

# Southeast Florida STOPS Planning Model

*presented by*  
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# STOPS in Florida



- One of the four goals established by Transit and Rail Committee for FY2016
  - Encourage and support STOPS usage in Florida
- FTA in Florida
  - STOPS introduction workshop at the 2015 MTF
  - Partnered with FDOT/LYNX to provide 2.5-day course in May 2016
- FDOT and MTF
  - Developed “Guidebook for Florida STOPS Applications”
  - Provided STOPS trainings in Fall 2016 (Tallahassee, Orlando and Miami)
  - Developed a FAQ list (developed by this committee)



Home / Guidebook for Florida STOPS Applications

Monday, December 12, 2016

## Guidebook for Florida STOPS Applications

The FDOT Transit Office recently released the *Guidebook for Florida STOPS Applications*. This Guidebook focuses on the data preparation and approach issues critical for the successful development of STOPS applications, and on interpreting and applying the STOPS outputs to fulfill the travel data requirements for New/Small Starts projects and other transit planning studies. The document is available at the link below.

[Guidebook for Florida STOPS Applications](#)

For additional information about the Guidebook, the STOPS FAQ List and the slides from the 2016 Guidebook for Florida STOPS Application Workshop are available below:

- [STOPS FAQ List](#)
- [Guidebook for Florida STOPS Application Workshop](#)



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Posted by [Gabrielle Matthews](#)

[http://www.fsutmsonline.net/index.php?/site/comments/guidebook\\_for\\_florida\\_stops\\_applications/](http://www.fsutmsonline.net/index.php?/site/comments/guidebook_for_florida_stops_applications/)

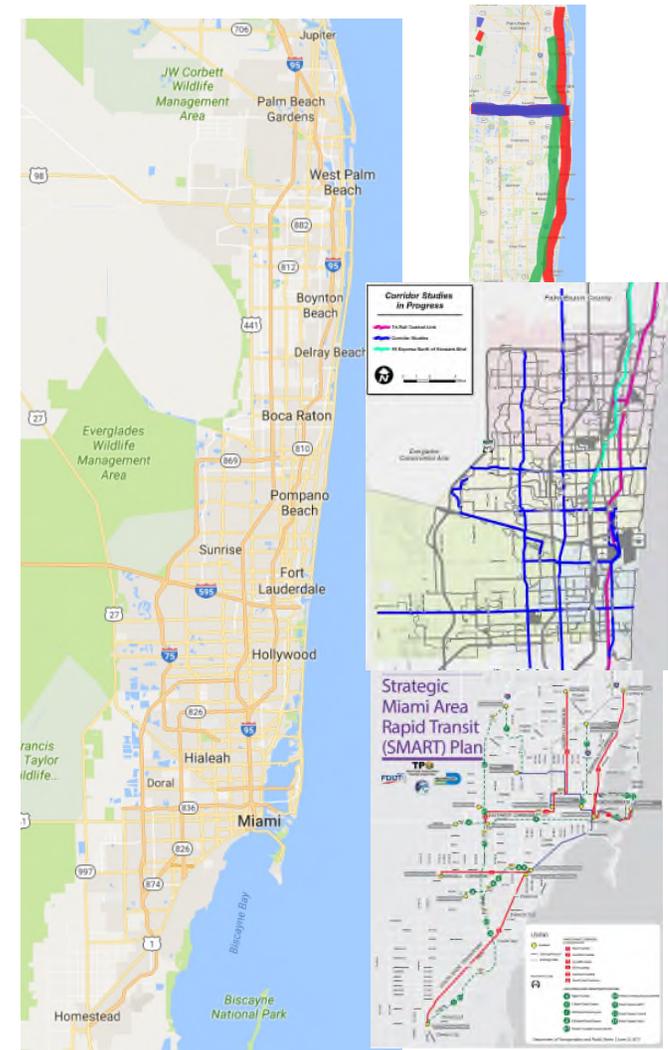


# STOPS Planning Model for Southeast Florida

# Southeast Florida



- Covers Palm Beach, Broward and Miami-Dade counties
  - ~6M people; expected to grow to ~7M by 2040
  - Four transit agencies operate fixed-route services: Palm Tran, BCT, MDT and SFRTA (500k+ daily boardings)
- Several transit corridor studies ongoing and planned in each of the three counties
  - Multi-modal solutions preferred due to physical constraints in expanding major roadways
  - Transit modes being evaluated range from BRT, Streetcar, Heavy rail and Commuter rail



# Motivations – Modeling Challenges



- A region recently transitioned from a trip-based model to an activity-based model
  - Trip-based model no longer being maintained by FDOT, except for studies that grand-fathered it
  - Last LRTP update used ABM (with 2010 base year)
  - Transit elements of ABM still undergoing enhancements
- → Lack of a common “ready-to-go” ridership estimation platform for the ongoing premium transit corridor studies
  - Options:
    - (a) 1.5 yr + ~\$500k to update ABM
    - (b) <0.5 yr + ~\$60k to assemble 3-county STOPS model
  - Given the constraints, FDOT chose to develop a ‘regional’(3-county) STOPS (Simplified Trips On Project Software) model to fill this gap



# Motivations – Why STOPS?



- Quicker turnaround for ridership forecasting and analysis
- Provide basis for FTA Capital Investment Grant applications (“New/Small Starts”)
- Most importantly, robustness shown by STOPS in providing reasonable forecasts for three prior transit studies in the region
- An independent tool to QA/QC forecasts from regional travel demand or data-driven models
- Typically developed on a project-by-project need

# Motivation – Why SEFL STOPS Model?



- Provide a common “ready to go” platform for upcoming transit corridor studies → avoids multiple studies recreating similar efforts in implementing STOPS
- Utilize a common set of reconciled data and assumptions for all corridors
- Fewer resources needed for corridor calibration / validation, compared to the regional travel demand model

South Florida Regional STOPS Model Settings

Initial STOPS Set-up Steps

Select GIS Engine: |Program Files (x86)|ArcGIS\Desktop10.3\bin\ArcMap.exe

Select Python Engine: |C:\Python27|ArcGIS10.3\pythonw.exe

Scenario Set-up Steps

Scenario Name: |Miami\_Base|

STOPS Control File Name: |MiamiBase.CTL|

Select Geographic Region: |Miami-Dade County|

Prepare Input Files

Before running an alternative in STOPS, please make sure that the GTFS, STOPSStations and Districts files are updated to reflect the operating plan of the alternative.

Open STOPS Menu

## Southeast Florida STOPS Planning Model – User Guide

Prepared for  
Florida Department of Transportation, District 4



Original Version: May 2016  
Minor Updates: July 2016  
Minor Updates: November, 2016

# Investments to Assemble STOPS



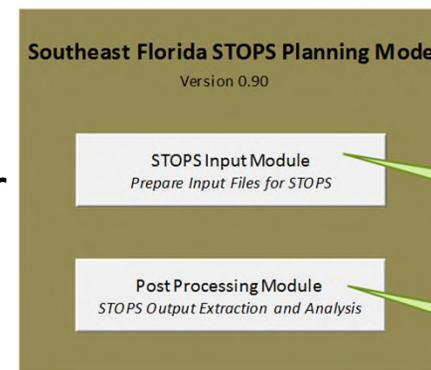
- Resources: ~\$60K and 4 months
- Key tasks
  - Interface development for automated input file assembly based on County(ies) selected for modeling
  - Data reconciliation (four agencies with different data types, formats and years)
  - Local calibration that reasonably represents travel on ‘major’ transit services in the region

# Excel-Based User Interface (1)



- Allows users to skip counties not important to their project
  - Saves ~2-3 hours in model run times
  - Avoids possible data gaps in counties that may not matter
- Automates the preparation of “some” input files for any corridor in the region
  - Shaves off ~2 weeks from study schedule
- Uses data already collected and reconciled as part of this effort
  - Shaves of ~1-2 months from study schedule

Name	Date modified	Type
Model Data		File folder
South_Florida_STOPS_Model_Interface_v0.90	6/1/2016 4:50 PM	Microsoft Excel Macro-En...
STOPSTablestoExtract	5/1/2016 4:16 PM	TXT File
STOPSTablestoPrint	4/1/2016 6:...	TXT File



Excel Macro file containing the user interface

Module 1: Prepare Input files

\*Runs VBA and Python routines\*

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Initial STOPS Set-up Steps

Select GIS Engine: \\Program Files (x86)\\ArcGIS\\Desktop10.3\\bin\\ArcMap.exe

Select Python Engine: C:\\Python27\\ArcGIS10.3\\pythonw.exe

Scenario Set-up Steps

Scenario Name: Miami\_Base

STOPS Control File Name: MiamiBase.CTL

Select Geographic Region: Miami-Dade County

Prepare Input Files

Before running an alternative in STOPS, please make sure that the GTFS, STOPSStations and Districts files are updated to reflect the operating plan of the alternative.

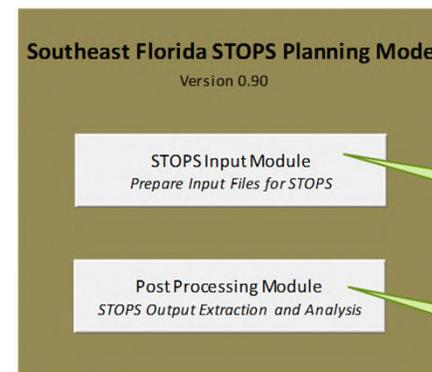
Open STOPS Menu

# Excel-Based User Interface (2)



- Extracts user specified table numbers from the STOPS output report file into Excel
  - Effective while performing multiple model iterations during calibration
- Prints extracted worksheets to PDF format in batch mode
  - Useful for reporting purposes

Name	Date modified	Type
Model Data		File folder
South_Florida_STOPS_Model_Interface_v0.90	6/1/2016 4:50 PM	Microsoft Excel Macro-En...
STOPStablestoExtract	5/31/2016 4:16 PM	TXT File
STOPStablestoPrint	4/1/2016 0...	TXT File



Excel Macro file containing the user interface

Module 2: Post Processing of STOPS results

*\*Runs VBA and Python routines\**

# Local Calibration (1)



- Calibration focused on
  - Detailed calibration of travel on major transit services: Tri-Rail, Metrorail and Metromover
  - ‘Regional’ calibration for bus modes
- Users responsible for performing detailed calibration for respective corridors
- Calibration challenges worth mentioning...

## Local Calibration (2)



- Access representation on Tri-Rail
  - Difficult to walk to most Tri-Rail stations
- Parking constraints on some Metrorail stations
  - Parking demand estimates unconstrained in STOPS
- Free Metromover service in downtown Miami
  - Fare not explicitly considered within STOPS
- Representation of transit travel currently better than the adopted travel demand model



## Favorable Reactions ...

“Has streamlined processes and reduced uncertainties”

“Implications on the efficiency (time and cost saving) of project development is very significant”

“Allowed stakeholders to make quick assessment of feasibility of projects”

“Helped in ‘pre-work’ to iron out project issues before a major study”

# Lessons Learned



- ‘Regional’ STOPS is a highly practical solution to region’s transit modeling needs
- Intra- and Inter-agency coordination on STOPS implementation will save significant local resources
- Suitable in situations where
  - A region is embarking on major model updates
  - Model development funding and schedule constraints
  - Alternative forecasts for QA/QC are needed
- Not presented here but few things to keep in mind...
  - Data reconciliation is often required and can be time consuming
    - GTFS stops vs. APC stops; NTD boardings vs. APC boardings
  - Regional calibration  $\neq$  Corridor-level calibration

# Acknowledgments



- Special Thanks to:
  - Shi-Chiang Li, Hui Zhao and Scott Seeburger (FDOT District 4)
  - Hongbo Chi (AECOM)
  - Sujith Rapolu and David Schmitt (CTG)