



ST3 Expert Review Panel

July 13, 2015

Ridership Forecasting Methods

ST SOUNDTRANSIT

Overview

- Introduction
- Methods
 - Base year development
 - Incremental stages
 - Relationship to other models and estimates
- Assessment of Existing Travel
 - Trip distribution
 - Transit mode share
 - Travel time comparisons

Introduction

- Incremental methods (versus synthetic)
- Early development
- Benefits on incremental methods
 - Begins with observed travel data rather than travel theory
 - Reduces the need for calibration and eliminates “error factors”
 - Simpler and more efficient
 - Allows focus on effects of transit network changes
- Uses and Applications
 - System Planning
 - Major Investment Projects
 - Operations, fleet and financial planning

Introduction (continued)

- **Prior Reviews**
 - Expert Review Panels
 - Sound Move
 - ST2
 - Federal Transit Administration
 - Initial Segment New Starts Grant
 - University Link Extension New Starts Grant
 - Lynnwood Link Extension New Starts Grant (ongoing)

Methods – Base Year Development

- PM Peak and Off-Peak
- Observed data
 - Transit counts (2014)
 - Travel surveys (2003 to 2014)
 - Transit network and service levels (2014)
- Trip Matrix development
 - Seed matrix
 - Matrix adjustment
- Validation to 2014 base year
 - Passenger volumes – about 1,800 locations
 - Boardings by line – about 290 transit lines
 - Boardings by operator
 - Passenger miles by operator

Methods – Incremental Stages

- Stage 1 – changes in households and employment
 - PSRC - Land Use Targets
- Stage 2 – changes in congestion and travel costs
 - Highway congestion
 - Tolls on limited access highways
 - Parking fees in employment districts
- Stage 3 – changes in the transit network
 - New or revised transit lines
 - Service levels
 - Access to transit lines and stations
 - Transit fares

Methods – Incremental Stages (continued)

- Transit network assignment
- Outputs
 - Current year ridership (2014) on future year transit network
 - Future year ridership on future year transit network (range)
 - Line boardings
 - Project Riders
 - Station boardings
 - Mode of access at stations (walk, auto, transit transfer)
 - Passenger volumes by segment

Methods – Relationship to Other Models and Estimates

- PSRC population and employment
 - Land Use Targets (April 2014)
 - Land Use Vision (soon to be released)
 - Used in Stage 1
- PSRC regional travel model
 - Same coefficients for costs and value of time
 - Provides inputs for changes in highway congestion and costs

Assessment of Existing Travel

- Trip distribution of major employment locations
 - Downtown Seattle – regionally distributed
 - Lynnwood, Paine Field – somewhat regionally distributed
 - Downtown Bellevue, Redmond/Overlake – distributed throughout the eastside with some cross-lake travel
 - Others – more locally distributed
- Transit mode share for commutes
 - Home to Downtown Seattle – up to 51%
 - Home to North King County – up to 36%
 - Home to East King County
 - From Downtown Seattle – 32%
 - From other areas – 4% to 14%
 - Home to other work locations – range from 1% to 6%

Assessment of Existing Travel (continued)

- Travel times
 - Auto – 80th percentile
 - Transit - estimated

The image features a dark grey horizontal banner across the center. On the left side of the banner is the Sound Transit logo, which consists of a white square containing a stylized 'S' and 'T' symbol. To the right of the logo, the words 'SOUNDTRANSIT' are written in a bold, white, sans-serif font. Below 'SOUNDTRANSIT', the slogan 'RIDE THE WAVE' is written in a smaller, white, sans-serif font. The background of the entire image is a close-up of a transit vehicle with a white upper section and a blue lower section, separated by a wavy teal and blue graphic. The word 'SOUNDBUS' is partially visible in large white letters on the blue section.

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RIDE THE WAVE