Model Task Force Priorities Survey

presented to
## Model Task Force Meeting

presented by
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Florida DOT District 7

November 9, 2009
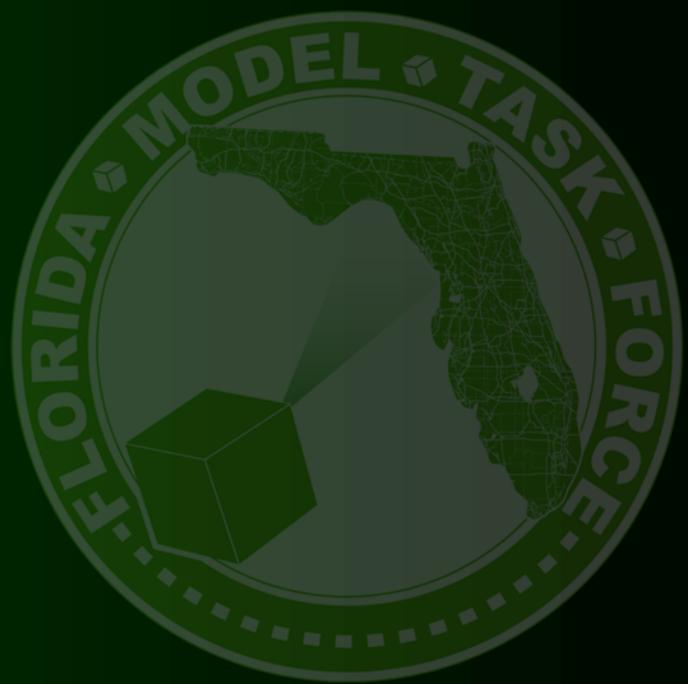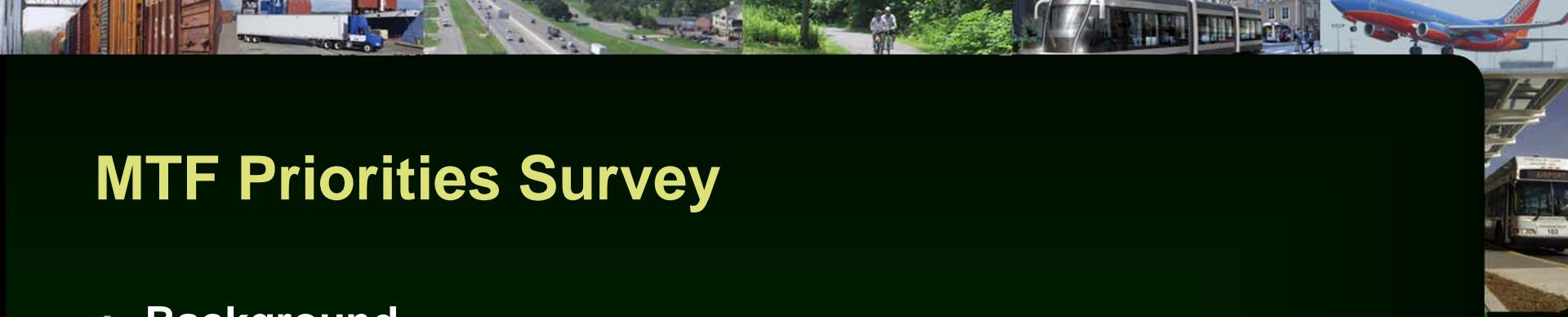
MTF Priorities Survey

- **Background**

- **Background Outcomes**

- **Purpose of the survey**

- **Implementation**

- **Questionnaire Design**

- **Respondent Characteristics**

- **Results**

- **Survey Summary**

Background

- **MTF Tri-Chairs met in September 2008**

- **Tri-chairs' consensus: MTF efforts to improve modeling practices should focus on:**
  - **Transit New Starts projects**
  - **LRTP updates**
  - **Growth management issues**

- **MTF leadership met again in December 2008 to prioritize MTF needs**
  - **Each of the committees summarized the meetings they held in October and November of 2008 to discuss their priorities**
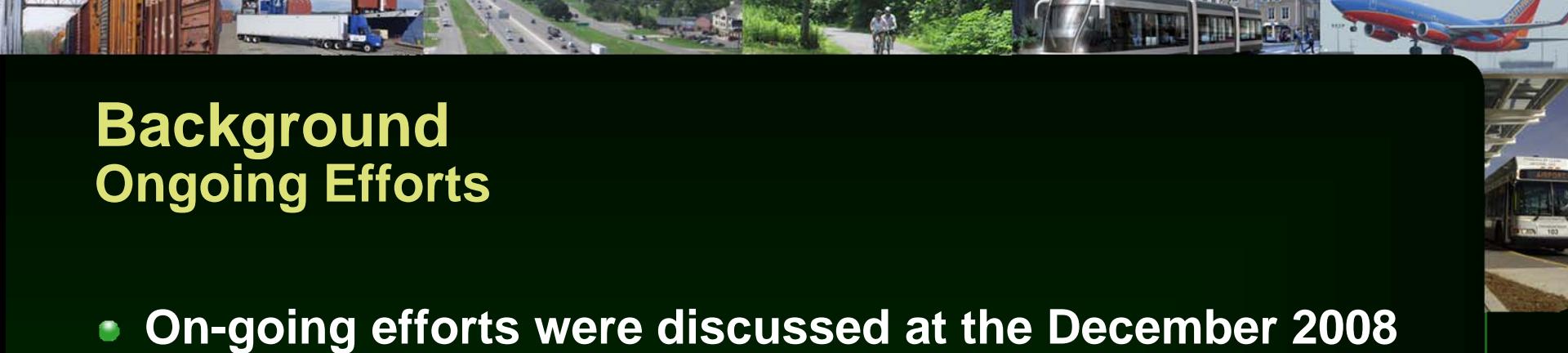
Background
Ongoing Efforts

- **On-going efforts were discussed at the December 2008 meeting**

  - **Activity Based Modeling (ABM)**
    - **ABM in development in Tampa**
    - **FDOT reviewed AB models from around the country**
    - **FDOT ongoing research on population synthesizers available around the country**

  - **NHTS**
    - **Data expected in October 2009**
    - **MPOs and FDOT districts to decide on transferability of NHTS data depending on age of surveys, sample size and area size**

  - **Transportation Networks**
    - **Models are transitioning to GIS networks for more accurate representation**

Background
Model Advancement Committee Priorities

- **AB model review**

- **Tampa Bay ABM as large sized model test case for FL**

- **Maintain valid 4-step model in parallel to development of an ABM**
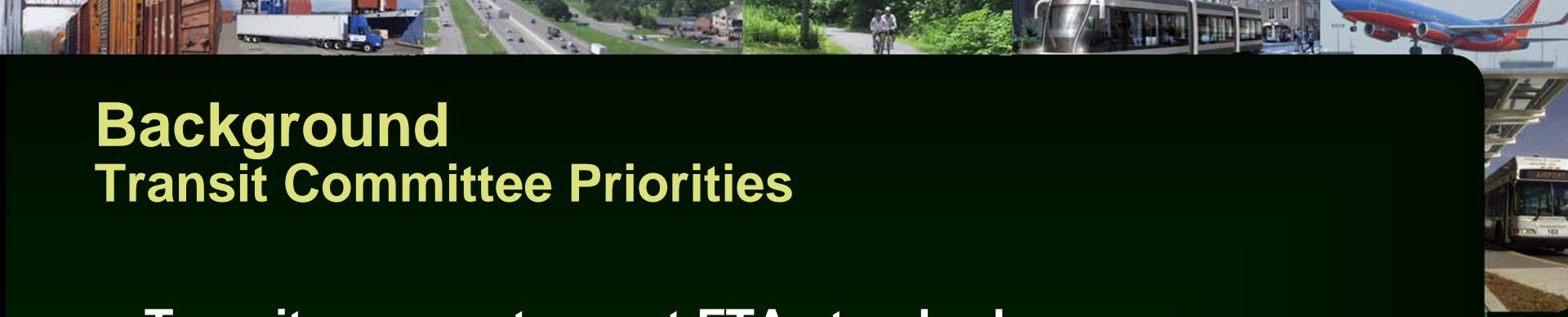
Background
Transit Committee Priorities

- **Transit surveys to meet FTA standards**

- **Time of day models necessary for improving transit modeling**

- **Geocoding, survey methodology, and minimizing expansion error are key issues**

- **Include Time of day component to standard FSUTMS package**
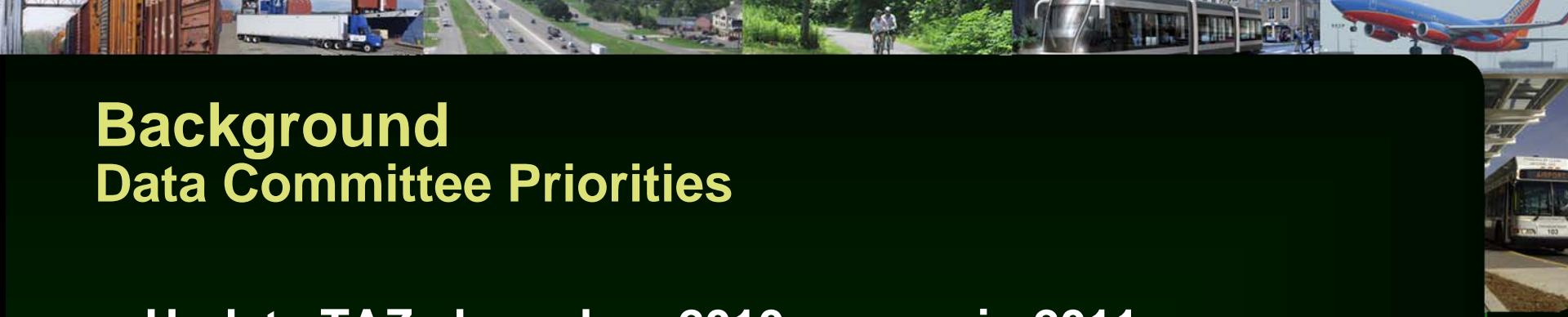
Background
Data Committee Priorities

- **Update TAZs based on 2010 census in 2011**

- **Quarterly Census of Employment and Wages (QCEW) data for employment**

- **How to use NHTS data for LRTP updates**

Background
GIS Committee Priorities

- **Standardize geodatabase**

- **Model visualization tools**

- **LOS Calculator and network comparison tools**

- **GIS One Map concept**

Background
MPO, State and Federal Activities

- Since 2002, projected shortfall between needs and revenues almost doubled

- MPOAC method to handle year-of-expenditure dollars in five year increments

- MPOAC revisiting climate change and air quality modeling as a result of new ozone nonattainment designation
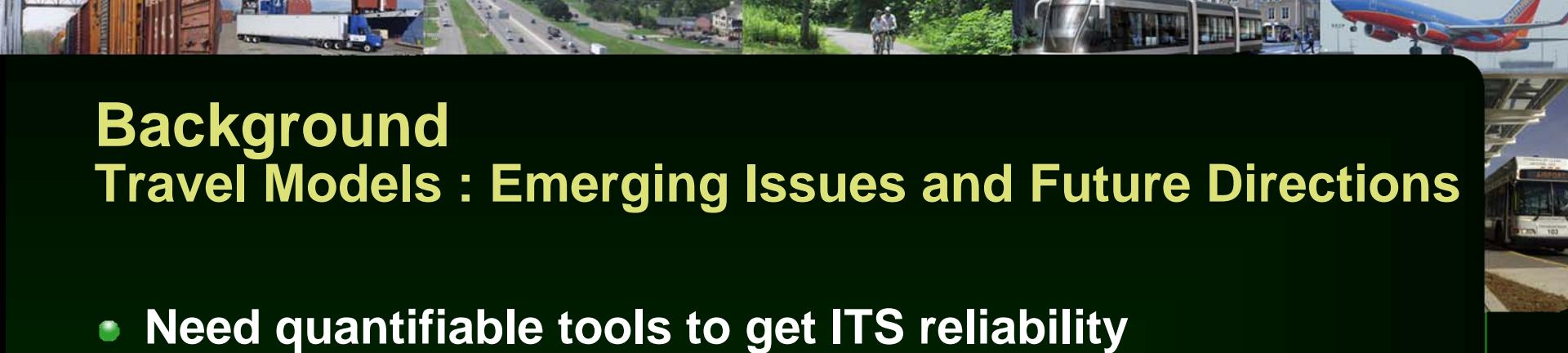
Background
Travel Models : Emerging Issues and Future Directions

- **Need quantifiable tools to get ITS reliability**

- **ABM requires dynamic data**

- **Value demonstration of new technologies such as ABM and Dynamic Traffic Assignment (DTA) need to take place**

- **Dynamic network models to better represent congestion**

- **DTA Deployment issues**
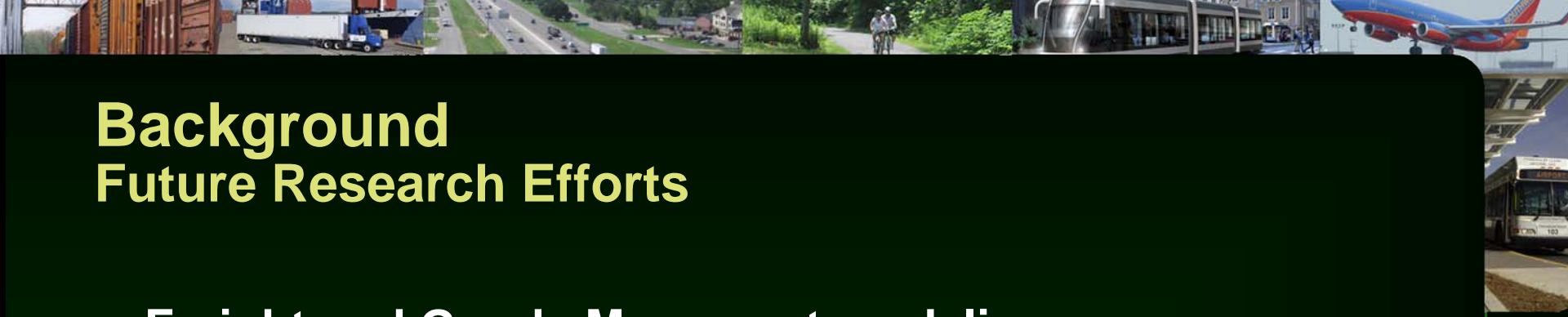
Background
Future Research Efforts

- **Freight and Goods Movement modeling**
  - Lack of true understanding of freight and commercial vehicles

- **Sensitivity to Land Use**
  - Impacts of changing land use on the modeling process
  - Need to integrate land use and transportation to account for the impacts of one on the other

- **Integration of traffic simulation modeling with travel demand modeling**
  - Modelers get asked about operational impacts of geometry changes
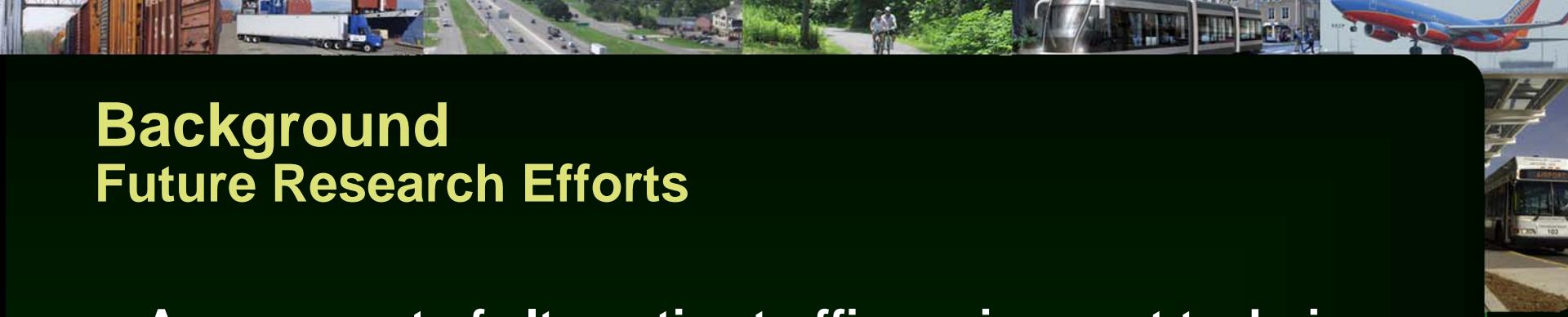
Background
Future Research Efforts

- **Assessment of alternative traffic assignment techniques**

- **Model run time issues and how to address them**
  - **Who are model users**

- **Improvements to PCWalk Tool**

- **Support MPOAC and develop quantifiable performance measures for project selection in LRTP**
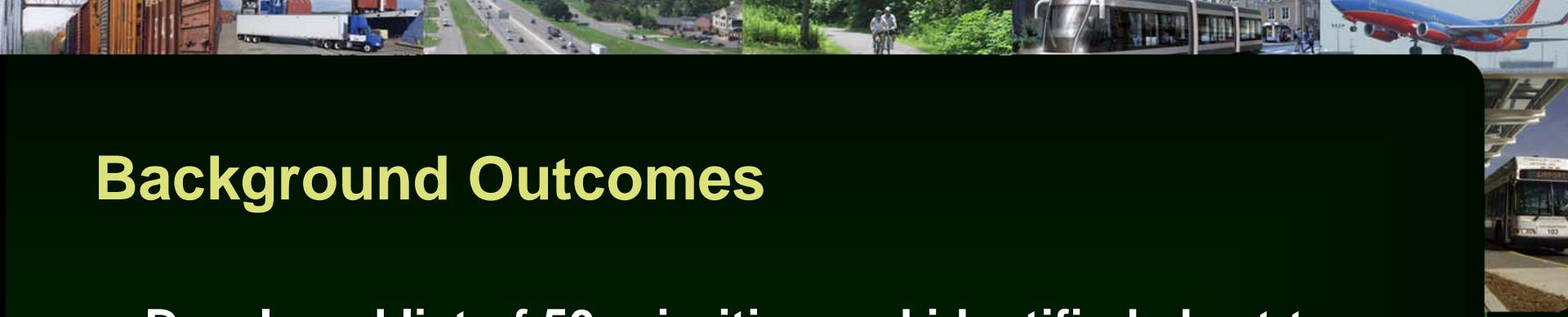
Background Outcomes

- **Developed list of 50 priorities and identified short-term and long-term priorities**

- **Selected 11 short-term priorities**

- **Conducted MTF membership (voting and non-voting) survey to determine highest short-term priorities for resource allocation**

Survey Purpose

- **Increased mandates from stakeholders**

- **Need to meet increasing demands with limited resources**

- **Take advantage of theoretical and practical advances in travel demand modeling**
  - **How to fit these advances into FSUTMS framework in the short and long term**

- **Gauge public opinion on resource allocation among the 11 short term priorities developed by the MTF leadership**
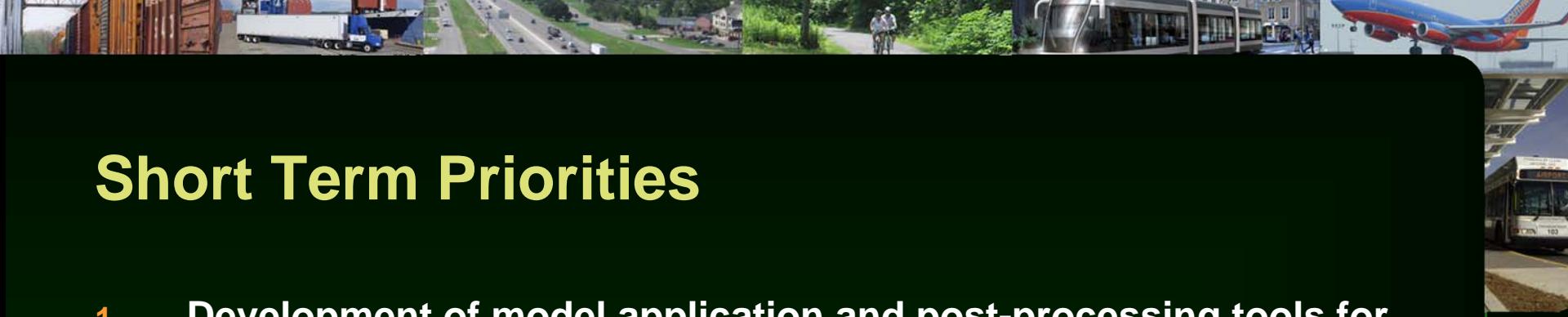
Short Term Priorities

1. Development of model application and post-processing tools for **Air Quality and ITS** evaluation in the FSUTMS framework

2. Incorporating **freight and goods movement** capabilities in urban/regional models and information exchange with the statewide freight model

3. **Land use** and transportation model integration

4. Review and post process **National Household Travel Survey** (NHTS) data for use in the next LRTP update cycle and Activity based models (ABMs)

5. Research and potential integration of **Dynamic Traffic Assignment** (DTA) into the FSUTMS framework
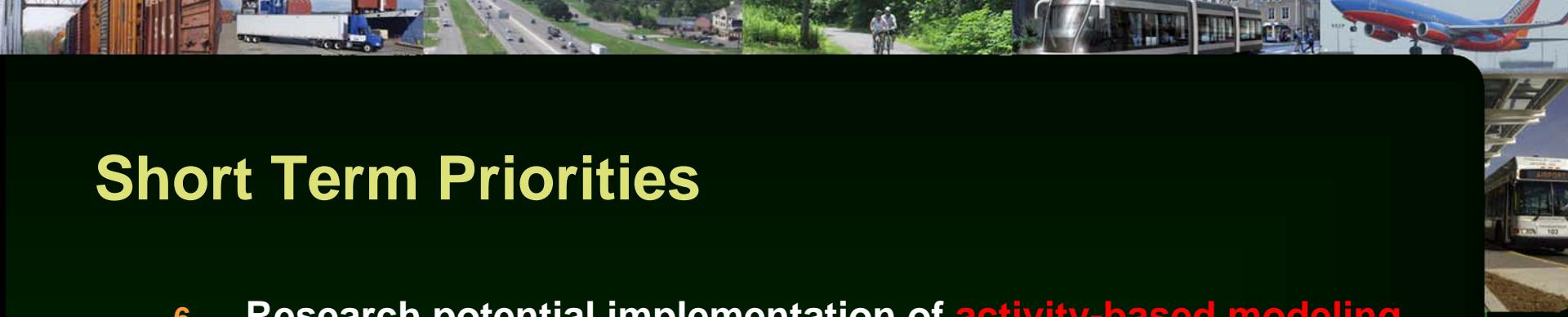
Short Term Priorities

6. Research potential implementation of **activity-based modeling** into the FSUTMS framework

7. **Speed data collection** beyond the traditional data collection done by the statistics office (e.g., incorporating cell phone tower data, etc.)

8. Incorporate **time-of-day modeling** into the FSUTMS framework

9. Develop standards for **transit data collection** (surveys and counts) to meet FTA **New Starts** requirements

10. **Transportation networks** (establish new standards based on new Cube **GIS** geodatabase framework, etc.)

11. **Advanced toll modeling** addressing congestion pricing and HOT-lane issues
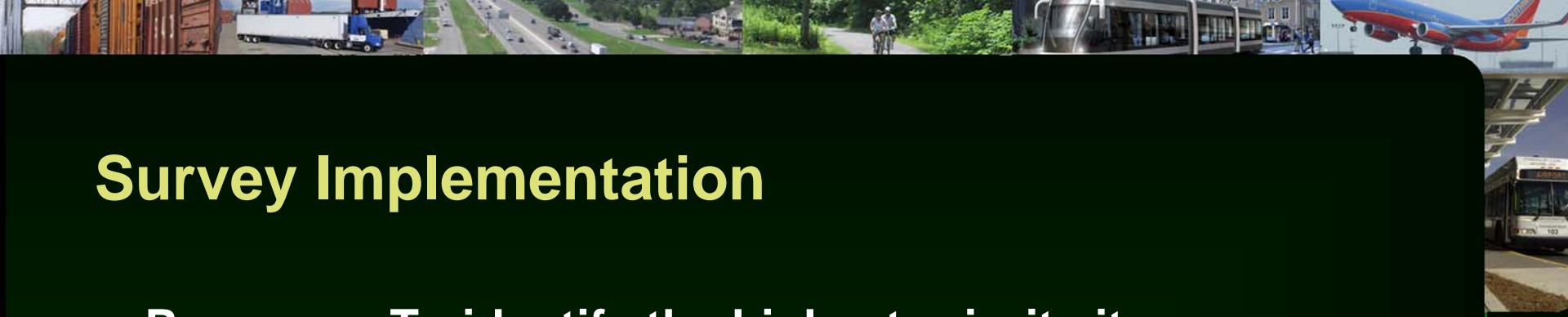
Survey Implementation

- **Purpose – To identify the highest priority items**

- **Survey of Florida modeling community**

- **Online implementation**
  - **Inexpensive and widespread**
  - **No post processing**

Questionnaire Design

- **Guiding principle- Keep it simple**

- **Type of Employer**

- **Respondents rate each priority with only one rank**

- **Respondents also asked to expand on top three priorities**

Respondent Characteristics

- **Online Survey conducted – May 2009**

- **45 complete responses**

- **17 respondents from Public sector**
  - **Five are Florida DOT employees**
  - **10 were MPO employees**
  - **2 were transit agency employees**

- **27 respondents from private sector**

- **One respondent from academia**

Survey Summary

Priority	N	Mean	Median
Incorporate time-of-day modeling into the FSUTMS framework	45	4.13	3
Land use and transportation model integration	45	4.93	4
Advanced toll modeling addressing congestion pricing and HOT-lane issues	45	5.13	4
Review and post process National Household Travel Survey (NHTS) data for use in the next LRTP update cycle and Activity based models (ABMs)	45	5.33	5
Develop standards for transit data collection (surveys and counts) to meet FTA New Starts requirements	45	5.91	6
Transportation networks (establish new standards based on new Cube GIS geodatabase framework, etc.)	45	5.91	6
Development of model application and post-processing tools for Air Quality and ITS evaluation in the FSUTMS framework	45	6.02	6
Incorporate freight and goods movement capabilities in urban/regional models and information exchange with the statewide freight model	45	6.22	6
Research potential integration of Dynamic Traffic Assignment (DTA) into the FSUTMS framework	45	6.84	7
Research potential implementation of activity-based modeling into the FSUTMS framework	45	6.91	8
Speed data collection beyond the traditional data collection done by the statistics office (e.g., incorporating cell phone tower data, etc.)	45	7.13	7
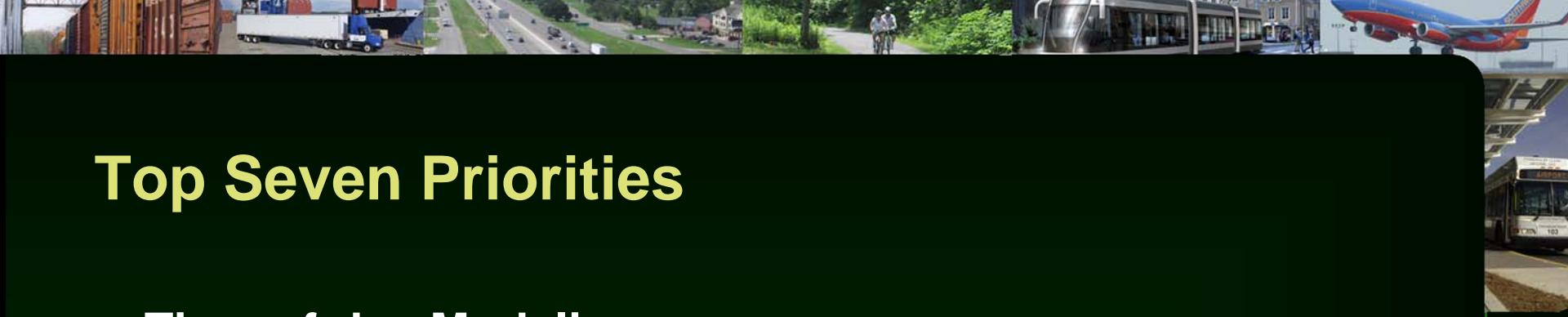
Top Seven Priorities

- **Time-of-day Modeling**

- **Land Use Integration with Transportation Models**

- **Advanced Toll Modeling**

- **NHTS Data Processing and Analysis**

- **Transit Data Collection (Federal New Starts funding)**

- **Transportation Network Standards (GIS)**

- **Post-processing Tools such as Air Quality and ITS**

Florida DOT Plans

- **FDOT Central Office will develop new scopes of work for the following three tasks:**

  - Land use and transportation model integration

  - Time-of-day modeling

  - Advanced toll modeling procedures

- **Work in progress**

  - NHTS data processing

  - Air Quality Post Processor

  - FSUTMS GIS Network standards

- **Help establish statewide guidance for local regions on how to develop and implement on-board transit surveys**