweling units)

Residentia 100.04
Commerci: 50.02
Total: 150.06

6,002.5 Max Allowed Built capacity (Dweling units)

	Acreage per Land Use Catergory	**BUILT** Acreage per Land Use Catergory	**Max Allowed** Built Capacity
Residential	2,414.41	683.5	28,869.7
Commercial	200.69	30.7	260.4
Industrial	694.9	142.5	555.9

		Acres	FAR	Height Stories	Max Allowed Built Capacity (Acres)
RO-13	Low Density Residential/ Office District	7.3	0.60	2	4.4
RO-50	High Density Residential/ Office District	4.0	0.04	6	0.2
BU-1	Neighborhood Business District	-	0.51	2	-
BU-1A	Limited Business District	53.6	0.73	4	39.1
BU-2	Special Business District	204.4	1.06	7	216.7
BU-3	Liberal Business District	-		no limit	-
		269.3			**260.4**
IU-1	Industrial, Light Manufacturing District	1.4		3/ 35ft	1.2
IU-2	Heavy Manufacturing Ditrict	-		3/ 35ft	-
IU-3	Industrial Unlimited District	-		3/ 35ft	-
IU-C	Industrial District, Conditional	694.9		3/ 35ft	555.9

1H. Peak Period Estimated Trips - Highway-Only Model (Pre-Assignment Step)

Trip Purpose	Household Type	Drive Alone	One Passenger	Two+ Passenger	Auto Person Total	Mean Auto Occupancy	Person Total	Percent Auto Trips	Percent Transit Trips
HBW-PK	0 CAR	0	56,743	16,003	72,746	2.180	75,620	96.20%	3.80%
	1 CAR	278,312	53,633	9,756	341,701	1.109	355,198	96.20%	3.80%
	2+CAR	1,678,439	159,248	29,760	1,867,447	1.057	1,941,212	96.20%	3.80%
	Subtotal	**1,956,751**	**269,624**	**55,519**	**2,281,894**	**1.082**	**2,372,030**	**96.20%**	**3.80%**
HBNW-PK	0 CAR	0	133,372	70,371	203,743	2.298	206,218	98.80%	1.20%
	1 CAR	342,874	305,941	135,460	784,275	1.457	793,800	98.80%	1.20%
	2+CAR	1,299,173	997,296	749,590	3,046,059	1.499	3,083,055	98.80%	1.20%
	Subtotal	**1,642,047**	**1,436,609**	**955,421**	**4,034,077**	**1.517**	**4,083,073**	**98.80%**	**1.20%**
NHB-PK	**Subtotal**	**908,077**	**441,096**	**215,094**	**1,564,267**	**1.308**	**1,588,088**	**98.50%**	**1.50%**
TOTAL-Peak		**4,506,875**	**2,147,329**	**1,226,034**	**7,880,238**	**1.321**	**8,043,191**	**97.97%**	**2.03%**

SOUTHEAST FLORIDA TRAVEL 2000
Miami-Dade + Broward + Palm Beach

Southeast Florida Regional Travel Characteristics Study

Household Travel Characteristics Survey Plan and Findings

Prepared for:

Florida Department of Transportation, Districts IV and VI
Miami-Dade MPO
Broward County MPO
Palm Beach County MPO

Submitted by:
CARR SMITH CORRADINO

In association with:
Gannett Fleming, Inc.
Florida State University Survey Research Laboratory
Yvonne Ziel Traffic Consultant, Inc.
PMG Associates, Inc.
Dickey Consulting Services
David Fierro & Associates

October 2000

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1. Introduction

The primary purpose of the household travel characteristics survey was to collect data that can be used to formulate, calibrate, and validate existing and planned travel demand model structures. As such, the survey used statistical methods to ensure the best use of limited resources and to develop accurate models.

Data was collected to characterize demographics of household and travel patterns of household members. The survey was designed to collect data for calibrating travel forecasting models for:

- Lifestyle trip productions;
- Trip distribution;
- Mode choice and auto occupancy;
- Time-of-day and peak spreading; and,
- Travel path selection.

Additionally, travel characteristics data may be used to enhance existing models and formulate new travel forecasting methods.

This report provides highlights of the survey methodology and results. Chapter 4 presents a thorough description of the data and coding conventions and the organization of the data files.

More information on the survey sample selection and procedures can be found in earlier Technical Memoranda (TMs 1 and 3).

2. Methodology

2.1 Survey Approach

The household survey instrument consisted of:

- The recruitment CATI script
- The demographic survey forms and travel diaries
- A CATI script for the retrieval of the demographic data and travel diaries

The recruitment stage required only a CATI script. Basic demographic information was retrieved during the recruitment stage. All needed data, including willingness to participate in the survey, were retrieved by telephone. No mailings were required.

Households agreeing to participate were mailed a survey package. The package included a travel diary for each person in the household on the survey day.

The household survey proposed for Southeast Florida was quite complex, and the questions were detailed. The complexity of the survey, suggested that full and detailed travel diaries were to be distributed to all household residents. The diaries were designed to be easy to carry.

The travel diaries made extensive use of graphics to make the questionnaire clear. The travel diaries requested information on tours. A tour was defined as a series of trips that began at home, visited other locations, and ended at home. This idea was conveyed in text and graphical form. The survey was organized around tours to minimize under-reporting of short trips.

Some demographic information was gathered at the end of the travel diary retrieval phone call. This was done because many of the demographic questions were likely to be perceived as sensitive and personal.

2.2 Survey Form and Questions

The two-stage household survey used CATI to retrieve all survey data. A supplemental memo was issued in December 1998 to provide review of the survey instrument, which included a CATI script and a travel diary. Thus, the content of the CATI script and diary was a product of the Project Management Committee.

The following household demographic data was collected as part of the recruitment process. This data was essential for developing rates for the lifestyle trip production model.

- Number of persons
- Number of workers
- Number of children (under age 18)
- Number of available vehicles
- Address for geocoding
    - ✓ Street address
    - ✓ County
    - ✓ City
    - ✓ Zip code
- Schedule day and time for retrieval
- Language requirement
- Willingness to participate

Other demographic data was sought after the respondent at the household agreed to participate in the survey. Because this data may have been perceived as personal and sensitive, they were requested after the retrieval of all travel data so as to not reduce the response rate. Furthermore, while all data was important, this list of data was less important for the development and calibration of travel demand models than the travel diary data. Some of the data described the household and some described each of the household residents.

The household data list follows.

- Number of licensed drivers.
- Number of out-of-town visitors staying on the survey day.
- Number of vehicles available and their age.
- Type of residence.
    - ✓ Single-family home.

  - ✓ Mobile home.
  - ✓ Other.
- Annual household income.

This demographic data was sought after the respondent at the household agreed to participate in the survey.

- Age of the person.
- Residency in south Florida
  - ✓ Full time.
  - ✓ Part time.
- Work status for each person.
  - ✓ Working full time.
  - ✓ Working part time.
  - ✓ Retired.
  - ✓ Otherwise not working.
- Work style for each full- or part-time worker.
  - ✓ Fixed site.
  - ✓ Delivery.
  - ✓ Telecommute.
- Work type for each full- or part-time worker.
  - ✓ Retail.
  - ✓ Service.
  - ✓ Commercial.
  - ✓ Industrial.
  - ✓ Government.
  - ✓ Professional.
- Annual income for each full- or part-time worker.

2.3 Travel Diaries

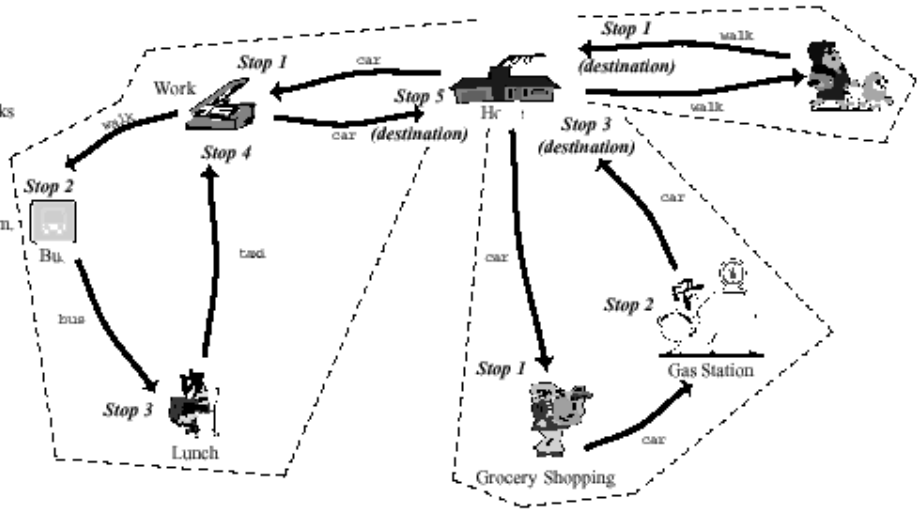
Respondents were asked to record all travel-related activities (tours) for every resident of the household, including infants, for an entire 24-hour survey day. In general, a tour began and ended at the home. Questions and responses were organized in travel diaries (Figures 1-3) that were retrieved by CATI. The consultant believed that the response rate would increase if this part of the survey were simplified. For each household member, including visitors and infants, the following was recorded for each stop on each tour:

Figure 1
Travel Diary

EXAMPLE TRAVEL LOG

Mrs. Jones' Travel Activities

BEGINNING - TOUR 1	leaves **house** 7:35 a.m. driving car
ARRIVE STOP 1 - TOUR 1	arrives at **work** 7:56 a.m. pays $50 per year for parking
DEPART STOP 1 -TOUR 1	leaves **work** at 11:50 a.m. and walks to bus stop
ARRIVE STOP 2 - TOUR 1	arrive at **bus stop** at 11:55 a.m.
DEPART STOP 2 -TOUR 1	gets on **bus** at 12:01 p.m. and pays $.75
ARRIVE STOP 3 -TOUR 1	arrives at **Good Eats Café** 12:07 p.m.
DEPART STOP 3 -TOUR 1	leaves **lunch** 12:52 p.m. takes taxi and pays $3.25
ARRIVE STOP 4 -TOUR 1	arrive at **work** at 12:59 p.m.
DEPART STOP 4 -TOUR 1	leaves **work** at 4:39 p.m.
DESTINATION -TOUR 1	arrives **home** at 5:02 p.m.
BEGINNING - TOUR 2	leaves to **grocery store** 5:36 p.m.
ARRIVE STOP 1 -TOUR 2	arrives at **grocery store** 5:49 p.m.
DEPART STOP 1 -TOUR 2	leaves **grocery store** 6:27 p.m.
ARRIVE STOP 2 -TOUR 2	arrives at **gas station** 6:31 p.m.
DEPART STOP 2 -TOUR 2	leaves **gas station** 6:39
DESTINATION -TOUR 2	arrive **home** 6:43 p.m.
BEGINNING -TOUR 3	takes dog on **walk** 9:15 p.m.
DESTINATION -TOUR 3	arrives **home** 10:21

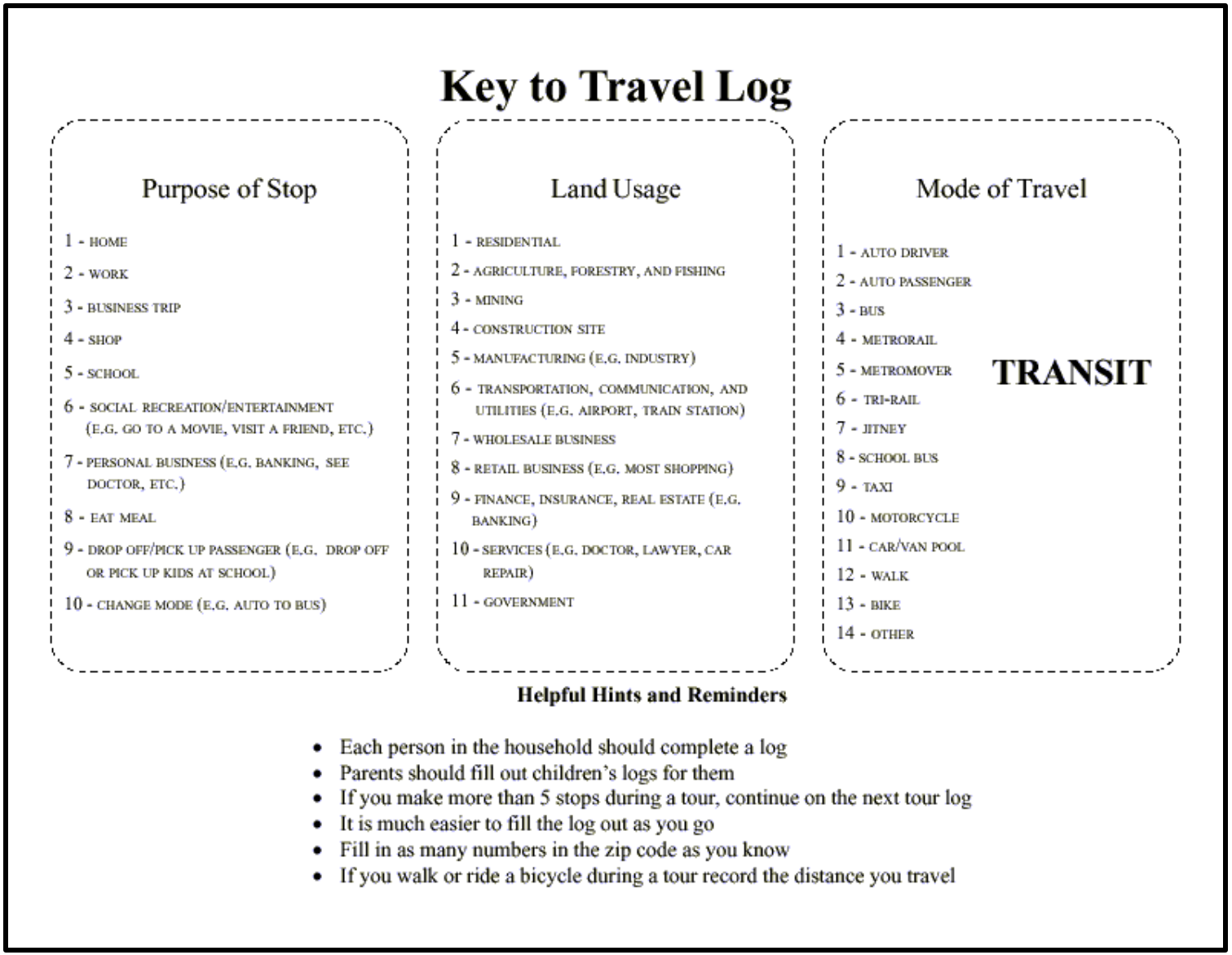


Explanation

When you look at the map and list of Mrs. Jones' activities, you will see that she should have filled out three different tour logs for this 24 hour period. Remember that a 'tour' begins at home and the final destination will be home, unless you do not go home in the 24 hour period.

- **Tour 1** is filled out on the example log below. The 'Purpose of Stop', 'Land Usage', and 'Mode of Travel' code numbers are on the key located above each log. On her first tour, Mrs. Jones drove to work, since she works at a law office she used 10 'Services' for 'Land Usage.' For lunch, Mrs. Jones walked to the bus stop (2 blocks) and took the bus to lunch. Since she walked to the bus stop, she had to make sure to fill in the box marked ' If Transit.' After she ate, she took a taxi back to the office. She left work at 4:39 p.m. and went straight home, which was her destination and completed Tour 1.
- **Tour 2** should include three stops, the grocery store, the gas station, and home (the final destination).
- **Tour 3** should have one stop, which would be home (her final destination). Her 'Purpose of Stop' would be '6' (social recreation), the 'Land Usage' would be 1, residential (if she walked around her neighborhood), the 'Mode of Travel' would be '12' (walk), and 'Number in Car' would be 0 or N/A.

Figure 2
Travel Diary



Key to Travel Log

Purpose of Stop

1 - HOME
2 - WORK
3 - BUSINESS TRIP
4 - SHOP
5 - SCHOOL
6 - SOCIAL RECREATION/ENTERTAINMENT (E.G. GO TO A MOVIE, VISIT A FRIEND, ETC.)
7 - PERSONAL BUSINESS (E.G. BANKING, SEE DOCTOR, ETC.)
8 - EAT MEAL
9 - DROP OFF/PICK UP PASSENGER (E.G. DROP OFF OR PICK UP KIDS AT SCHOOL)
10 - CHANGE MODE (E.G. AUTO TO BUS)

Land Usage

1 - RESIDENTIAL
2 - AGRICULTURE, FORESTRY, AND FISHING
3 - MINING
4 - CONSTRUCTION SITE
5 - MANUFACTURING (E.G. INDUSTRY)
6 - TRANSPORTATION, COMMUNICATION, AND UTILITIES (E.G. AIRPORT, TRAIN STATION)
7 - WHOLESALE BUSINESS
8 - RETAIL BUSINESS (E.G. MOST SHOPPING)
9 - FINANCE, INSURANCE, REAL ESTATE (E.G. BANKING)
10 - SERVICES (E.G. DOCTOR, LAWYER, CAR REPAIR)
11 - GOVERNMENT

Mode of Travel

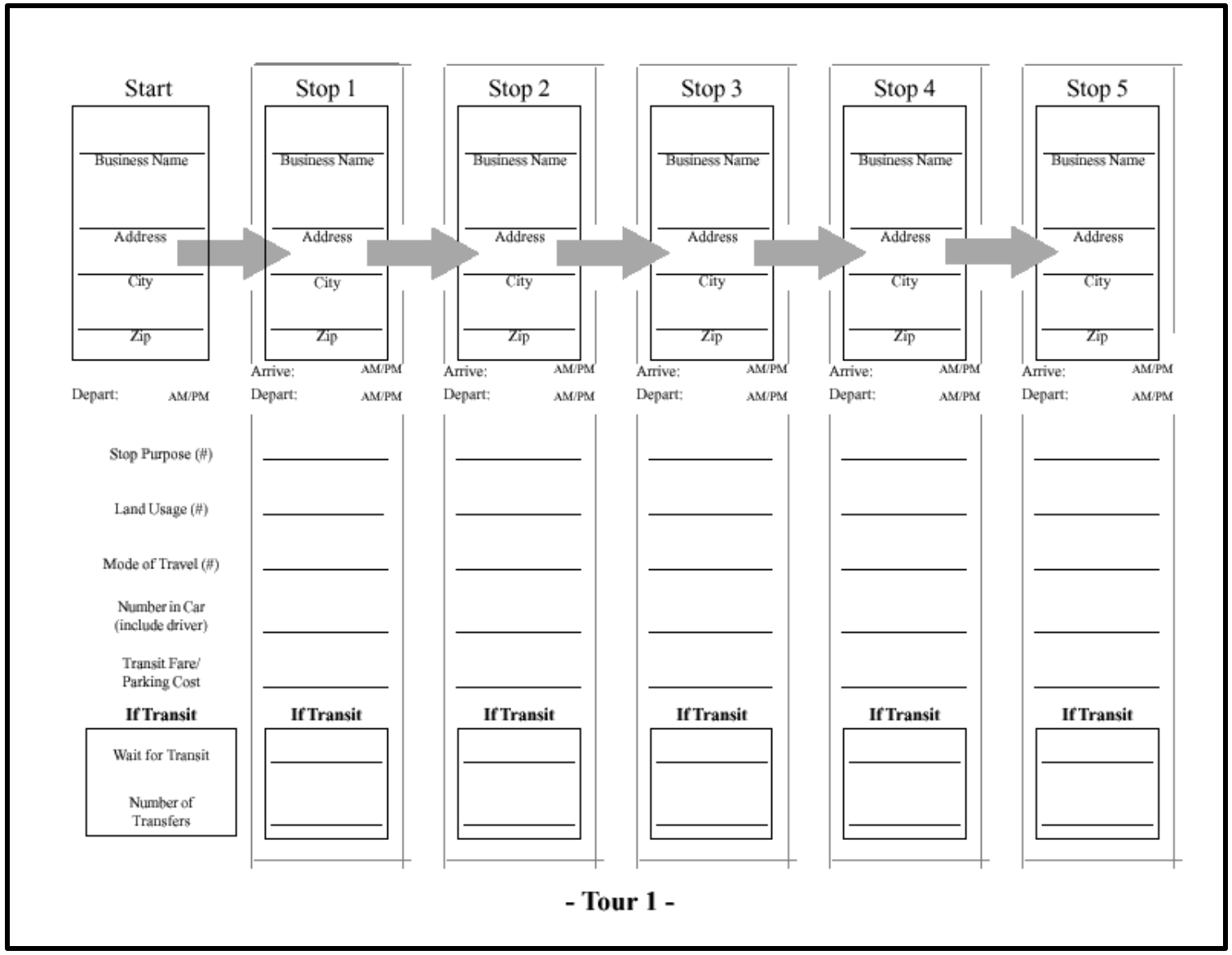
1 - AUTO DRIVER
2 - AUTO PASSENGER
3 - BUS
4 - METRORAIL
5 - METROMOVER
6 - TRI-RAIL
7 - JITNEY
8 - SCHOOL BUS
9 - TAXI
10 - MOTORCYCLE
11 - CAR/VAN POOL
12 - WALK
13 - BIKE
14 - OTHER

TRANSIT

Helpful Hints and Reminders

- Each person in the household should complete a log
- Parents should fill out children's logs for them
- If you make more than 5 stops during a tour, continue on the next tour log
- It is much easier to fill the log out as you go
- Fill in as many numbers in the zip code as you know
- If you walk or ride a bicycle during a tour record the distance you travel

Figure 3
Travel Diary



- Activity, purpose and land use at each intermediate stop and destination for each tour.
- Address of each origin, intermediate stop and destination.
- Departure and arrival times for each origin, intermediate stop and destination.
- Mode of travel.
    - ✓ Auto/motorcycle.
        - Number of persons in the vehicle.
        - Driver or passenger.
        - Parking cost.
    - ✓ School bus.
    - ✓ Transit (each portion of the trip was properly segmented – access, transit mode, egress).
        - Transit mode.
        - Mode of access used.
        - Location of access.
        - Wait time.
        - Mode of egress.
        - Location of egress.
        - Type and amount of fare.
        - Number of transfers.
        - Cost of transfer.
    - ✓ Taxi.
    - ✓ Walk.
        - Walk distance.
    - ✓ Bicycle.
        - Ride distance.

2.4 Survey Schedule

Recruitment for participation in the survey began on January 15, 1999, and ended on June 18, 1999, with 7500 households agreeing to participate in the survey. The first travel day for the household survey was February 23, 1999, and the final travel day was July 1, 1999. Retrieval of the surveys continued until August 28,1999.

2.5 Geocoding

All household and trip end data was geocoded during the CATI interview. The SRL used a geocoding engine called Centrus Desktop, from Qualitative Marketing, Inc., to

geocode addresses and intersections. Each address point (primarily trip ends) was assigned:

- Latitude and longitude – Data will be able to be post-processed and tagged to any zonal system
- Zip+4
- Census block group and tract
- MSA.

The address matchable street files were from Geographic Data Technology (GDT Lebanon, NH). The GDT data was supplemented by the US Postal Service (USPS) listings of addresses and zip codes.

All addresses that were not geocodable to the street address level were matched to the zip+4 centroid. The FSU Department of Geography also had GIS capabilities and used them as required in the course of the project.

2.6 Geographic Areas

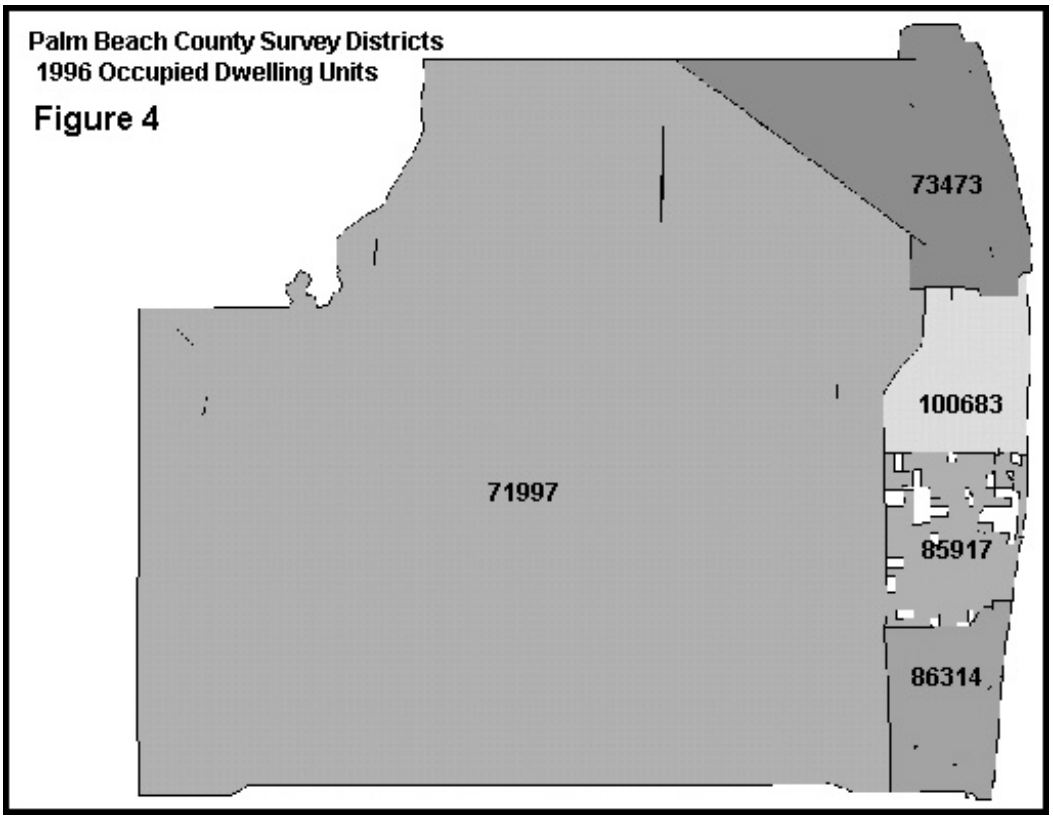
In order to ensure complete geographic coverage, the household sample was drawn from geographic subareas. The FSUTMS 1-digit area type taken from the highway networks was the attribute that was used for geographic stratification. Once the survey was conducted, geographical stratification was possible because the households were geocoded by coordinate, allowing them to be "tagged" by any system of zones. The survey districts were chosen simply to ensure complete and uniform coverage of the three-MPO study area.

Five districts were developed Palm Beach, six for Broward, and seven for Miami-Dade (Figures 4 through 6). The districts were developed to:

- Generally conform to MPO planning Sectors. All survey districts are combinations of TAZs.

- Be logical, contiguous groups of sectors. Where it was logical, survey districts were divided by major facility and by beach and mainland.

- Have approximately the same number of households. The 1990 MPO zonal data was used to determine the number of households.


Palm Beach County Survey Districts
1996 Occupied Dwelling Units
Figure 4
73473
100683
71997
85917
86314

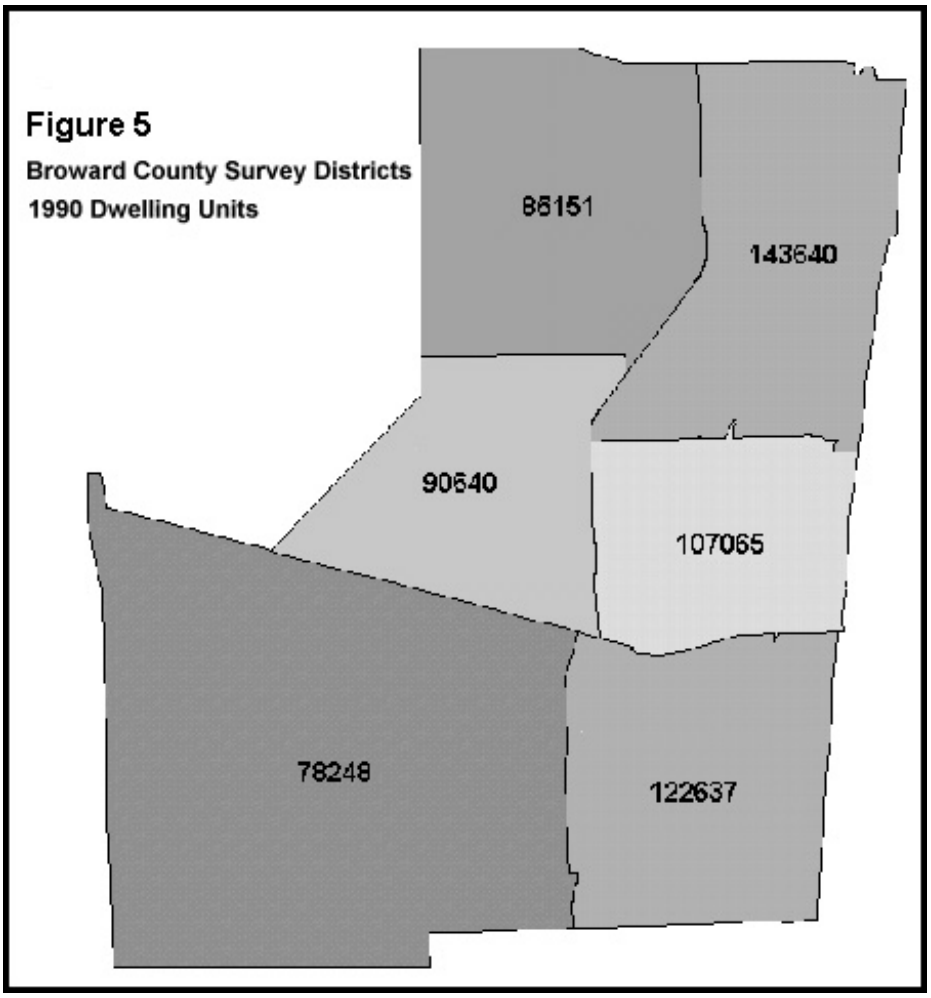


Figure 5
Broward County Survey Districts
1990 Dwelling Units
86151
143640
90540
107065
78248
122637

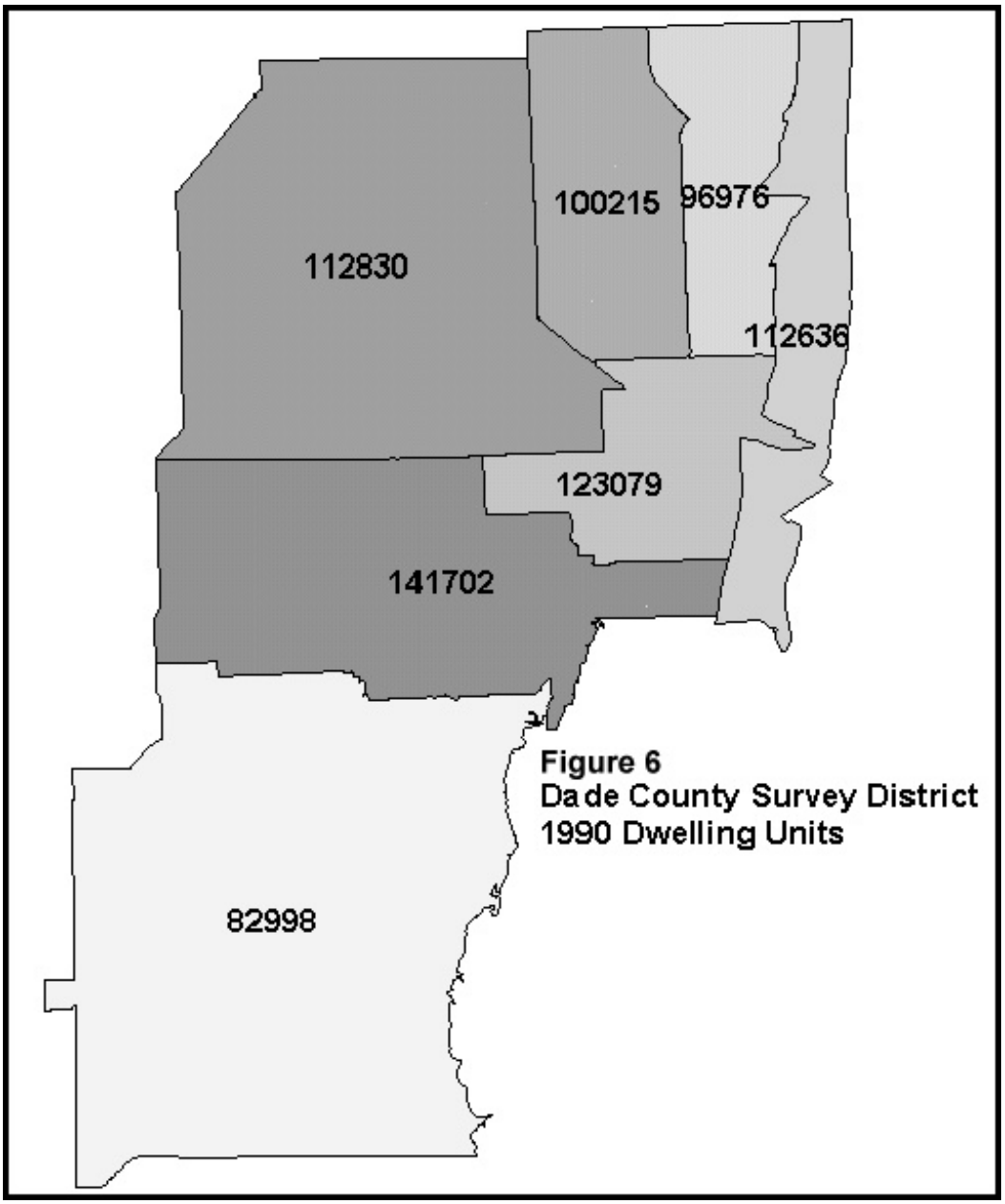


Figure 6
Dade County Survey District
1990 Dwelling Units

2.7 Geocoding

As noted earlier, all household and trip end data will be geocoded during the CATI interview. The SRL used a geocoding engine called Centrus Desktop, from Qualitative Marketing, Inc., to geocode addresses and intersections as needed. The software fixed poorly formatted or misspelled addresses and corrected zip codes. Each address point (primarily trip ends) was assigned:

- Latitude and longitude – Data will be able to be post-processed and tagged to any zonal system
- Zip+4
- Census block group and tract
- MSA.

The address matchable street files were from Geographic Data Technology (GDT Lebanon, NH). The GDT data were supplemented by the US Postal Service (USPS) listings of addresses and zip codes.

The SRL chose the Centrus Desktop geocoding option because of its ease of use, and its quick processing time.

All addresses that were not geocodable to the street address level were matched to the zip+4 centroid. With the USPS data in the system, a very high total hit rate at the zip+4 level, and virtually 100 percent at the zip code level were achieved. A close intersection location was used in the event that neither the street nor the zip+4 option worked. The FSU Department of Geography also had GIS capabilities and used them as required in the course of the project.

The approach of using a geocoding engine rather than a GIS and street files provided the distinct advantage of the incorporation of the USPS address lists. It also allowed the SRL to clean the addresses. One set of common problems with address matching is related to rural areas and PO Box numbers. Rural areas are not a very large part of our study area. Thus, respondents were not reporting PO boxes as addresses.

Point files were converted to an ArcView shape file for delivery to the Department and MPOs.

3. Results

3.1 Number of Households Surveyed

Surveys were collected in households in Broward, Dade, and Palm Beach counties. In the three-county region, 5,168 households completed the survey, and out of these households, 5,067 had valid addresses. Approximately 34 percent of the surveys were collected in Broward County, and 33 percent each in Dade and Palm Beach counties.

Table 1

Households by Region and by County

District	County			Total
	Broward	Dade	Palm Beach	
1			323	323
2			364	364
3			341	341
4			297	297
5			351	351
6	285			285
7	266			266
8	219			219
9	280			280
10	245			245
11	408			408
12		131		131
13		177		177
14		249		249
15		230		230
16		291		291
17		380		380
18		230		230
Total	1703	1688	1676	5067
Valid Percent	33.6%	33.3%	33.1%	100.0%

3.2 Trip Purpose

A "non-home-based" trip was the largest category for both Palm Beach County (26%) and Broward County (24.8%), while "home-based-work" was the largest category for Dade County (26.6%) The second largest category was "home-based-work" for Broward County (23.2%), followed by "home-based-other" for Palm Beach County (23.3%), while "home-based-other" and "non-home-based" both tied for the second largest category for Miami-Dade County (22.3%). A "non-home-based" trip was the largest category for the region as a whole (24.4%), followed by "home-based-work" (23.1%).

Table 2

Trip Purpose By County and by Region

Trip Purpose	Broward	Dade	Palm Beach	Region
Home Based Work	23.2%	26.6%	19.8%	23.1%
Home Based Shopping	10.4%	10.1%	12.2%	10.9%
Home Based Social Rec	7.7%	5.2%	9.5%	7.5%
Home Based School	9.5%	12.3%	7.5%	9.8%
Home Based Other	22.9%	22.3%	23.4%	22.9%
Non Home Based	24.8%	22.3%	26.0%	24.4%
Home Based Unknown	1.6%	1.2%	1.5%	1.4%
Totals	100.00%	100.00%	100.00%	100.00%

3.3 Trip Rates

The highest trip rates were "home-based-work" for Broward and Dade counties, and "non-home-based" for Palm Beach County. The second highest trip rate category was "non-home-based" for Broward and Dade counties, followed by "home-based-other" for Palm Beach County. The "home-based-work" trip rate was the largest category for the region as a whole, followed by "non-home-based."

Table 3
Household Trip Rates - Broward County

Trip Purpose	Unadjusted Trip Rate	Adjusted Trip Rate
Home-Based Work	1.72	2.67
Home-Based Shopping	0.71	0.96
Home-Based Social-Rec	0.54	0.72
Home-Based School	0.68	0.81
Home-Based Other	1.60	2.18
Non-Home-Based	1.87	2.52
ALL Purposes	7.13	9.86
Non-Home-Based Work	0.65	0.92
Non-Home-Based Other	1.22	1.60

Note: Sample Size = 1544

Table 3 (continued)
Household Trip Rates - Miami-Dade County

Trip Purpose	Unadjusted Trip Rate	Adjusted Trip Rate
Home-Based Work	1.75	2.89
Home-Based Shopping	0.71	0.95
Home-Based Social-Rec	0.35	0.55
Home-Based School	0.85	1.08
Home-Based Other	1.53	2.05
Non-Home-Based	1.43	2.09
ALL Purposes	6.62	9.61
Non-Home-Based Work	0.50	0.78
Non-Home-Based Other	0.93	1.31

Note: Sample Size = 1547

Table 3 (continued)
Household Trip Rates - Palm Beach County

Trip Purpose	Unadjusted Trip Rate	Adjusted Trip Rate
Home-Based Work	1.48	2.33
Home-Based Shopping	0.91	1.19
Home-Based Social-Rec	0.71	0.87
Home-Based School	0.55	0.59
Home-Based Other	1.77	2.37
Non-Home-Based	2.04	2.63
ALL Purposes	7.46	9.97
Non-Home-Based Work	0.59	0.81
Non-Home-Based Other	1.45	1.82

Note: Sample Size = 1512

Table 3 (continued)
Household Trip Rates - Region

Trip Purpose	Unadjusted Trip Rate	Adjusted Trip Rate
Home-Based Work	1.65	2.63
Home-Based Shopping	0.78	1.03
Home-Based Social-Rec	0.53	0.71
Home-Based School	0.70	0.83
Home-Based Other	1.63	2.20
Non-Home-Based	1.78	2.41
ALL Purposes	7.07	9.81
Non-Home-Based Work	0.58	0.83
Non-Home-Based Other	1.20	1.58

Note: Sample Size = 4603

The unadjusted trip rates are based on the portion of households that returned diaries for all household members. The adjusted trip rates were developed to take into account under-reporting of persons and workers during the collection stage of the survey. Details of this factoring process will be forthcoming in a later document.

3.4 Age of Person

All three counties in the study area had "35 to 44 years" as the largest age category with Broward County first (20.4%), followed by Dade County (18.1%) and finally Palm Beach County (17.1%). The second largest category was "5 to 17 years" for all counties: Dade County (17.7%), Broward (16.6%), and Palm Beach (15.7%).

Table 4
Age of Person In Household by County and Region (% Totaled by Columns)

Age of Person in HH	County			Region
	Broward	Dade	Palm Beach	
Under 5 Years	4.4%	4.7%	4.3%	4.5%
5 to 17 Years	16.6%	17.7%	15.7%	16.7%
18 to 20 Years	3.5%	4.7%	2.4%	3.6%
21 to 24 Years	4.2%	5.2%	2.9%	4.2%
25 to 34 Years	14.5%	14.7%	12.6%	13.9%
35 to 44 Years	20.4%	18.1%	17.1%	18.5%
45 to 54 Years	16.6%	15.0%	14.8%	15.5%
55 to 64 Years	8.2%	9.1%	10.6%	9.3%
65 to 74 Years	6.5%	6.3%	11.2%	7.9%
75 Years and Over	5.2%	4.5%	8.4%	6.0%
Total	100.0%	100.0%	100.0%	100.0%
Average Age	37.55	36.46	41.58	38.51

3.5 Live Full Time or Part Time in South Florida

The majority of the respondents live in South Florida full time.

Table 5
Live Full/Part Time in South Florida by County and Region (% Totaled by Columns)

Live Full/Part Time in SF	County			Region
	Broward	Dade	Palm Beach	
Full Time	98.6%	98.2%	96.1%	97.7%
Part Time	1.4%	1.8%	3.9%	2.3%
Total	100.0%	100.0%	100.0%	100.0%

3.6 Household Income

The majority reported having a household income greater than $50,000, followed by a household income of $30,000 to $50,000.

Table 6

Household Income by County and Region (% Totaled by Columns)

Household Income	County			Region
	Broward	Dade	Palm Beach	
15K or Less	8.6%	18.8%	9.2%	12.2%
15,001 to 30 K	17.0%	23.0%	19.6%	19.9%
30,001 to 50 K	28.6%	26.1%	28.7%	27.8%
Greater than 50 K	45.8%	32.0%	42.6%	40.1%
Total	100.0%	100.0%	100.0%	100.0%

3.7 Number of People Employed in Household

Most households reported having 2 workers with Broward County having the most (41.7%), followed by Dade County (38.2%), and finally Palm Beach (34.7%). The next largest category was one worker with Dade County first (31.7%), followed by Broward County (29.9%), and then Palm Beach (28.8%). The region was the same with two workers per household first (38.2%), and one worker per household, coming in second (30.2%).

Table 7
Number of Workers Per Household by County and Region
(% Totaled by Columns)

Employed in Household?	County			Region
	Broward	Dade	Palm Beach	
No Workers	15.8%	14.1%	26.3%	18.7%
1 Worker	29.9%	31.7%	28.8%	30.2%
2 Workers	41.7%	38.2%	34.7%	38.2%
3 or More Workers	12.6%	16.0%	10.1%	12.9%
Total	100.0%	100.0%	100.0%	100.0%

3.8 Children Under 18

The majority of households reported having no children under 18. Households in Dade County were more likely to have children than Broward or Palm Beach counties.

Table 8
Children Under 18 by County and Region (% Totaled by Columns)

Children Under 18	County			Region
	Broward	Dade	Palm Beach	
No	61.1%	55.2%	66.0%	60.7%
Yes	38.9%	44.8%	34.0%	39.3%
Total	100.0%	100.0%	100.0%	100.0%

3.9 Number of People in Household

Two people per household was the norm for all three counties and the region, while four or more people was the next largest category for all three counties and the region.

Table 9
Number of People in Household by County and Region
(% Totaled by Columns)

Number of People in HH	County			Region
	Broward	Dade	Palm Beach	
1 Person	18.5%	15.1%	19.7%	17.7%
2 People	34.4%	28.5%	39.7%	34.2%
3 People	18.7%	21.1%	15.0%	18.3%
4 or More People	28.4%	35.3%	25.6%	29.8%
Total	100.0%	100.0%	100.0%	100.0%
Average Number of People per HH	2.63	2.84	2.52	2.66

3.10 Number of Vehicles Available to Household

All counties had two vehicles as the most frequent number of vehicles available to each household. Palm Beach had the most two-vehicle households (46.8%), followed by Broward (46.8%), and Dade County (43%). The next largest category was one vehicle. Palm Beach once again had the most one-vehicle households (35.9%), followed by Dade County (32.3%), and last was Broward County (31.7%). The Region showed two vehicles as the largest category (45.5%), followed by one vehicle (33.3%).

Table 10
Number of Vehicles Available to Households By County (% Totaled by Columns)

# of Vehicles	County			Region
	Broward	Dade	Palm Beach	
No Vehicles	2.9%	6.3%	2.5%	3.9%
1 Vehicle	31.7%	32.3%	35.9%	33.3%
2 Vehicles	46.8%	43.0%	46.8%	45.5%
3 or More Vehicles	18.6%	18.4%	14.8%	17.3%
Total	100.0%	100.0%	100.0%	100.0%
Average Number of Vehicles Per Household	1.85	1.77	1.77	1.80

3.11 Type of Dwelling

Most people lived in a single-family home in all three counties and region wide, followed at a distant second by apartments.

Table 11
Type of Dwelling by County and Region (% Totaled by Columns)

Type of Dwelling	County			Region
	Broward	Dade	Palm Beach	
Single-Family Home	56.9%	61.0%	60.3%	59.4%
Apartment	26.9%	31.8%	22.5%	27.1%
Condo	13.6%	6.1%	13.8%	11.1%
Mobile Home	2.2%	0.9%	2.3%	1.8%
Other	0.4%	0.1%	1.0%	0.5%
Total	100.0%	100.0%	100.0%	100.0%

3.12 Auto Occupancy

One person per vehicle was the most common occupancy for person vehicle trips for all three counties and region wide, followed at a distant second by two people per vehicle. The average auto occupancy rate is in line with the levels experienced in most large urban areas.

Table 12
Auto Occupancy by County and Region (% Totaled by Columns)

Auto Occupancy	County			Region
	Broward	Dade	Palm Beach	
1 Person	59.2%	56.2%	55.8%	57.0%
2 People	25.7%	25.4%	28.8%	26.7%
3 People	8.7%	11.9%	8.9%	9.7%
4 + people	6.5%	6.5%	6.5%	6.5%
Total	100.0%	100.0%	100.0%	100.0%
Average Auto Occupancy	1.31	1.34	1.34	1.33

This table presents the percentage of persons traveling at each auto occupancy level.

3.13 Mode of Travel

The most common mode of travel for person trips for all three counties as well as the region was as a driver in an automobile, followed by a passenger in an automobile, and walking came in at a distant third.

Figure 7

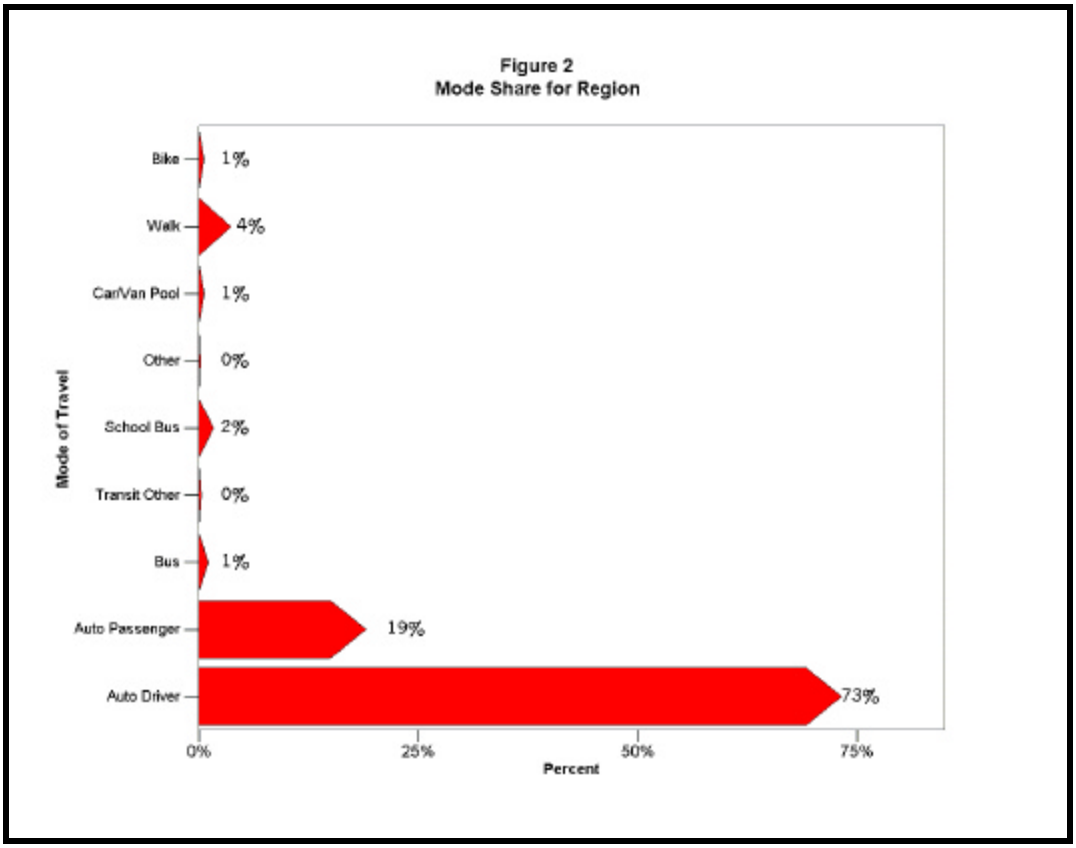


Table 13
Mode of Travel by County and Region (% Totaled by County)

Mode of Travel	County			Region
	Broward	Dade	Palm Beach	
Auto Driver	74.7%	70.4%	74.6%	73.3%
Auto Passenger	18.2%	19.8%	19.6%	19.3%
Bus	0.8%	1.8%	0.4%	1.0%
Transit Other	0.1%	0.6%	0.1%	0.2%
School Bus	1.9%	2.0%	1.2%	1.7%
Other	0.1%	.0%	0.2%	0.1%
Car/Van Pool	0.5%	0.8%	0.4%	0.6%
Walk	3.3%	4.2%	2.9%	3.4%
Bike	0.6%	0.3%	0.6%	0.5%
Total	100.0%	100.0%	100.0%	100.0%

3.14 Trip Start Time

The highest travel hour (hour in which the greatest number of trips began) is 7 AM. This is the same for all three counties. The highest three consecutive morning travel hours are 7-9AM for Broward and Palm Beach counties. For Dade, it is 6-8 AM (hours beginning). The morning peak hour percentage is higher than expected.

The highest afternoon travel hour is 5 PM. Somewhat surprisingly, the peak three hours for all counties is 3-5 PM (hours beginning). The afternoon peak hour carries roughly two-thirds of the peak morning hour traffic. The traffic in the 10 AM – 2 PM mid-day hours is consistently high--- characteristic of a highly congested area.

Table 14
Trip Start Time by County and Region (% Totaled by Columns)

Start Time	County			Region
	Broward	Dade	Palm Beach	
12 AM	0.3%	0.3%	0.3%	0.3%
1 AM	0.2%	0.1%	0.3%	0.2%
2 AM	0.2%	0.1%	0.1%	0.1%
3 AM	0.1%	0.2%	0.1%	0.1%
4 AM	0.2%	0.4%	0.2%	0.3%
5 AM	1.0%	1.2%	0.7%	1.0%
6 AM	4.1%	4.8%	3.4%	4.1%
7 AM	12.7%	12.5%	11.0%	12.0%
8 AM	8.3%	11.1%	8.8%	9.4%
9 AM	5.2%	4.9%	5.6%	5.3%
10 AM	5.4%	4.2%	5.6%	5.1%
11 AM	5.4%	4.4%	5.6%	5.2%
12 PM	5.6%	5.2%	6.5%	5.8%
1 PM	5.3%	4.7%	6.3%	5.5%
2 PM	7.0%	6.3%	7.2%	6.8%
3 PM	6.6%	7.6%	7.3%	7.1%
4 PM	6.9%	6.9%	7.2%	7.0%
5 PM	8.8%	8.6%	8.1%	8.5%
6 PM	5.7%	5.7%	5.4%	5.6%
7 PM	4.0%	4.2%	4.0%	4.1%
8 PM	2.8%	2.6%	2.7%	2.7%
9 PM	2.5%	2.1%	1.7%	2.1%
10 PM	1.1%	1.3%	1.2%	1.2%
11 PM	0.6%	0.7%	0.6%	0.6%
Total	100.0%	100.0%	100.0%	100.0%

3.15 Trip Length by Trip Purpose

The trip length was compared by trip purpose for each county in the study area as well as for the region as a whole (Table 15). The trip lengths were categorized for graphing purposes. They were categorized as follows: 15-minute increments for trips that took more than one minute but less than two hours 59 minutes and 59 seconds, and one hour increments for travel times that exceeded three hours, but fell short of 23 hours 59 minutes and 59 seconds. The average trip length by trip purpose was calculated for county and regional levels (Table 16). The following graphs (Figure 8 – Figure 35) were created to show the first two hours of travel time for each trip purpose for both county and regional levels.

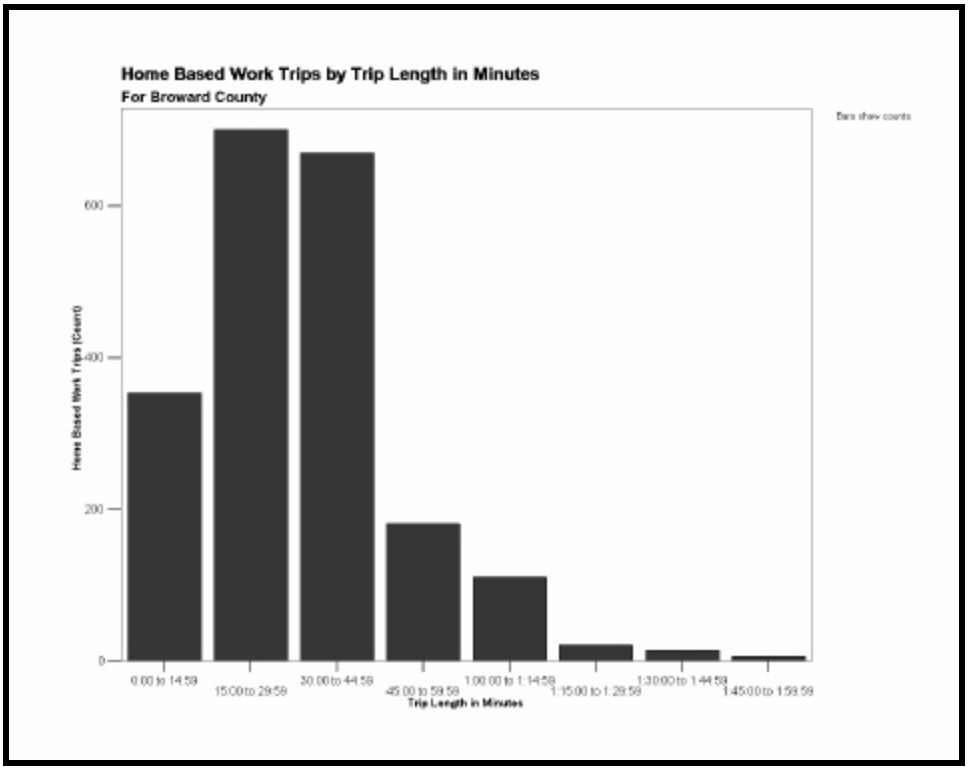
Table 15
Trip Length in Minutes by Trip Purpose for Region (% Totaled by Columns) (% within Trip Purpose)

Trip Length	H-B-W	H-B-Shop	H-B-social/rec	H-B-School	H-B-O	Non-H-B	H-B-Unknown	Total
0:00 to 14:59	16.8%	50.1%	41.4%	31.7%	42.9%	45.5%	15.6%	36.9%
15:00 to 29:59	30.9%	32.8%	33.4%	40.2%	34.6%	30.4%	24.4%	32.9%
30:00 to 44:59	29.2%	10.3%	14.4%	17.6%	13.3%	12.8%	22.2%	17.1%
45:00 to 59:59	9.1%	2.6%	4.4%	3.5%	3.3%	3.5%	9.6%	4.7%
1:00:00 to 1:14:59	6.6%	1.6%	2.1%	3.0%	2.2%	2.5%	11.1%	3.4%
1:15:00 to 1:29:59	1.6%	.4%	.4%	.9%	.7%	1.2%	.7%	1.0%
1:30:00 to 1:44:59	1.2%	.2%	.4%	.6%	.4%	.8%	2.2%	.7%
1:45:00 to 1:59:59	.3%	.2%	.1%	.3%	.2%	.3%		.2%
2:00:00 to 2:14:59	.5%	.2%	.7%	.4%	.3%	.3%	5.2%	.4%
2:15:00 to 2:29:59	.1%	.3%	.3%	.1%	.2%	.2%		.2%
2:30:00 to 2:44:59	.2%	.1%	.4%		.3%	.3%	1.5%	.2%
2:45:00 to 2:59:59	.0%		.4%		.0%	.2%		.1%
3:00:00 to 3:59:59	.4%	.1%	.3%	.0%	.2%	.6%		.3%
4:00:00 to 4:59:59	.3%	.1%	.3%	.1%	.1%	.4%	3.7%	.3%
5:00:00 to 5:59:59	.2%	.1%		.1%	.1%	.1%	.7%	.1%
6:00:00 to 6:59:59	.1%	.1%	.0%	.1%	.1%	.1%	.7%	.1%
7:00:00 to 7:59:59	.2%	.1%	.0%	.2%	.0%	.0%		.1%
8:00:00 to 8:59:59	.3%	.0%	.1%	.2%	.0%	.1%	.7%	.1%
9:00:00 to 9:59:59	.3%	.1%	.1%	.1%	.1%	.1%		.2%
10:00:00 to 10:59:59	.2%	.1%	.0%	.1%	.1%	.0%	.7%	.1%
11:00:00 to 11:59:59	.2%	.1%			.0%			.1%
12:00:00 to 23:59:59	1.3%	.6%	.6%	1.0%	.6%	.6%	.7%	.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 16
Trip Length Statistics of Survey Response Time in Minutes

Trip Purpose	Broward	Number of trips	Miami-Dade	Number of trips	Palm Beach	Number of trips	Region	Number of trips
Home-Based Work	23.78	1674	30.46	1844	24.14	1678	29.59	6078
Home-Based Shopping	14.56	929	17.43	792	15.50	1157	16.73	2964
Home-Based Social-Recreation	15.64	633	20.67	413	16.51	844	19.88	2038
Home-Based School	19.60	831	21.75	993	19.59	682	21.43	2627
Home-Based Other	15.70	1880	19.41	1697	16.81	2074	19.22	6029
Non-Home-Based	16.50	2060	20.09	1842	16.51	2358	20.64	6779
ALL Purposes	17.86	8007	22.43	7581	18.17	8793	21.94	26515
Non-Home-Based Work	16.88	712	22.20	710	17.52	739	22.38	2406
Non-Home-Based Other	16.30	1348	18.77	1132	16.05	1619	19.69	4373

Figure 8



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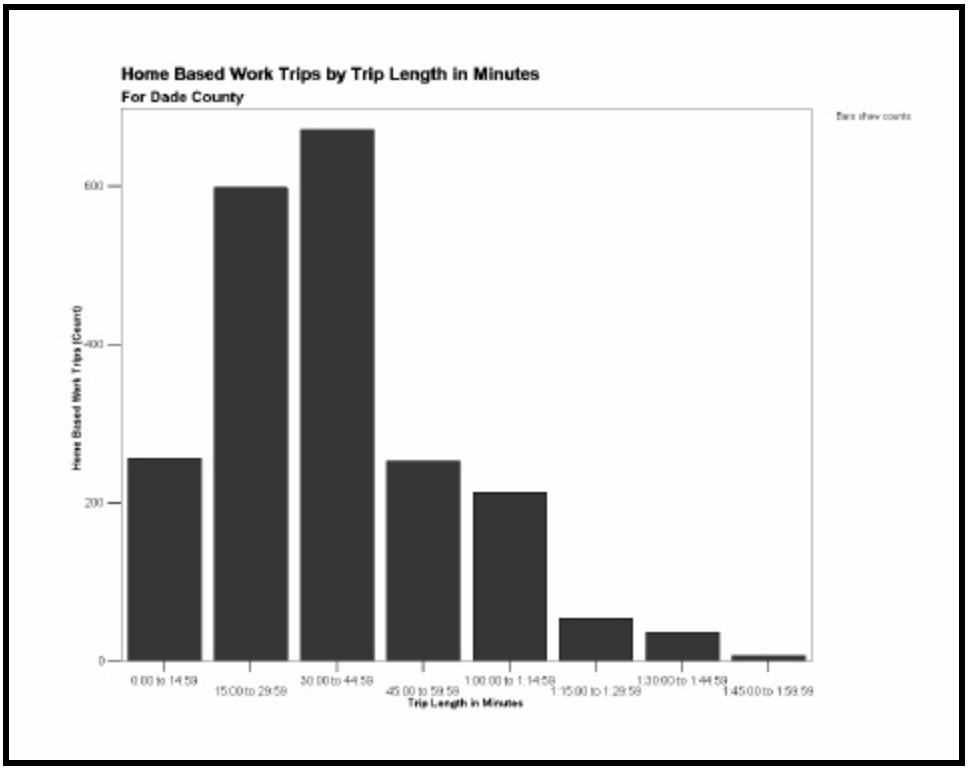

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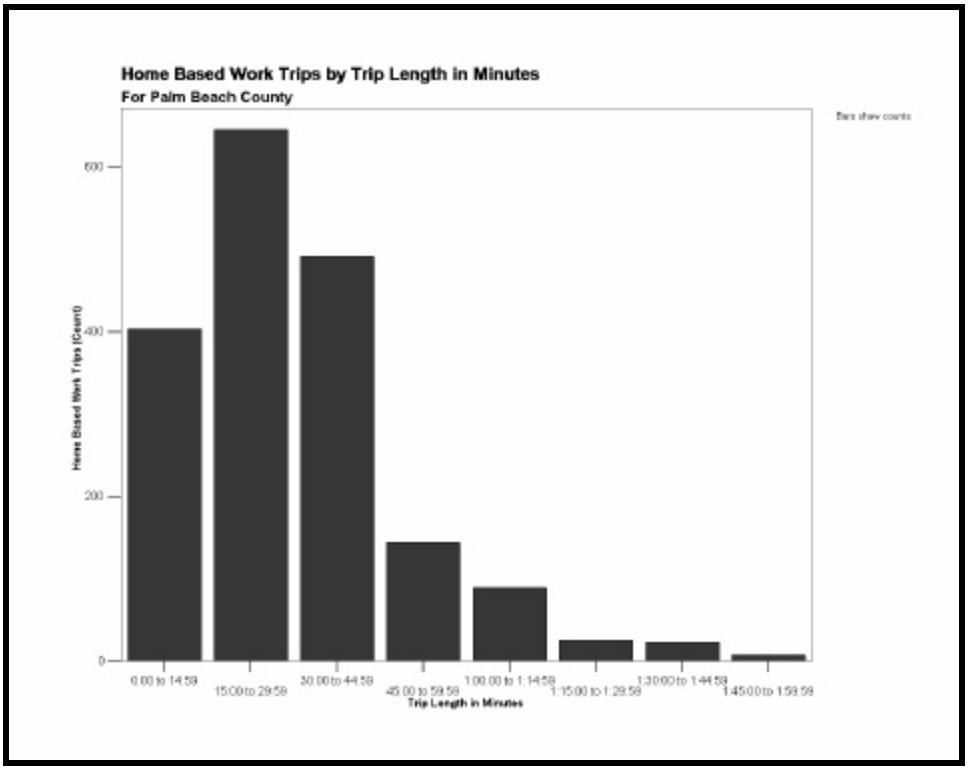

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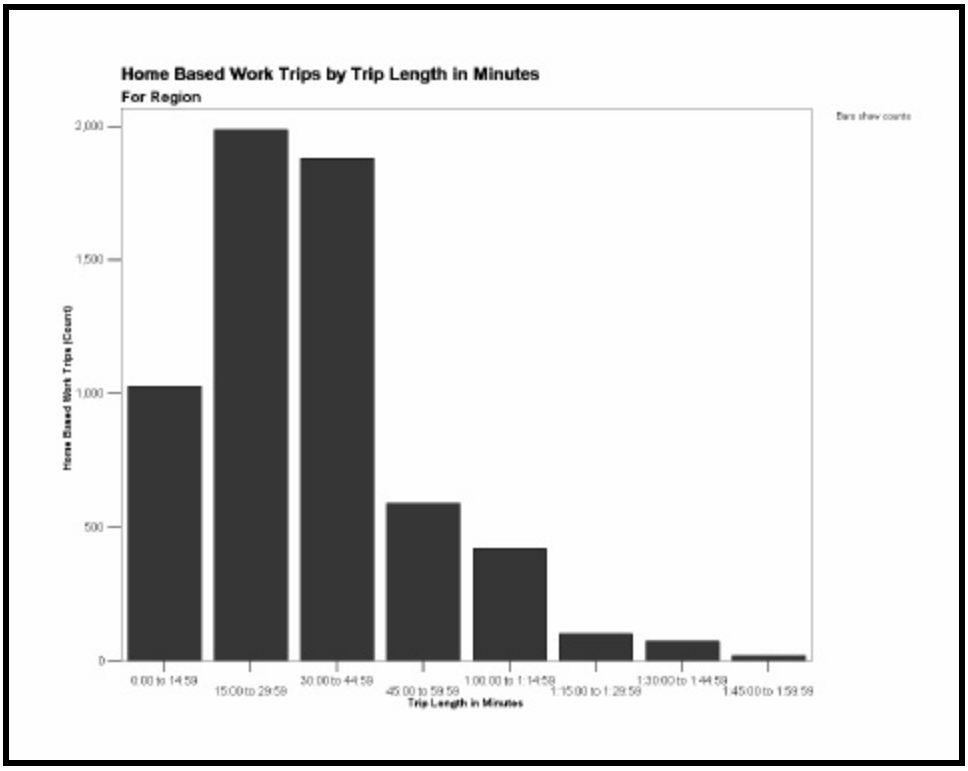

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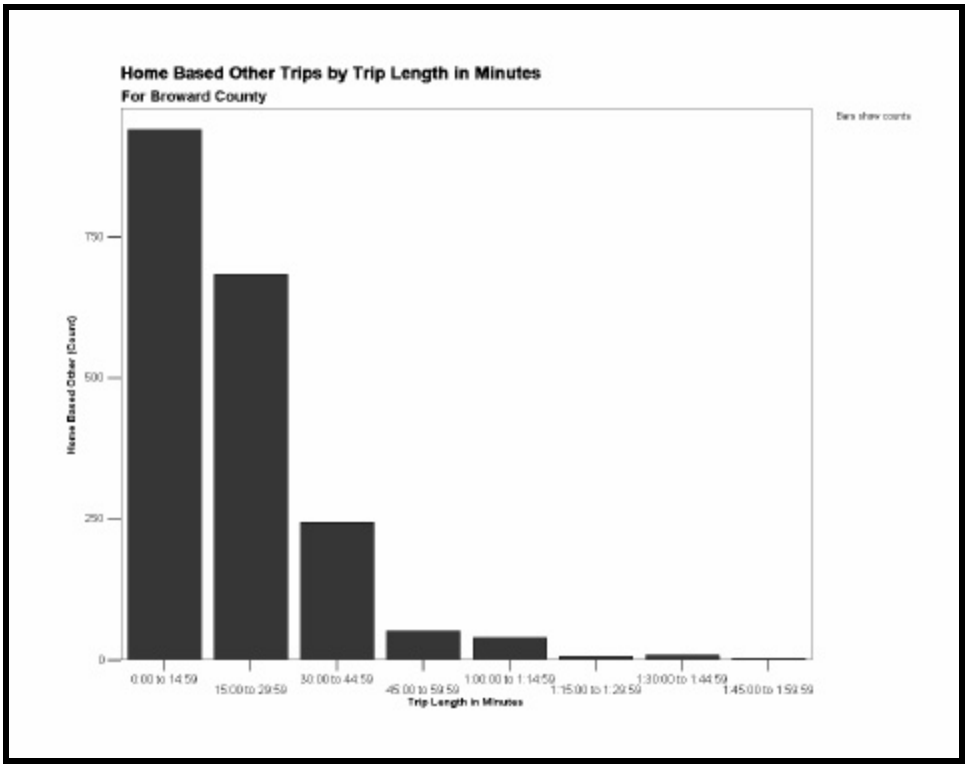

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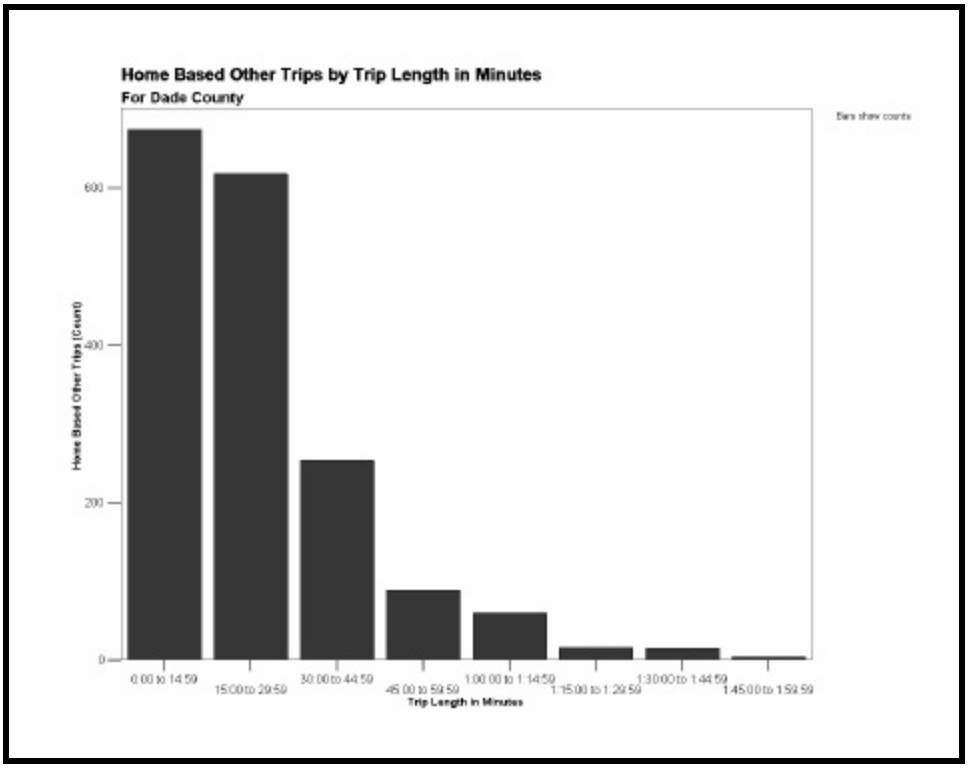

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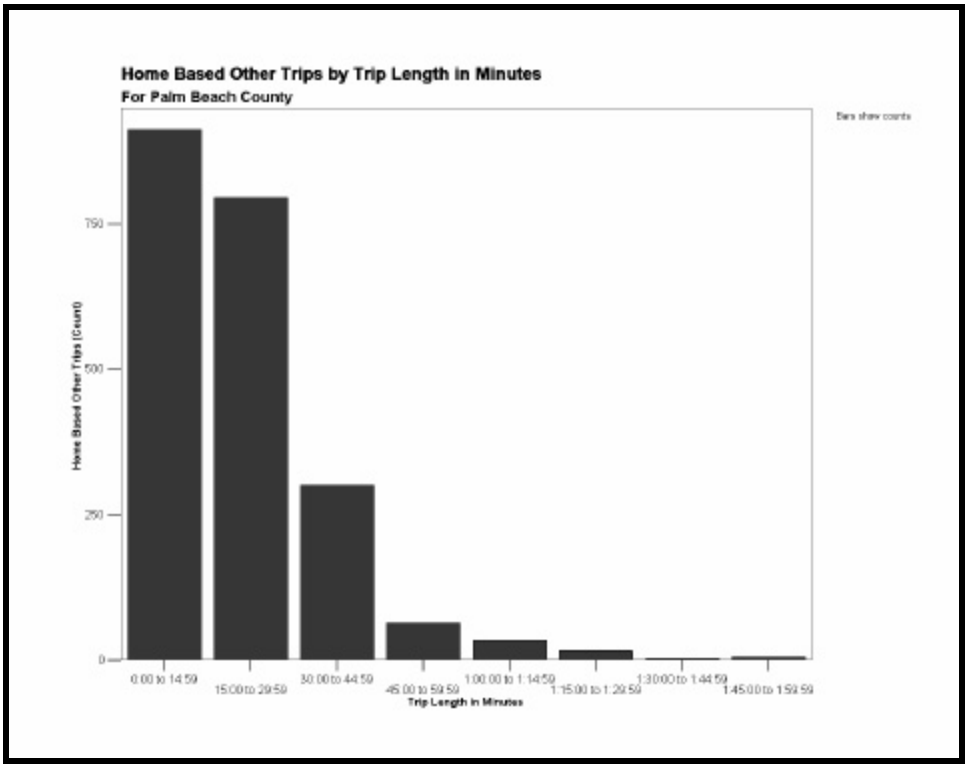

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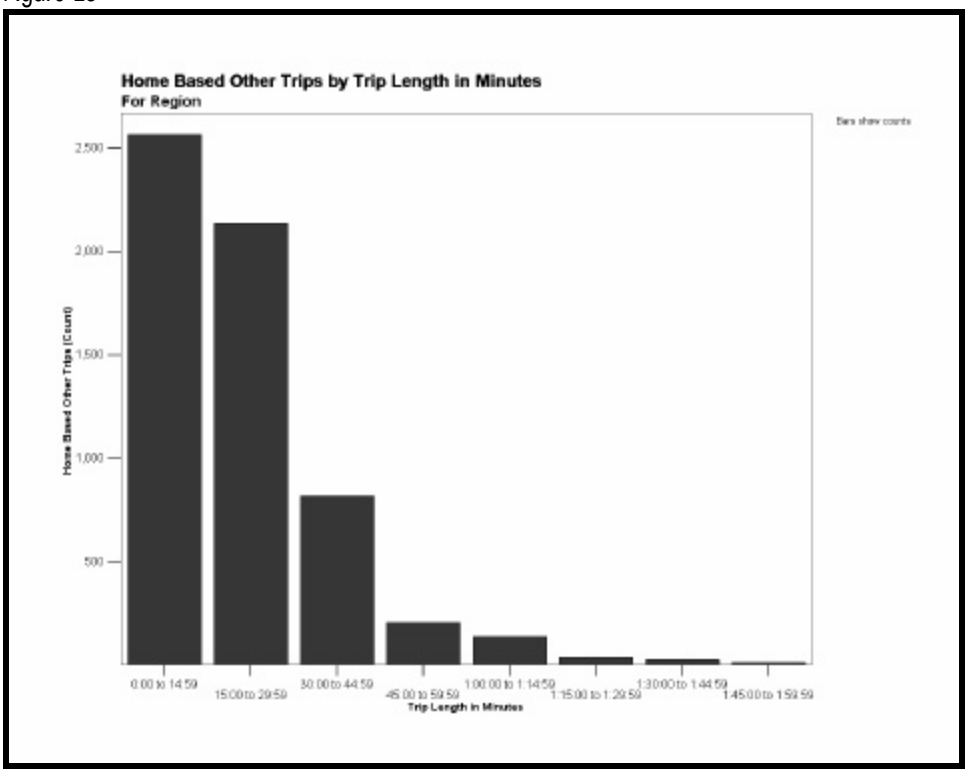

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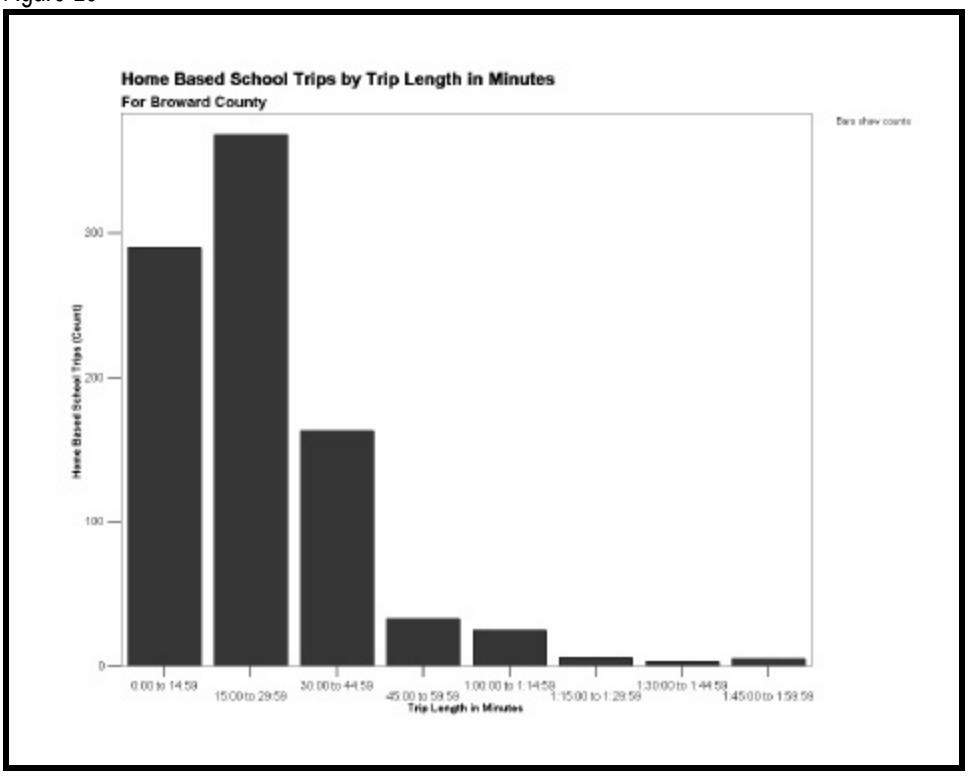

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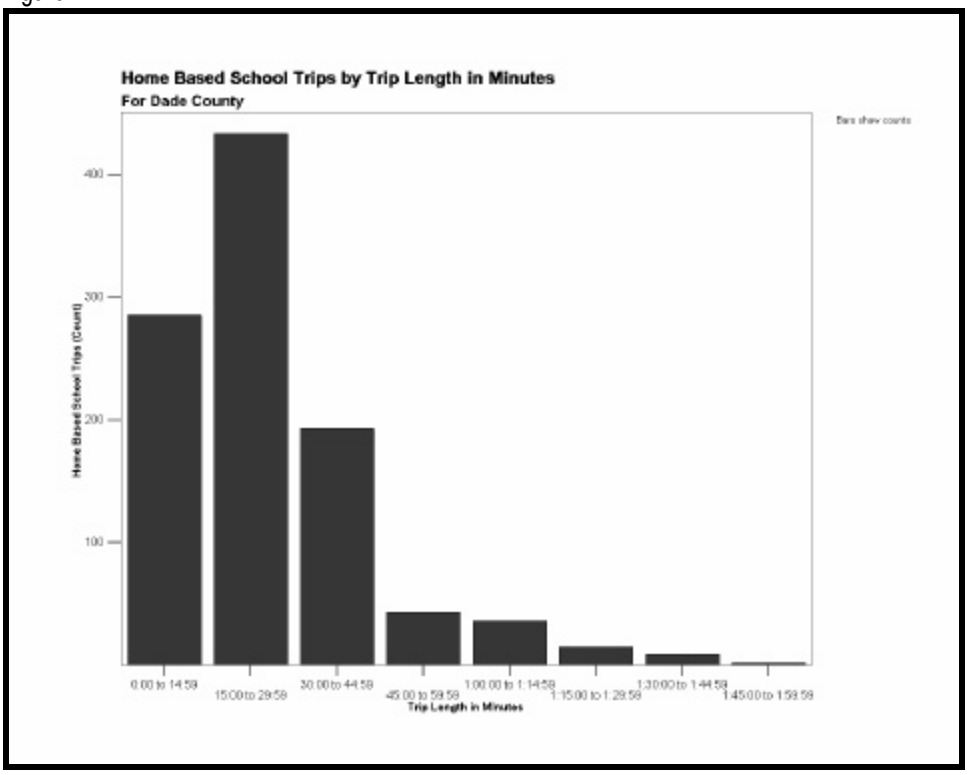

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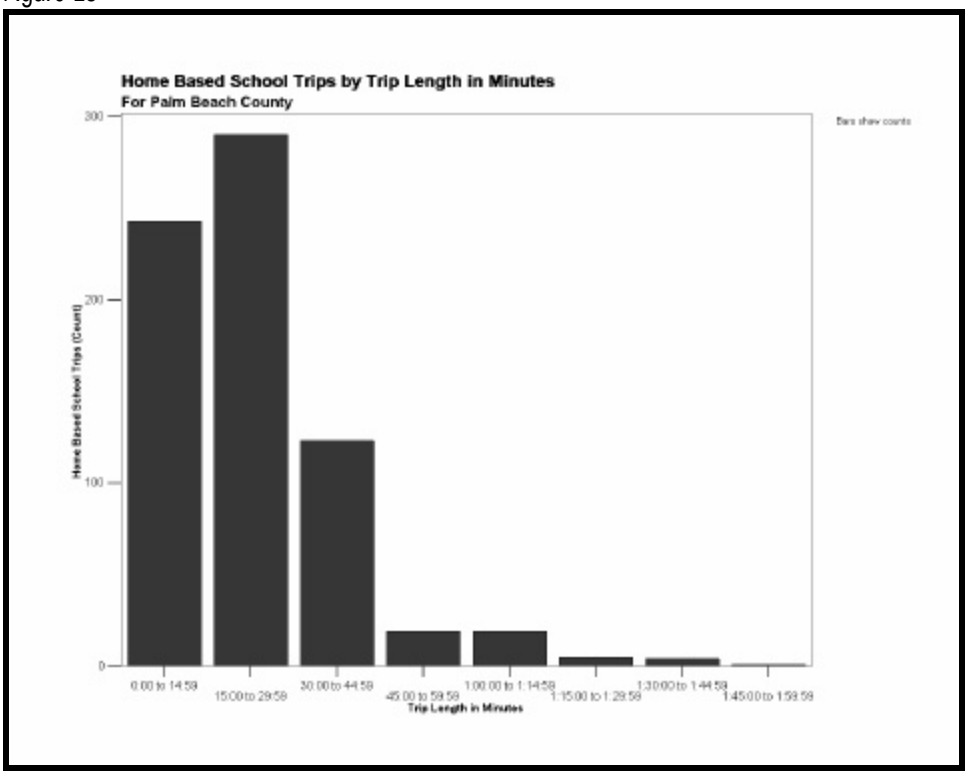

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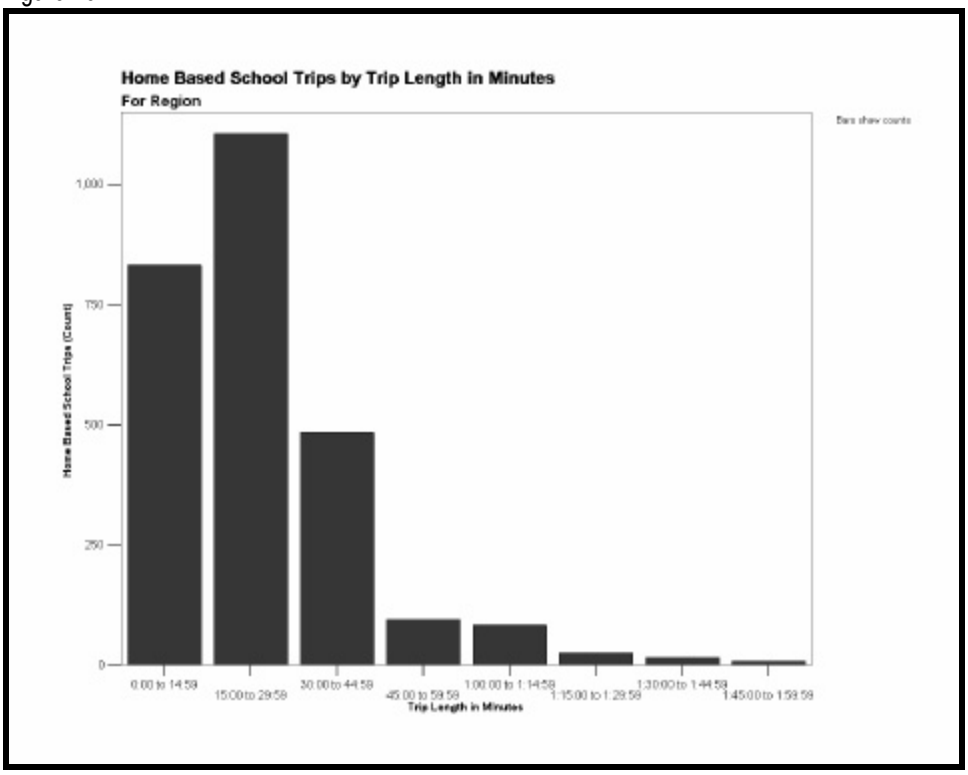

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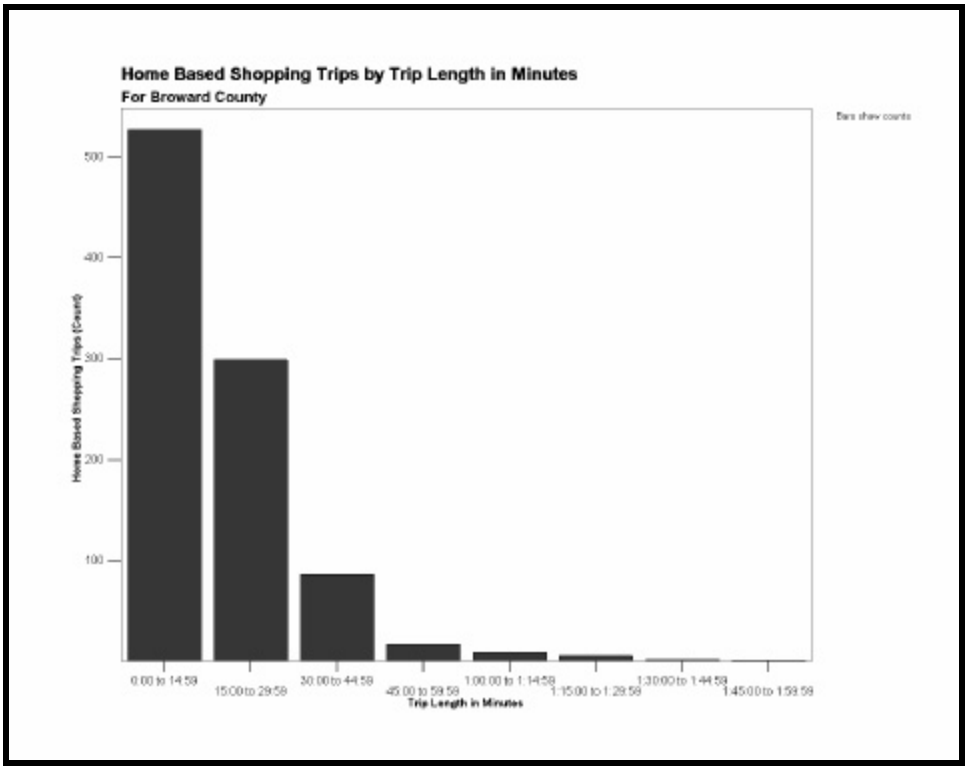

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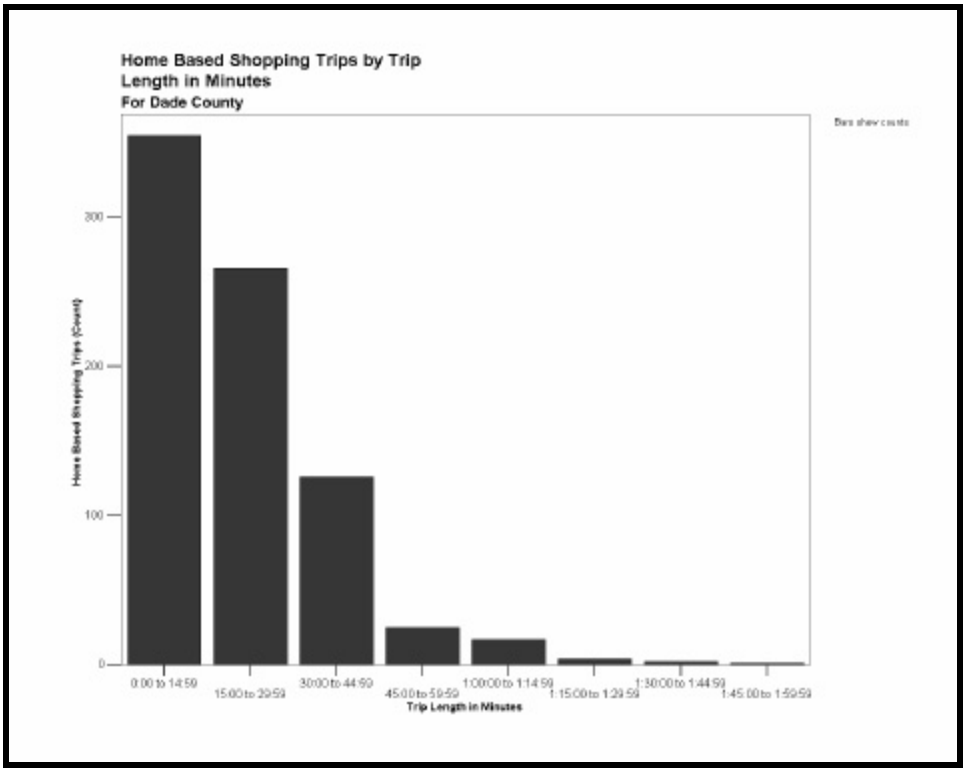

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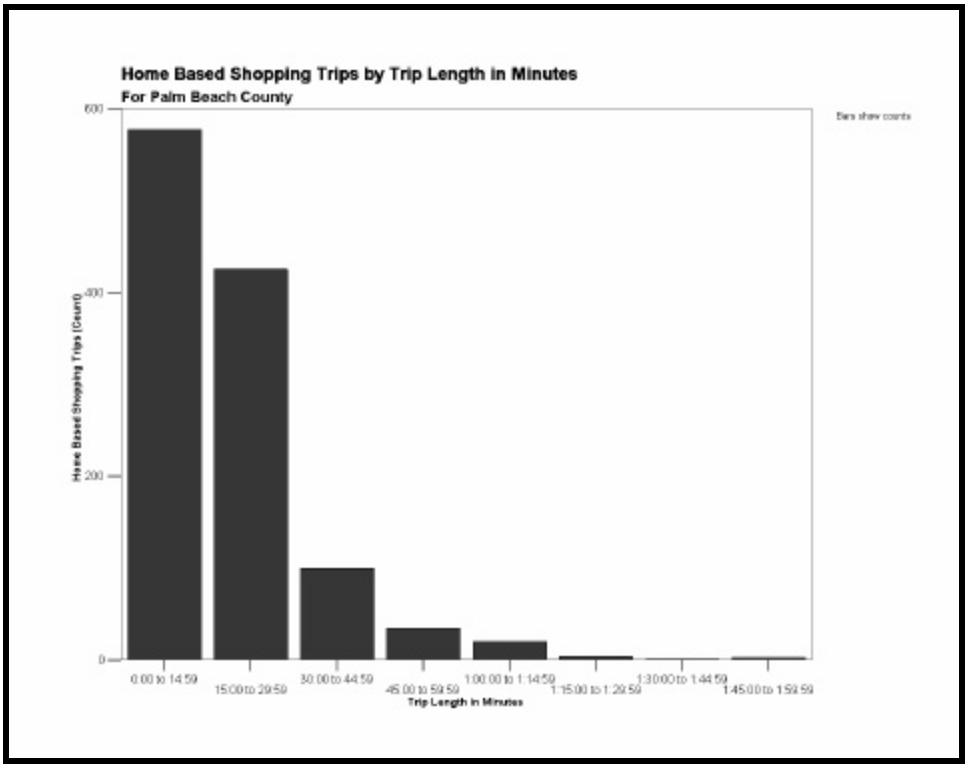

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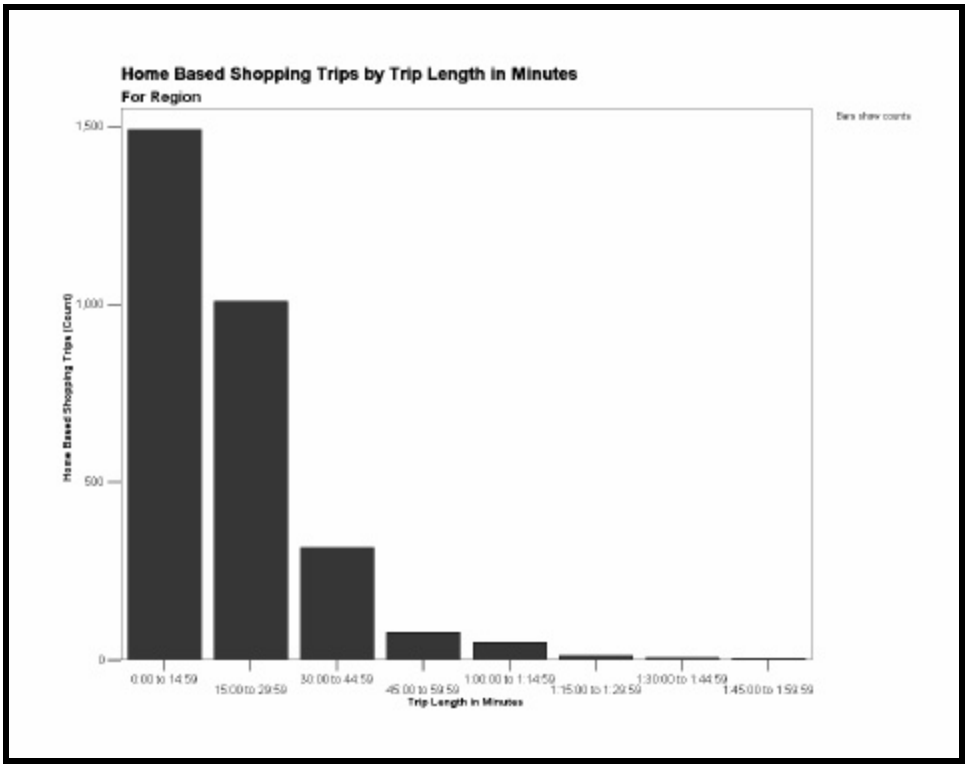

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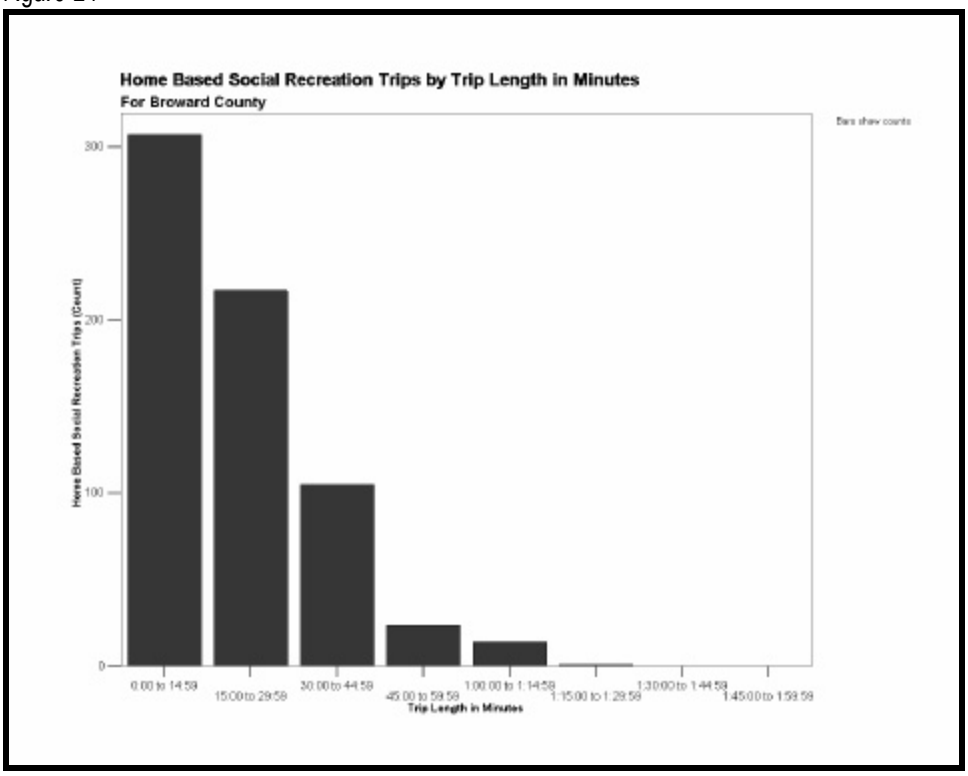

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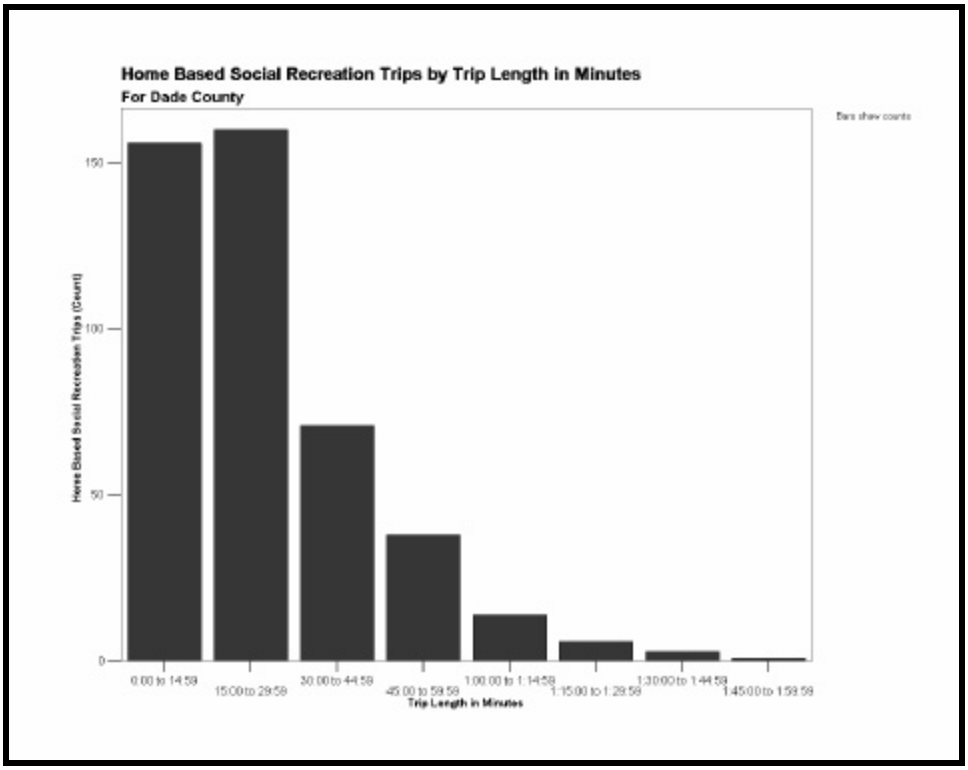

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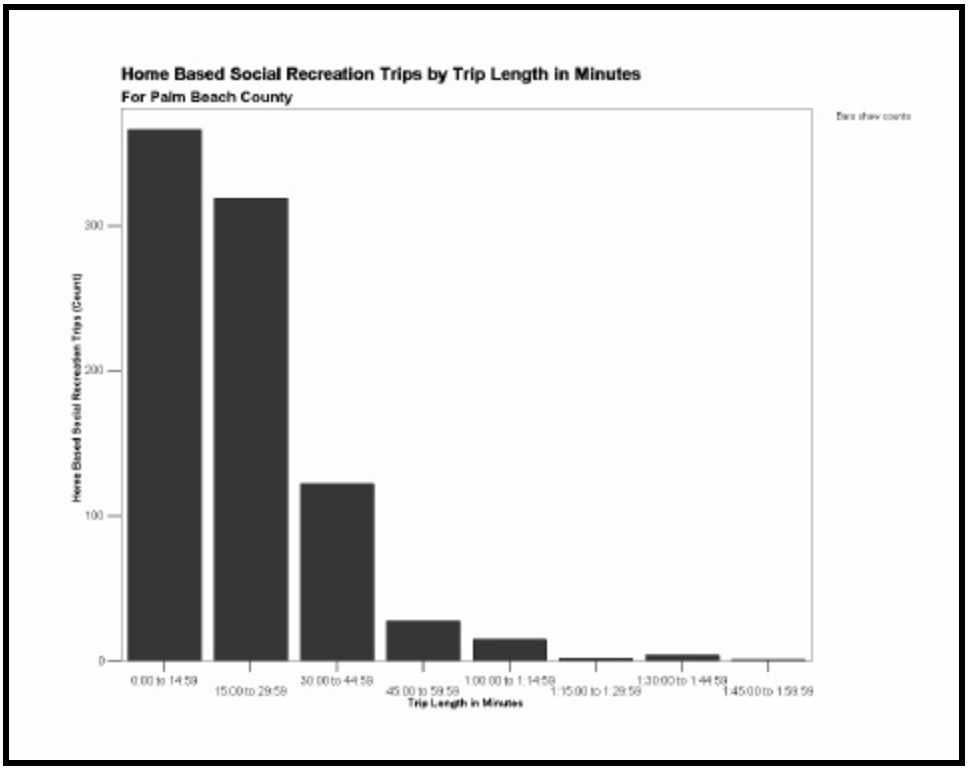

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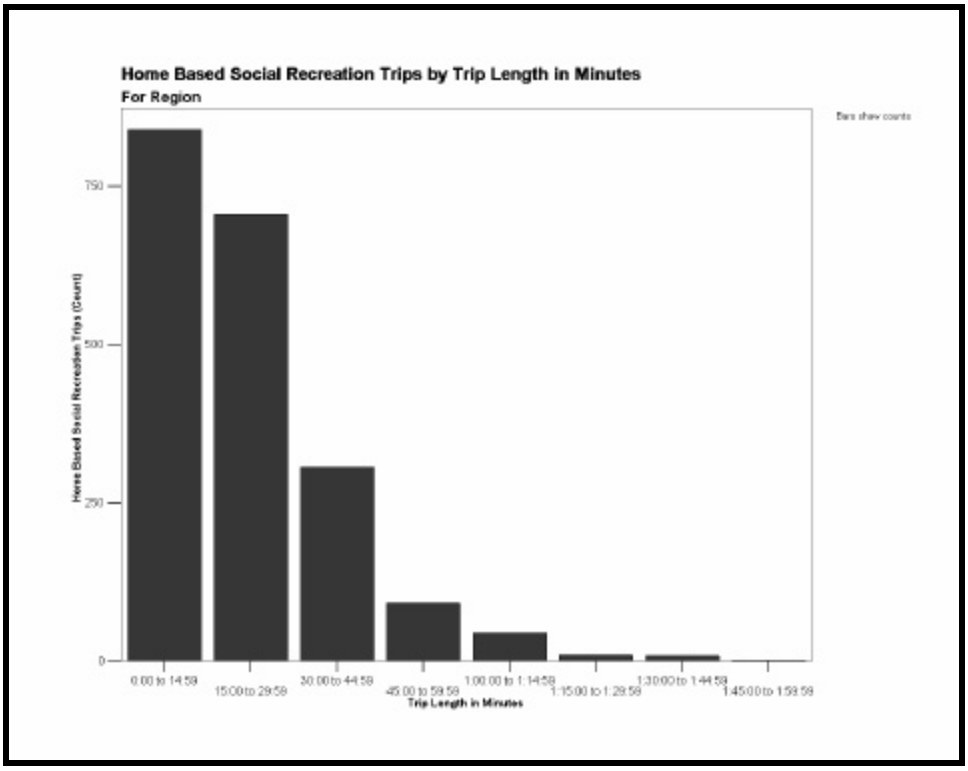

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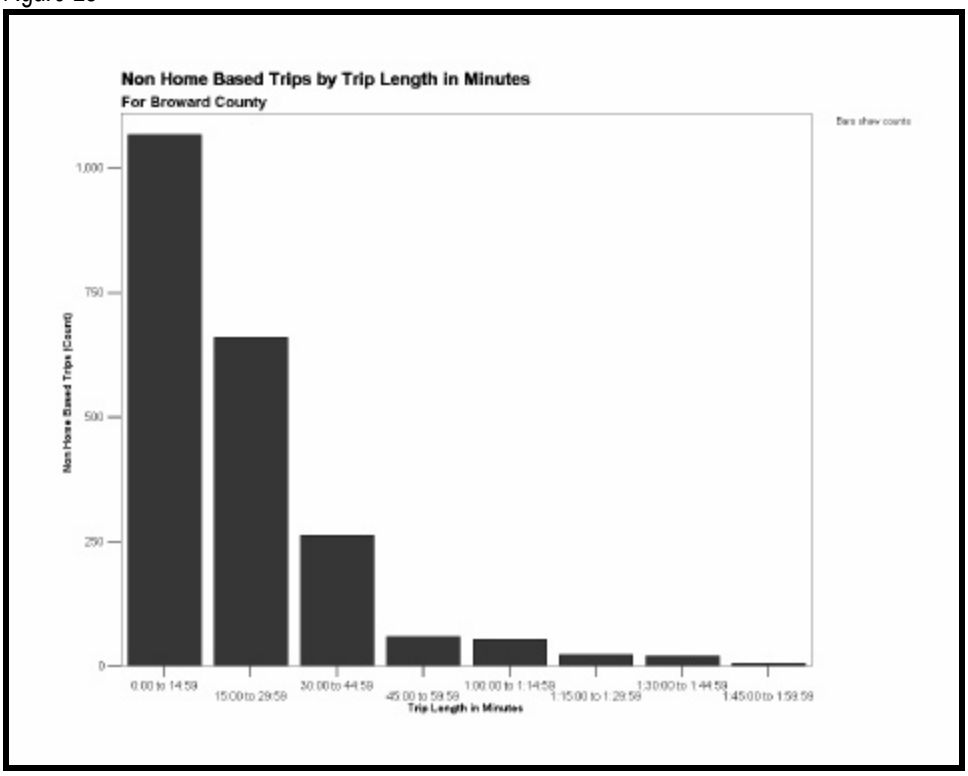

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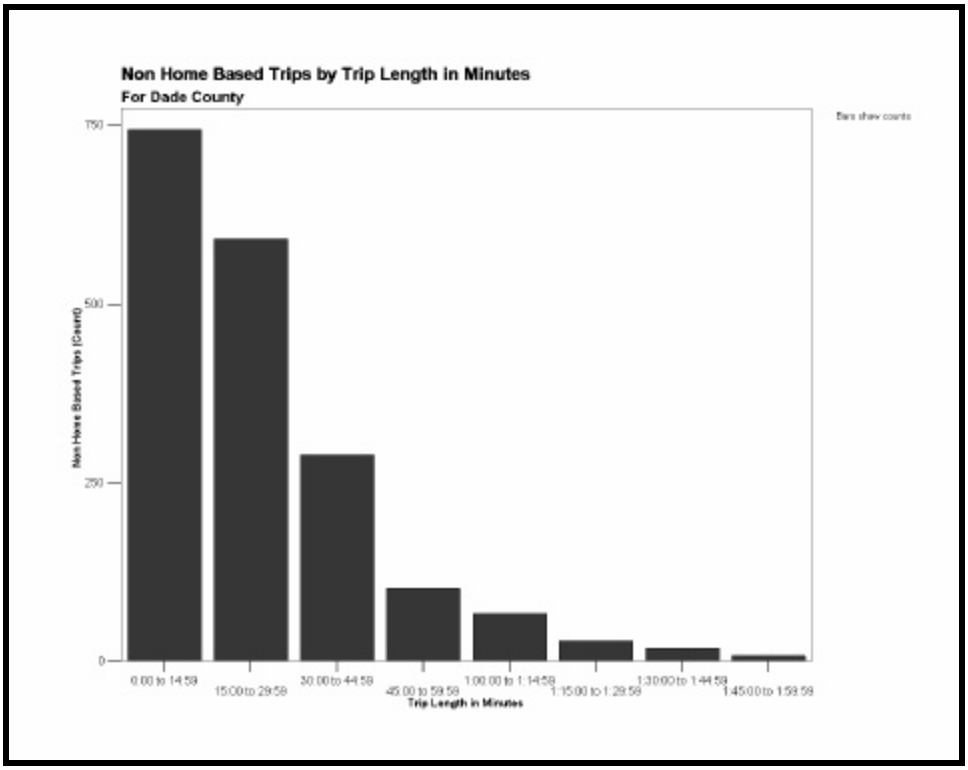

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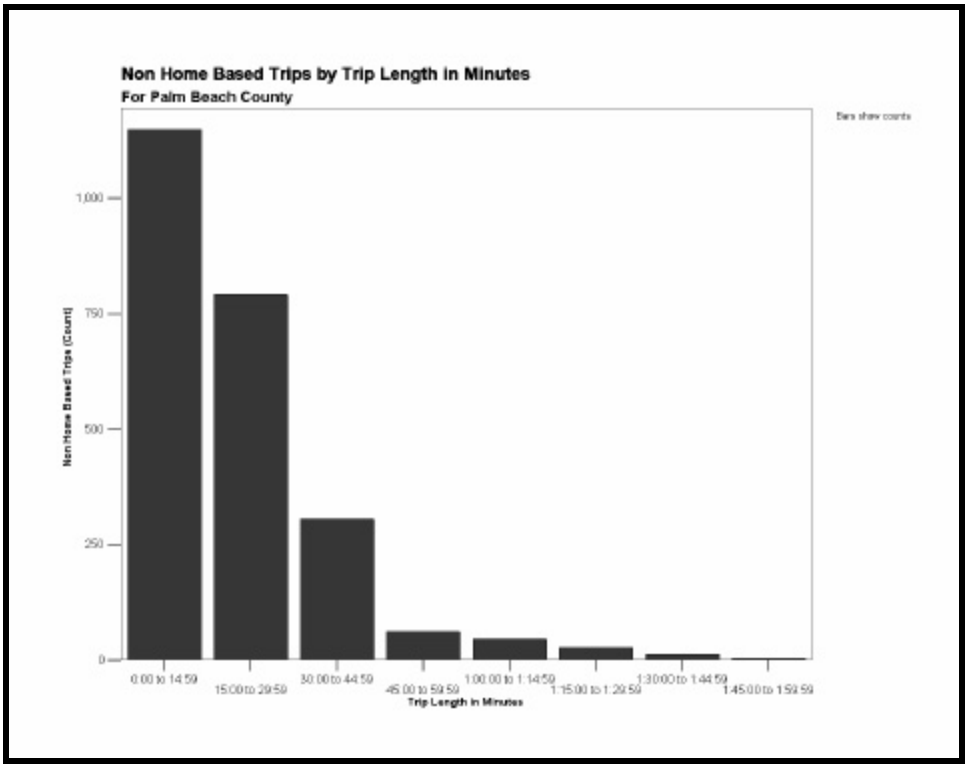

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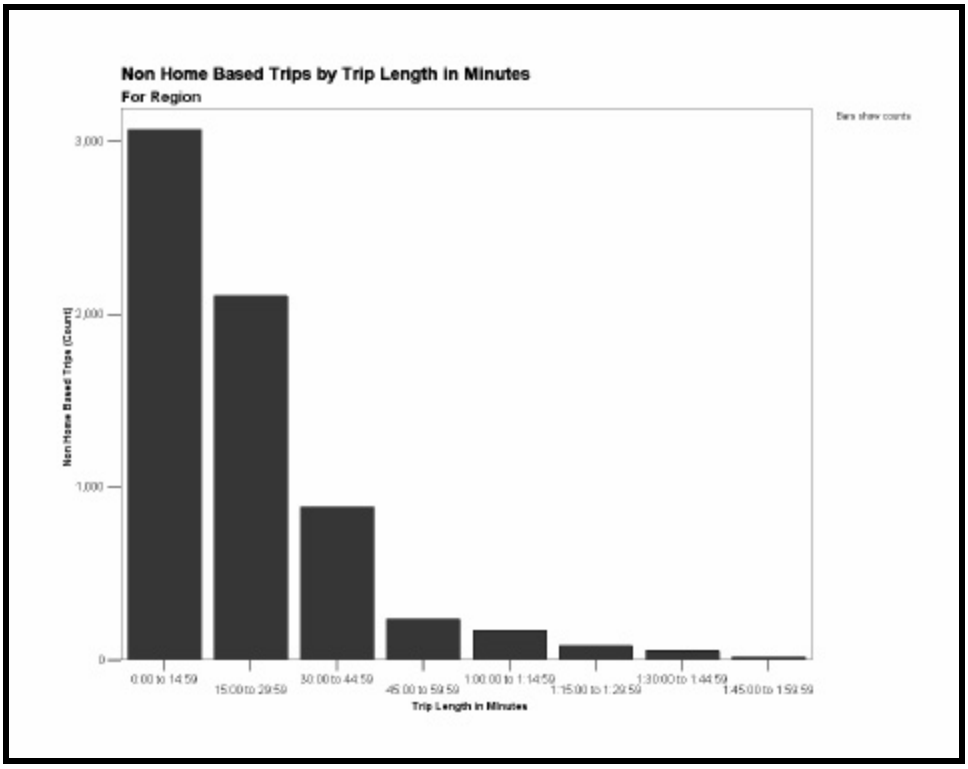

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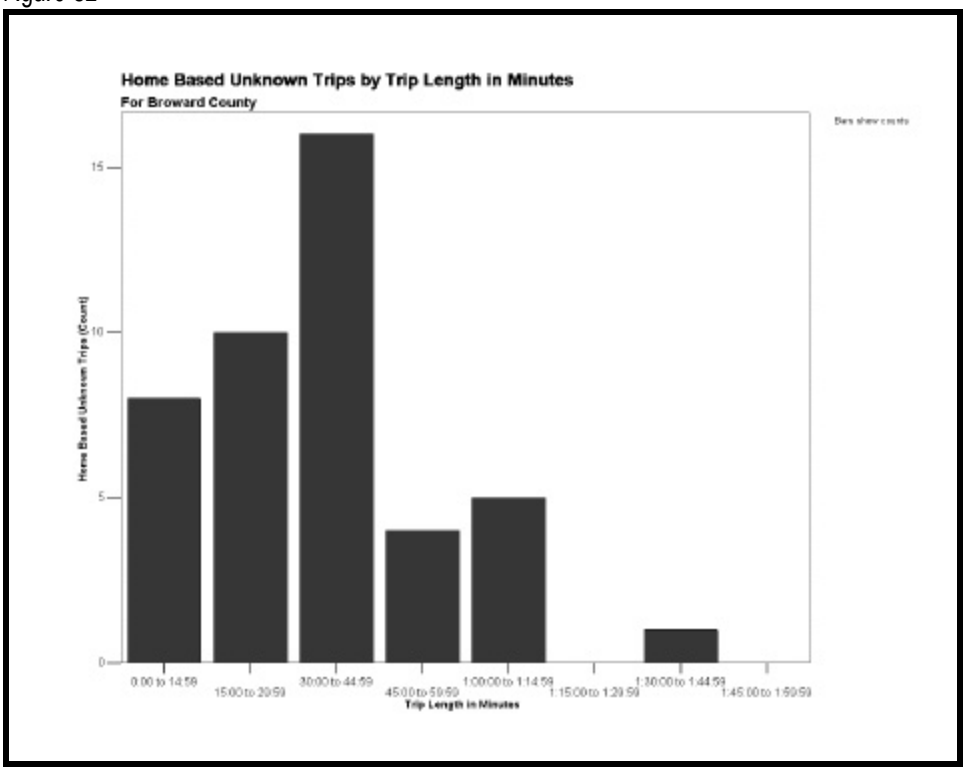

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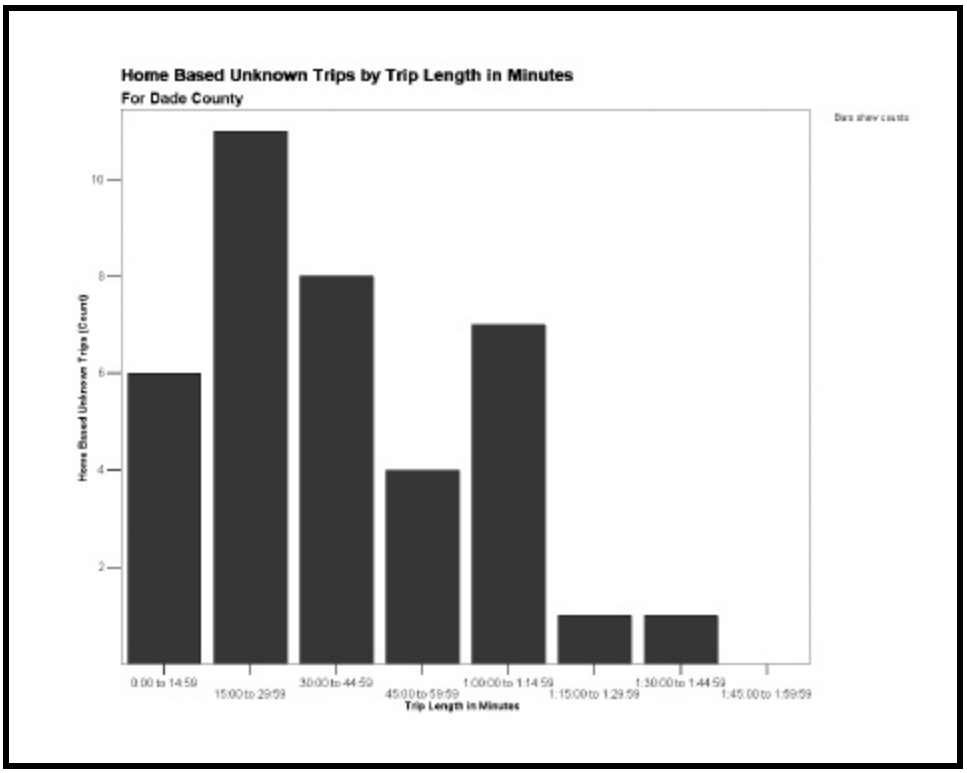

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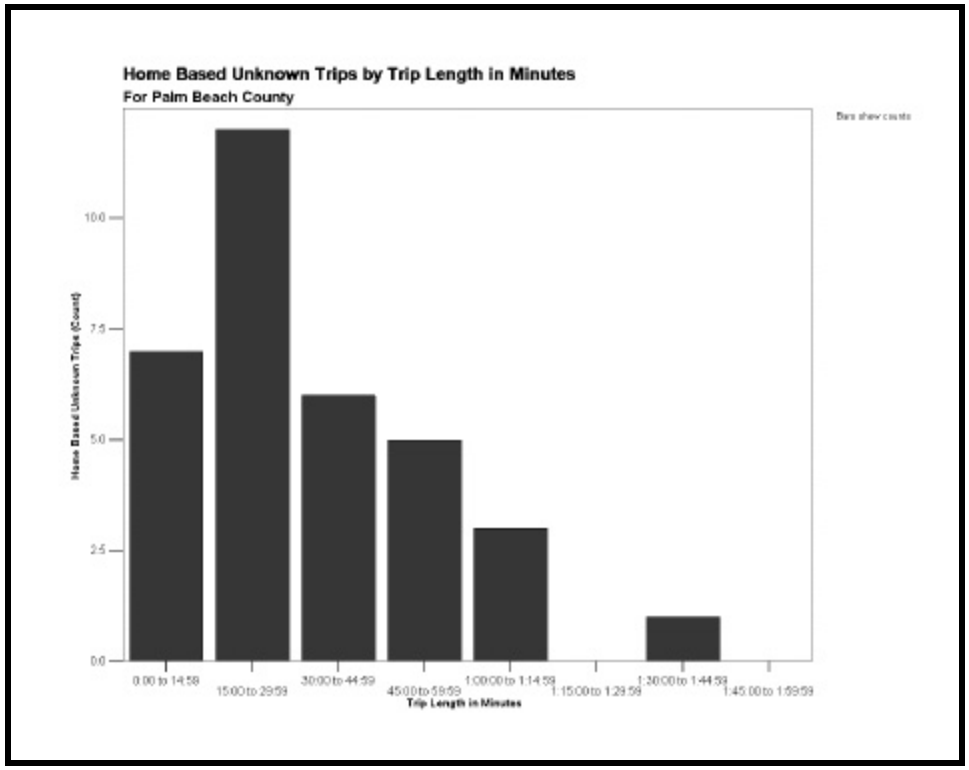

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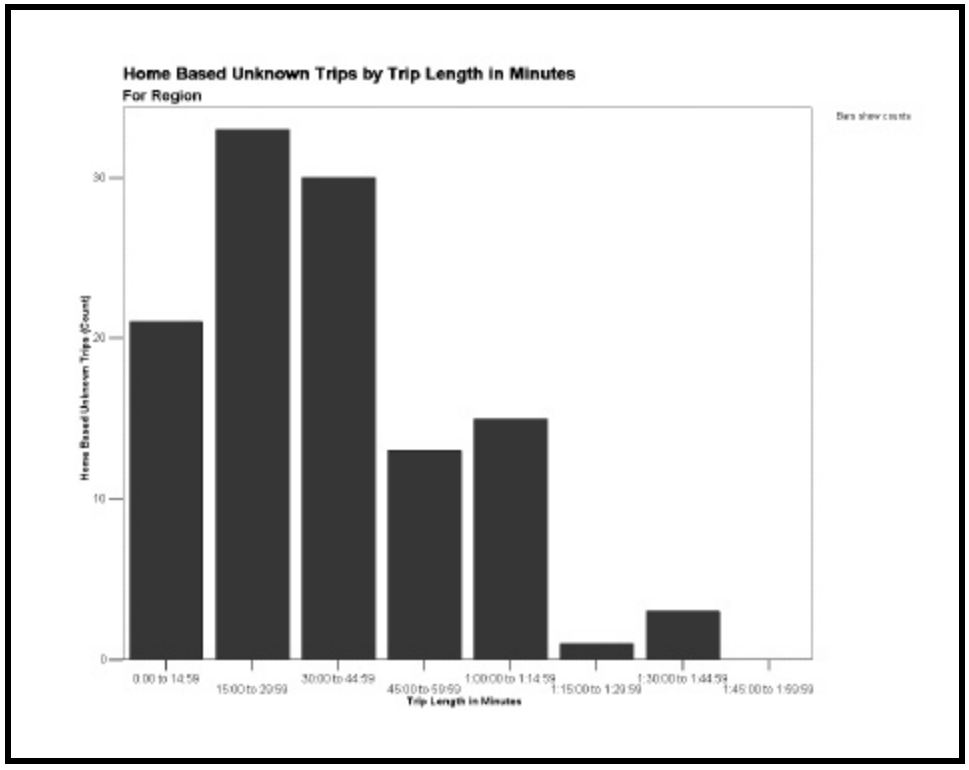

4. Coding of Questions and Responses

The following provides specific information on the questions asked and the range of possible answers provided. Each survey data sheet question and response was coded. Each question has an associated variable label that is identified in parentheses immediately following the text of the question. Each possible response has an associated value label that is identified in the parentheses adjacent to the question's possible choices:

Recruitment Survey

Question 1: "Number of People in Household?" (Q1). Possible Choices:

- Number
- 'Don't Know' (98)
- 'Refused' (99)

Question 2: "Employed in Household?" (Q2). Possible Choices:

- 'No One if Employed' (0)
- Number
- 'Don't Know' (98)
- 'Refused' (99)

Question 3: "Children Under 18?" (Q3). Possible Choices:

- 'No Children' (0)
- Number
- 'Don't Know' (98)
- 'Refused' (99)

Question 4: “Vehicles Available to Household?” (Q4). Possible Choices:

- ‘No Vehicles’ (0)
- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 5: “May We Send You a Travel Log?” (Q5). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)

Question 6: “Can You Give Us Your Address?” (Q6). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)

Question 7: “Name?” (Q7).

- String

Question 8: “Address?” (Q8).

- String

Question 9: “City?” (Q9).

- String

Question 10: “Zip Code?” (Q10).

- String

Question 11: “County?” (Q11).

- String

Question 12: “Household Income?” (Q12). Possible Choices:

- ’15 K or Less’ (1)
- ’15,001 to 30 K’ (2)
- ’30,001 to 50 K’ (3)
- ‘Greater Than 50 K’ (4)
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Travel Diary

Question 1: “Number of licensed drivers in your household?” (HA). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 2: “Number of out of town visitors staying at your house on survey day?” (HB). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 3: “Number of vehicles available to household?” (HC). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 4: “How old is Vehicle 1?” (HD). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 5: “How old is Vehicle 2?” (HF). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 6: “How old is Vehicle 3?” (HH). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 7: “How old is Vehicle 4?” (HJ). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 8: “How old is Vehicle 5?” (HK). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 9: “Do you live in a…?” (HM). Possible Choices:

- ‘Single-Family’ (1)
- ‘Duplex’ (2)
- ‘Apartment. (3)
- ‘Townhouse’ (4)
- ‘Condo’ (5)
- ‘Mobile Home’ (6)
- ‘Villa’ (7)
- ‘Retirement Home’ (8)
- ‘Detached Studio Garage Apt.’ (9)
- ‘Rectory’ (10)
- ‘Boat’ (11)
- ‘Triplex’ (12)
- ‘Quadraplex’ (13)

- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 10: “Combined annual income in household?” (HN). Possible Choices:

- ‘< 5K’ (1)
- ‘5-10K’ (2)
- ‘10-15K’ (3)
- ‘15-20K’ (4)
- ’20-25K’ (5)
- ’25-30K’ (6)
- ’30-35K’ (7)
- ’35-40K’ (8)
- ’40-45K’ (9)
- ’45-50K’ (10)
- ’50-55K’ (11)
- ’55-60K’ (12)
- ’60-65K’ (13)
- ’65-70K’ (14)
- ’70-75K’ (15)
- ’75-80K’ (16)
- ’80-85K’ (17)
- ’85-90K’ (18)
- ’90-95K’ (19)
- ’95-100K’ (20)
- ‘> 100k’ (21)
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 11: “How many travel logs were completed?” (HO). Possible Choices:

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 12: “Correct Street Address?” (HP). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)

Question 13: “Correct City?” (HR). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)

Question 14: “Correct Zip Code?” (HT). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)

Question 15: “Number of Tours Made That Day?” (T1). Possible Choices:

- Number

Question 16: “Traveler’s Name?” (T2).

- String

Question 17: “How Old Is the Person?” (T3). Possible Choices:

- Number
- ‘Don’t Know’ (998)
- ‘Refused’ (999)

Question 18: “Live Full/Part Time in South Florida?” (T4). Possible Choices:

- ‘Full Time’ (1)
- ‘Part Time’ (2)
- ‘Don’t Know’ (8)
- ‘Refused’ (9)

Question 19: “Does This Person Work?” (T5). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)
- ‘Children Under 16’ (3)
- ‘Don’t Know’ (8)
- ‘Refused’ (9)

Question 20: “Work Full or Part Time?” (T6). Possible Choices:

- ‘Full Time’ (1)
- ‘Part Time’ (2)
- ‘Don’t Know’ (8)
- ‘Refused’ (9)

Question 21: “Type of Work?” (T7). Possible Choices:

- ‘Retail Trade’ (1)
- ‘Service Industry’ (2)
- ‘Commercial Industry’ (3)
- ‘Industry’ (4)
- ‘Government’ (5)
- ‘Professional’ (6)
- ‘Self Employed’ (7)
- ‘Church’ (8)
- ‘Home Maker’ (9)
- ‘College Workstudy’ (10)
- ‘Farming’ (11)
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 22: “Retired or Unemployed?” (T8). Possible Choices:

- ‘Retired’ (1)
- ‘Unemployed’ (2)
- ‘Don’t Know’ (8)
- ‘Refused’ (9)

Question 23: “Usually Use Vehicle as Part of Job?” (T9). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)
- ‘Don’t Know’ (8)
- ‘Refused’ (9)

Question 24: “Does This Person Telecommute?” (T10). Possible Choices:

- ‘Yes’ (1)
- ‘No’ (2)
- ‘Don’t Know’ (8)
- ‘Refused’ (9)

Question 25: “Average Annual Income?” (T11). Possible Choices:

- ‘Under 5K’ (1)
- ‘5-10K’ (2)
- ‘10-15K’ (3)
- ‘15-20K’ (4)
- ’20-25K’ (5)
- ’25-30K’ (6)
- ’30-35K’ (7)
- ’35-40K’ (8)
- ’40-45K’ (9)
- ’45-50K’ (10)
- ’50-55K’ (11)
- ’55-60K’ (12)
- ’60-65K’ (13)
- ’65-70K’ (14)
- ’70-75K’ (15)
- ’75-80K’ (16)
- ’80-85K’ (17)
- ’85-90K’ (18)
- ’90-95K’ (19)
- ’95-100K’ (20)
- ‘> 100K’ (21)
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 26: “What Time Did Traveler Leave on Tour?” (QA).

- Number

Question 27: “Number of Stops Made on Tour by Traveler?” (QB).

- Number
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 28: “What was the Purpose of Stop *?” (QF1-QF10). Possible Choices:

- ‘Home’ (1)
- ‘Work’ (2)
- ‘Business Trip’ (3)
- ‘Shop’ (4)
- ‘School’ (5)
- ‘Social Recreation’ (6)
- ‘Personal Business’ (7)
- ‘Eat Meal’ (8)
- ‘Drop Off/Pick Up Passenger’ (9)
- ‘Change Travel Mode’ (10)
- ‘Daycare/Babysitter’ (11)
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 29: “In What City Was Stop *?” (DA1-DA10). Possible Choices:

- ‘Aventura’ (1)
- ‘Belle Glade’ (2)
- ‘Boca Raton’ (3)
- ‘Boynton Beach’ (4)
- ‘Coconut Creek’ (5)
- ‘Coral Gables’ (6)
- ‘Coral Springs’ (7)
- ‘Davie’ (8)
- ‘Deerfield Beach’ (9)
- ‘Delray Beach’ (10)

- Fort Lauderdale (11)
- ‘Greenacres’ (12)
- ‘Hallandale’ (13)
- ‘Hialeah’ (14)
- ‘Hialeah Gardens’ (15)
- ‘Hollywood’ (16)
- ‘Homestead’ (17)
- ‘Jupiter’ (18)
- ‘Lake Worth’ (19)
- ‘Lantana’ (20)
- ‘Lauderhill’ (21)
- ‘Margate’ (22)
- ‘Miami’ (23)
- ‘Miami Beach’ (24)
- ‘Miami Shores Village’ (25)
- ‘Miami Springs’ (26)
- ‘Miramar’ (27)
- ‘North Miami’ (28)
- ‘North Miami Beach’ (29)
- ‘North Palm Beach’ (30)
- ‘Opa-Locka’ (31)
- ‘Palm Beach’ (32)
- ‘Palm Beach Gardens’ (33)
- ‘Palm Springs’ (34)
- ‘Pembroke Pines’ (35)
- ‘Pinecrest’ (36)
- ‘Plantation’ (37)
- ‘Pompano Beach’ (38)
- ‘Riviera Beach’ (39)
- ‘Royal Palm Beach’ (40)
- ‘South Miami’ (41)
- ‘Sunrise’ (42)
- ‘Sweetwater’ (43)
- ‘Tamarac’ (44)
- ‘West Palm Beach’ (45)
- ‘City not listed’ (75)
- ‘Don’t Know’ (98)
- ‘Refused’ (99)

Question 30: “Land Usage Code for Stop *?” (QG1-QG10). Possible Choices:

- ‘Residential’ (1)
- ‘Ag/Forest/Fish’ (2)
- ‘Mining’ (3)
- ‘Construction’ (4)
- ‘Manufacture’ (5)
- ‘Trans/Com/Utilities’ (6)
- ‘Wholesale Business’ (7)
- ‘Retail Business’ (8)
- ‘Finance/Ins/Real Estate’ (9)
- ‘Services’ (10)
- ‘Government’ (11)
- ‘Don’t Know (98)
- ‘Refused’ (99)

Question 31: “Mode of Travel to Stop*?” (QH1-QH10). Possible Choices:

- ‘Auto Driver’ (1)
- ‘Auto Passenger’ (2)
- ‘Bus’ (3)
- ‘Metrorail’ (4)
- ‘Metromover’ (5)
- ‘Tri-Rail’ (6)
- ‘Jitney’ (7)
- ‘School Bus’ (8)
- ‘Taxi’ (9)
- ‘Motorcycle’ (10)
- ‘Car/Van Pool’ (11)
- ‘Walk’ (12)
- ‘Bike’ (13)
- ‘Rollerblade‘ (14)
- ‘Run’ (15)
- ‘Spectran’ (16)
- ‘Airplane/Helicopter’ (17)
- ‘Don’t Remember’ (98)
- ‘Refused’ (99)

Question 32: "Number of People in Vehicle?" (QI1-QI10).

- Number

Question 33: "Pay to Park, Stop*?" (QJ1-QJ10). Possible Choices:

- 'Yes' (1)
- 'No' (2)
- 'Don't Remember' (8)
- 'Refused' (9)

Question 34: "Cost to Park, Stop #?" (QK1-QK10).

- Number

Question 35: "How to the Bus or Train?" (QL1-QL10). Possible Choices:

- 'Walking from Last Activity' (1)
- 'Driving to pay-and-ride lot' (2)
- 'Dropped off from Auto' (3)
- 'Shuttle' (4)
- 'Bus' (5)
- 'Metrorail/Train' (6)
- 'Don't Remember' (8)
- 'Refused' (9)

Question 36: "How Long Wait for Bus/Train, Stop #?" (QM1-QM10). Possible Choices:

- Number
- 'Don't Remember' (98)
- 'Refused' (99)

Question 37: "Fare for Bus/Train, Stop #?" (QN1-QN10). Possible Choices:

- Number
- 'Don't Remember' (98)
- 'Refused' (99)

Question 38: "Number of Transfers, Stop #?" (QO1-QO10). Possible Choices:

- Number
- 'Don't Remember' (98)
- 'Refused' (99)

Question 39: "Cost of Transfer, Stop #?" (QP1-QP10). Possible Choices:

- Number
- 'Don't Remember' (9998)
- 'Refused' (9999)

Question 40: "Off Bus/Train-Walk/Drive, Stop #?" (QG1-QG10). Possible Choices:

- 'Walk' (1)
- 'Auto Driver' (2)
- 'Auto Passenger (3)
- 'Bus' (4)
- 'Tri Rail' (5)
- 'Don't Know' (98)
- 'Refused' (99)

Question 41: "Taxi Fare, Stop #?" (QR1-QR10). Possible Choices:

- Number
- 'Don't Remember' (98)
- 'Refused' (99)

Question 42: “Number of Miles Walked or Biked, Stop #?” (QV1-Qv10). Possible Choices.

- ‘< .25’ (1)
- ‘.26 - .50’ (2)
- ‘.51 - .75’ (3)
- ‘.76 - 1.00’ (4)
- ‘1.01 - 1.25’ (5)
- ‘1.26 - 1.50’ (6)
- ‘1.51 - 1.75’ (7)
- ‘1.76 - 2.00’ (8)
- ‘2.01 - 2.25’ (9)
- ‘2.26 - 2.50’ (10)
- ‘2.51 - 2.75’ (11)
- ‘2.76 - 3.00’ (12)
- ‘3.01 - 3.25’ (13)
- ‘3.26 - 3.50’ (14)
- ‘3.51 - 3.75’ (15)
- ‘3.76 - 4.00’ (16)
- ‘4.01 - 4.25’ (17)
- ‘4.26 - 4.50’ (19)
- ‘4.51 - 4.75’ (20)
- ‘4.76 - 5.00’ (21)
- ‘5-6’ (22)
- ‘6-7’ (23)
- ‘7-8’ (24)
- ‘8-9’ (25)
- ‘9-10’ (26)
- ‘10-15’ (27)
- ‘15-20’ (28)
- ‘20-25’ (29)
- ‘25-30’ (30)
- ‘30-35’ (31)
- ‘35-40’ (32)
- ‘40-45’ (33)
- ‘45-50’ (34)
- ‘Don’t Know’ (35)
- ‘Refused’ (36)

Question 43: “Time Arrived at Stop #?” (QS1-QS10).

- Number

Question 44: “Time Leave Stop #?” (QT1-QT10).

- Number

G: Trip Generation Spreadsheet

Effective January 1, 2014 (expires September 21, 2015)

Input Data In This Column Only

Credits

ITE LUC	Land Use	Unit of Measurement	ITE Trip Generation Rate (ITE 9th Ed)	ITE Pass-by percentage	Mean Auto Occupancy	Credits?	Number of Units / Square footage *(e.g enter "10" for a 10,000 sq ft development where 1 unit = 1,000 sf)**	Estimated Trip Generation	Estimated Trip Generation	Estimated Fee	Estimated Credit Percentage	Estimated Credits	Mobility Fee
	Residential:												
210	Single Family Detached/ Mobile Home Individual L	du	9.52	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
220	Multi Family	du	6.65	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
230	Condominium/Townhouse	du	5.81	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
240	Mobile Home Park	du	4.99	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
251	Age-Restricted Single Famil	du	3.68	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
253	Congregate Care Facility (Attached	du	2.02	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
	Transient, Assisted, Group												
310	Hotel	room	8.17	0%	1.308	☐ Check		-	-	$ -	$ -	$ -	$ -
320	Motel	room	5.63	0%	1.308	☐ Check		-	-	$ -	$ -	$ -	$ -
416	RV Park	RV space		0%	1.308	☐ Check		-	-	$ -	$ -	$ -	$ -
	Recreational												
420	Marina	berth	2.96	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
430	Golf Course	hole	35.74	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
411	General Recreation (City Park	acre	1.89	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
480	Amusement Park	acre	75.76	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
444	Movie Theater with Matinee	screen	348.33	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
492	Racquet Club/Health Club/Spa/Dance Studi	1,000 sf	32.93	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
437	Bowling Alley	1,000 sf	33.33	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
495	Community Center	1,000 sf	33.82	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
	Institutiona												
610	Hospital	1,000 sf	13.22	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
620	Nursing Home	bed	2.74	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
520	Elementary Schoo	student	1.29	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
522	Middle Schoo	student	1.62	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
530	High School	student	1.71	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
536	Private School (K-12)	student	2.48	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
540	Junior/Community College	student	1.23	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
550	University	student	1.71	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
560	Church	1,000 sf	9.11	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
565	Day Care*	1,000 sf	54.06	0%	1.517	☐ Check		-	-	$ -	$ -	$ -	$ -
566	Cemetery	acre	4.73	0%		☐ Check		-	-	$ -	$ -	$ -	$ -
	Office												
710	Office	1,000 sf of GFA	11.03	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
720	Medical Office/Clinic	1,000 sf	36.13	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
770	Business Park	1,000 sf	12.44	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
	Retail												
826	Retail (1,000 - 50,000 SqFt)	1,000 sf	formula	0%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
820	Retail (50,001 - 100,000 SqFt)	1,000 sf	formula	34%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
820	Retail (100,001 - 250,000 SqFt)	1,000 sf	formula	34%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
820	Retail (250,001 - 500,000 SqFt)	1,000 sf	formula	34%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
820	Retail/Shopping Center (Greater than 500,000 SqF	1,000 sf	formula	34%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
812	Building Materials and Lumbe	1,000 sf	45.16	0%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
813	Discount Superstore, Incl. Electronics & Toys/Children's	1,000 sf	50.75	28%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
815	Free-Standing Discount Store	1,000 sf	57.24	17%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
816	Hardware/Paint Store	1,000 sf	51.29	26%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
817	Nursery (Garden Center)	1,000 sf	68.10	0%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
931	Quality Restaurant	1,000 sf	89.95	44%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
932	High-Turnover Restauran	1,000 sf	127.15	43%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
934	Fast Food Restaurant w/ Drive-Thru	1,000 sf	496.12	50%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
941	Quick Lube	bay	40.00	0%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
942	Auto Repair or Body Shop	bay	12.48	0%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
841	New/Used Auto Sales	1,000 sf	32.30	0%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
843	Auto Parts Sales/Tire Store	1,000 sf	61.91	43%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
944	Gasoline Station	fuel pos.	168.56	58%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
947	Self Service Car Wash	bay	108.00	0%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
850	Supermarket	1,000 sf	102.24	36%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
853	Convenience Store with Gas Pumps	1,000 sf	845.60	66%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
862	Home Improvement Superstore	1,000 sf	30.74	48%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
881	Pharmacy /Drug Store with Drive-Thru	1,000 sf	96.91	49%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
890	Furniture Store	1,000 sf	5.06	53%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
912	Bank/Savings Drive-in	1,000 sf	148.15	47%	1.321	☐ Check		-	-	$ -	$ -	$ -	$ -
	Industrial												
110	General Light Industrial/Utilities	1,000 sf	6.97	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
120	General Heavy Industria	1,000 sf	1.50	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
130	Industrial Park	1,000 sf	6.83	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
140	Manufacturing	1,000 sf	3.82	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
150	Warehouse	1,000 sf	3.56	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
151	Mini-Warehouse	1,000 sf	2.50	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
152	High-Cube Warehouse	1,000 sf	1.68	0%	1.082	☐ Check		-	-	$ -	$ -	$ -	$ -
	User Defined												
								-	#REF!	$ -	$ -	$ -	$ -
TotaL								-	-	-	-	-	-

Note: GFA = Gross Floor Area; GLA = Gross Leasable Area

Daycare (565) **ITE Trip generation rate * 73% primary trip percentage*

H: Florida Department of Transportation Inflation Factors

Inflation Factors

This *"Transportation Costs"* report is one of a series of reports issued by the Office of Policy Planning. It provides information on inflation factors and other indices that may be used to convert Present Day Costs (PDC) to Year Of Expenditure costs (YOE) or vice versa. This report is updated annually when the factors are posted within the FDOT Work Program Instructions.

Please note that the methodology for Inflationary adjustments relating to specific transportation projects should be addressed with the district office where the project will be located. For general use or non-specific areas, the guidelines provided herein may be used for inflationary adjustments.

Construction Cost Inflation Factors

The table on the next page includes the inflation factors and present day cost (PDC) multipliers that are applied to the Department's Work Program for highway construction costs expressed in Fiscal Year 2016 dollars.

Other Transportation Cost Inflation Factors

Other indices may be used to adjust project costs for other transportation modes or non-construction components of costs. Examples are as follows:

The Consumer Price Index (CPI, also retail price index) is a weighted average of prices of a specified set of products and services purchased by wage earners in urban areas. Restated, it is a price index which tracks the prices of a specified set of consumer products and services, providing a measure of inflation. The CPI is a fixed quantity price index and a reasonable cost-of-living index.

The Employment Cost Index (ECI) is based on the National Compensation Survey. It measures quarterly changes in compensation costs, which include wages, salaries, and other employer costs for civilian workers (nonfarm private industry and state and local government).

The monthly series, Producer Price Index for Other Non-residential Construction, is available from the Bureau of Labor Statistics (BLS). This index is not exclusively a highway construction index, but it is the best available national estimate of changes in highway costs from month to month.

Work Program
Highway Construction Cost Inflation Factors

Fiscal Year	Inflation Factor	PDC Multiplier
2016	Base	1.000
2017	2.5%	1.025
2018	2.7%	1.053
2019	2.8%	1.082
2020	2.6%	1.110
2021	2.5%	1.138
2022	2.7%	1.169
2023	2.8%	1.201
2024	2.9%	1.236
2025	3.0%	1.273
2026	3.1%	1.313
2027	3.2%	1.355
2028	3.3%	1.399
2029	3.3%	1.446
2030	3.3%	1.493
2031	3.3%	1.543
2032	3.3%	1.593
2033	3.3%	1.646
2034	3.3%	1700
2035	3.3%	1.756
2036	3.3%	1.814
Source: Office of Work Program and Budget, (Fiscal Year 2016 is July 1, 2015 to June 30, 2016)		

Advisory Inflation Factors For Previous Years

Another *"Transportation Costs"* report is available covering highway construction cost inflation for previous years. "*Advisory Inflation Factors For Previous Years (1987-2015)* provides Present Day Cost (PDC) multipliers that enable project cost estimates from previous years to be updated to FY 2015. This report is updated about once a year. For the table and text providing this information, please go to http://www.dot.state.fl.us/planning/policy/costs/RetroCostInflation.pdf.

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