TRIP GENERATION MPO SURVEY SUMMARY

Supplemental Report

DEVELOPMENT OF FSUTMS LIFECYCLE AND SEASONAL RESIDENT TRIP PRODUCTION MODELS FOR FLORIDA URBAN AREAS

Contract No. BC532

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16. Abstract

As part of the project, a survey of Florida Metropolitan Planning Organizations (MPOs) was conducted in 2001. The survey results were summarized in this report. The survey covered issues in the following areas:

- Agencies responsible for developing socioeconomic data;
- Frequency of model updates;
- Existing travel survey data;
- Anticipated survey in the future
- Data and methods used to estimate or project socioeconomic variables for standard FSUTMS model;
- Data and methods used to estimate or project socioeconomic variables for lifestyle FSUTMS models;
- Problems with special generators; and
- Possible improvements to trip generation models.

Accuracy of socioeconomic data, availability of household survey data, a lack of standard methodologies and procedures for forecasting lifestyle variables, special trip generators, the inability to handle trip chaining, and trip rates for seasonal and retired households were identified as problems requiring more attention.

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TABLE OF CONTENTS

LIST OF TABLES

1. INTRODUCTION

This document provides a summary of a survey of metropolitan planning organizations (MPOs) in the state of Florida. The survey was designed by Imran Ghani of FDOT District 2, and was conducted in the fall of 2001. The survey was part of a research project titled "Development of FSUTMS Life Cycle and Seasonal Resident Trip Production Models for Florida Urban Areas", for which a full report is available separately (Zhao et al. 2003). The purpose of the MPO survey was to collect information related to FUSTMS trip generation models to identify current practices in data collection, data preparation for base year models, forecasting of data for future year models, and problems and issues encountered by MPOs in trip generation. The information will be useful to provide future directions to further improve FSUTMS trip generation process. The information in the following areas was collected in the survey:

- Agencies responsible for developing socioeconomic data;
- Frequency of model updates;
- Existing travel survey data;
- Anticipated survey in the future
- Data and methods used to estimate or project socioeconomic variables for standard FSUTMS model;
- Data and methods used to estimate or project socioeconomic variables for lifestyle FSUTMS models;
- Problems with special generators; and
- Possible improvements to trip generation models.

Twenty-five survey forms were mailed to Florida MPOs, of which fourteen were returned. These returned surveys included on from the FDOT District 7 (Tampa Bay), the jurisdiction of which covers Citrus, Hernando, Pasco, Pinellas, and Hillsborough counties. FDOT District 7 has been playing a significant role in model development, validation, and forecast in the Tampa Bay region. The Indian River MPO survey was filled out by FDOT District 4. The responses from the MPOs and FDOT district offices are summarized here. Most of the responses are presented in a tabular format, except in cases where responses are narrative and long. In the table, a number in parentheses in a column header corresponds to the number of the question in the survey.

This document is organized as follows. Section 2 identifies the agencies involved in the development of socioeconomic data for FSUTMS trip generation models. Section 3 provides information on travel surveys conducted in the past or plans of surveys in the near future. Section 4 describes the development of socioeconomic variables when base year is a census year, when base year is not a census year, and the projection of socioeconomic variable for future year for standard FUSTMS models. Information on the development and projection of socioeconomic data for lifestyle models for a base year or a future year is presented in Section 5. Responses regarding special trip generators are summarized in Section 6, while problems considered to affect model accuracy are identified in Section 7, including interests of surveyed MPOs in participating in testing the lifestyle models. Appendices A.1 and A.2 provides information on the contact persons at MPOs and FDOT District 7 who were involved in data collection and forecast for trip generation models. The survey form is included in Appendix B.

2. AGENCIES INVOLVED IN MODEL DATA DEVELOPMENT

Development of socioeconomic variables for FSUTMS trip generation models may be the responsibility of FDOT district offices, MPOs, or city or county planning department (CPD). In the survey, the MPOs were asked to indicate other agencies involved in the development of model input and provide contact person(s) from these other agencies. Contact information for all agencies involved in data development for model variables is provided in Appendix A, Table A2, while Table A1 gives contact information on the person at MPO.

Table 1 below provides the information from the 13 MPOs regarding agencies responsible for model data development. It may be seen that in the majority of the cases, MPOs were the sole or primary agency that was in charge of model data development. According to two counties, Hillsborough and Indian River counties, FDOT took the lead role in their model development efforts, while in Miami-Dade and Tallahassee-Leon counties, county planning departments were primarily responsible for model data development.

Table 1. Agencies Responsible for Developing Socioeconomic Data Sets

MPO	Agencies
First Coast	MPO, CPD
Okaloosa-Walton[1]	MPO
Gainesville	MPO (primary), CPD
Hillsborough	FDOT, MPO, CPD
India River	FDOT
Miami-Dade	CPD
Ocala/Marion	MPO
Palm Beach	MPO
Panama City	MPO
Pensacola	MPO
Volusia	MPO
Tallahassee-Leon	CPD
Sarasota/Manatee	MPO, CPD

[1] Formerly known as the Ft. Walton Beach MPO.

3. MODEL DATA UPDATES, TRAVEL SURVEYS, AND SURVEY PLANS

Table 2 provides information on the frequency of model data updates. All the 13 MPOs update their highway networks and socioeconomic data every three to five years when Long-Range Transportation Plan (LRTP) is updated. Gainesville, Miami-Dade, and Volusia counties also update their data (socioeconomic data only for Volusia County) when improvements are made to the model or when a household survey is conducted. Moreover, Miami-Dade County MPO updates the network and socioeconomic data every 10 years, when new census data become available.

Miami-Dade, Broward (no survey returned), and Palm Beach counties conducted a survey in 1999 for the new model update effort. The survey, referred to as 2000 Southeast Florida Travel Characteristics Study, included a household survey, transit onboard survey, employer workplace survey, and freight survey. Volusia County conducted a travel survey in 2002.

Four MPOs, including Hillsborough, Indian River, and Tallahassee-Leon county MPOs, had plans to conduct household survey in 2002 – 2003. The survey in Indian River County is a part of the Treasure Coast Travel Characteristics Study, which also included two other counties in the region: Martin and St. Lucy counties. The remaining MPOs surveyed did not have plans to conduct household survey in the near future.

Table 3 lists surveys that have been completed in the past. The MPOs were asked to list each survey conducted in the past 10 years with information on sample size, agencies that conducted the surveys, and special groups that the surveys targeted. MPOs in Fort Walton Beach County, Panama City, Pensacola Urbanized Area, and Volusia County had never conducted any household surveys prior to this MPO survey. The survey sample sizes varied, although some of the information on sample size was missing. Some of the surveys targeted special groups. For example, seasonal households were targeted in the Hillsborough and Indian county surveys, tourists in Hillsborough, Ocala, and Marion counties.

Table 2. Frequency of Model Input File Updates

MPO Name	Highway/Transit Network (4-a)	Socio-Economic Files (4-b)	A household survey anticipated in the near future? (6)
First Coast	o Every 3-5 years, when LRTP[1] is updated	o Every 3-5 years, when LRTP is updated	No
Gainesville	o Every 3-5 years, when LRTP is updated o Other (When improvements are made to the model, household survey is conducted, etc)	o Every 3-5 years, when LRTP is updated o Other (When improvements are made to the model, household survey is conducted, etc)	No
Hillsborough	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	Yes, 2003
FDOT District 7[2]	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	Yes, 2003
India River	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	Yes, 2002
Miami-Dade	o Every 3-5 years, when LRTP is updated o Every 10 years, when new census data is available o Other (When improvements are made to the model, household survey is conducted, etc)	o Every 3-5 years, when LRTP is updated o Every 10 years, when new census data is available o Other (When improvements are made to the model, household survey is conducted, etc)	No
Ocala/Marion County	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	No
Okaloosa-Walton	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	No
Palm Beach County	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	No
Panama City	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	No
Pensacola	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	No
Volusia County	o Every 3-5 years, when LRTP is updated	o Other (When improvements are made to the model, household survey is conducted, etc)	Yes, January 2002
Tallahassee-Leon County	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	Yes, 2003
Sarasota/Manatee	o Every 3-5 years, when LRTP is updated	o Every 3-5 years, when LRTP is updated	No

Note:

[1] LRTP – long-Range Transportation Plan.

[2] FDOT District 7 encompasses Citrus, Hernando, Hillsborough, and Pasco counties.

Table 3. Survey Conducted in the Past

MPO Name[1]	Year of Last household travel survey (5)	Sample size of the travel survey in the last 20 years (7)				Certain Segment of population been targeted in the last 20 years travel survey (8)
		Survey	Year	Sample Size	Name of agency conducting survey	
First Coast	2000	1	2000	4160	FDOT District 2, URS	–
		2	1995	Unknown	Gannett Fleming. Inc.	–
Gainesville	2000	1	2000	1937	FDOT District 2, URS	–
		2	2000	Unknown	Renaissance planning Group	–
Hillsborough	2000	1	2000	10,100	FDOT Dist 7	Seasonal residents; tourists; low income households; transit oriented
		2	1996	20,000 – 7,500	FDOT Dist 7	Low income households
		3	1993	Unknown	FDOT Dist 7	Tourists
FDOT District 7[2]	2000	1	2000	10,100	FDOT Dist 7	Retirees, seasonal residents, tourists, low income households
		2	1996	7,800	FDOT Dist 7	Retirees, seasonal residents, low income households
		3	1993	4,208	FDOT Dist 7	Tourists
India River	1995-1999	1	1996	200	FDOT Dist 4/Walter H.Keller.Inc.	Seasonal residents 10.2%[3]
Miami-Dade County	1995-1999	1	1999	1742	FDOT Dist 4, Gannet Flemming, Coradino Group	Employer's survey, transit onboard survey, workplace survey, freight survey
		2	1993	Unknown	CUTR	Transit onboard survey
		3	1993	800		Freight and transit[4]
		4	1986	Unknown	MDTA, Cooradino Group	Transit onboard survey
		5	1986	Unknown	MDTA	Transit onboard and telephone survey
		6	1980/81	~23,000	MDTA	Transit onboard survey
Ocala/Marion County	2001	1	2001	1%	FDOT Dist 5/TEI	Tourists
Palm Beach County	1999-2000	1	1999	1676	FDOT Dist 4, Coradino Group	Selected hotels-visitors survey; selected place of work-workplace survey; transit on-board survey; truck survey
		2	1991	2,300 screener 966 diary		
Tallahassee-Leon County	1985-1989	1	1989	Unknown	Post Buckley Schuhs Jernigan	–
Sarasota/Manatee	Unknown	–				–

Note:

[1] Okaloosa-Walton, Panama City, Pensacola, and Volusia County have never conducted survey prior to this survey.

[2] FDOT District 7 encompasses Citrus, Hernando, Hillsborough, and Pasco counties.

[3] Survey findings, not targeted.

[4] 800 freight or freight-oriented firms (truckers, shipping, freight forwarders, drayage, truck towing, truck stops, etc.) were surveyed. Survey targeted the freight sector including providers, users, warehouses, etc. 100 responses were received.

4. SOCIOECONOMIC DATA DEVELOPMENT FOR STANDARD FSUTMS MODEL

This section summarizes the survey responses to Questions 9, 10, and 11 regarding data development for standard FSUTMS models. Sections 4.1, 4.2, and 4.3 deal with data development in three cases: when the base year is a census year, when the base year is a non-census year, and when the data are forecast for a future year, respectively.

4.1 Socioeconomic Data Development for Census Year (Question 9)

Table 4 summarizes the survey responses regarding the development of single-family and multi-family dwelling units and hotel units. Most MPOs utilized decennial census data to arrive at numbers of single- and multi-family dwelling units. Sarasota/Manatee MPO supplemented the census data with information from the local comprehensive plans. Gainesville MPO used additional data such as building permits, new construction data, and data from the Property Appraiser's Office.

The main data source for hotel/motel units was the Division of Hotels and Restaurants of the Florida State Department of Business and Professional Regulations, which maintains updated information on hotels/motels. Some other sources were also used as supplements, such as local tourism/convention center, local chambers of commerce, inventory from the East-Central Florida Regional Planning Council (Volusia County), property appraiser's offices, and planning department records.

Table 5 lists sources for population and employment data. Most MPOs used census population data, while a few MPOs also used additional sources such as local comprehensive plans (Sarasota/Manatee MPO), building permits, new construction data, and records from property appraiser office (Gainesville MPO).

County Public School Board was a source of school enrollment data for every MPO that provided the information in the survey. The Palm Beach County and First Coast MPOs also used Florida Department of Education files to obtain information on locations of and enrollment at private schools. In their 2020 model development effort, the Panama City MPO contacted individual private schools and universities and colleges to obtain their enrollment figures (WFRPC 1995).

Census was the main source for auto ownership information. Census data were supplemented with vehicle registration information at Gainesville MPO. Census was also the sole source of vacant and seasonal housing units.

Data sources for school enrollment, auto ownership, and vacant and seasonal housing units are summarized in Table 6.

Table 4. Estimation of Dwelling Units & Hotel/Motel Units for Census Year

MPO Name	Single Family (9-a)	Multi Family (9-b)	Hotel/Motel Units (9-c)
First Coast	o Decennial Census	o Decennial Census	o Dept. of Business and Professional o Regulations, Division of Hotels o Direct calls to area hotels and motels or mailed surveys
Gainesville	o Decennial Census o Building Permits/New o Construction Data o Property Appraiser Office	o Decennial Census o Building Permits/New construction Data o Property Appraiser Office	o Dept. of Business and Professional o Regulations, Division of Hotels o Local Tourism/Convention Center o Bureau/Board o Chamber of Commerce
Hillsborough	N/A	N/A	N/A
India River	N/A	N/A	N/A
Miami-Dade	Provided by CPD	Provided by CPD	Provided by CPD
Ocala/Marion County	o Decennial Census	o Decennial Census	o Dept. of Business and Professional o Regulations, Division of Hotels
Okaloosa-Walton	o Decennial Census	o Decennial Census	o Dept. of Business and Professional o Regulations, Division of Hotels
Palm Beach County	o Decennial Census	o Decennial Census	o FDOT Policy Planning which no longer provides HOT/MOT info
Panama City	o Decennial Census	o Decennial Census	o Dept. of Business and Professional o Regulations, Division of Hotels
Pensacola	o Decennial Census	o Decennial Census	o Dept. of Business and Professional o Regulations, Division of Hotels
Volusia County	o Decennial Census	o Decennial Census	o Inventory from the East-Central Florida o Regional Planning Council
Tallahassee-Leon County	o Decennial Census	o Decennial Census	o Property Appraiser Office o Planning Dept. Records
Sarasota/Manatee	o Decennial Census o Local Comp. Plans	o Decennial Census o Local Comp. Plans	o Property Appraiser Office

Table 5. Estimation and Population and Employment for Census Year

MPO Name	Population (9-d)	Employment (9-e)
First Coast	o Decennial Census	o ES 202-Dept of Labor[1] (control totals) o Property Appraiser Office (allocation of control totals by square footage)
Gainesville	BEBR[2], control totals, allocated to individual zones using manual method	o ES 202-Dept of Labor o Proprietary Databases (local manufacturers directory)
Hillsborough	N/A	N/A
India River	N/A	N/A
Miami-Dade	Provided by CPD	Provided by CPD
Ocala/Marion County	o Decennial Census	o ES 202-Dept of Labor
Okaloosa-Walton	o Decennial Census	o ES 202-Dept of Labor
Palm Beach County	o Decennial Census in conjunction with local allocation model PBC Planning Dept	o Proprietary Databases (Info USA)
Panama City	o Decennial Census	o ES 202-Dept of Labor o Employer information from FDOT o Information collected from large employers
Pensacola	o Decennial Census	o ES 202-Dept of Labor
Volusia County	o Decennial Census	o ES 202-Dept of Labor
Tallahassee-Leon County	o Decennial Census	o Info USA
Sarasota/Manatee	o Decennial Census o BEBR, control totals, allocated to individual zones using Manual method	o ES 202-Dept of Labor o Field Checks

[1] Florida Department of Labor and Employment Security.
[2] Bureau of Economic and Business Research, University of Florida.

Table 6. School Enrollment, Auto Ownership, Vacant & Seasonal Dwelling Units for Census Year

MPO Name	School Enrollment (9-f)	Auto Ownership (9-g)	Vacant & Seasonal (9-h)
First Coast	o County School Board o State Department of Education	o Decennial Census	o Decennial Census
Gainesville	o County School Board	o Automobile registration o Decennial Census	o Decennial Census
Hillsborough	N/A	N/A	N/A
India River	N/A	N/A	N/A
Miami-Dade	Provided by CPD	Provided by CPD	Provided by CPD
Ocala/Marion County	o County School Board	o Decennial Census	o Decennial Census
Okaloosa-Walton	o County School Board	o Decennial Census	o Decennial Census
Palm Beach County	o County School Board o FL Dept of Education data files on locations and enrollment at private schools (estimated by MPO)	o Decennial Census	o Decennial Census
Panama City	o County School Board o Direct contact with private schools and universities	o Decennial Census	o Decennial Census
Pensacola	o County School Board	o Decennial Census	o Decennial Census
Volusia County	o County School Board	o Decennial Census	o Decennial Census
Tallahassee-Leon County	o County School Board	o Decennial Census	o Decennial Census
Sarasota/Manatee	N/A	o Decennial Census	o Decennial Census

4.2 Socioeconomic Data Development for Non-Census Year (Question 10)

Table 7 summarizes the survey responses regarding the development of socioeconomic data when the base year is a non-census year. Dwelling units were commonly estimated based on census data, building permits, and new construction data. Some MPOs also used property appraiser's database including GIS data, state rental apartment/condo file, data from local comprehensive plans, and planning departments' land use data.

Estimates of hotel/motel units were obtained in a similar fashion as those in a census year, which mainly involved the use of data from the Department of Business and Professional Regulation, Division of Hotels and Restaurants, with hotel survey, property appraiser's office, and planned projects as supplemental sources.

Data from the University of Florida, Bureau of Economic and Business Research (BEBR) was an important data source for estimation of total population in an urban area for a non-census year. All surveyed MPOs but one relied on BEBR projections. Decennial census was the second most often used data source. The control total, which was derived based on BEBR data and local information, was then allocated to individual sub-areas using a manual process or an allocation model. In the case of Volusia County, data from property appraiser's database were used to estimate population by applying an occupancy factor to the number of dwelling units.

There was no significant difference in data sources for employment estimates for both census and non-census years. Florida Department of Labor's ES-202 database remained the most common source for employment data, followed by property appraiser's database on nonresidential properties and their square-footage (with an employee per square-foot applied). Proprietary databases such as InfoUSA (now American Salesleads) had also been used by several MPOs. Miami-Dade County MPO used employment data projected by the county Planning and Zoning Department. Sorasota/Manatee MPO combined ES-202 data with information from the local land use plans.

Survey responses on population and employment data sources are given in Table 8.

Data used for estimating school enrollment, auto ownership, and vacant and seasonal dwelling units are the same for census and non-census years. Responses relating to estimation of these variables are summarized in Table 9.

Table 7. Estimation of Dwelling Units & Hotel/Motel Units for Non-Census Year

MPO Name	Single Family (10-a)	Multi Family (10-b)	Hotel/Motel (10-c)
First Coast	o Building Permits/New Construction Data	o Building Permits/New Construction Data o GIS Appraiser Office	o Dept. of Business and Professional Regula o Division of Hotels and Restaurants o Hotel/Motel Survey
Gainesville	N/A	N/A	N/A
Hillsborough	N/A	N/A	N/A
India River	o Decennial Census o Building Permits/New Construction Data o Property Appraiser Office	o Decennial Census o Building Permits/New Construction Data o GIS Appraiser Office	o Dept. of Business and Professional Regul o Division of Hotels and Restaurants
Miami-Dade	o Building Permits/New Construction Data o Property Appraiser Office o Unit Count from Land Use file	o Building Permits/New Construction Data o GIS Appraiser Office o State rental apartment/condo file	o Dept. of Business and Professional Regul o Division of Hotels and Restaurants o Hotel/Motel Survey o Property Appraise Office
Ocala/Marion County	o Building Permits/New Construction Data o Property Appraiser Office	o Building Permits/New Construction Data o GIS Appraiser Office	o Dept. of Business and Professional Regul o Division of Hotels and Restaurants o Hotel/Motel Survey
Okaloosa-Walton	o Decennial Census o Building Permits/New Construction Data	o Decennial Census o Building Permits/New Construction Data	o Dept. of Business and Professional Regul o Division of Hotels and Restaurants
Palm Beach County	o Building Permits/New Construction Data o Property Appraiser Office o PBC Planning Dept Allocation Model	N/A	o Committed projects
Panama City	o Decennial Census o Building Permits/New Construction Data	o Decennial Census o Building Permits/New Construction Data	o Dept. of Business and Professional Regula o Division of Hotels and Restaurants
Pensacola	o Decennial Census o Building Permits/New Construction Data	o Decennial Census o Building Permits/New Construction Data	o Dept. of Business and Professional Regula o Division of Hotels and Restaurants
Volusia County	o Property Appraiser Office	o GIS Appraiser Office	o Property Appraise Office
Tallahassee-Leon County	o Building Permits/New Construction Data o Property Appraiser Office	o Building Permits/New Construction Data o GIS Appraiser Office o Planning's Land Use Database	o Property Appraise Office o Planning Dept. records
Sarasota/Manatee	o Decennial Census o Local Comp Plans	o Decennial Census o Local Comp Plans	o Property Appraise Office

Table 8. Estimation of Population and Employment for Non-Census Year

MPO Name	Population (10-d)	Employment (10-e)
First Coast	o BEBR, control totals, allocated to individual zones using locally developed GIS allocation model	o ES 202-Dept of Labor o GIS Appraiser Office (allocation of control totals by square footage)
Gainesville	N/A	N/A
Hillsborough	N/A	N/A
India River	o Decennial Census o BEBR, control totals, allocated to individual zones	o Info USA
Miami-Dade	o BEBR, control totals, allocated to individual zones using locally developed spreadsheets and locally developed allocation model	o ES 202-Dept of Labor o Planning & Zoning Dept projections
Ocala/Marion County	o BEBR, control totals, allocated to individual zones	o GIS Appraiser Office (allocation of control totals by square footage) o Proprietary Databases
Okaloosa-Walton	o Decennial Census o BEBR, control totals, allocated to individual zones using locally developed spreadsheets	o ES 202-Dept of Labor
Palm Beach County	o BEBR (PBC allocation model)	o GIS Appraisers Office (square footages)
Panama City	o Decennial Census o BEBR, control totals, allocated to individual zones using locally developed spreadsheets	o ES 202-Dept of Labor o Direct contact with Large employers
Pensacola	o Decennial Census o BEBR, control totals, allocated to individual zones using locally developed spreadsheets	o ES 202-Dept of Labor o Direct contact with Large employers
Volusia County	o Property Appraiser data for # of dwelling units multiplied by a person dwelling unit factor	o Property Appraiser data for non-residential development square footage multiplied by an employment factor
Tallahassee-Leon County	o BEBR, control totals, allocated to individual zones using locally developed allocation model	o Proprietary Databases (Info USA)
Sarasota/Manatee	o Decennial Census o BEBR, control totals, allocated to individual zones using manual method o Local Land Use Plans	o ES 202-Dept of Labor o Local Land Use Plans

Table 9. Estimation of School Enrollment, Auto Ownership, Vacant & Seasonal Dwelling Units for Non-Census Year

MPO Name	School Enrollment (10-f)	Auto Ownership (10-g)	Vacant & Seasonal (10-h)
First Coast	o County School Board o Department of Education	o Decennial Census	o Decennial Census
Gainesville	N/A	N/A	N/A
Hillsborough	N/A	N/A	N/A
India River	o County School Board	o Automobile registration o Decennial Census	o Decennial Census
Miami-Dade	o County School Board	o Automobile registration o P&Z Projection	o Decennial Census
Ocala/Marion County	o County School Board	o Decennial Census	o Decennial Census
Okaloosa-Walton	o County School Board	o Decennial Census	o Decennial Census
Palm Beach County	o PBC School board and o MPO	o Decennial Census	o Decennial Census
Panama City	o County School Board	o Decennial Census	o Decennial Census
Pensacola	o County School Board	o Decennial Census	o Decennial Census
Volusia County	o County School Board	o Decennial Census	o Decennial Census
Tallahassee-Leon County	o County School Board	o Decennial Census	o Decennial Census
Sarasota/Manatee	N/A	o Decennial Census	o Decennial Census

4.3 Socioeconomic Data Development for Future Year (Question 11)

In this section, survey responses regarding the development of future model data are summarized. Because most of the responses are narrative, tables are provided only when appropriate. Palm Beach County has been using a lifestyle model since 1996, which only requires total dwelling units, therefore did not need to develop future year data for the standard FSUTMS model.

4.3.1 Dwelling Units (Question 11-(1) and (2))

Eleven MPOs have been using the standard FSUTMS trip production model up to the date of the survey. Their methods or procedures to forecast dwelling units are summarized below. For most MPOs, the methods used for estimating single-family dwelling units were the same as those used for estimating multi-family dwelling units.

First Coast

GIS, property appraiser records, and future land use layers were used to determine where growth could occur. An algorithm was applied to distribute population and dwelling units depending on the TAZ's capacity to accommodate growth. A factor was manually inserted for each zone before the algorithm was applied.

Gainesville

Property appraiser's database was used as a template for applying BEBR projections to estimate dwelling units.

Miami-Dade

Census tract control totals were developed according to past trends and by considering of vacant acreage that might be developed into single- or multi-family residential use. These control totals were then distributed to TAZs on the basis of available zonal capacities.

Ocala/Marion County

BEBR projected population was allocated to TAZs and the census population per household was applied to determine the number of dwelling units. This number was checked against local data such as building permits, property appraiser's database, etc.

Okaloosa-Walton (WFRPC 1996)

Each TAZ was reviewed, and the land use, density levels, and developable acres were determined. Local Government Comprehensive Plans were used to determine the type and density of development allowed in each zone. Using the 1995 base year housing data, the MPO stuff developed a ratio between the number of single-family, multi-family units, and mobile homes for each TAZ and the total number of dwelling units in the study area. This ratio was

developed by, as an example, dividing the 1995 base year number of single-family dwelling units in a TAZ by the total number of single-family dwelling units within the study area. Once the ratio was determined for each TAZ, it was multiplied by the projected net growth for single-family dwelling units established by the dwelling units control totals. This number was then added to the base year single-family dwelling unit number to determine the year 2000 single-family dwelling unit projection for the TAZ. Once this was completed, each TAZ was checked to ensure that a reasonable number of dwelling units was assigned based on local comprehensive plans. This procedure was carried out for each forecast year (2000, 2005, and 2020). Any necessary adjustments were made manually. In other words, if the methodology described above over- or under-assigned dwelling units to a particular zone, an appropriate number of units would be subtracted out or added into the TAZ. The same number of units would then be added or subtracted from another TAZ where too many or too few units were assigned.

Panama City (WFRPC 1996)

The method was the same as that used by Okaloosa-Walton MPO, except that the base year was 1997, the forecast years were 2000, 2005, 2010, and 2020, respectively.

Pensacola (WFRPC 1999)

The method was the same as that used by Okaloosa-Walton MPO, except that the base year was 1997, the forecast years were 2000, 2005, 2010, and 2020, respectively. Multi-family dwelling units included mobile homes.

Volusia County

It was assumed that the population to single-family and multi-family dwelling unit ratios would remain stable over the 20-year forecast period. Therefore, dwelling units from the most recent census were increased proportionately with the projected population.

Tallahassee-Leon County

Population figures of future years for the county were based on projection from BEBR. The county planning department provided future population projection for each census tract, then at the TAZ level. All census tracts and TAZ projections agreed with the numbers from BEBR. Projections were accomplished by examining vacant land and zoning type and applying a probability of development factor. Planned major developments and suspected major future developments were taken into consideration. Persons per household, by housing type, were kept constant from the latest census, so were the ratio of single- and multi-family mixes. Also considered were future university enrollment projections for Florida State University (FSU), Florida Agriculture and Mining University (FAMU), and Tallahassee Community College (TCC) to determine group quarters' populations. Finally, local plans were factored in to emphasize or de-emphasize growth in certain areas.

Sarasota/Manatee (URS 2000)

Population control total was from BEBR, which was then broken down by sub-areas, then by TAZs. Using the BEBR estimated 1995 population and dwelling unit information, a ratio of persons per dwelling unit was derived for each subarea and TAZ. This ratio was kept constant in the forecast process. Based on a five-year increment, maximum dwelling unit density and maximum built-out limit were established for each TAZ based on the compressive plan. Then growth by subarea and by TAZ was projected. Based on the projected growth, the number of dwelling units was estimated and population was obtained by applying the population to dwelling unit ratio. The results were checked against the control total and the built-out limits. TAZs that exceeded 80 to 90% of built-out were reviewed to ensured reasonableness of the forecasts.

4.3.2 Hotel/Motel Units (Question 11-(3))

The information on projection of hotel/motel units is summarized in Table 10.

Table 10. Projection of Hotel/Motel Units

MPO Name	Projection Hotel/Motel Units (11-3)
First Coast	All future or known hotel/motel sites were researched. Many were documented in DRI study reports.
Gainesville	Property appraiser's database was used as a template for applying BEGR projection.
Hillsborough	Not available.
India River	Not available.
Miami-Dade	Trend analysis was performed considering vacant land zoned for hotel/motel use, or from commercial data sources.
Ocala/Marion County	A local survey was undertaken by phone. This survey was also be checked against building permits.
Okaloosa-Walton	Data were developed as a ratio to the urbanized areas total population. This methodology was utilized due to the lack of a valid forecasting method.
Palm Beach County	Based on committed projects.
Panama City	Same as Okaloosa-Walton.
Pensacola	Same as Okaloosa-Walton.
Volusia County	Based on input from all of the affected local governments on where growth was expected to occur.
Tallahassee-Leon County	The ratio between hotel/motel units to population from latest available data was kept constant. Future locations mimic current locations, plus known and suspected development plans.
Sarasota/Manatee	Dept. of Business and Professional Regulation database was used for census year and served as basis for later updates.

4.3.3 Projection of Population (Question 11-(4))

Okaloosa-Walton, Panama City, and Pensacola

The forecast year population data were developed by taking the total number of dwelling units in each TAZ for each forecast year and multiplying it by the vacancy rate, which yielded the total number of occupied housing units in each TAZ. This number was then multiplied by the persons per household rate for each TAZ. The outcome was the estimated population by TAZ. The number of households was derived from the dwelling unit forecasts, and the vacancy rates were

developed from the 1990 census data. This method was used for each TAZ for each of the forecast years (2000, 2005, 2010, and 2020).

Volusia County

Countywide population projection from BEBR and mid-range estimate were used as the countywide control total. Input from all of the affected local government growth management departments was solicited to ascertain where growth was expected to occur. These two pieces of information were combined to develop the data of population by TAZ.

Sarasota/Manatee

First, persons per dwelling unit were determined when single- and multi-family dwelling units were estimated estimated. These occupancy rates were then applied to local government land use plans to get the maximum population. The control total was obtained from BEBR.

Maximum hotel/motel population was obtained by multiplying the average occupancy rate of hotel/motel rooms by the number of units. Hotel/motel vacancy rates were from the census.

Other MPOs

First Coast MPO projected population using the same methodology as in the case of dwelling units. Palm Beach County population was projected by the county planning department using an allocation model. Tallahassee-Leon County's population project was based on figures from BEBR, which were then allocated downward to census tracts and TAZs. Ocala/Marion MPO also used the BEBR projections, which were compared with local information. The medium projections were usually used. Miami-Dade County projected census tract control totals based on the trend of persons per dwelling unit by housing unit type. The population was then distributed to TAZs.

4.3.4 Employment (Question 11-(5))

First Coast

The methodology applied was the same as that used for forecasting dwelling units except that factors are used to convert potential square footage to number of employers.

Okaloosa-Walton, Panama City, and Pensacola

The employment forecasts were developed using the same methodology as the housing forecasts. The MPO staff began with the ratio of 1995 (Okaloosa-Walton) or 1997 (Panama City and Pensacola) TAZ employment, by type (service, industrial, and commercial), to total study area employment in the county. This ratio was then multiplied by the actual projected growth, which was established based on the employment control totals. The outcome was then added to the base year employment numbers to arrive at the 2000 projections for each TAZ. Once the employment forecasts were developed, each TAZ was checked to ensure a reasonable amount of

employment had been allocated to the zone. As with the dwelling unit forecasts, any necessary adjustments were performed manually.

Volusia County

The employment to population ratio was kept as a constant over the 20-year period, which was then applied to each TAZ based on population data. Additionally, input was sought from all affected local governments regarding where they expected growth to occur.

Tallahassee-Leon County

Ratio of employment/population was kept constant from the latest available data. Future distribution of employment was estimated based on a variety of sources including state government plans, university plans, local government (including school board) plans, and any known or expected future development plans. Remaining employment was allocated by likely development of vacant non-residentially zoned areas.

Sarasota/Manatee (URS 2000)

1995 BEBR totals were used as control. ES-202 data were allocated to sub-areas and TAZs by zip code, and then field checked. Existing land use maps and aerials were also used for allocation. The ratios of service, commercial, and industrial employment to population were first determined. The ratios were then applied to the population of each TAZ to obtain the zonal employment, which was checked against land use plans for reasonableness.

Other MPOs

Miami-Dade County utilized trend analysis and absorption rates while considering vacant land availability. Palm Beach County utilized a method of interpolation to determine the employment projections. Ocala/Marion MPO combined information from the property appraisers' office with information obtained from telephone surveys, which were conducted if information was unavailable.

4.3.5 School Enrollment (Question 11-(6))

The methods or procedures used by 11 MPOs to forecast school enrollment are summarized below.

Okaloosa-Walton (WFRPC 1996)

The two county school boards were contacted directly and questioned about their anticipated growth in enrollment, including the location and enrollment of any new schools. The University of West Florida, Fort Walton Beach Junior College, and the Okaloosa County Community College were also contacted to determine their forecast year enrollment levels. The projection reflected summer school enrollment levels. School enrollment forecast year data were manually allocated to each TAZ.

Panama City (WFRPC 1995)

The procedure was similar to that used by the Okaloosa-Walton MPO. The school enrollments were estimated for the peak season (June and July) and did not reflect the annual enrollment levels. Anticipated growth in enrollment (including that from new schools) was obtained from Bay County Public School Board. The Gulf Coast Community College and the Florida State University were also contacted to determine forecast year enrollment levels.

Pensacola (WFRPC 1999)

The procedure was similar to that used by the Okaloosa-Walton MPO. The University of West Florida and Pensacola Junior were contacted to determine forecast year college enrollment levels.

Tallahassee-Leon County

Projection of school enrollment was performed by the Public School Board. For private schools, it was assumed that enrollment increase would be consistent with the overall population increase.

Other MPOs

Miami-Dade County linked school enrollment to age-specific population (growth) trends, and Palm Beach County used interpolation to determine school enrollment. Similar to Tallahassee, Ocala/Marion MPO also relied on the local school board to provide projections of future enrollment. First Coast projected the base year enrollment to future year as a ratio of population. Volusia County developed its twenty-year projections for school enrollment with the help from the school board.

4.3.6 Auto Ownership (Question 11-(7))

Most MPOs relied on decennial census data for the vehicle ownership. The survey responses are summarized in Table 11.

Table 11. Projection of Auto Ownership for Standard FSUTMS Model

MPO Name	How to Project Auto Ownership Data (11-7)
First Coast	Decennial Census
Gainesville	Decennial Census and LTPP property appraiser database
Hillsborough	N/A
India River	N/A
Miami-Dade	Decennial Census
Ocala/Marion County	Decennial Census
Okaloosa-Walton	Decennial Census
Palm Beach County	Decennial Census
Panama City	Decennial Census
Pensacola	Decennial Census
Volusia County	Decennial Census
Tallahassee-Leon County	Decennial Census
Sarasota/Manatee	Decennial Census

4.3.7 Vacant Dwelling Units and Seasonal Dwelling Units (Question 11-(4))

Data of vacant and seasonal dwelling units were from census for most of the surveyed MPOs. The survey responses were summarized in Table 12.

Table 12. Projection of Vacant and Seasonal Dwelling Units for Standard FSUTMS Model

MPO Name	How to Project Vacant Dwelling Units & Seasonal Dwelling Units (11-8)
First Coast	Decennial census
Gainesville	Property appraiser's database as a template for applying BEGR data
Hillsborough	N/A
India River	N/A
Miami-Dade	Decennial Census
Ocala/Marion County	Decennial Census percentages
Okaloosa-Walton	Decennial Census
Palm Beach County	Decennial Census
Panama City	Decennial Census
Pensacola	Decennial Census
Volusia County	The ratio of the vacant/seasonal dwelling units to non-vacant/seasonal dwelling units was kept constant.
Tallahassee-Leon County	Census, kept the ratio of the vacant/seasonal dwelling units to non-vacant/seasonal dwelling units constant
Sarasota/Manatee	BEBR statistics

5. LIFESTYLE MODEL DATA PROJECTION

There are ten MPOs that are known to have adopted lifestyle models. They are Broward, Palm Beach, Indian River, Martin, and St. Lucie counties in FDOT District 4; Miami-Dade County in FDOT District 6; and Citrus, Hernando, Hillsborough, and Pasco counties in FDOT District 7. Survey responses from Hillsborough, Indian River, Miami-Dade, Palm Beach County, and FDOT District 7 are summarized in this section. The next three sections will deal with socioeconomic data development for base year that is a census year or non-census year, and for a future year.

5.1 Socioeconomic Data Development When Base Year Is a Census Year

A set of questions (Lifestyle Model Category 1 Question 12 (a) through (o)) were asked in the survey regarding the methodologies used to estimate the following lifestyle model variables:

(a) Number of household with children
(b) Number of household without children
(c) Number of vehicles owned in household with children
(d) Number of vehicles owned in household without children
(e) Number of workers in household with children
(f) Number of workers in household without children
(g) Number of persons in household with children
(h) Number of persons in household without children
(i) Number of households with retirees
(j) Number of vehicles owned in household with retirees
(k) Number of seasonal households
(l) Other lifestyle variables
(m) Employment
(n) School enrollment

Palm Beach County was the only MPO that provided information on the development of socioeconomic data for the lifestyle model when the base year was a census year. Decennial census data were used to produce information on households with children and without children, the number of households, number vehicles owned in households, number of workers in households, and number of persons in households. There are no variables dealing with retirees' households or seasonal households. Employment data were estimated using GIS and data from the Tax Appraiser's Office data, mainly the square footage of nonresidential properties. School enrollment data were estimated by the MPO based on information provided by the county school board.

Indian River and Hillsborough counties did not develop data for a base year that was also a census year. Miami-Dade County Planning Department did not respond to the survey.

5.2 Socioeconomic Data Development and Projection When Base Year Is Non-Census Year

Questions 12 and 13 in the Lifestyle Model Category 2&3 asked the MPOs that had been using a lifestyle trip generation model to provide information on their methodologies to estimate the same lifestyle model variables as described in Section 5.1. To simplify the survey, a predefined set of methods was provided to allow the persons filling out the survey to identify the ones that were used at their MPOs. These methodologies are given below:

1. Regression
2. Cohort and migration
3. Trend analysis
4. Other (Please explain)

The survey responses indicated that there were a variety of combinations of methods used by MPOs. In addition to Methods 1, 2, and 3, other methods were also used, which are defined as below:

4A. Suballocation of population to census tracts using seven to eight methods. The planning team met and discussed each census tract method as to preferred method applied. (*Hillsborough County*)

4B. Census derived and adjusted. (*Hillsborough County*)

4C. 1990 census data adjusted by MPOs using a variety of methodologies, primarily Methods 2 and 3 plus several other methods. (FDOT District7)

4D. Factoring ratios of base year (e.g. % of HH with children vs. total HH). Note: this method was used either as the default or as the benchmarks for checking the reasonableness of the results from other methods. (*Indian River County*)

4E. Estimated using factors derived from Census Public Use Microdata Samples for 1980 and 1990. The "vehicles available by household" variable was used and the change in the number of vehicles available was extrapolated to the target years. The 2000 estimates were compared with the total increase in motor vehicles reported by the State for 2000. (*Miami-Dade County*)

4F. Interim Years are generally interpolated with emphasis placed on the first 5 years. (*Palm Beach County*)

The responses from the four MPOs are summarized in Table 13.

Table 13. Estimation of Lifestyle Variables When Base Year Is Non-Census Year

	MPO	Hillsborough	FDOT District 7	India River	Miami-Dade	Palm Beach County
13-a	Number of households with children	4B	4C	2, 3, 4D	3	4F
13-b	Number of households without children	4B	4C	2, 3, 4D	3	4F
13-c	Number of vehicles owned in households with children	4B	4C	4D	4E	4F
13-d	Number of vehicles owned in households without children	4B	4C	4D	4E	4F
13-e	Number of workers in households with children	N/A	N/A	3, 4D	4E	4F
13-f	Number of workers in households without children	N/A	N/A	3, 4D	4E	4F
13-g	Number of persons in households with children	4B	N/A	2, 3, 4D	4E	4F
13-h	Number of persons without children	4B	N/A	2, 3, 4D	4E	4F
13-i	Number of households with retirees	4B	N/A	N/A	N/A	4F
13-j	Number of vehicles owned in households with retirees	4B	4C	N/A	N/A	4F
13-k	Number of seasonal households	4B	4C	2, 3	N/A	4F
13-l	Other lifestyle variable	N/A	N/A	None	None	4F
	Employment	o For 1999 base year o ES 202-Dept of Labor o Proprietary Database InfoUSA (raw data) o U.S. BEA the sole proprietors (control total)	Similar to Hillsborough, ES 202 and U.S. BEA data used as control totals	ULAM	Es 202-Dep of Labor P&Z projection	4E
	School enrollment	o County School Board o Department of Education data on higher education facilities, individual locations, universities, college, tech.	o County School Board o Department of Education on non-public schools, individual higher education institutes	Used a ratio of HH of children of the base year	County School Board	4E

5.3 Socioeconomic Data Development and Projection for a Future Year

The MPOs were also asked to identify their methods for forecasting lifestyle variables for a future year. The methods are the same as listed in Section 5.2. The responses are summarized in Table 14.

As reported in (Tindale 2000), in Hillsborough County, population, dwelling units, and employment were allocated to TAZs using multi-step process that culminated in the allocation of growth based on results from a gravity model. The gravity model distributed growth based on the product of the "attractiveness" or "mass" of a given TAZ and a given activity center divided by the square of the distance between the two.

Also in Hillsborough County, school enrollment was divided into five categories: elementary, middle, high, private k-12, and higher education. A ratio between the 1999 school enrollment and population was calculated for each of the school categories except higher education. This ratio was then multiplied by the future population to obtain the enrollment estimate for the four categories. For the University of South Florida, the growth rate was provided by the university, which was lower than those for schools of the other categories.

The 2005 school enrollment figures for public elementary, middle, and high schools were based on a list of capital improvement projects, while those for the private schools and higher education institutes were adjusted using fixed growth rates. The 2010 and 2015 enrollment forecasts were determined by reviewing enrollment to population ratio in each planning area. Schools were added to areas with low enrollment to population ratios and subsequently to TAZs, subject to land availability.

Table 14. Projection of Lifestyle Variables

MPO	Hillsborough	FDOT District 7	India River	Miami-Dade[1]	Palm Beach County
Number of households with children (14-a)	4A, 4B	4C	2,3,4		4F
Number of households without children (14-b)	4A, 4B	4C	2,3,4		4F
Number of vehicles owned in households with children (14-c)	4B	4C	4		4F
Number of vehicles owned in households without children (14-d)	4B	4C	4		4F
Number of workers in households with children (14-e)	N/A	N/A	3, 4		4F
Number of workers in households without children (14-f)	N/A	N/A	3, 4		4F
Number of persons in households with children (14-g)	4A, 4B	N/A	2, 3, 4		4F
Number of persons without children (14-h)	4A, 5B	N/A	2, 3, 4		4F
Number of households with retirees (14-i)	4A, 4B	4C	N/A		4F
Number of vehicles owned in households with retirees (14-j)	4B	N/A	N/A		4F
Number of seasonal households (14-k)	3	N/A	2,3		4F
Other lifestyle variable (14-l)	N/A	N/A	None		4F
Employment	Gravity model distributes growth based on the attractiveness of a TAZ and the activity centroid, and the distance between the two[2].	a combination of trend analysis, regression, and analysis of development trends.	ULAM		
School enrollment	See description that follows.	School Board information using a combination of data about in-migration analysis and trend analysis	Used a ratio of HH of children of the base year		

Note: [1] Trend analysis for the first attempt from the 1980-1990 census.

[2] Source: (Tindale 2000).

6. SPECIAL GENERATORS

Special trip generators have been a concern for many MPOs. Table 15 lists the desired improvements indicated in the survey responses. FDOT District 4 has developed a modified special generators process to ensure that the desired target values be used through the modeling process without being modified by trip generation balancing or other routines. This practice has been adopted by all MPOs within the district including Broward, Palm Beach, Indian River, Martin, and St. Lucie counties. Table 16 ranks the improvements by the number of MPOs who desired them. It may be seen that the most welcome improvement was updating the special generator rates listed in Task B – Refinement of Standard Trip Generation Model (4), followed by allowing more room for text description of special generators (3), and including trips from special generators after initial balancing of productions and attractions and the ability to add/subtract truck trips or other purpose (2).

Table 15. Improvements Needed for Special Generators

MPO	Improvements Needed (6)
First Coast	None
Ft. Walton Beach	N/A
Gainesville	N/A
Hillsborough	o More room is needed for text description; o Use revised special generator file
FDOT District 7	o Trips from special generator file should be included after balancing productions and attractions o Update of special generator rates listed in Task B-Refinement of Stand Trip Generation Model.
India River	o FDOT Dist4 has developed a modified special generators process which ensures the desired target values be used through the modeling process, without being modified by trip generation balancing or other routines.
Miami-Dade	o Ability to add/subtract truck trips or other purposes. o Update of special generator rates listed in Task B-Refinement of Stand Trip Generation Model. o Some guidance regarding just what is appropriate, more or less, for consideration as a special generator, especially for some of our private entertainment-based/related ones, whose growth may be tied to many exogenous variables, and whose owners are either reluctant or refusing to share information – all for a 20-years into the future horizon.
Ocala/Marion County	N/A
Palm Beach County	None
Panama City	N/A
Pensacola	N/A
Volusia County	o More room is needed for text description o The special generator file trips should be include after initial balancing of productions and attractions o Update of special generator rates listed in Task B-Refinement of Standard Trip Generation Trip.
Tallahassee-Leon County	o More room is needed for text description
Sarasota/Manatee	o Ability to add/subtract truck trips or other purpose. o Update of special generator rates listed in Task B-Refinement of Standard Trip Generation Model.

Table 16. Desirable Improvements to Special Trip Generation by Number of MPOs

Improvement	Number of MPOs	% of MPOs
Update of special generator rates listed in Task B-Refinement of Standard Trip Generation Model	4	33.33
More room is needed for text description	3	25.00
The special generator file trips should be include after initial balancing of productions and attractions	2	16.67
Ability to add/subtract truck trips or other purpose	2	16.67

7. IMPROVEMENT OF MODELS

Problems identified by the survey participants are listed in Table 17. The leading issues were inaccuracy in the socioeconomic data and inability of modeling trip chains. Table 18 details the survey responses by summarizing the information provided by each respondent.

Table 17. Problems Affecting Model Accuracy

Improvement	Number of MPOs	% of MPOs
Inaccurate socioeconomic data	7	58.33
Trip chaining	7	58.33
Outdated trip generation data	5	41.67
Limited number of trip purposes	4	33.33
Trip generation of special generators (airports, military bases, recreation areas, universities, colleges, etc.)	3	25.00
Trip generation of retirees	2	16.67
Trip generation of seasonal residents	1	8.33
Trip generation of hotels/motels	1	8.33

Table 18 records the comments from the survey respondents regarding problems that were affecting their model accuracy. The last two columns in the table were answers to two questions that asked if the 1990 census demographics related to retired and seasonal population concurred with their understanding of their county demographics. It should be noted that at the time of survey, the 2000 census data had not been released.

Table 18. Problems Affecting Model Accuracy

MPO Name	Factors Needing Attention (16)	Special Characteristics of Area (17)	Retirement Data (18)	Seasonal Data (19)
First Coast	o Outdated trip generation data o Inaccurate socioeconomic data	N/A	No	No
Ft. Walton Beach	N/A	N/A	N/A	N/A
Gainesville	o Outdated trip generation data o Inaccurate socioeconomic data	UF in urban area	N/A	N/A
Hillsborough	o Inaccurate socioeconomic data (not enough time/money, difficult to track data) o Trip chaining	o Lifestyles: retirees, working households with children, working households without children o School enrollment in primary, secondary, and higher education facilities o Social/recreational trips represent a large percentage of non-work trips, but we don't attract typical day (e.g., exercise, baseball, soccer, etc.). o Airport	N/A	N/A
FDOT District 7	o Inaccurate socioeconomic data (not enough time/money, difficult to track data) o Trip chaining	o Lifestyles, after school/after work activities, social recreation trips, group living quarters, separate enrollment for higher education institutions and K-12, airport purpose, NHB trips.	No. Data are old. Large change in census data.	No
India River	N/A	N/A	N/A	The seasonal residents are not explicitly categorized in the FDOT District 4 lifestyle modeling process
Miami-Dade	o Outdated trip generation data[1] o Limited number of trip purposes o Trip generation of special generators[2] (airports, military bases, recreation areas, etc.) o Trip chaining implications[2]	Not special but important to all areas is the socioeconomic sensitivity to income.	Do not know – no responses given by the Planning Department.	Yes

MPO Name	Factors Needing Attention (16)	Special Characteristics of Area (17)	Retirement Data (18)	Seasonal Data (19)
Ocala/Marion County	o Inaccurate socioeconomic data (not enough time/money) o Retired household trip generation	Retired residents	Yes	Yes
Palm Beach County	o Outdated trip generation data (Decennial Census) o No distinct trip purpose for the college students o Limited number of trip purpose o Trip chaining implications	Universities, Regional Malls, Government Centers, Judicial Centers, Major Medical Facilities (Hospital)		
Panama City	N/A	N/A	N/A	N/A
Pensacola	N/A	N/A	N/A	N/A
Volusia County	o Inaccurate socioeconomic data (not enough time/money) o Trip chaining	Coastal areas do not seem to replicate in the model very well.	N/A	N/A
Tallahassee-Leon County	o Outdated trip generation data o Limited trip purposes o Trip chaining	Local roads were not included in model.	N/A	N/A
Sarasota/Manatee	o Outdated trip generation data o No retiree trip rates o No seasonal resident trip rates o Limited trip purposes o Trip generation for hotels/motels o Special generators o Trip chaining	Difference in trip generation of tourists (and trip chaining) and other hotel/motel residents should automatically calculate PSWT. Weekend trips significant (beaches). Seasonal residents may have distinct trip generation and purposes (e.g. tourists vs. retirees vs. seasonal workers).	N/A	N/A

Note:

[1] It would help improve the model but it is not as critical as other improvements.

[2] Very important.

The MPOs were asked about their interests in lifestyle models, ad their responses are presented in Table 19. Among the nine MPOs that had not implemented lifestyle models, only three showed interests in lifestyle models. The other six either did not answer the question or answered negatively to the question.

Table 19. Interest in Lifestyle Models and Survey Data Availability

MPO Name	Improvement Possible Using Lifestyle Model (20)	Interest in Participation (21)	Survey Data Year
First Coast	No	No	
Ft. Walton Beach	N/A	N/A	
Gainesville	N/A	N/A	
Hillsborough	Already Lifestyle Model	N/A	
FDOT District 7	Already Lifestyle Model	No	
India River	Already Lifestyle Model	N/A	
Miami-Dade	Already Lifestyle Model	N/A	
Ocala/Marion County	Yes	Yes	
Palm Beach County	Already Lifestyle Model	N/A	
Panama City	N/A	N/A	
Pensacola	N/A	N/A	
Volusia County	Not sure	Yes	2001
Tallahassee-Leon County	N/A	N/A	1985-1989, 2003
Sarasota/Manatee	Yes	Need more info	Unknown

8. SUMMARY

Based on the survey results, the following issues are identified that require further attention in the future:

1. Socioeconomic data accuracy. Compilation of socioeconomic data will continue to be a challenging task. Difficulties faced by planners include limited resources including time, funding, and data. The FDOT central office has been making efforts to make improvements. These include make commercial employment database available statewide and researching and development of land use models. With the increasing availability of GIS data and increased use of GIS at local levels, keeping track of data will become easier and it will facilitate the development of standard methodologies and procedures.

2. Currently, there is no standard method and procedure for forecasting lifestyle variables for future year models. In fact, there is no standard procedure for forecasting standard FSUTMS trip generation model variables. While MPOs shared similarities in their currently used methods, there existed many differences. The development of land use models will facilitate the model variable estimation and forecast and result in improvement in the reliability of the model data.

3. Lacking of household survey data. Many counties have not conducted household surveys in the past. While borrowing trip rates from other urban areas may be acceptable, opportunities to identify local unique travel patterns and behaviors are missed. This also suggests the need for research on spatial transferability of trip rates.

4. Special generators. Special generators remain a concern in trip generation. While some of the special generators will not share many similarities in their trip generation characteristics, e.g., University of Florida and a county community college, many others such as shopping malls and recreation facilities may. Better maintenance and sharing of relevant traffic studies on special generators may help develop more accurate special generators.

5. Trip chaining. To address the trip chaining problem will require a paradigm shift from trip-based models to tour-based models.

6. Retired and seasonal trip rates. These are subjects in the full report (Zhao, et al. 2003). Please refer to the report for the analysis results and recommendations.

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WFRPC (1996). Technical Report No. 1: Fort Walton Beach Urbanized Area Transportation Study –Transportation Statistical Data. Prepared by the West Florida Regional Planning Council for the Fort Walton Beach Metropolitan Planning Organization and Florida Department of Transportation District 3, Fort Walton Beach, Florida.

WFRPC (1999). Technical Report No. 1: Pensacola Urbanized Area Transportation Study – Transportation Statistical Data. Prepared by the West Florida Regional Planning Council for the Pensacola Urbanized Area Metropolitan Planning Organization and Florida Department of Transportation District 3, Pensacola, Florida.

Zhao, F., Lee-Fang Chow, Min-Tang Li, and Albert Gan (2003). Development of FSUTMS Life Cycle and Seasonal Resident Trip Production Models for Florida Urban Areas, Final Report, Prepared for the Research Center, Florida Department of Transportation, Contract No. BC532, Tallahassee, Florida.

APPENDIX A. CONTACT INFORMATION AT MPOS

Table A.1 MPO Contact Information

MPO Name (1)	MPO Contact Person (2)			
	Name	Phone	Fax	E-mail
First Coast	Denis Bunnewith	(904) 630-1955	(904) 630-2828	denisb@coj.net
Ft. Walton Beach	Gary Kramer Nick Nickles	(850) 595-8910 Ext.233	(850) 595-8967	kramerg@wfrpc.dst.fl.us Nicklesn@wfrpc.dst.fl.us
Gainesville	Gerry Dedenbach	(sun) 625-2200 Ext. 115 (352) 955-2200 Ext. 115	(sun) 625-2200 (352) 955-2209	dedenbach@ncfrpc.org
Hillsborough	Bud Whitehead, Hillsborough County MPO/Planning Commission	(813) 272-5940	(813) 272-6258	BUDW@plancom.org
FDOT District 7	Danniel Lamb	(813) 975-6437	(813) 975-6443	Danny.lamb@dot.state.fl.us
India River	Robort Keating, AICP	(561) 567-8000 Ext. 254	(561) 978-1806	
Miami-Dade	Frank Baron	(305) 375- 1522	(305) 375-4950	fbaron@miamidate.gov fbaron@co.miami-dade.fl.us
Ocala/Marion County	Grey Slay	(352) 629-8529	(352) 368-5994	Gslay@ocala.fl.org
Palm Beach County	Paul Larsen	(561) 684-4170	(561) 233-5664	plarsen@co.palm-beach.fl.us
Panama City	Gary Kramer Nick Nickles	(850) 595-8910 Ext.233	(8500 595-8967	kramerg@wfrpc.dst.fl.us NicklesN@wfrpc.dst.fl.us
Pensacola	Gary Kramer Nick Nickles	(850) 595-8910 Ext.233	(8500 595-8967	kramerg@wfrpc.dst.fl.us NicklesN@wfrpc.dst.fl.us
Volusia County	Mike Neidhart	(386) 322-5160 Ext.35	(386) 322-5164	Mneidhart@co.volusia.fl.us
Tallahassee-Leon County	Anil Panickea	(850) 891-8600	(850) 891-8734	panickea@talgov.com
Sarasota/Manatee	Michael W. Guy	(941) 359-5772	(941) 359-5779	mpoguy@hotmail.com

Notes:
FDOT: Florida Department of Transportation
MPO: Metropolitan Planning Organization
RPC: Regional Planning Council
CPD: County /City Planning Department

Table A.2 Contact Person(s) from Agencies Responsible for Developing Socioeconomic Data Sets

	Agencies	Contact Person for Socio-Economic Datasets (3)			
		Name	**Phone**	**Fax**	Holly.Schriefer@co.clay.fl.us kfeldt@jtaonthemove.com
First Coast	MPO CPD	Holly Schriefer (Clay County) Kevin Feldt (St. John County)	(904) 269-6823 (904) 398-2216	(904) 269-6360	kramerg@wfrpc.dst.fl.us nicklesn@wfrpc.dst.fl.us
Ft. Walton Beach	MPO	Gary Kramer Nick Nickles	(850) 595-8910 Ext.233	(850) 595-8967	dedenbach@ncfrpc.org
Gainesville	MPO[1] CPD	Gerry Dedenbach	(sun) 625-2200 Ext. 115 (352) 955-2200 Ext. 115	(sun) 625-2200 (352) 955-2209	hoslerj@plancom.org
Hillsborough	FDOT MPO CPD	Jim Hosler The planning commission	(813) 272-5940	(813) 272-6258	Shi-Chiang.Li@dot.state.fl.us
India River	FDOT	Shi-chiang Li AICP	(954) 777-4655	(9540 777-4671	chuk@miamidade.gov fajb@miamidade.gov mav@miamidade.gov
Miami-Dade	CPD	Chuck Blowers, Chief Frank Baumann (ZDATA1) Many Armada (ZDATA2)	(305) 375-2845		gslay@ocala.fl.org
Ocala/Marion County	MPO	Grey Slay	(352) 629-8529	(352) 368-5994	N/A
Palm Beach County	MPO	Lisa Lowe	(561) 233-5300		kramery@wfrpc.dst.fl.us nicklesn@wfrpc.dst.fl.us
Panama City	MPO	Gary Kramer NickNickles	(850) 595-8910 ext. 233	(850) 595-8967	kramerg@wfrpc.dst.fl.us nicklesn@wfrpc.dst.fl.us
Pensacola	MPO	Gary Kramer Nick Nickles	(850) 595-8910 Ext.233	(8500 595-8967	mneidhart@co.volusia.fl.us
Volusia County	MPO	Mike Neidhart	(386) 322-5160 Ext.35	(386) 322-5164	panickea@talgov.com
Tallahassee-Leon County	CPD	Rick Fansone	(850) 891-8600	(850)891-8734	
Sarasota/Manatee	MPO CPD	Michael W. Guy	(941) 359-5772	(941) 359-5779	mpoguy@hotmail.com

Note:
[1]. MPO is the primary responsible agency while CPD is the secondary responsible agency.

APPENDIX B. TRIP GENERATION SURVEY FORM

General Information

1. What is the name of your MPO? _____

2. In case there are any questions regarding the survey, whom should we contact?

	Contact Person
Name	
Phone	
Fax	
E-mail	

3. Who is responsible for the development of socio-economic datasets for your MPO model?

_____Florida Department of Transportation
_____Metropolitan Planning Organization
_____Regional Planning Council
_____County/City Planning Department
_____Other (please specify) _____

If development of socio-economic datasets is the responsibility of an agency other than the MPO, please provide a contact in that agency.

	Contact Person
Name	
Phone	
Fax	
E-mail	

4. How often do you update the transportation model input files? Please check the appropriate spaces in the table below.

	Every year	Every 3~5 years, when LRTP is updated	Every 10 years, when new census data is available	Other (When improvements are made to the model, household survey is conducted, etc)
Highway/Transit Network				
Socio-Economic Files				

5. When was the last time that a **regional** or **urban area household** travel survey was conducted in your area?
   _____2000
   _____1995-1999
   _____1990-1994
   _____1985-1989
   _____Before 1985
   _____Never

6. Are you anticipating a household survey to be conducted in the near future?
   _____NO _____YES Approximately when _____

7. If a travel survey was conducted in the last 20 years, what was the sample size (please list the sample size of all surveys if more than one)

Survey	Year	Sample Size	Name of agency conducting survey
1			
2			
3			
4			
5			
6			

8. Has a certain segment of population been targeted in the above surveys? Please check the appropriate spaces.

Survey	Retirees	Seasonal Resident (snowbirds)	College Students	Tourists	Low Income Households	Other (please specify)
1						
2						
3						
4						
5						
6						

Instructions:

In question 9-14, you will be asked to provide/select answers to question regarding development and projection of socio-economic variables.

The first part of the questionnaire deals with the standard fsutms model. Please only fill this section if you use the standard fsutms model. The second part of the questionnaire is for MPO's using the lifestyle/cycle model.

The questions are broken into 3 main categories.

Category 1: Socio-economic data development when the base year was a census year. For example, if in 1995, the Orlando MPO selected 1990 as their base year. The objective of this exercise is to determine what census data is used by different MPO's.

Category 2: Socio-economic data development when the base year is not a census year.
For example, if in 1998, the Jacksonville MPO opted to revalidate their existing model and selected 1995 as their base year.
The objective of this exercise is to learn of the difficulties encountered by MPO's when a non-census year is chosen as a base year.

Category 3: Projection of socio-economic variables.

STANDARD FSUTMS MODEL

CATEGORY 1: Socio-economic data development when base year is the same as census year.

9. In developing socioeconomic data sets for census years, what is the source of:

(a) Number of Single Family Dwelling Units:
_____Decennial Census
_____Building Permits/New Construction Data
_____Property Appraiser Office
_____Other (please specify) _____

(b) Number of Multi Family Dwelling Units:
_____Decennial Census
_____Building Permits/New Construction Data
_____Property Appraiser Office
_____Other (please specify) _____

(c) Number of Hotel/Motel Units:
_____Dept. of Business and Professional Regulations, Division of Hotels
_____Local Tourism/Convention Center Bureau/Board
_____Chamber of Commerce
_____Property Appraiser Office
_____Other (please specify) _____

(d) Population:
_____Decennial Census
_____University of Florida Bureau of Economic and Business Research
Control totals, allocated to individual zones using
_____Last census's population proportions
_____Locally developed spreadsheets
_____Locally developed allocation model
_____Manual method
_____Other (please specify) _____

(e) Employment:
_____ES 202 – Dept of Labor
_____Property Appraiser Office (allocation of control totals by square footage)
_____Proprietary Databases (please specify) _____
_____Other (please specify) _____

(f) School Enrollment:
_____County School Board
_____State Department of Education
_____Other (please specify) _____

(g) Auto Ownership:
_____ Automobile registration
_____ Decennial Census
_____ Other (please specify) _____

(h) Vacant Dwelling Units & Seasonal Dwelling Units
_____ Decennial Census
_____ Other (please specify) _____

STANDARD FSUTMS MODEL

CATEGORY 2: Socio-economic data development when base year is the different than census year.

10. When updating your model to years other than census years, what is the source of:

(a) Number of Single Family Dwelling Units:
_____Decennial Census
_____Building Permits/New Construction Data
_____property Appraiser Office
_____Other (please specify) _____

(b) Number of Multi Family Dwelling Units:
_____Decennial Census
_____Building Permits/New Construction Data
_____GIS Appraiser Office
_____Other (please specify) _____

(c) Number of Hotel/Motel Units:
_____Dep. of Business and Professional Regulations, Division of Hotels and Restaurants
_____Hotel/Motel Survey
_____Property Appraiser Office
_____Other (please specify) _____

(d) Population:
_____Decennial Census
_____University of Florida, Bureau of Economic and Business Research, control totals allocated to individual zones using
_____Last census's population proportions
_____Locally developed spreadsheets
_____Locally developed allocation model
_____Manual method
_____Other (please specify) _____

(e) Employment:
_____ES 202 – Dept of Labor
_____GIS Appraiser Office (allocation of control totals by square footage)
_____Proprietary Databases (please specify) _____
_____Other (please specify) _____

(f) School Enrollment:
_____County School Board
_____Department of Education
_____Other (please specify) _____

(g) Auto Ownership:
_____ Methods developed by Cambridge Systematic (FHWA Report, 1997)
_____ Automobile registration
_____ Decennial Census
_____ Other (please specify) _____

(h) Vacant Dwelling Units & Seasonal Dwelling Units
_____ Decennial Census
_____ Other (please specify) _____

STANDARD FSUTMS MODEL

CATEGORY 3: Projections of socio-economic variables.

Please provide as detail information as possible.

11. How do you project the following data?

(1) Single Family Dwelling Units

(2) Multi Family Dwelling Units

(3) Hotel/ Motel Units

(4) Population

(5) Employment

(6) School Enrollment

(7) Auto Ownership
_____ Methods developed by Cambridge Systematic (FHWA Report, 1997)
_____ Decennial Census
_____ Other (Please explain) _____

(8) Vacant Dwelling Units & Seasonal Dwelling Units

LIFESYTLE-BASED FSUTMS MODEL

CATEGORY 1: Socio-economic data development when base year is the same as census year.

11. How do you estimate the following lifestyle variables, if applied in your lifestyle model, in those years that correspond to census years? Please provide a copy of your methodology write-up, or use additional sheets if required, to describe your estimation and/or forecasting processes.

    (a) Number of households with children

    (b) Number of households without children

    (c) Number of vehicles owned in households with children

    (d) Number of vehicles owned in households without children

    (e) Number of workers in households with children

    (f) Number of workers in households without children

    (g) Number of persons in households with children

(h) Number of persons in households without children

(i) Number of households with retirees

(j) Number of vehicles owned in households with retirees

(k) Number of seasonal households

(l) Other lifestyle variables (please specify) _____

(m) Employment:
_____ES 202 – Dept of Labor
_____GIS Appraiser Office (allocation of control totals by square footage)
_____Proprietary Databases (please specify) _____
_____Other (please specify) _____

(o) School Enrollment:
_____County School Board
_____Department of Education
_____Other (please specify) _____

LIFESYTLE-BASED FSUTMS MODEL

CATEGORY 2 & 3: Socio-economic data development when base year is different than Census year and projections of socio-economic variables.

For questions 13 and 14, please select the methods from the following list that are used to estimate or project the variables in your lifestyle-based trip generation model. Please describe or provide references if you use other methods. (See Questions 18 for census year approaches).

1. Regression
2. Cohort and migration
3. Trend analysis
4. Other (please explain or provide references) _____
_____
_____
5. Combination 1 of the above (please list each) _____
6. Combination 2 of the above (please list each) _____

12. How to you estimate the following lifestyle variables, if applied in your lifestyle model, in the base years other than census years? Please enter the number corresponding to the list above (e.g. regression = 1, etc.)

(a) _____Number of households with children

(b) _____Number of households without children

(c) _____Number of vehicles owned in households with children

(d) _____Number of vehicles owned in households without children

(e) _____Number of workers in households with children

(f) _____Number of workers in households without children

(g) _____Number of persons in households with children

(h) _____Number of persons in households without children

(i) _____Number of households with retirees

(j) _____Number of vehicles owned in households with retirees

(k) _____Number of seasonal households

(l) _____Other lifestyle variable (please specify) _____

Employment:

_____ES 202 – Dept of Labor
_____GIS Appraiser Office (allocation of control totals by square footage)
_____Proprietary Databases (please specify) _____
_____Other (please specify) _____

School Enrollment:

_____County School Board
_____Department of Education
_____Other (please specify) _____

14. How do you project the following lifestyle variables, if applied in your lifestyle model, for future years?

(a) _____Number of households with children

(b) _____Number of households without children

(c) _____Number of vehicles owned in households with children

(d) _____Number of vehicles owned in households without children

(e) _____Number of workers in households with children

(f) _____Number of workers in households without children

(g) _____Number of persons in households with children

(h) _____Number of persons in households without children

(i) _____Number of households with retirees

(j) _____Number of vehicles owned in households with retirees

(k) _____Number of seasonal households

(l) _____Other lifestyle variable (please specify) _____

How do you project the employment?

How do you project the school enrollment?

SPECIAL GENERATORS

15. What improvement do you feel need to be made to the special generator file (zdata 3)?

_____ None
_____ More room is needed for text description
_____ The special generator file trips should be included after initial balancing of productions and attractions
_____ Ability to add/subtract truck trips or other purposes
_____ Update of special generator rates listed in Task B – Refinement of Standard Trip Generation Model.

IMRPOVING YOUR MODEL

16. In your last 2 model validations, what factors do you feel need to receive more attention in order to improve the accuracy of your model?

_____Outdated trip generation data (trip generation rates)
_____Inaccurate socio-economic data
Please explain why
_____Not enough time/money
_____Very difficult to track variables required by FSUTMS
_____Other (please specify) _____
_____No distinct trip generation for retired residents
_____No distinct trip generation for seasonal residents
_____No distinct trip generation for college students
_____Limited number of trip purposes
_____Trip generation of hotel/motels
_____Trip generation of special generators (airports, military bases, recreation areas, etc.)
_____Trip chaining implications

17. What special characteristics exist in your area that you feel are important but are not included in the standard trip generation model? Please list all.

_____

_____

_____

Included at the end, please find two tables showing the statistics in the 1990 Census for retired and seasonal residents for the 24 urban areas in Florida. Please check all answer(s) applicable.

18. Does the information for households with retirees (aged 65 and over) concur with the current demographic in your area.

_____YES _____NO

If NO, please state the reason for the difference (if known).

_____

_____

_____

19. Does the information for households with seasonal residents concur with the current demographic in your area.

_____YES _____NO

If NO, please state the reason for difference (if known)

_____

_____

_____

20. Do you feel that your transportation model accuracy may improve if you use lifestyle-based trip generation model (based on presence of workers, retirees, and children)

_____YES
_____NO (please state why) _____
_____Not Sure
_____Already using lifestyle-based trip generation model

21. Would you be interested in participating in a study to revalidate your 1990 transportation model using lifestyle variables to find out if your model accuracy will be improved?

_____YES _____NO _____Need more information