FTA Perspectives on Transit Ridership Forecasting

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Uses for Ridership Forecasts

- FTA Capital Investment Grant (CIG) Program
  - New Starts, Small Starts, and Core Capacity
  - Three approaches for ridership forecasting
  - Five aspects of an FTA review
- Transit operations analysis
- Multi-modal metropolitan planning

Ridership Forecasting Approaches

- Region-wide travel model
  - Does not need to be the "official" MPO model
- Incremental data-driven methods
  - Start with observed zone-to-zone transit trips
  - Estimate changes in trips for each zone pair due to changes in service
  - Assign the updated trips to the new service
- STOPS (Simplified Trips-on-Project Software)

STOPS

- See FTA web site for info (and software):
  - Transit pathfinding, mode choice and assignment
- Major inputs:
  - Census journey-to-work flows
  - GTFS (General Transit Feed Specification) files
    - No-build and Build
    - Identify park-ride and kiss-ride transit stops
  - Zone-to-zone auto travel times (and distances)

Five Aspects of an FTA Review

1. The properties of the forecasting method
   - Documentation of the model methodology
     - Not needed for a STOPS-based submission
     - Not a huge "just for FTA" document
       - Focus on differences from a typical application
   - In advance of the forecast submission

Five Aspects of an FTA Review

2. The adequacy of current ridership data to support useful tests of the methods
   – What transit rider survey data exists?
     • Not needed for a STOPS-based submission
   – How was the survey sample expanded?
   – Does it reasonably represent the real-world?

Five Aspects of an FTA Review

3. The successful testing of the methods to demonstrate their grasp of current ridership

   – Documentation of model testing

     • District-to-district checks of transit trip flows
     • Include tests of changes in model inputs
       – Ideally include predicted-to-actual comparisons
     • Include checks of auto travel times

Five Aspects of an FTA Review

4. The reasonableness of inputs (demographics, service changes) used in the forecasts

   – Documentation of project-specific inputs

   – The "current year" demographics and networks

   – The optional horizon year

     • Predicted changes from the "current year"

Five Aspects of an FTA Review

5. The plausibility of the forecasts for the proposed project

   – Travel Forecast Results Report

   • Required tabulations (most are district-to-district)

   • Narrative describing the key characteristics of the forecasts

   • If the model results don't make sense, that's a problem!

Transit Operations Analysis

- A "right-sized" tool/approach
  - Perhaps not based on the regional model
  - Maybe GTFS-based and near-term
    - Observed origin-destination transit trips
      - Who is better/worse off due to a possible service change
    - Accessibility analysis
      - XX jobs/services/residents reachable in YY minutes
      - A similar better/worse approach

Multi-Modal Metropolitan Planning

- One "super model" for all purposes?
  - Murray Gell-Mann, Nobel Prize winner:
    - "Imagine how difficult physics would be if electrons could think"
  - Lolly Daskal, motivational speaker:
    - "When you stop chasing the wrong things you give the right things a chance to catch you"
- Regular checks of short-range predictive accuracy of <u>any</u> model

Multi-Modal Metropolitan Planning

- What information do decision-makers need, and what can <u>really</u> be done
  - Not too simple and not overly complex
  - Short-range versus long-range needs
  - Perhaps multiple forecasting applications
    - To help understand the uncertainties in <u>any</u> forecast
    - Compare a STOPS-based forecast to the regional model-based forecast
    - Or compare to an elasticity-based approach