Traffic and Revenue Forecasting

Overview

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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

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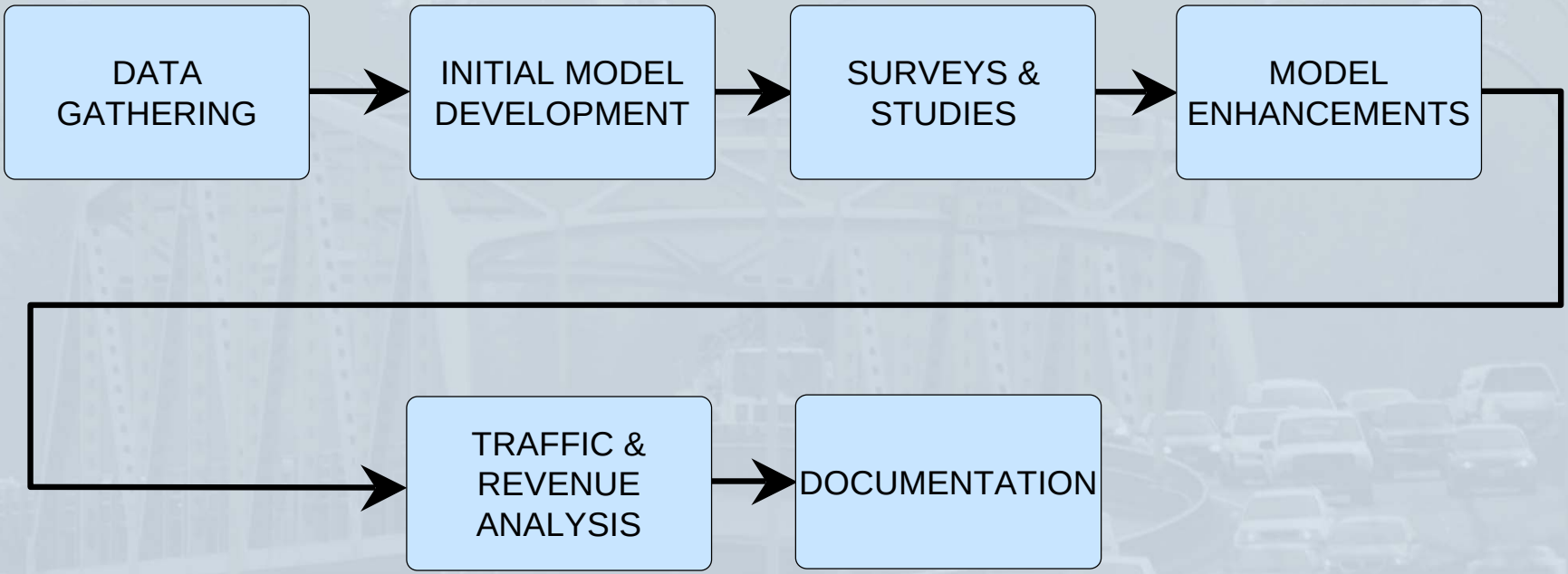
Overall Study Methodology



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Surveys & Studies

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

Travel Patterns Surveyx

- xSurvey card mailed to 43,000 SR520 Bridgex usersx
- x6,500 responsesx
  - xTime of trip (am, midday, pm, evening)x
  - xOrigin & destination addressx
  - xTrip purposex
  - xTrip frequencyx
  - xVehicle occupancyx
  - xEntry/exit ramps on SR 520 corridorx

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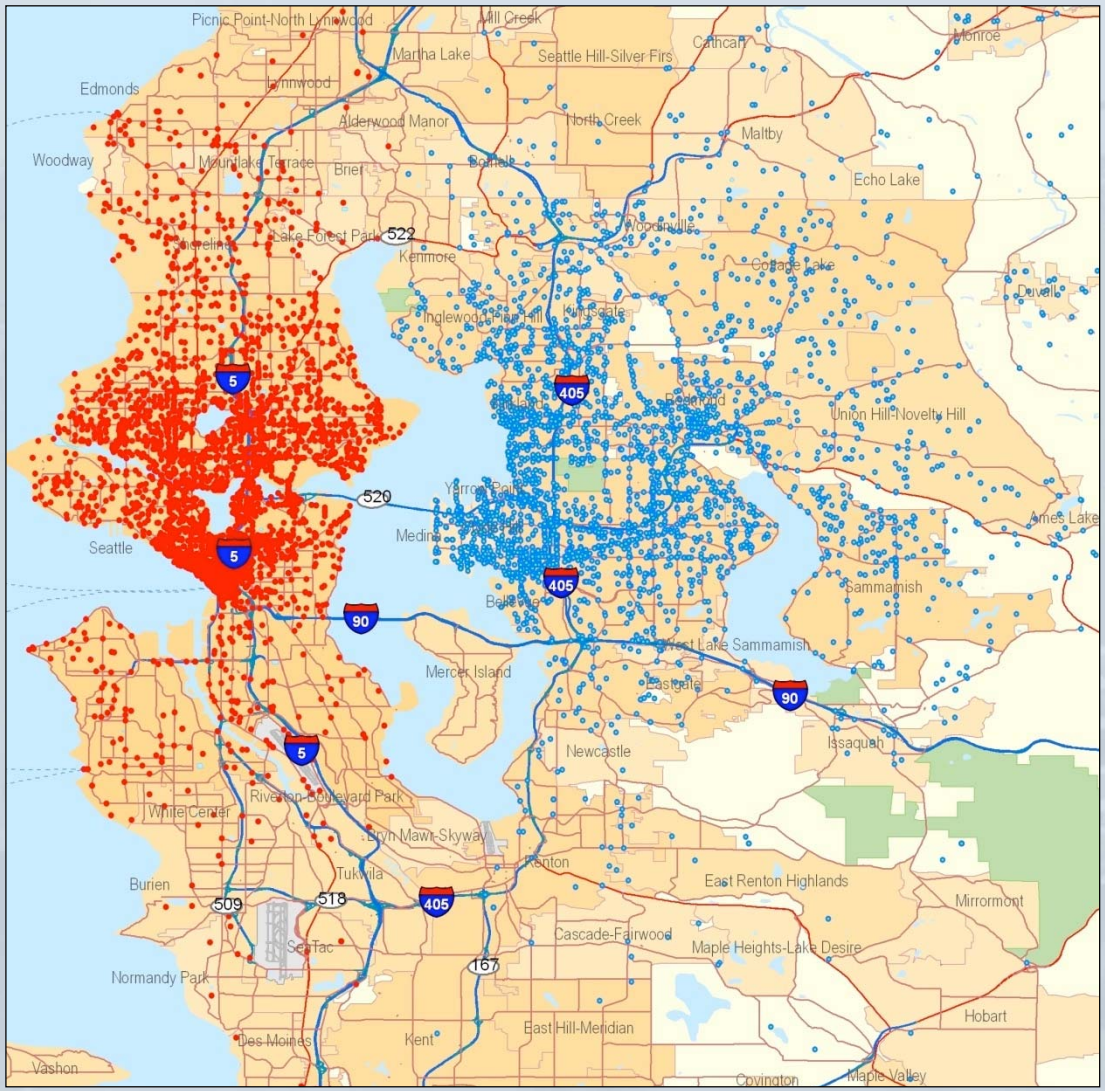
Origins & Destinations



- Origin
- Destination

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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-

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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.

Drive on SR 520 during the peak		Drive on SR 520 with 2 additional passengers	Drive on your next best route: SR 522	Use express bus service on SR 520
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 between 6:00 AM and 9:00 AM
Travel time: 32 mins.		Travel time: 40 mins.	Travel time: 52 mins.	Travel time: 40 mins.
Toll cost: $3.00		Toll free	Toll free	Fare: $3.00

(Question 1 of 8)

Next Question

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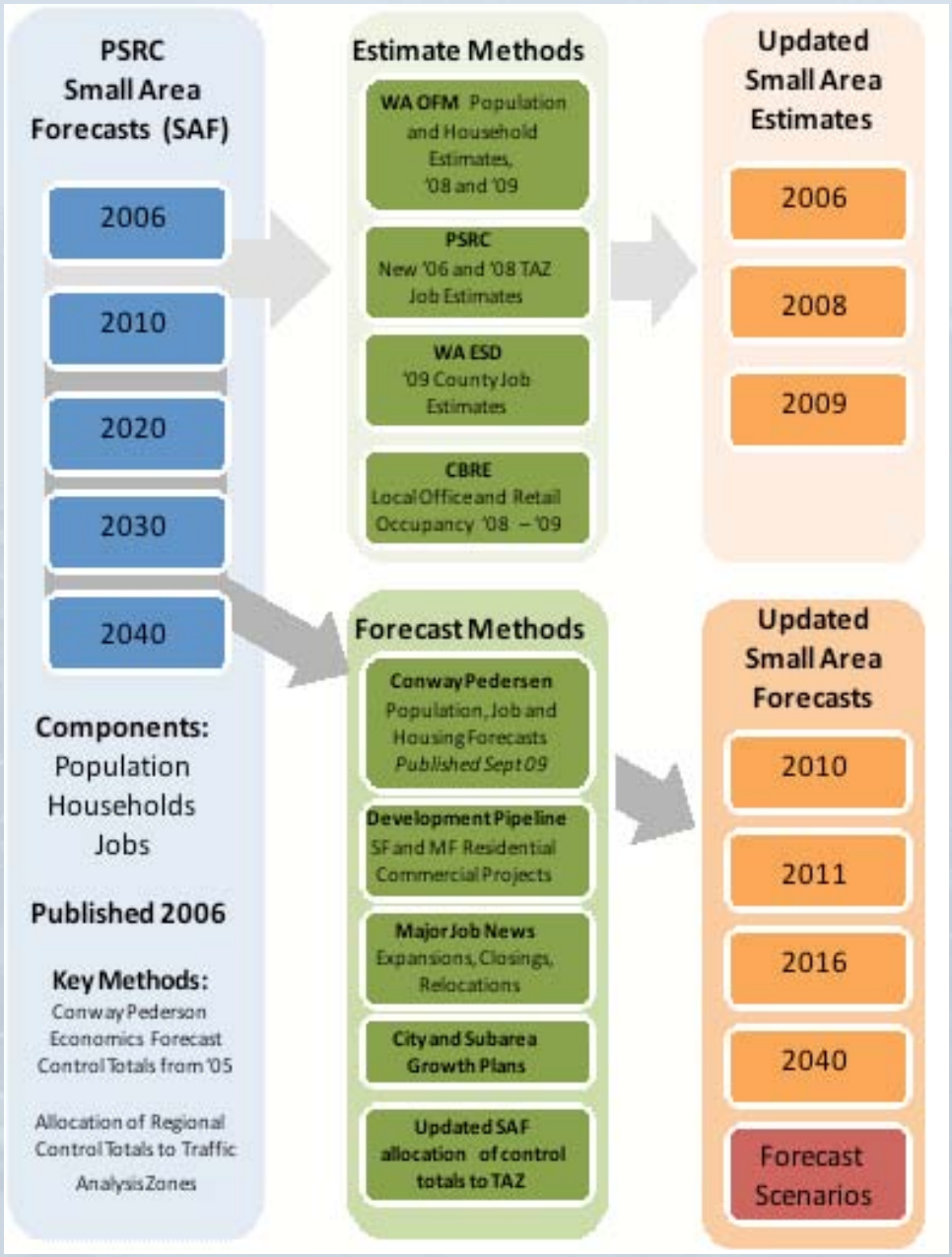
Economic Growth Analysis

Population and Employment Estimates and Forecasts



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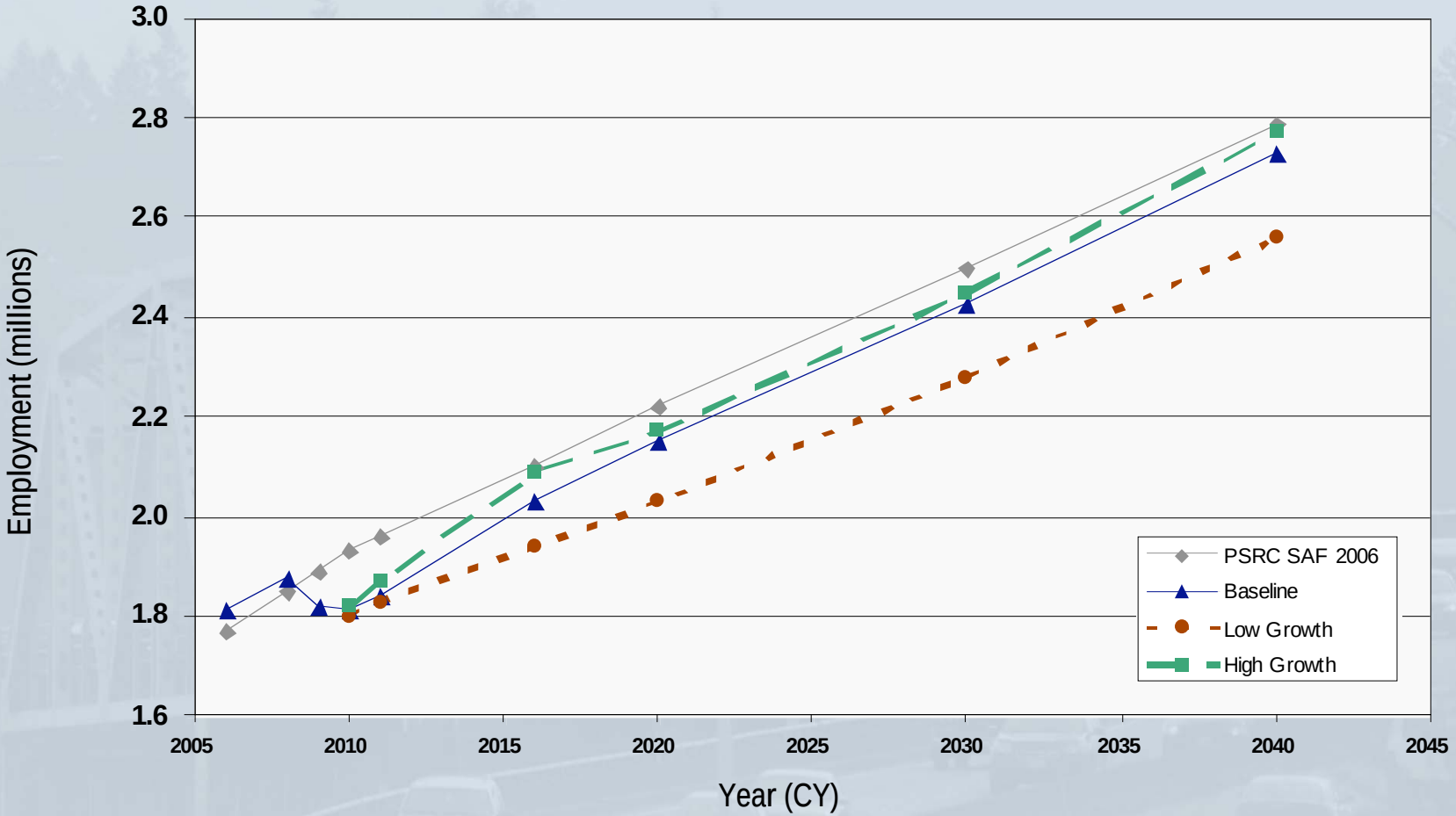
Employment Forecasts



Note: Baseline forecast used in the model

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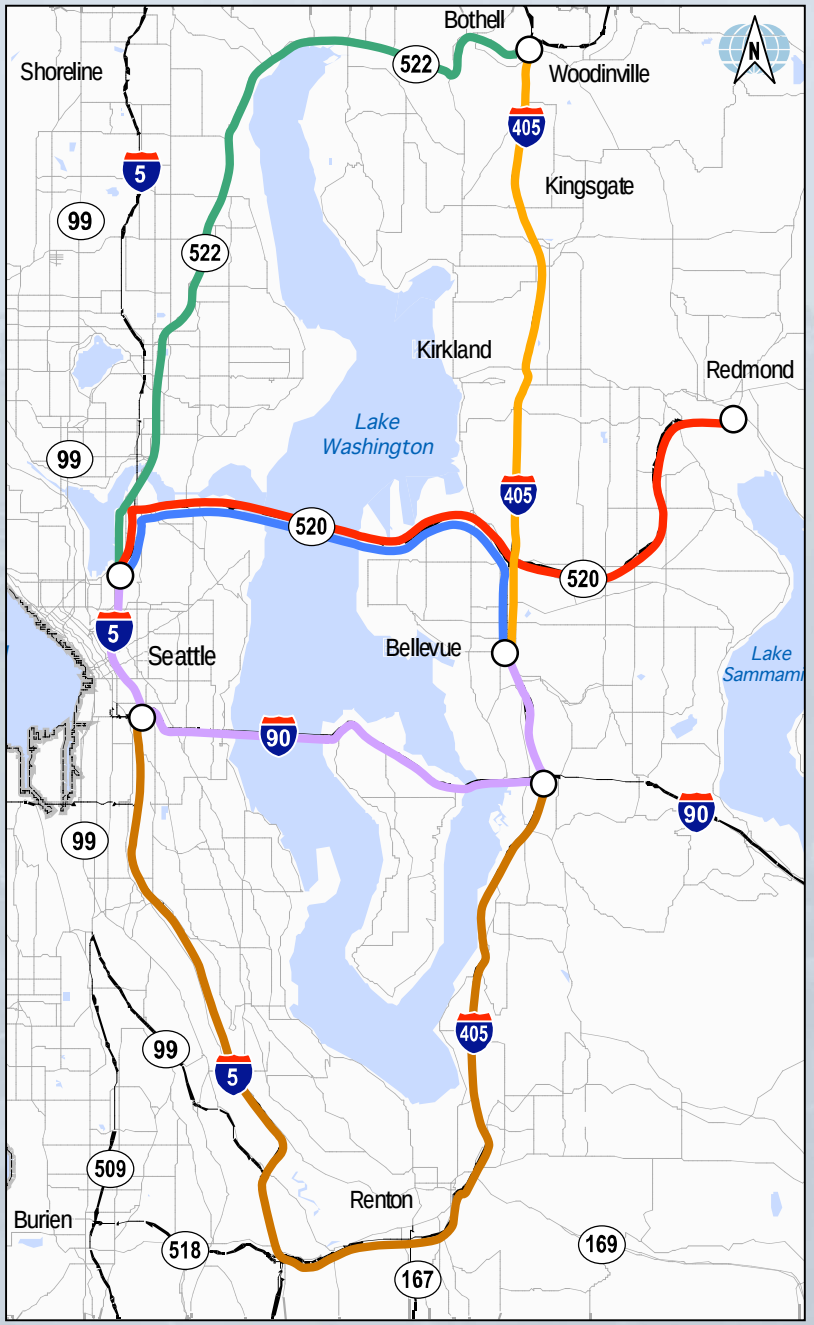
Travel Time Survey,

- , 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,



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Model Enhancement from Surveys & Studies

Survey/Study	Application
1.P Travel Patterns Survey (O-D Survey)	1. Update model trips data by time periods
2.P Stated Preference Survey (SP Survey)	2. Trip suppression, mode shift, VOT
3.P Economic Growth Analysis	3. Update future model tripsS
4. Travel time/speed surveys	4.P Calibrate model for toll-free conditions

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Values of Time (VOT)m

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

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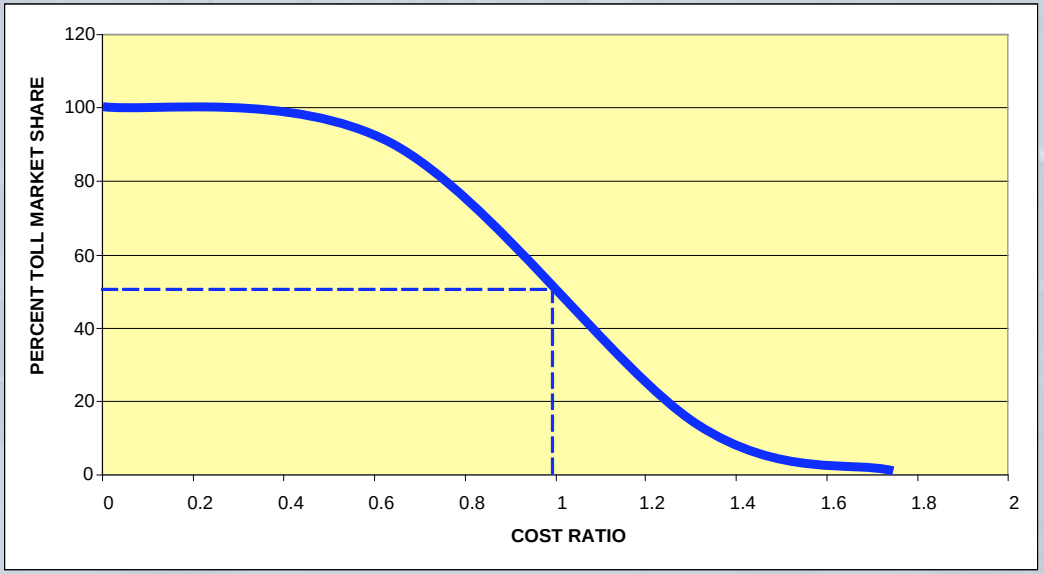
Market Share Assessment

- 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



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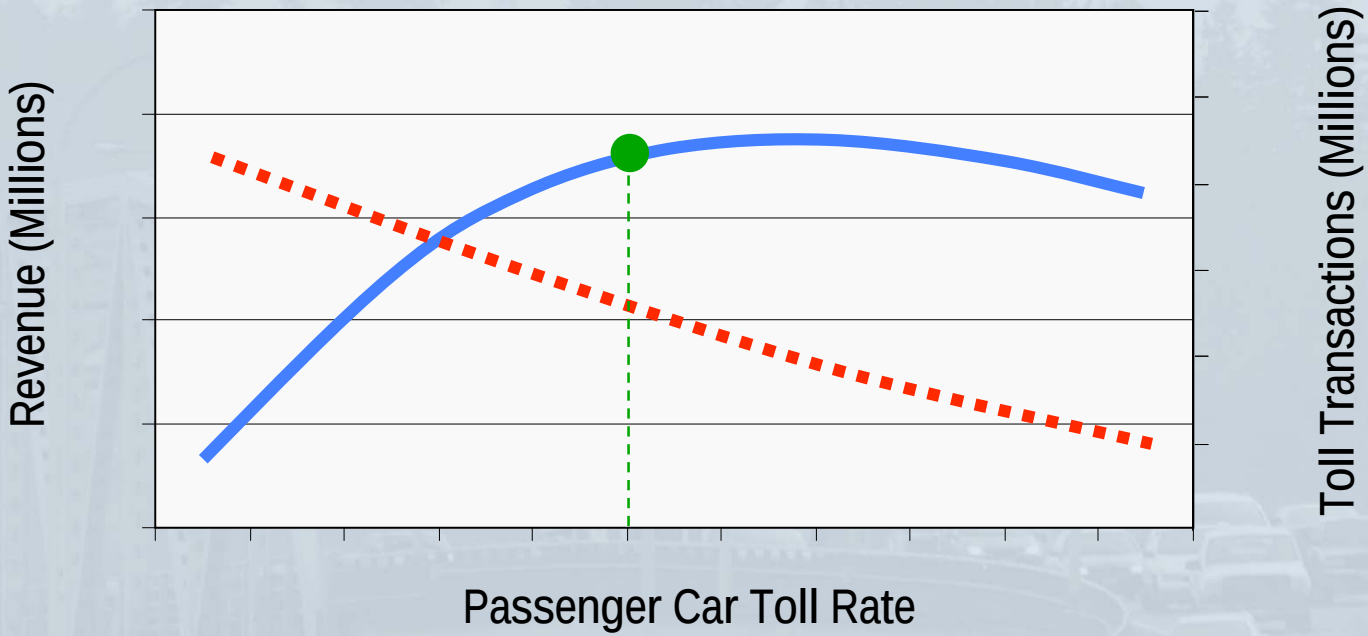
Toll Sensitivity Analysis



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Modeling As umptionsP

Roadway System Configurations

- s 2 General Purpose (GP) and 1s HOV/Transit lane starting justs east of the western High Rises and continuing to I-405s
- s Asumes Eastside HOV/Transits projects

Pricing Structures

- s Good-to-Go Transponder and Pre-Paid accounts starting at 80% of alls trips, increasing to 95% in laters years.s
- s Two-tiered Toll Rate Structure:s
  - –s Pre-Paid Toll Rates
  - –s Post-Paid Toll Rate - which has as $1.50 increment over the pre-paids toll rates

    (Toll rates increase with inflation)s

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