



Traffic and Revenue Forecasting Overview

Eugene Ryan, PE
Regional Manager, Wilbur Smith Associates

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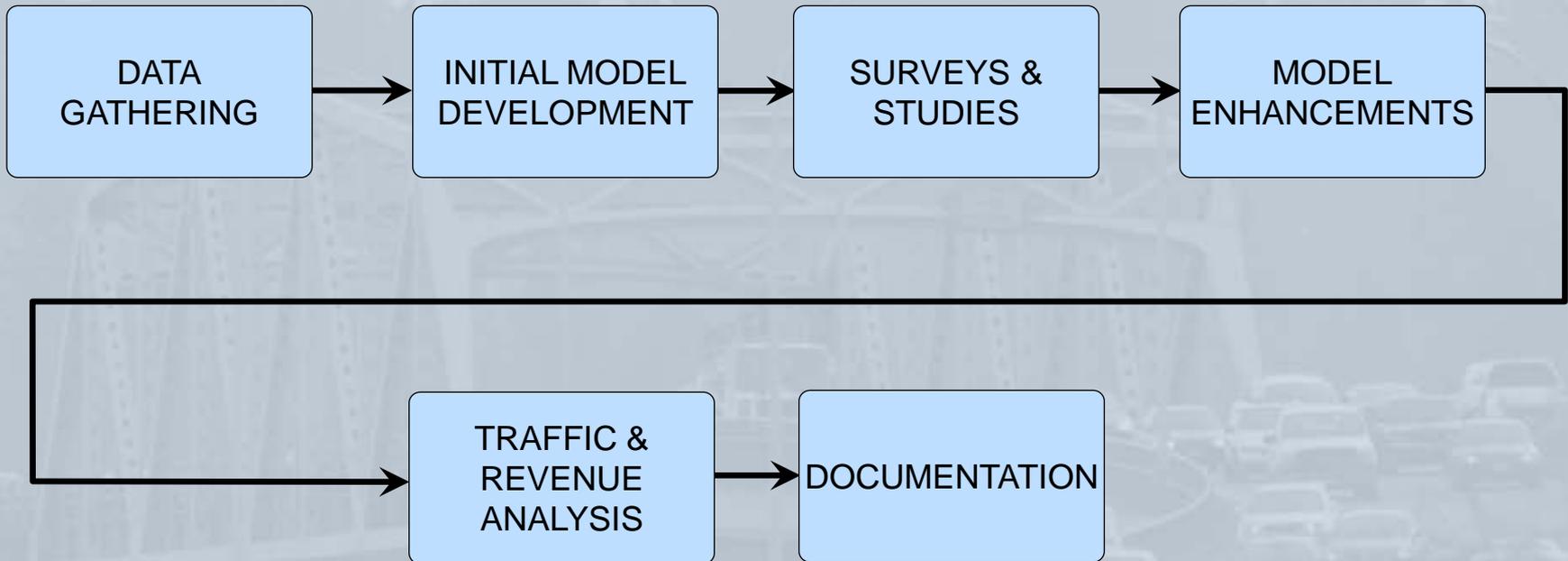
Context in SR 520 Project Planning

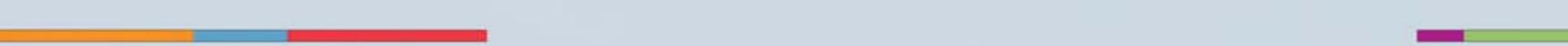
- EIS is designed to:
 - Study project alternatives and impacts
 - Facilitate stakeholder and public input
 - Select best project within desires and constraints
 - Modeling analyzes project size versus demand including resulting operations

- Tolling Implementation Committee Study designed to:
 - Review a series of toll rate scenarios
 - Consider SR520 and/or I-90 tolling
 - Included main span tolling, segment tolling, and “pre-tolling” options
 - Selection of scenario (TIC 7) to move forward for further study

- Investment Grade Study designed to:
 - Forecast traffic and toll revenue at a detail level sufficient to support bonding
 - Currently only considers a single point toll on the main span with pre-tolling
 - Current results include the addition of the Eastside Transit and HOV project to the Floating Span and Landings project

Overall Study Methodology





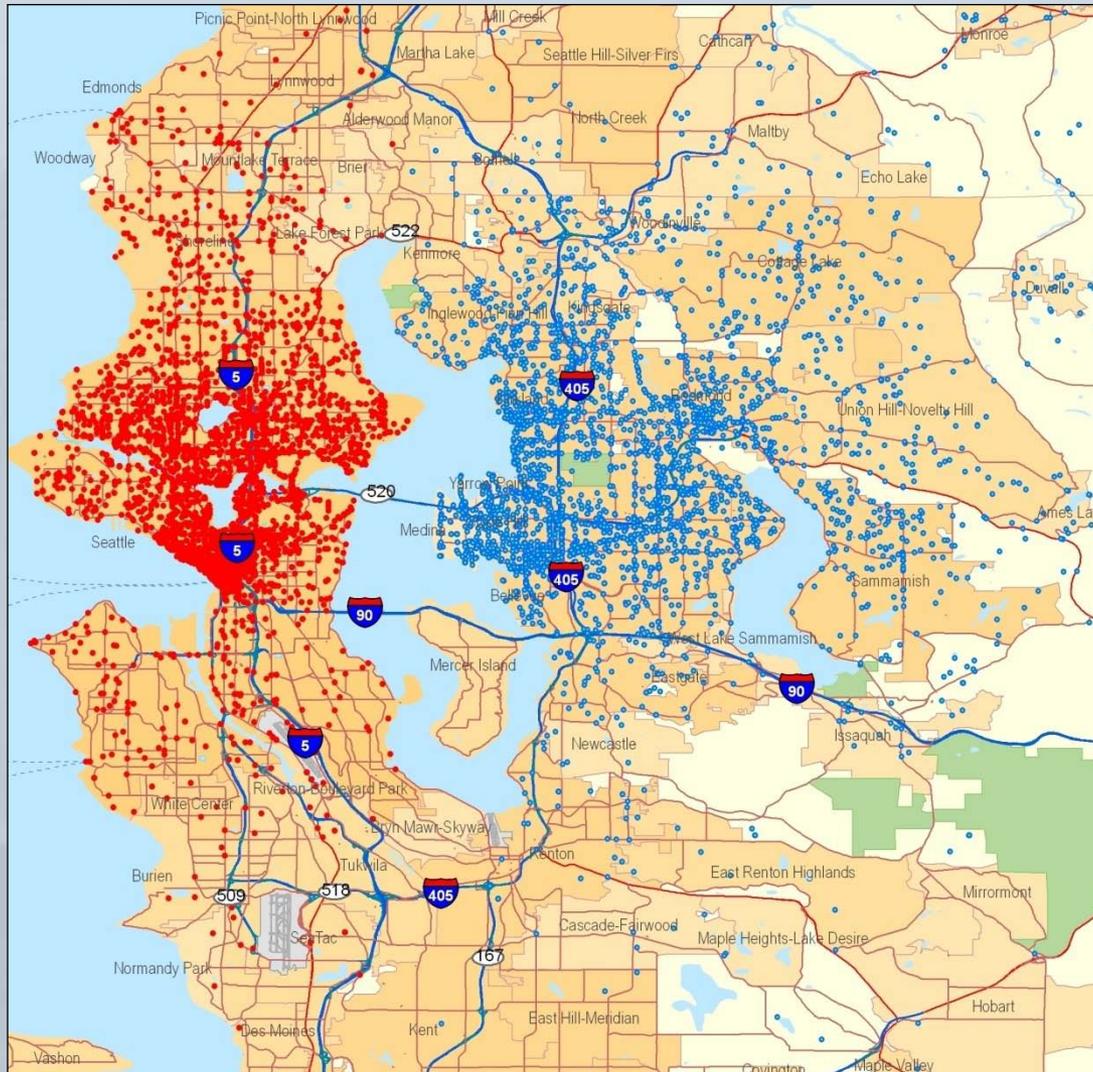
Surveys & Studies

- Travel Patterns Survey
- Stated Preference Survey
- Economic Growth Analysis
- Travel Time and Speed Surveys

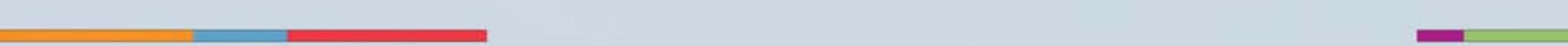
Travel Patterns Survey

- Survey card mailed to 43,000 SR520 Bridge users
- 6,500 responses
 - Time of trip (am, midday, pm, evening)
 - Origin & destination address
 - Trip purpose
 - Trip frequency
 - Vehicle occupancy
 - Entry/exit ramps on SR 520 corridor

Origins & Destinations



- Origin
- Destination



Stated Preference Survey

- On-line computer assisted survey
- Participants a sub-set of Travel Pattern Survey respondents
- The survey employed statistical sampling such that the results would represent an appropriate cross-section of bridge users
- 1,958 completed surveys

Survey Sample Screen (Stated Preference)



Below are 5 different travel options for your one-way weekday trip with no passengers. These options include information on travel time, travel cost, time of day and the number of passengers in your vehicle.

If these options were the only options available for your one-way trip, which would you choose? Select an option by clicking a button below.

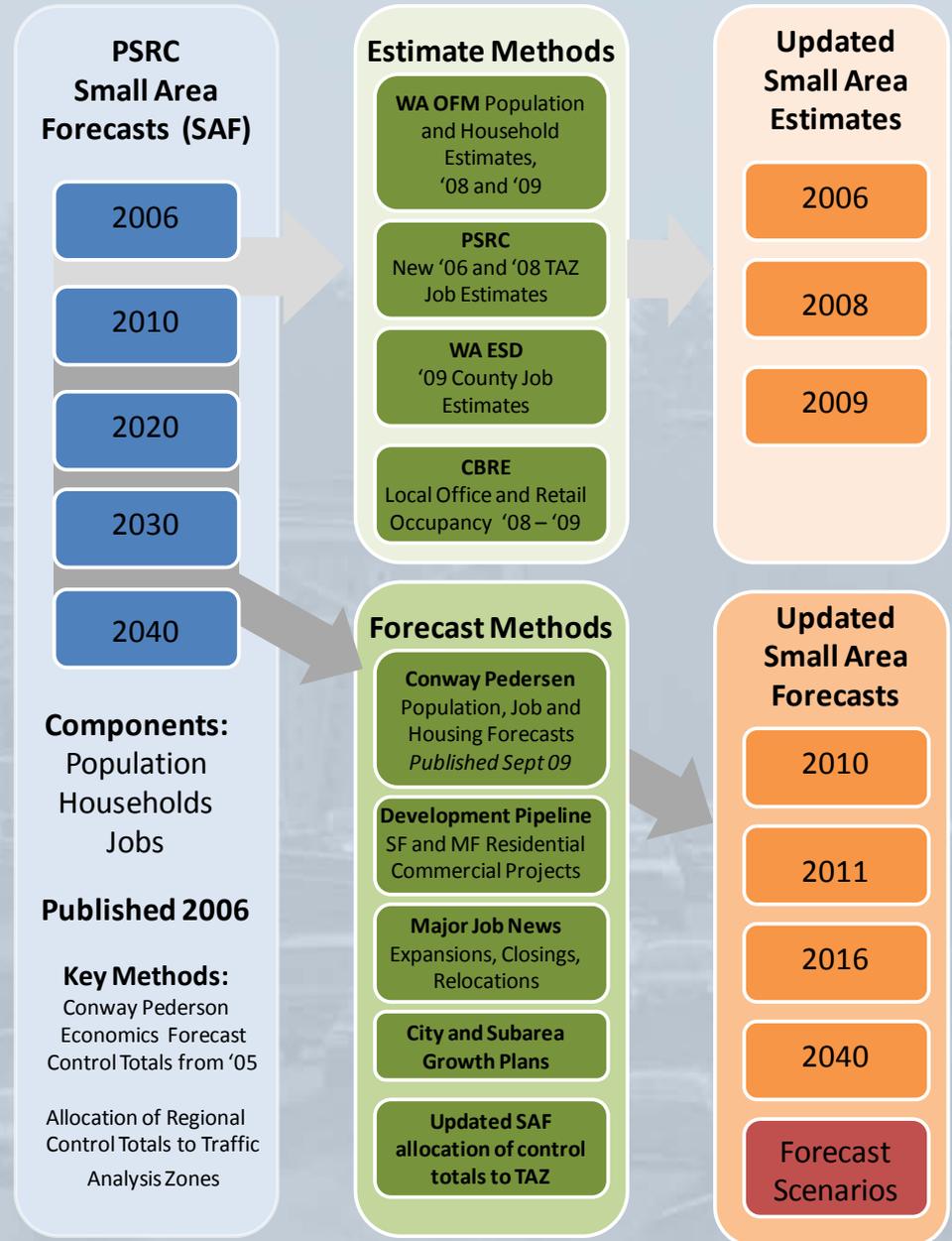
<input type="radio"/> Drive on SR 520 during the peak	<input type="radio"/> Drive on SR 520 <u>before</u> or <u>after</u> the peak	<input type="radio"/> Drive on SR 520 with 2 additional passengers	<input type="radio"/> Drive on your next best route: SR 522	<input type="radio"/> Use express bus service on SR 520
Travel between 6:00 AM and 9:00 AM	Travel either <u>before</u> 6:00 AM or <u>after</u> 9:00 AM	Travel between 6:00 AM and 9:00 AM	Travel between 6:00 AM and 9:00 AM	Travel between 6:00 AM and 9:00 AM
Travel time: 32 mins.	Travel time: 28 mins.	Travel time: 40 mins.	Travel time: 52 mins.	Travel time: 40 mins.
Toll cost: \$3.00	Toll cost: \$2.70	Toll free	Toll free	Fare: \$3.00

(Question 1 of 8)

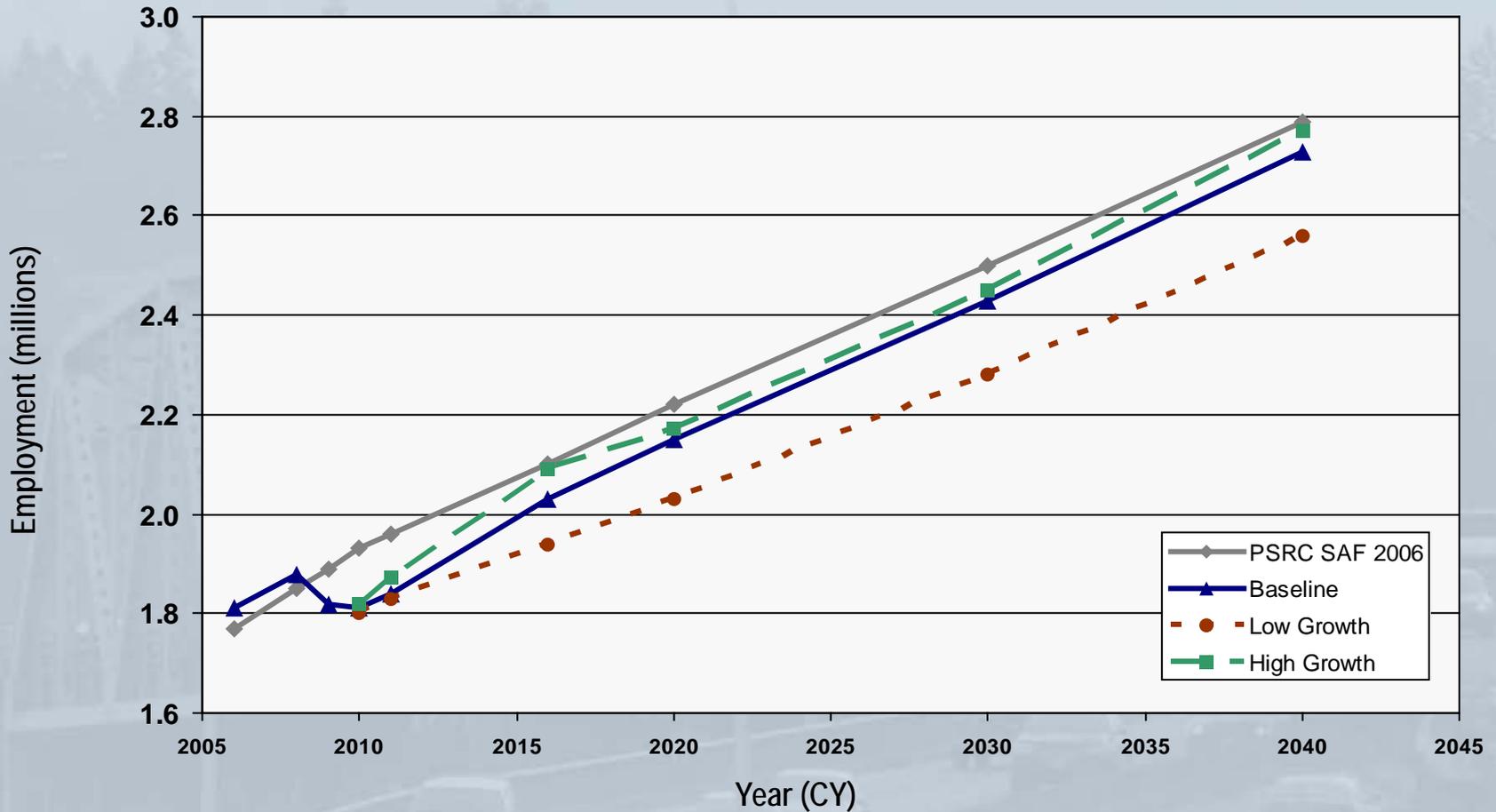
Next Question

Economic Growth Analysis

Population and Employment Estimates and Forecasts



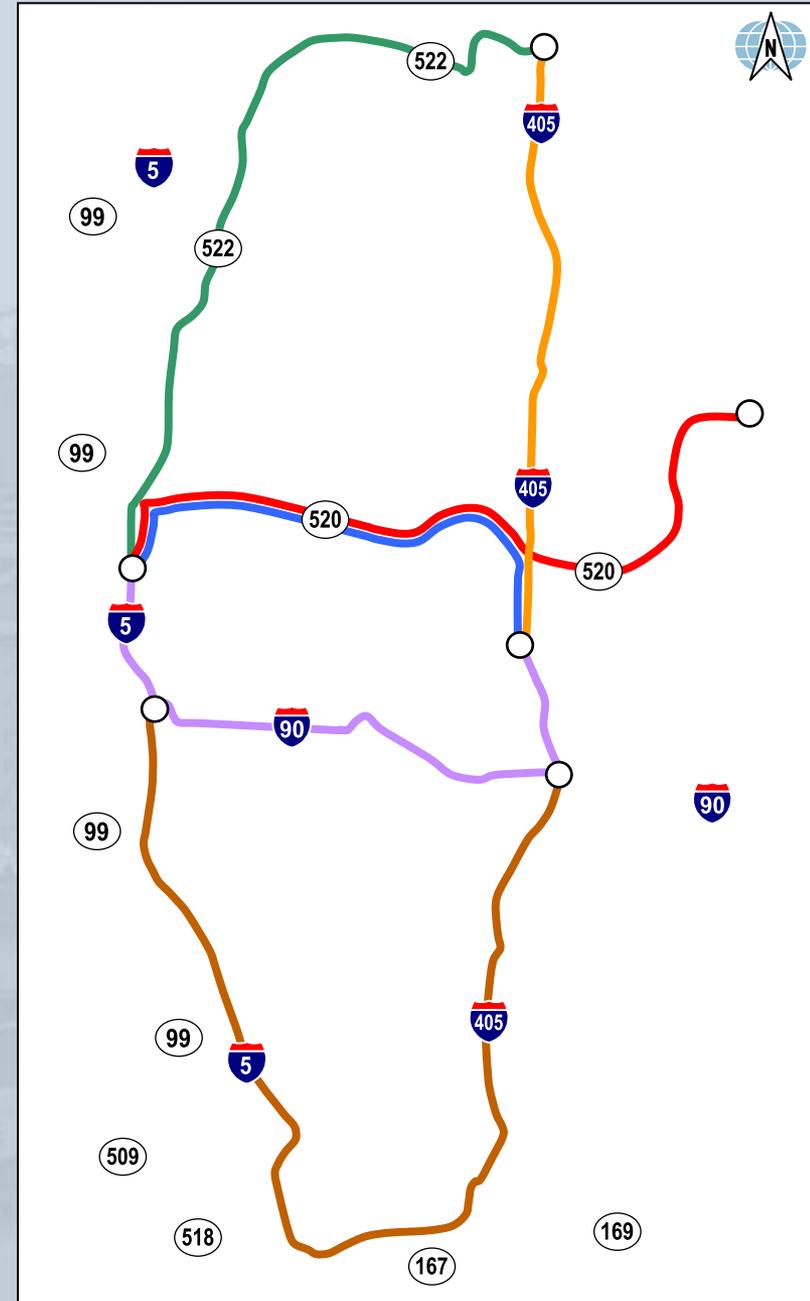
Employment Forecasts



Note: Baseline forecast used in the model

Travel Time Survey

- Six routes, both directions
- Data from two sources
 - WSA directly observed compilation of actual drive times in October 2009
 - WSDOT – annual information from loop detector system



Model Enhancement from Surveys & Studies

Survey/Study

1. Travel Patterns Survey (O-D Survey)
2. Stated Preference Survey (SP Survey)
3. Economic Growth Analysis
4. Travel time/speed surveys

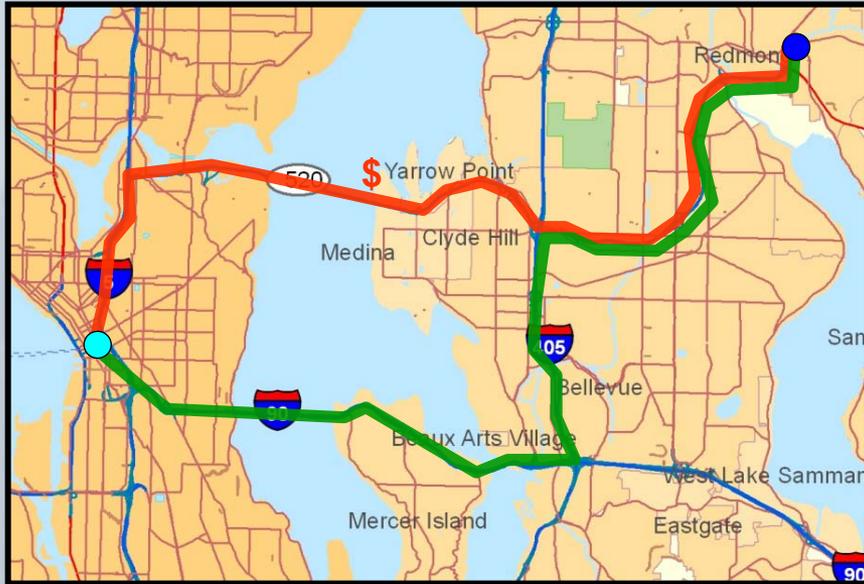
Application

1. Update model trips data by time periods
2. Trip suppression, mode shift, VOT
3. Update future model trips
4. Calibrate model for toll-free conditions

Values of Time (VOT)

Work Trips (Single Occupant Vehicle) (Annual Income)	VOT \$/Min. (2010\$)
<\$25,000	\$ 0.16
\$25,000-\$45,000	\$ 0.23
\$45,000-\$75,000	\$ 0.28
>\$75,000	\$ 0.38

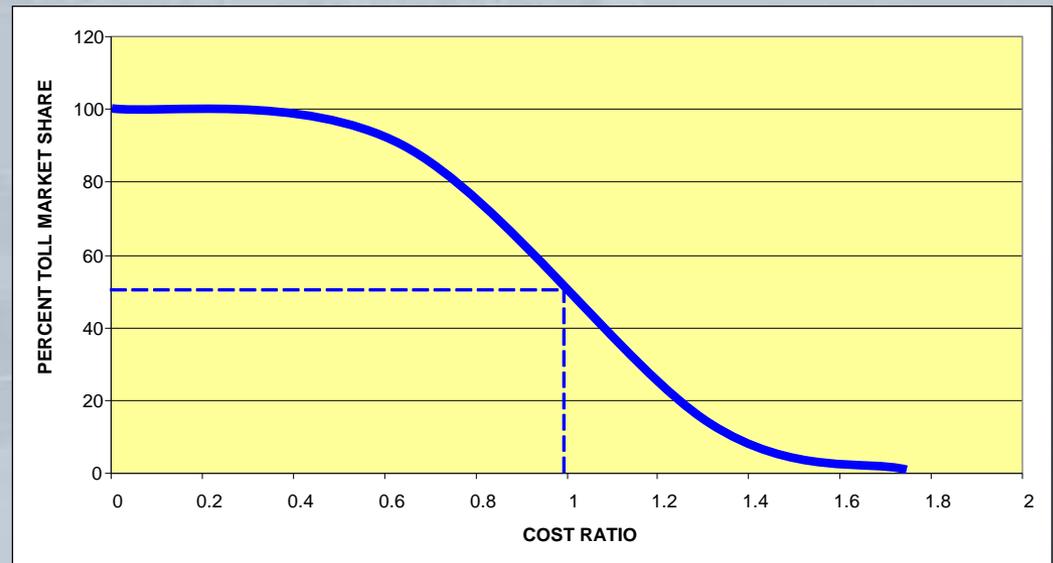
Market Share Assessment



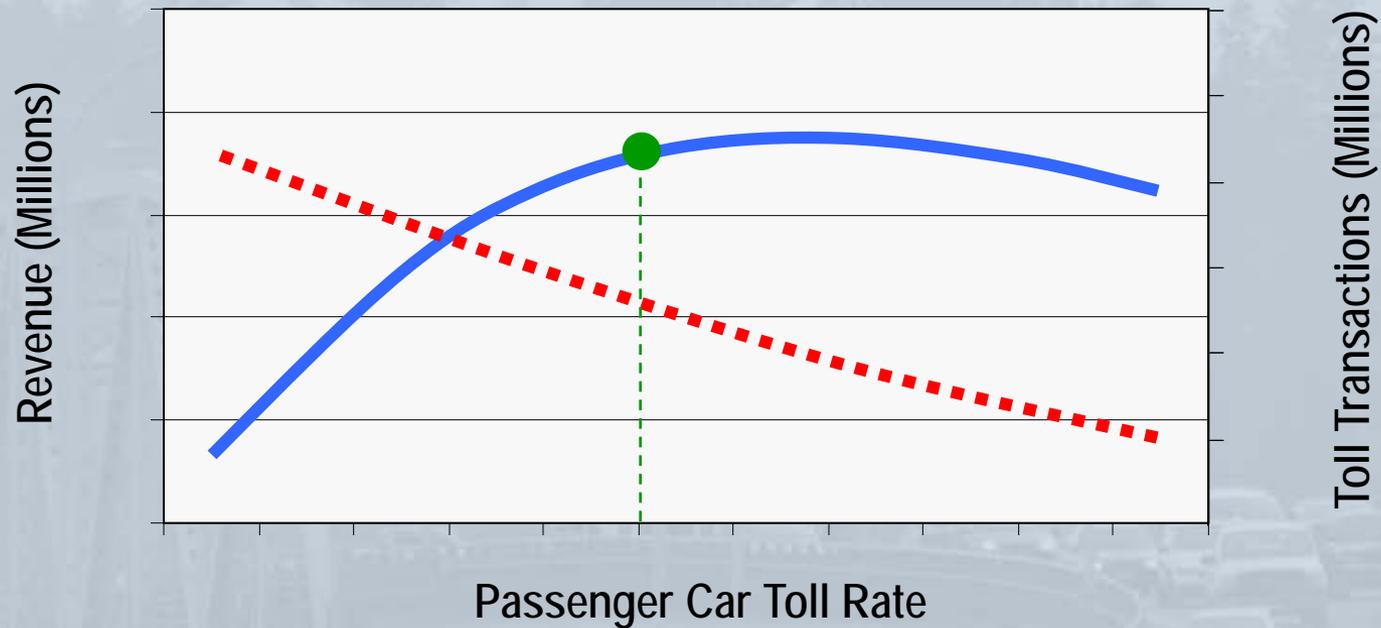
- Path evaluation process looks at ALL free paths and Toll paths and selects the fastest path(s).
- Traffic is assigned to the tolled and alternative paths as determined by the market share

$$\text{Cost Ratio} = \frac{\text{Toll Path Cost}}{\text{Free Path Cost}}$$

- Model processes through many assignment iterations trading off traffic volume and speeds until stability is reached



Toll Sensitivity Analysis



- Transactions
- Revenue

Modeling Assumptions

Roadway System Configuration

- 2 General Purpose (GP) and 1 HOV/Transit lane starting just east of the western High Rise and continuing to I-405
- Assumes Eastside HOV/Transit project

Pricing Structure

- Good-to-Go Transponder and Pre-Paid accounts starting at 80% of all trips, increasing to 95% in later years.
- Two-tiered Toll Rate Structure:
 - Pre-Paid Toll Rate
 - Post-Paid Toll Rate - which has a \$1.50 increment over the pre-paid toll rate

(Toll rates increase with inflation)