



Regional Transportation Technical Advisory Committee (RTTAC) Modeling Subcommittee

Meeting Agenda

May 27, 2015 – 10:00 AM to 12:00 PM

Palm Beach Metropolitan Planning Organization
ITS Conference Room
2300 N. Jog Road, 4th Floor
West Palm Beach, FL 33411-2749

Conference Call Dial-In: 1-866-410-0078, x5631#, x5631#

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- I. **Call to Order**
 - II. **Introductions** (5 minutes)
 - III. **Approval of the April 20, 2015 Meeting Minutes*** (5 minutes)
 - IV. **Election of Chair** (15 minutes)
 - V. **SERPM Memorandum of Understanding Status** (10 minutes – *Wilson Fernandez, Miami-Dade MPO*)
 - VI. **Regional Travel Survey Scope of Work*** (30 minutes–*Jitender Ramchandani, Miami-Dade MPO*)
 - VII. **Regional Travel Survey Procurement Process** (15 minutes – *Jitender Ramchandani, Miami-Dade MPO*)
 - VIII. **FHWA Peer Review Update** (10 minutes – *Paul Flavien, Broward MPO*)
 - IX. **SERPM 7.0 Training News** (10 minutes – *Shi-Chiang Li, FDOT District 4*)
 - X. **Model Task Force Update** (15 minutes *Wilson Fernandez, Miami-Dade MPO*)
 - XI. **Next Meeting*** – August 26, 2015/Miami-Dade
 - XII. **Adjournment**

*Action Item



**Regional Transportation Technical Advisory Committee (RTTAC)
Modeling Subcommittee
DRAFT Meeting Notes
April 20, 2015**

The following is a summary of the RTTAC Modeling Subcommittee (RTTAC-MS) meeting held on April 20th, 2015 at the Broward MPO Boardroom in Broward County, Florida.

MEETING TIME AND LOCATION

Broward Metropolitan Planning Organization
100 West Cypress Creek Road, Suite 850
Fort Lauderdale, FL 33309

Conference call and web conference provided

MEETING ATTENDEES Present and Via Phone (alphabetical order by agency/firm)

1. Paul Flavien, Broward MPO, flavienp@browardmpo.org
2. Gavin Jones, BCC Engineering, Inc., gjones@bcceng.com
3. Jay Evans, Cambridge Systematics, Inc., jevans@camsys.com
4. Quan Yuan, Cambridge Systematics, Inc., gyuan@camsys.com
5. Aditya Katragadda, The Corradino Group, Inc., akatragadda@corradino.com
6. Ken Kaltenbach, The Corradino Group, Inc., kkaltenbach@corradino.com (via phone)
7. Shi-Chiang Li, FDOT D4, shi-chiang.li@dot.state.fl.us
8. Hui Zhao, FDOT D4, hui.zhao@dot.state.fl.us
9. Fang Mei, FDOT D6, fang.mei@dot.state.fl.us
10. Neil Lyn, FDOT D6, neil.lyn@dot.state.fl.us
11. Andrew Velasquez, Florida Turnpike Enterprise, andrew.velasquez@dot.state.fl.us
12. Myung Sung, Gannett Fleming, Inc., mhsung@gfnet.com
13. Jessica Josselyn, Kittelson Associates, Inc., jjosselyn@kittelson.com
14. Wilson Fernandez, Miami-Dade MPO, wilson@miamidade.gov
15. Jitender Ramchandani, Miami-Dade MPO, jramchandani@miamidade.gov
16. Luke Lambert, Palm Beach MPO, llambert@palmbeachmpo.org
17. Seth Contreras, Palm Beach MPO, scontreras@palmbeachmpo.org
18. Mike Brown, Transportation Planning Service, Inc., tps.mike.brown@camcast.net

Exhibit D provides the sign-in sheet for the meeting.

MEETING NOTES

Below is a summary of items discussed during the meeting in the actual occurring sequence.

I. Call to Order

Shi-Chiang Li called the meeting to order at 10:10 a.m. EDT.

II. Introductions

All attendees introduced themselves, including the people attending via teleconference. Shi-Chiang Li made an announcement that Nellie Fernandez will no longer serve as the committee chairperson. A new chairperson will be determined at the next meeting.

III. Approval of February 18th, 2015 Meeting Minutes

Action: Shi-Chiang Li made a motion for approval of the meeting minutes from February 18, 2015. The motion was seconded by Paul Flavien and it was approved by the RTTAC-MS.

IV. SERPM Memorandum of Understanding (MOU)

A. Status

Wilson Fernandez provided an update of the MOU status. Four of the five partners have signed. Broward MPO has not yet approved signing the MOU. The Broward MPO Board is expected to take up the approval at its next meeting.

B. Schedule / Next Steps

It is hoped that the MOU will be fully executed by the end of May. In this interim period, the MOU is still being used to guide the activities of the RTTAC-MS, including preparing for proceeding with a regional travel survey and processing the adoption of updates to the SERPM 7 model. Once the MOU is fully executed by all parties, the regional travel survey and other outlined activities can proceed fully.

V. Regional Travel Survey

A. Scope development

Wilson Fernandez distributed for discussion a preliminary draft scope of work for discussion covering all of the major regional travel survey elements, including household origin-destination survey, freight survey, and visitor survey.

A draft scope of work will be distributed for the Federal Highway Administration (FHWA) Travel Model Improvement Program (TMIP) Peer Review meeting which is scheduled for April 28 (this version is attached as reference **Exhibit A**). The RTTAC-MS discussed adding an explicit time segment to the Peer Review agenda to better permit discussion of the regional travel survey as part of the Peer Review.

Luke Lambert of Palm Beach MPO noted that Martin County MPO recently finished a household travel survey and this could be a helpful reference.

B: Procurement update

Wilson Fernandez outlined the importance of having data collection begin in the fall of 2015. In order to streamline procurement and potentially have a contractor in place by the end of June, two fast-track options have been identified:

- Option 1 – Use the FDOT Central Office travel model support contract: AECOM is the current contractor and has as a current activity to provide travel survey support for non-MPO coverage areas.
- Option 2 – Use the Miami-Dade MPO General Planning Consultant (GPC) contract: Five prime contractors are available to bid on task order proposal requests (Gannett Fleming, HNTB, Jacobs, Kimberly-Horn and Associates, and Parsons Brinckerhoff).

Option 1 would provide access to a qualified contractor, but would not generate competitive approaches/bids. The RTTAC-MS would need to approve the proposal. Pursuing Option 1 would require also executing a Joint Participation Agreement (JPA) to address the money flow to FDOT Central Office to support the contract since the existing MOU was developed with money for the contract flowing to the Miami-Dade MPO.

Option 2 would provide access to multiple qualified contractors. The five prime contractors would be invited to submit bids and a selection committee consisting of representatives of each of the signatories to the MOU would make a selection. The RTTAC-MS would ratify the selection. Typically it takes 30-40 days to have the consultants selected and negotiated.

The RTTAC-MS discussed the two options. Paul Flavien recommended Option 2 as it would lead to more transparency. Neil Lyn commented that Option 2 would be more in line with what the MOU had contemplated. Luke Lambert confirmed with Wilson Fernandez that the MOU states Miami-Dade MPO is the lead agency for the Regional Travel Survey effort.

Action: Luke Lambert made a motion to confirm that Option 2 should be used for the regional travel survey procurement. Paul Flavien seconded the motion and it was approved by the RTTAC-MS.

C: Schedule / Next steps

As soon as the MOU is fully executed and the scope of work is fully agreed upon, the procurement can proceed in earnest. The goal will be to have a contractor selection made by the end of June to permit development of the data collection plans in time to field surveys in the fall of 2015. The next RTTAC-MS meeting will be scheduled to help support continued forward progress on the regional travel survey effort.

VI. SERPM 7.0

SERPM 7.0 is currently under maintenance by FDOT D4 model coordinator Hui Zhao. In accordance with the MOU, network questions are first-directed to FDOT D4 and zonal data questions are first-directed to the relevant MPO, then passed to FDOT D4. FDOT D4 aggregates issues/changes and presents to RTTAC-MS quarterly for update.

Hui Zhao presented the contents of a tracking log of to-date collected socioeconomic data and network comments and requested revisions (**Exhibit B**).

Wilson Fernandez clarified that there is a need to distinguish between “updates” and “corrections” as SERPM 7 is maintained. Error corrections are okay to be made in the official long range plan scenario, but updates, such as new developments of regional impact (DRI) or evolving decisionmaking, need to be separately accounted for. Thus, two scenarios will need to be maintained (i.e., official long range plan development “2040” and evolving adopted land use plans “2040+”). Error corrections will be applied to both, but new approved LRTP or DRI changes will be applied only to the “2040+” scenario. Paul Flavien reinforced the need to have a 2040+ scenario available and maintained to address ongoing planning needs. Wilson Fernandez asked that, for the next RTTAC-MS meeting, FDOT D4 prepare a guidance document describing the content and use of the two future year SE databases (2040 and 2040+).

Mike Brown and Wilson Fernandez discussed school enrollment inputs for Miami Dade County. Wilson shared that the figures in the model have been reviewed and confirmed correct by demographers with Miami-Dade.

Action: Wilson Fernandez made a motion to accept and update respective networks with the following changes: Items 1 and 2 in the network update table, and Items 1,3,5, and 6 in the zonal update table. (Refer to Exhibit B). Shi-Chiang Li seconded the motion and the RTTAC-MS approved the motion.

Neil Lyn asked Shi-Chiang Li for the SERPM 7 training opportunities in the near future. Due to the model complexity and resource requirements, FDOT D4 doesn’t plan to schedule a group training, but is and has been willing to have third-parties come to FDOT D4 offices to discuss questions on installation or application. Also, the March 2015 Southeast Florida model user group meeting offered a training for the Treasure Coast Regional Planning Model (TCRPM) which has the same activity-based model architecture as SERPM 7.

VII. FHWA Peer Preview Update

A. Agenda

The Peer Review is scheduled at the Broward MPO on April 28th. A draft agenda was reviewed and discussed. The RTTAC-MS suggested modifications to include time to discuss the Regional Travel Survey. The resulting revised agenda is attached as **Exhibit C**.

B. Documentation provided

SERPM 7 model documentation will be provided.

C. Coordination of attendance

Attendance is open to interested parties, including consultants.

D. Dissemination of findings

Jay Evans commented that the findings will be stated prior to the conclusion of the meeting, but that there would then be a time lag before the draft report was produced. Paul Flavien said the non-executive session portions of the meeting would be recorded by Broward MPO.

VIII. 2040 Regional Transportation Plan Update

Jay Evans stated that Cambridge Systematics, Inc. has completed its modeling-related scope of work as a subcontractor under the long range plan contract and this is, therefore, his final model subcommittee meeting to support under the present contract. Jessica Josselyn said Kittelson Associates, Inc. will directly support the next RTTAC-MS meeting. The selected Regional Travel Survey contractor is then expected to support future RTTAC-MS meetings.

IX. Next RTTAC MS Meeting

The next model subcommittee meeting is scheduled for 10:00 a.m., May 27, 2015 at the Palm Beach County MPO.

X. Adjournment

2015 Southeast Florida Regional Travel Survey SCOPE OF SERVICES

Miami-Dade Metropolitan Planning Organization (MPO), on behalf of the Broward MPO, Miami-Dade MPO, Palm Beach MPO, and Florida Department of Transportation (FDOT) Districts Four and Six, is soliciting proposals from consultants (herein after referred to as the CONSULTANT) to design, test and implement a household travel survey, an attitudinal, stated preference, and/or revealed preference survey (herein after referred to as the attitudinal/preference survey), and a general origin-destination survey that will collect detailed information on travel behavior of persons in the Tri-County Region using pre-determined and pre-approved methods, specifications, and requirements. The collection of all efforts is referred to as the Survey or the Project. The Survey will cover for the entire Southeast Florida Region encompassing Broward, Miami-Dade, and Palm Beach Counties (hereafter referred to as the Tri-County Region). Miami-Dade MPO (herein after referred to as the CONTRACT ADMINISTRATOR) will be the administrator of this service contract.

I. SURVEY OBJECTIVES

The ultimate goal of this data collection effort is to improve planners' ability to assess and predict impact of future projects, policies, and transportation improvements on travel patterns and activities. The Survey objectives are:

1. To gather and analyze travel activity, attitudes and preferences, and socioeconomic characteristics of persons living in the Tri-County Region to support further development of the Southeast Florida Regional Planning Model (SERPM);
2. To act as a resource for development of Five-Year Transportation Improvement Programs (TIP), Long-Range Transportation Plans (LRTP), and transportation policies of respective MPOs;
3. To develop new performance measures, and their corresponding targets, to meet Moving Ahead for Progress in the 21st Century Act (MAP-21) requirements;
4. To identify trends over a period of time; and,
5. To the extent possible, provide data that can potentially be used for area- and corridor-level analysis.

II. BACKGROUND

In 2005, after several years of ad hoc cooperation, the Southeast Florida Transportation Council (SEFTC) was created, under Florida Statutes Chapter 339. 175, to serve as a formal forum for policy coordination and communication to carry out these regional initiatives agreed upon by the MPOs from Broward, Miami-Dade, and Palm Beach Counties. SEFTC is the primary policy coordinating body for regional transportation matters. Three MPOs, through SEFTC and in coordination with FDOT Districts Four and Six, develop and maintain a set of travel forecasting tools and procedures that support county and

regional planning efforts, compliance with relevant federal regulations and requirements, and overall, the federal metropolitan planning process.

Subsequently, the Regional Transportation Technical Advisory Committee - Model Subcommittee (RTTAC-MS) was created in 2008 to provide a forum for coordination of modeling activities within the Tri-County Region. The RTTAC-MS is made up of five voting representatives: one each from Broward MPO, Miami-Dade MPO, Palm Beach MPO, and FDOT Districts 4 and 6. As such, the RTTAC-MS has overseen the model development and maintenance efforts as part of the 2035 and 2040 LRTP cycles.

Beginning with the 2035 LRTP effort, the Tri-County Region developed and formally recognized SERPM as the region's travel demand model tool. SERPM was supported by the South Florida Regional Travel Characteristics Survey (SFRTCS) conducted in 1999. The SFRTCS comprised of five main elements: (1) a household travel survey; (2) a system-wide transit on-board survey; (3) a visitor travel survey; (4) a truck movements survey; and, (5) a workplace survey. The information gathered by SFRTCS has been used extensively since 2000 to analyze regional travel patterns and to improve county and regional travel forecasting tools.

In the 15 years since SFRTCS was conducted, there have been significant changes in technology, mobility options, and demographics in the Tri-County Region. While a number of data sources such as Census Transportation Planning Package (CTPP), Longitudinal Employer-Household Dynamics (LEHD), Transit On-Board Surveys, and corridor-level datasets are available, a number of data gaps remain that can only be addressed through a comprehensive travel survey. This is especially relevant given that the recently adopted version of the SERPM is an Activity Based Model (ABM) which offers a new set of needs and opportunities. The readily-available datasets are not adequate to take the full advantage of ABM capabilities. Local information is important to understanding the unique combination of characteristics that relate to the Tri-County Region, including changing importance of teleworking, usage of transit and variable-priced managed lanes options, effects of attitudes and preferences of Millennials, and usage of non-motorized transportation.

As part of the Project, the CONSULTANT will conduct a full spectrum of activities relevant to regional travel data collection, including a household survey, an attitudinal/preference survey, and a general origin-destination (OD) survey. Recent technological advances in survey methods have enabled collection of reliable and representative travel data in more cost-effective manners. The CONSULTANT is encouraged to propose data collection and analysis procedures other than those described in this scope of services and to demonstrate that such procedures meet or exceed the objectives of this solicitation.

III. METHODOLOGY

Task 1: Project Coordination and Management

Survey Coordination and management is a continuous task throughout the course of the Survey. The CONTRACT ADMINISTRATOR will provide a Project Manager and will be the primary point of contact for scope, schedule, staffing, budget control, and day-to-day issues. The CONSULTANT shall, at a minimum, identify individuals with the following responsibilities:

CONSULTANT Project Manager (PM): The CONSULTANT will be led by a full-time employee of the CONSULTANT and the primary point of contact for the CONTRACT ADMINISTRATOR and RTTAC-MS. The CONSULTANT PM will oversee all aspects of the project. The CONSULTANT PM must be continuously available by telephone and e-mail throughout the project. The CONSULTANT will ensure that any and all communication is through the CONSULTANT PM. The CONSULTANT PM may appoint Task Leaders, but still continue to be the primary contact.

CONSULTANT Quality Assurance/Quality Control (QA/QC) Coordinator: The CONSULTANT will appoint a qualified individual other than its designated PM to monitor QA/QC processes and certify that all data has been collected and processed consistent with the highest possible quality standards. The CONSULTANT QA/QC Coordinator will be a subject-matter expert with extensive experience in similar surveys.

The CONSULTANT shall staff the project and coordinate the work effort of sub-consultants to control the scope, schedule, quality, and budget of the project. Project Coordination and Management tasks listed below are based on a twenty four- (24) month schedule for completion from issuance of a Notice-to-Proceed (NTP).

Task 1.1: Development of Project Management Plan

The CONSULTANT shall prepare a Project Management Plan (“PMP”) within thirty (30) days of NTP and seek the RTTAC-MS’ approval prior to submittal of the first invoice. The PMP will be updated on a monthly basis or at the request of the CONTRACT ADMINISTRATOR. The CONSULTANT will revise and resubmit PMP within seven (7) business day of such requests. The CONSULTANT’s PMP will address the work plan and the CONSULTANT’s roles and responsibilities of all sub-consultants, all staff members who will be directly or indirectly involved in the Survey effort, the logic and linkages among tasks and participants, communication controls and protocols, quality control plan, schedule, invoicing procedures, document review timelines, and document control procedures. The PMP shall also include a detailed schedule, with monthly review periods, in Microsoft Project or Primavera P6. The PMP will set the standards for and, serve as the basis for, development and execution of Task 4: Survey Administration.

Task 1.1.1: Quality Control Plan

The PMP will also include a Quality Control (“QC”) Plan. The plan will allocate responsibilities for quality control and will define how the CONSULTANT will oversee these responsibilities to ensure they are accepted and supported by quality control measures. The CONSULTANT will be responsible for insuring that all services conform to widely used standards and criteria. This will be accomplished through an internal Quality Control (“QC”) process performed by the CONSULTANT. This QC process will ensure that quality is achieved through checking, reviewing, and surveillance of work activities by objective and qualified individuals who were not directly responsible for performing the initial services. The QC Plan will identify the products to be reviewed, the personnel who perform the reviews, document control, and the method of documentation. Coordination and Reports to the CONTRACT ADMINISTRATOR

Task 1.1 Deliverables: (1) Project Management Plan (PMP) that includes a Quality Control Plan; (2) Monthly or as-needed updates to PMP; and, (2) a schedule in Microsoft Project or Primavera P6.

Task 1.2: Coordination with CONTRACT ADMINISTRATOR

The CONSULTANT PM shall communicate with the CONTRACT ADMINISTRATOR on a regular basis and shall provide monthly progress reports in writing that shall be the basis for invoices. The CONSULTANT PM, on as-needed basis, will coordinate challenges, unexpected issues, and critical tasks with the CONTRACT ADMINISTRATOR.

1. Survey kick-off meeting: The CONSULTANT will schedule and attend, in person, a kick-off meeting within seven (7) business days of receipt of NTP. The objective of the kick-off meeting is to discuss the following items:
 - a. Transportation and socioeconomic characteristics of the Tri-County area;
 - b. The CONSULTANT's initial thoughts on the 1999 Household Survey and the 20049 NHTS Florida Add-on sampling methodology and results;
 - c. Key findings and lessons learned from the CONSULTANT'S previous surveying work and their applicability to the Tri-County Region;
 - d. Communication protocols for the Survey;
 - e. Sequence of key Survey coordination activities;
 - f. The CONSULTANT's initial assessment of key risks that can potentially affect accumulation of a statistically representative response;
 - g. Formats of project deliverables and related materials;
 - h. Review and revision periods for reports and technical memorandums;
 - i. Format and documentation required for invoices and progress reports; and,
 - j. Other items to be determined by the CONTRACT ADMINISTRATOR.

2. Progress meetings: The CONSULTANT PM shall initiate monthly progress meetings with the CONTRACT ADMINISTRATOR to review project status, discuss upcoming meetings, updates on the identified risks and status of risk mitigation measures, and anticipated difficulties that may impact timely and/or successful completion of project tasks. These meetings may be held, at the discretion of the CONTRACT ADMINISTRATOR, in person or via teleconference. The CONSULTANT shall prepare agenda and other materials, as needed, for the documentation purposes and share with the CONTRACT ADMINISTRATOR at least three business days prior to meetings. The CONSULTANT will produce minutes of the meetings including a listing of the issues and corrective actions identified during these meetings within three (3) business days of progress meetings.

Task 1.2 Deliverables: (1) Meeting Agenda, presentation material, and Minutes; and, (2) Monthly progress reports.

Task 1.3: Coordination with RTTAC-MS, RTTAC and SEFTC

The RTTAC-MS, as prescribed under the SERPM Memorandum of Understanding (MOU), will serve as the collective decision-making body to guide the planning and execution of the Survey. The RTTAC-MS or a group appointed by RTTAC-MS to guide the planning and execution of the Survey. The RTTAC-MS will generally meet on a quarterly basis throughout the course of this Survey, unless otherwise agreed upon. The RTTAC-MS will meet, on a rotational basis, at the offices of RTTAC-MS voting members. The CONSULTANT shall coordinate, on as-needed basis and through the CONTRACT ADMINISTRATOR, with individual members of RTTAC-MS, RTTAC, and SEFTC to address agency-specific or county-specific concerns.

1. RTTAC-MS meetings: The CONSULTANT PM shall attend, in person, up to ten (10) RTTAC-MS meetings. The CONSULTANT PM shall ensure attendance of appropriate staff, in person or via teleconference, to satisfactorily answer any questions from the RTTAC-MS members. The CONSULTANT shall prepare agenda, presentation, and other materials, as needed, for the documentation purposes and share with the CONTRACT ADMINISTRATOR three business days prior to such meetings. The CONSULTANT shall produce minutes of the meetings including a listing of the issues and corrective actions identified during these meetings within three (3) business days.
2. The CONSULTANT PM shall attend, in person, up to two (2) RTTAC meetings. The CONSULTANT PM shall ensure attendance of appropriate staff, in person or via teleconference, to satisfactorily answer any questions from the RTTAC members. The CONSULTANT shall prepare presentation and other materials, as needed, for the documentation purposes and share with the CONTRACT ADMINISTRATOR three business days prior to such meetings. The CONSULTANT shall identify a list issues and corrective actions identified during these meetings within three (3) business days.
3. The CONSULTANT PM shall attend, in person, up to two (2) SEFTC meetings. The CONSULTANT PM shall ensure attendance of appropriate staff, in person or via teleconference, to satisfactorily answer any questions from question. The CONSULTANT shall prepare presentation and other materials, as needed, for the documentation purposes and share

with the CONTRACT ADMINISTRATOR three business days prior to such meetings. The CONSULTANT shall identify a list issues and corrective actions identified during these meetings within three (3) business days.

Task 1.3 Deliverables: (1) Meeting Agenda, presentation material, and Minutes

Task 1.4: Coordination with Other Stakeholders

The CONSULTANT shall coordinate survey activities with other public and private agencies so as to (1) identify SERPM structure and data needs; (2) to increase awareness of the Survey effort; and, (3) to identify potential issues and risk mitigation methods, to benefit from experience of agencies who have conducted similar Survey efforts in the Tri-County and/or other regions in the Country, or as requested by the CONTRACT ADMINISTRATOR.

1. The CONSULTANT PM shall initiate and attend up to twelve (12) unscheduled meetings and be available with a seven (7) business day notice. Depending on the nature of meeting, the CONSULTANT PM shall ensure attendance of appropriate staff, in person or via teleconference, to participate or satisfactorily address any issues. The CONSULTANT shall prepare agenda and other materials, as needed, for the documentation purposes and share with the CONTRACT ADMINISTRATOR three business days prior to such meetings. The CONSULTANT shall produce minutes of the meetings including a listing of the issues and corrective actions identified during these meetings within three (3) business days.

Task 1.4 Deliverables: (1) Meeting Agenda, presentation material, and Minutes

Task 2: Household and Attitudinal/Preference Survey Design

The household travel survey forms the core dataset for the model development. The main purpose of the survey is to collect permanent household data necessary for SERPM development. The Survey population shall include permanent households in the Tri-County Region of Broward, Miami-Dade, and Palm Beach Counties. The Survey is expected to rely on a stratified sampling that is able to capture travel behavior of permanent residents of the Tri-County Region. Survey methods should reflect specifics of the pre-defined population strata. GPS-based prompted recall surveys, for the portions or entirety of the selected sample, is required.

The RTTAC-MS encourages innovative methods and techniques, where appropriate and with reference to their successful application in other studies, as a way of improving the quality of data, reducing respondent burden, and increasing response rates and sample representativeness. Such methods and techniques may potentially be used for the development of the sampling and data collection methods. The RTTAC-MS will have the sole authority to partially or fully accept any proposed method and strategies for the entirety or portions of the Survey effort.

The CONSULTANT may propose and employ, even if not explicitly identified in this scope of services, multiple data collection strategies – including mail, telephone, GPS, web-based applications, passive and anonymous origin-destination cell phone data, and smart phone applications as appropriate – to increase survey participation and accuracy/representativeness of collected data. The CONSULTANT shall identify and address challenges associated with any of these data collection methods. The CONSULTANT may employ more than one method or strategy and propose methods to merge data collected using different sources. The proposed survey methodology should also account for coverage bias issues. The CONSULTANT, in all circumstances, will be solely responsible for all risks and liabilities associated with any proposed methods.

Task 2.1: Sampling Plan

The CONSULTANT shall recommend an approach and prepare a detailed sampling plan that fulfills the Survey objectives within six (6) weeks of NTP. The CONSULTANT is encouraged to propose specific sampling plan approaches to the extent that more accurate and meaningful results can be achieved. In developing the sampling plan, the CONSULTANT will adequately recognize and reconcile the trade-offs between preserving opportunities for side-by-side comparison of 1999 SFRTCS results on one hand, and RTTAC-MS interest in improving the accuracy and relevance of the results of this Survey on the other.

The CONSULTANT shall develop a detailed description of methods, techniques, and instruments to be used towards identifying a sample that ensures adequate geographic and demographic coverage of the completed surveys and statistically reliable depiction of travel behavior and attitudes/preferences. The sampling must reflect various data collection environments, risk mitigation efforts identified in the PMP, and lessons learned from previous efforts.

The CONSULTANT will develop a detailed schedule of activities for each task identified in the sampling plan. RTTAC-MS may also seek input from relevant public and private agencies to ensure that sampling plan meets the stated and desired needs of all stakeholders. The CONSULTANT will seek approval of the sampling plan and associated schedule from RTTAC-MS. The CONSULTANT shall revise the sampling plan within two (2) weeks of receipt of comments.

RTTAC-MS, RTTAC, and SEFTC entities reserve the right to request additional surveys, beyond the minimum required, if such requests are made. Such requests will be considered optional or contingency services. This additional scope of service and associated fee estimate will be negotiated with the CONSULTANT.

Task 2.1.2: Sampling Frame

The CONSULTANT shall propose at least two sets of source materials from which the sample will be selected. The source materials or sampling frame must provide adequate coverage of the permanent residents in the entire Tri-County Region. The sampling frame must also capture, in a statistical sense, the target population and must be as current as possible for all counties in the Tri-County Region. The sampling frame must allow desired stratification listed below. The CONSULTANT shall list pros and cons for both sampling frames (e.g. completeness, accuracy, recency of data, suitability for each county in the Tri-County Region, etc.) and recommend one to RTTAC-MS within six (6) weeks of NTP. The CONSULTANT shall be responsible for cost of procuring any and all data associated with this task.

Task 2.1 Deliverable: (1) Sampling plan

Task 2.2: Minimum Sample Size

The sample of households to be surveyed shall be stratified primarily by county. The minimum required sample is 5,000 completed permanent household interviews, divided as follows:

- Miami-Dade county residents: 2,350 households
- Broward county residents: 1,500 households
- Palm Beach county residents: 1,150 households

The sample may, based on pre-determined direction from RTTAC-MS, further be stratified based upon residential and employment densities, geographical districts or sub-regions, households using alternative modes (e.g. walk, bicycle, transit) or better than average access to transit, number of vehicles in household, household size, homeownership status, households with toll facility users, etc.

Task 2.2.1: Complete Household Interview / Complete Sample:

A completed household interview shall be defined by the presence of valid answers to key questions (to be determined by RTTAC-MS), geocodable logical trip ends and logical consistency per quality procedures established by the RTTAC-MS.

Only completed household interviews (also referred to as completed samples) shall count towards the minimum required sample. The RTTAC-MS anticipates that the vast majority of questions will be identified as key questions. The CONSULTANT is encouraged to comment on the completed household interview criteria and propose their own. In doing so, the CONSULTANT shall provide expected number of incomplete interviews and questions most likely to yield incomplete answers.

The CONSULTANT shall propose its own criteria for proxy reporting, and shall demonstrate that the proposed criteria do not negatively impact data quality. Proxy reporting for persons 16 years or older is strongly discouraged. The CONSULTANT shall describe how their retrieval methods reduce the incidence of proxy reporting of adult travel.

The CONSULTANT shall identify populations that tend to be over-represented in household samples when not controlled for, such as retired households and households without workers. The CONSULTANT shall propose methods for ensuring that these populations are not over-represented in the completed sample.

The CONSULTANT's sampling plan shall establish target confidence levels such that the sample is representative of the Tri-County population and adequate to support the planned SERPM development activities and planning policy initiatives. The CONSULTANT shall demonstrate methods to achieve the target confidence levels with the proposed survey design and sampling plan. The sampling plan will state the minimum number of valid and completed responses that must be collected to fulfill stated confidence and precision targets.

Task 2.3: Survey Method

The survey method shall consist of a combination of computer-assisted telephone interviews (CATI) and computer-assisted self-complete interviews (CASI), at the discretion of the CONSULTANT. Both methods may be employed for recruitment and retrieval. The CONSULTANT shall demonstrate that its proposed survey method(s) can successfully identify errors, omissions and inconsistencies in the household person and travel data as they are submitted, as well as provide an opportunity to correct the entry at the time the information is submitted.

The CONSULTANT may also propose to supplement or replace entirely the CATI/CASI survey methods provided that it can demonstrate that its choice(s) are highly likely to result in statistically representative and accurate responses that meet the Survey objectives, while at the same time minimizing respondent burden and encouraging respondent participation relative to CATI/CASI.

Task 2.3.1: GPS Subsample

Activities of a subset of sample shall be monitored and recorded via the GPS prompted recall (PR) method. The goal of employing GPS PR is to provide a basis to account for unreported trips in the expansion of the CATI/CASI responses. The CONSULTANT shall propose a plan to assign recruited households to the GPS PR subsample that supports this goal. The CONSULTANT shall propose whether certain household members will be exempt from wearing the GPS device; e.g.,

children under a certain age. The total number of households interviewed via GPS PR shall be no less than 10% of the minimum sample size specified above. The CONSULTANT shall propose an appropriate subsample stratification so to achieve the Survey objectives. The CONSULTANT is encouraged to propose alternative methods and/or complementary methods that minimize the incidence of unreported trips.

The CONSULTANT is responsible for proposing, supplying, maintaining, distributing and collecting the GPS devices. RTTAC-MS, if not satisfied with the proposed GPS device, may seek alternatives at the start or during data collection. The CONSULTANT shall also be responsible for monitoring the use of the GPS devices during the survey, in order to ensure that the respondents are using the devices properly. The CONSULTANT shall be responsible for replacing malfunctioning devices and re-assigning households to a second survey period should their device malfunction or fail to record. The CONTRACT ADMINISTRATOR shall not be held liable or responsible for mobile devices that are damaged or lost during the course of the Survey.

Task 2.3.2: Subsample for Attitudinal/Preference Survey

The CONSULTANT will also use a subset of sample for attitudinal/preference survey. The goal of attitudinal/preference survey is to provide additional insights into why households or certain members of households make the travel choices that they do and to obtain data about how respondents would make choices among transportation options that do not currently exist or exist only for a very small percentage of Tri-County residents. Specifically, the attitude/preference survey will obtain information about mode choices related to new/existing transit and non-motorized options, route choices in the presence of toll options, perceived benefits and attitudes towards existing and new toll facilities, transportation funding, etc.

Task 2.3.3: Incentives

The CONSULTANT may propose small incentives to encourage survey participation and to improve survey response rate. However, the CONSULTANT shall ensure that the proposed incentives avoid bias and maintain consistency in the various datasets. The CONSULTANT may propose differential incentive rates to attract response from certain segments of the population. The CONSULTANT, under all circumstances, shall be responsible for financial and legal aspects of incentives.

Task 2.4: Data Collection Period

All data collection shall be conducted during 2015 and 2016 satisfying, at minimum, the following conditions.

1. School is in regular session;
2. Avoiding major and, potentially minor, public holidays such as Thanksgiving and Christmas;
3. Avoiding major religious holidays that may not be public holidays (e.g. Passover, Good Friday);
4. For fall 2015, data collection shall not begin prior to the week of Labor day and shall be completed at least one week prior to Thanksgiving; and,

5. For spring 2016, data collection shall not begin prior to Martin Luther King Jr. Day and must be completed at least one week prior to major spring break periods.

The CONSULTANT may propose extending these periods as long as the conditions listed above are satisfied. The RTTAC-MS will be the sole authority to approve and, if requested, extend data collection periods.

Task 2.2.1: Survey Days

The Survey shall be limited to a minimum of two and preferably up to three weekday travel days. The CONSULTANT shall propose and make recommendations for time dimensions of the sample including pros and cons of multi-day sampling. The RTTAC-MS will be the sole authority to approve the time dimension of the Survey. The CONSULTANT shall assign households to travel days so as to ensure approximately equal distribution across all five weekdays and during different months. The CONSULTANT shall clearly state the proposed number of survey days in the Survey cost estimate.

Task 2.5: Survey Instrument

The CONSULTANT shall develop survey instruments to capture all the household, person, and trip/activity data required to meet the stated Survey objectives. The instrument refers to paper or digital version of data collection tool. The RTTAC-MS will provide data needs and existing and planned policy preferences. The CONSULTANT will use the provided policy preferences and data needs to develop a survey instrument that covers various attributes of the entire household, all persons, and trip/activities of all persons. A few important items include:

Task 2.5.1: Languages

All survey materials shall be available in both English and Spanish. The CONSULTANT may propose a method to reach French/Creole speaking residents. The successful CONSULTANT shall be responsible for providing technically knowledgeable staff persons who communicate fluently in both languages (reading, writing and speaking). The need for one or more other languages will be further explored with the successful CONSULTANT. The successful CONSULTANT shall be responsible for preparing, distributing and (as appropriate) collecting all survey materials.

Task 2.5 Deliverable: (1) Survey instrument in all identified and agreed-upon languages

Task 3: Household Survey Administration

Task 3.1: Administration of Pilot Survey

The CONSULTANT will conduct a Pilot Survey to evaluate the Survey Design and Survey instruments that are developed in Task 3. The Pilot Survey will be administered to at least 30 permanent households in the Tri-County Region. The CONSULTANT may also use the Pilot Survey to test different survey design methods as well as to test relevance and accuracy of the GPS data collection. The Pilot Survey will cover all aspects of the survey administration procedures that were outlined in this scope of services. The purpose of the Pilot Survey is to ensure that the Survey Design works as intended and will achieve the Survey objectives. The CONSULTANT shall accomplish the following to successfully complete the Pilot Survey:

1. Identifying and recruiting households to participate in the pretest;
2. Identify and document refusal rate;
3. Deploying methods to ensure that the recruited households are able to successfully provide accurate data and that GPS instruments are able to perform the desired function;
4. Maintaining records of calls, responses, and other pertinent data;
5. Coding survey responses;
6. Developing a test database and geocoding the address information;
7. Response to follow-up attitudinal/preference survey; and,
8. Conduct debriefing sessions with households that participated in the Pilot Survey.

The CONSULTANT shall analyze, document, and share the results of the Pilot Survey, challenges, rate of completion, issues, items, words resulting in inaccurate or unreliable responses, etc. The CONSULTANT shall recommend modifications or changes to Survey Design and gain approval from the RTTAC-MS prior to administering the main Survey.

The CONSULTANT may recommend relevance of a pilot survey of seasonal residents and seek approval from RTTAC-MS. The Pilot Survey of seasonal residents, if required by RTTAC-MS, will follow all applicable procedures.

Task 3.1 Deliverable: (1) Pilot Survey Results and Recommendations; and, (2) modified Survey Methodology and Sampling Plan or Survey Instrument, as applicable.

Task 3.2: Preparation of the Main Survey

Task 3.2.1: Public Outreach and Communications

The CONSULTANT should identify public outreach and communication needs, if any, necessary to successfully conduct the Survey using the proposed Survey Design. The CONSULTANT shall, at minimum, accomplish the following tasks:

6. The CONSULTANT shall develop and host a website, at their own expense in English and Spanish, at least two weeks prior to the start of data collection. The website shall include, among other things, purpose and intent of the survey, duration of the survey, participants roles and level of anonymity, and answers to frequently-asked questions. The CONSULTANT shall maintain the website throughout the project.
7. The CONSULTANT shall also maintain a dedicated toll-free phone line for English and Spanish speakers for technical support, operating for the duration of the data collection period.

Task 3.2.1: Recruitment Methods and Procedures

Utilizing the sampling plan and method established, the CONSULTANT shall follow the following methods for recruitment of permanent residents. The CONSULTANT may use the same or a different method for recruitment of seasonal residents.

1. The CONSULTANT will develop a household database that will serve as the basis for keeping track of the entire selection sample, the participating households and the participants, specific attributes, if any, for selection of the household, assigned or desired travel days, and the status of all mailings and calls to and from the household. The CONSULTANT shall develop a household database data dictionary that explains all variables.
2. The CONSULTANT shall develop a pre-recruitment or notification informational letter and release to randomly selection portions of the selected sample on a pre-scheduled basis. The letter will inform the household about the survey and encourage their participation using a toll-free phone number and the project website to allow the household to get more information about the Survey, as well as that information will allow households without phones to contact the CONSULTANT to request an opportunity to participate in the survey.
3. Respective MPOs of each county will provide required stationary, letters, and authorizations.
4. The CONSULTANT shall ensure that households receive the letter just in advance of the recruitment phone call. The CONSULTANT will monitor and flag undeliverable mail and make appropriate notes in the household database.
5. The CONSULTANT shall call all households that are selected in the sample frame with an agreed-upon recruit speech. If the household agrees to participate, the CONSULTANT interviewer will acquire all pertinent household and personal data during the initial phone call and record in the household database.

6. The CONSULTANT shall assign tracking of selected and participating household by assigning a unique record number. The CONSULTANT shall monitor every household's and residents participation in the survey throughout the survey administration process.
7. Once a household is recruited, the CONSULTANT will make appropriate arrangements to ensure that the participating households/residents receive GPS information in a timely manner and are able to use it.
8. The CONSULTANT shall continue recruiting households to participate in the survey until minimum sample size plus an additional one to two percent agree to participate. Additional one to two percent are to account for replacing initially willing households that don't up completing the entire survey process.
9. The CONSULTANT will keep a track of all calls to toll-free phone number in the household database. Any general or non-survey specific responses, questions, and queries will be referred to pre-established contacts MPOs in respective counties.
10. The CONSULTANT shall monitor, throughout recruitment and data collection periods, under and oversampling of certain populations.

The CONSULTANT may propose the same or different methodology for recruitment of seasonal residents and seek approval from RTTAC-MS.

Task 3.2 Deliverables or outcomes: (1) Survey website hosted and maintained by the CONSULTANT; and, (2) A dedicated toll-free phone line for support.

Task 3.3: Data Collection and Entry

1. The CONSULTANT will provide the required information to ensure households are able to report the information back to the CONSULTANT in a timely manner. The CONSULTANT will also develop a mechanism to provide reminders and follow-up during data collection.
2. In addition to a permanent household database, the CONSULTANT shall develop the following two databases with appropriate identifiers to cross-reference information. The CONSULTANT shall develop data dictionaries for trip and person databases that explain all variables.
 - a. Person database. This database will contain all of the person level information collected for each person that completes a travel diary. The information for each person will be shown as a separate record. The work address for employed persons will be geocoded; an ID field will link each record in the associated geocoded shapefile to the person database.
 - b. Trip/Activity database. This database will contain all of the trip information completed by all persons who complete a travel diary. Each trip will be shown as a separate record. The starting and ending address and time for each trip

and activity will be geocoded; an ID field will link each record in the associated geocoded shapefile to the trip database.

3. The CONSULTANT shall determine level of data coding and associates practices in consultation with the RTTAC-MS.
4. The CONSULTANT shall ensure, to the extent possible, that households are contacted by assigned interviewer who will remain their primary point of contact.
5. The CONSULTANT shall utilize the QA/QC procedures established in the PMP for review and corrections throughout the data collection and entry periods. The CONSULTANT shall ensure that confidentiality of all components of the collected data is maintained throughout the Survey and after completion of the Survey.
6. The CONSULTANT shall use ESRI ArcGIS software suite as the primary software for geocoding purposes. The CONSULTANT shall geocode the spatial location (e.g., X,Y coordinates) of all households, trip origins, and trip destinations collected in the travel survey into three separate ArcGIS shapefiles: an address level point shapefile of all disaggregated locations and attributes of participating households and their reported trip origins and trip destinations, a polygon shapefile of aggregated household locations and trip origins and destinations by zip code, and a polygon shapefile of aggregated household locations and trip origins and destinations. Point data will be aggregated to the polygon geography.
7. The CONSULTANT will be responsible for determining adequacy of the survey responses and removing unusable records from the database. If a record is removed, the CONSULTANT shall replace the household with another household from the sample to ensure the minimum sample size is met.

Task 3.4: Survey of Non-responding Households

The CONSULTANT shall conduct a follow-up survey of non-responsive households that can be used to measure the size and likely impacts of non-response bias in the main household survey.

Task 3.4 Deliverables: (1) *Results and takeaways from Survey of Non-responding Households*

Task 4: Household Data Weighting and Expansion

The CONSULTANT, based on the input from RTTAC-MS, shall perform the required tasks using an acceptable method to compensate for sampling, response, or any other bias or over/under presentation. The CONSULTANT shall propose different methods for weighting and expansion of household, person, and trip/activity data based on an analysis of survey non-response and other bias factors that could have affected the survey data.

The CONSULTANT will utilize data collected by local, regional, state, and national agencies to triangulate and verify representativeness of expanded data. The CONSULTANT will ensure that stratified samples within the overall sample are also representative of the stratified populations. For descriptive statistics, the CONSULTANT shall entail sophisticated and complex post-stratification weights using sound statistical methods. The CONSULTANT will compare and report results with other available datasets and examine each dataset to identify potential reasoning for inconsistencies.

Task 4 Deliverables: (1) *Different methodical options for weighting and expansion methods;* (2) *Final weights and expansion methods for all datasets;* (3) *Datasets in digital and editable format;* and, (4) *Report that documents methods, procedures, and coordination activities leading to the final datasets.*

Task 5: Origin-Destination (OD) Survey

Travel data is a key element in the analysis of existing conditions and understanding of trip distribution patterns among, outside and within the Counties of Broward, Miami-Dade and Palm Beach. The Origin-Destination (OD) Survey seeks to obtain observed time-of-day OD travel data through the use of probe data such as cell phone, GPS or other devices. The OD Data will be used for the purpose of assessing trip behavioral patterns in Southeast Florida region and estimating/calibrating the Southeast Regional Planning Model (SERPM).

Task 5.1: OD Survey Plan

With over 4,200 traffic analysis zones (TAZs) and 12,000 micro-zones (MAZs), region-wide patterns are anticipated to be collapsed into Traffic Analysis Districts (TAD) for analysis and reporting purposes. The core deliverable for this task is an O-D matrix that shows the estimated trip activity between and within each MAZ/TAZ/TAD. The OD Survey data shall be stratified by time-of-day (TOD) consistent with the time period strata in the SERPM.

Mobile devices frequently communicate with the network through control channel messages, both during use and when a device is in idle mode. This data, based on triangulation from various cellphone towers, provides anonymous cellular phone or mobile device data to capture and analyze population location and movement information. The CONSULTANT will develop a detailed OD Survey Plan that utilizes cellphone / mobile device data within six weeks of NTP and present it to RTTAC-MS for approval. The O-D Survey Plan will identify, among other things, how and when data will be collected, time periods, analysis methods, proprietary / public nature of analysis procedures and limitations, methods for public agency officials to verify or cross-verify and QA/QC, potential applications for SERPM estimation/validation/calibration, and limitations of methodology. Additionally information on data quality, at a minimum, shall include:

- A description of the probe technology used and how this provides an adequate sample size;
- Estimation of the percentage of regional travel activity captured by the technology;
- Description of how the technology provides adequate coverage across all market segments;
- Descriptions of any limitations of the probe technology utilized; and,
- Descriptions of data validation efforts.

Task 5.2: OD Data Collection

The data will include, among other items, time-stamped locations (latitude/longitude) for each mobile device, utilizing the network signaling data generated each time a mobile device interacts with the mobile network. The CONSULTANT will collect data for a typical weekday based on at least one month worth of data sample in a typical or a peak month, as determined by RTTAC-MS.

Task 5.2.1: Freight Data Collection

The CONSULTANT shall collect trip activity for freight movements. The CONSULTANT shall demonstrate how to identify freight movements at up to 10 locations in the Tri-County Region. The extent of this data collection shall be sufficient to support SERPM and will be subjected to approval of RTTAC-MS.

Task 5.3: OD Data Expansion and Post Processing

The basic OD data provided shall be OD matrices for the entire region by TOD scaled up from the sample to represent the true population. The CONSULTANT shall provide documentation on methodology and assumptions used in data expansion. This effort should be coordinated with the Household Travel Survey data to supplement and cross-reference datasets and results. The CONSULTANT will report and document all underlying assumptions such as the assumed penetration rate, vehicle/mobile trips to people trips rates, visibility factor, etc. The CONSULTANT will present and document

The CONSULTANT will, based on direction from RTTAC-MS and other stakeholders, will develop market segmentation and expand such that the derived data is useful for market segments used in SERPM 7. The data, at a minimum, may also be presented by major trip purposes defined as home based trips to/from work, home based trips to/from other activities, non-home based trips, and external trips.

Task 5.4: Data Reporting

The data provided shall be in a matrix table format acceptable to the CONTRACT ADMINISTRATOR and consistent with Cube Matrix or DBF files. The data shall be available as separate tables, matrices etc. by the TAD, trip purposes, and time of day defined classifications under SERPM. A separate TOD analysis and report shall be prepared to show temporal trip-making patterns by County or sub-regions.

The collected data must be aggregated and reported as averages for three separate time periods. The averages must represent typical weekdays, which are commonly represented with Tuesday-Thursday information since Mondays and Friday may exhibit behavior different from typical weekdays.

Task 5 Deliverables: (1) Origin-Destination Survey data in digital, editable format; (2) Origin-Destination Survey Report.

IV. Duration

The duration of this study will be up to twenty-four (24) months.

V. ESTIMATED COST

The maximum CONSULTANT fee is \$1,500,000, including 10 percent for contingency tasks.