

# Preliminary Discussion on Data-Driven Methods

presented to  
MTF Transit Committee

presented by  
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## Definition



- Data driven means that progress in an activity is compelled by data, rather than by intuition or personal experience  
(*en.wikipedia.org/wiki/Data\_driven*)
- In transit, data-driven models are compelled by travel data rather than models
  - Example: on-board surveys for synthesized O/D patterns and corridor route planning
  - Relatively simple, robust approach
  - Transferable using consistently available data



## Definition



- Straightforward calculations/representation of relatively simple and predictable project situations
- Some advantages
  - Straightforward; minimal “moving parts”
  - Reduced development costs
  - Reliable insights
  - Encouraged by FTA where appropriate
- Some disadvantages
  - Generally focused on specific corridors (not regional)
  - May not be able to evaluate wide range of alternatives and markets



## Types of Data-Driven Models



- “Standardized”
  - TBEST
  - ARRF
  - STOPS
- “Customized”
  - Broward County
  - US 192



## "Standardized" Models: TBEST



- Transit Boardings Estimation and Simulation Tool
  - Transit boarding estimation tool for fixed-route bus routes at the stop-level
  - Owned and developed by FDOT Public Transit Office (PTO)
  - Commonly used for TDPs and short-term service planning
  - Direct-demand model: demand directly determined from supply characteristics (population, transit service, etc.)
- Key variables: transit service characteristics, demographic data
- Project attributes best suited for using TBEST
  - Small-scale, low-cost transit service impacts
  - Site- or bus-stop-specific impacts
  - Local bus service
  - Transportation development plan



## "Standardized" Models: ARRF



- Aggregate Rail Ridership Forecasting model
- Estimates boardings on rail projects
- Developed by Federal Transit Administration to supplement conventional forecasting models
  - Insights into reasonableness of forecasts
  - Understanding of potential markets
  - Targets for travel model calibration in starter-lines
  - Basis for QC comparison in system-expansion lines
- Key variables: CTPP 2000 journey-to-work trip flows, transit service characteristics
- Project attributes best suited for using ARRF
  - Rail systems planning or feasibility study
  - New Starts project



## "Standardized" Models: STOPS



- Simplified Trips on Project System
- Estimates boardings on transit projects
- Currently under development by FTA
- Key variables: CTPP 2000 journey-to-work trip flows, transit service characteristics (Google Transit Feeds from existing service), auto skims



## "Customized" Models: Broward County



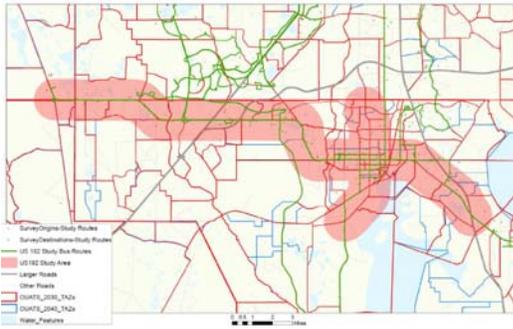
- Three main ingredients
  - Route-specific transit data,
  - Auto skims, and
  - Auto/transit networks from regional travel model
- Incremental logit mode choice model (pivot-point)
  - Auto and all transit travel modes
  - Peak and off-peak time periods
  - HBW, HBO and NHB trip purposes
  - Zero-car households and households with car
- On-Board Data ~\$150,000
- Development time/cost: 1 month and ~\$30,000 (for BCT's highest-ridership route; ~25 miles in length)
- 15% of regional model running time (6x faster)



## "Customized" Models: US 192



- Three main ingredients
  - LYNX systemwide O/D survey
  - Highway networks, and
  - Google Transit network files
- Incremental logit mode choice model (pivot-point)
- 2010 and 2030 analysis years
- Non-model estimates for new markets (e.g., SunRail, tourist)



## For Discussion



- Should the Transit Committee make recommendations or provide guidance to the full MTF or FDOT Central Office regarding data-driven methods?
- What recommendations or guidance should the Transit Committee provide?
  - *Research*
  - *R&D*
  - *Guidance in considering study needs and methodology selection*
  - *Compendium for state application*
  - *Method recommendations by context*

