TRAVEL FORECAST MODEL DEVELOPMENT

The base year model validation process integrated components of the City of Seattle's transportation model with the multi-modal modeling suite from the PSRC. The City of Seattle transportation network has a higher resolution within the study area than that represented by the PSRC network. In integrating the two modeling tools, four areas of analysis were performed before the production of base year travel estimates could be made. The analysis focused on obtaining the same network resolution found in the Seattle model, incorporating "operational attributes" of the Seattle networks, reviewing the PSRC network definitions and maintaining consistency of the multi-modal characteristics of the PSRC model (e.g., transit and walk).

The combining of Seattle's higher resolution transportation networks into the regional transportation model provided reasonable results. The comparison of observed traffic counts to estimated counts were found to be within the established ranges off acceptance (*FHWA, Model Validation and Reasonableness Checking Manual, June, 2000*).

Network Refinement

To replicate the network and associated attributes provided by the City of Seattle, additional network resolution and refinements were made to the PSRC network. Network enhancements were made in Ballard, Wallingford, Capitol Hill, the University Study Area, and north to Lake City.

The operational characteristics (lanes, capacities, turning movements, etc.) provided by the City were incorporated into the PSRC network. Because the Seattle network is based on the characteristics of the system during the PM period, network modifications for the AM and off-peak time periods were incorporated (e.g., on-street parking prohibited during peak periods). Most links in the study area were modified in some way. The most frequent modification was the capacity of a facility. Generally the PSRC capacities were between 30 and 50 percent higher than those found in the City's database. It should be noted that the network used in this study included the network modifications made for Phase 1 of the Alaskan Way Viaduct Study.

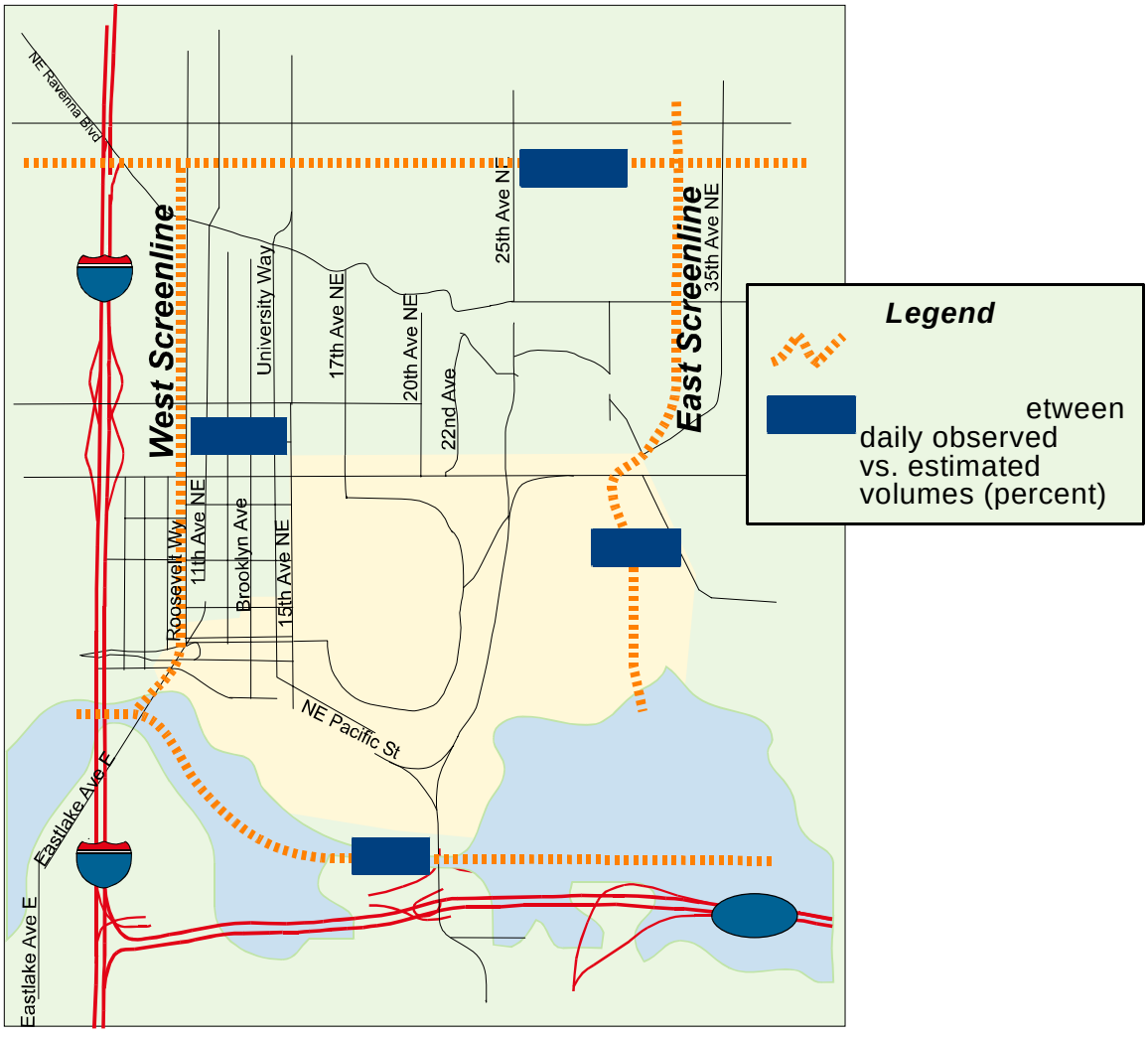
The addition of new facilities into the PSRC networks had an effect on the defined transit systems within the PSRC model. Changes were made to transit routes affected by network changes. No changes were made to the assumed operational characteristics of transit lines (e.g., transit frequency or capacity). Modifications were also made to better represent both light rail station location and pedestrian access to the station.

Model Validation

To produce credible forecasts of transportation demand and travel patterns, base year estimates of transportation demand are first compared to observed conditions. Four screenlines were developed to compare estimates to observed vehicle demand. **Appendix Figure I-1** shows the locations of the screenlines and the comparison of observed data to the estimates. Overall, the South and East screenlines were within two percent of the observed average daily weekday counts. The North and West screenlines were within ten percent of observed counts. Larger variations may exist on each of the facilities on the screenline.

Regional future year transportation improvements have been identified in the region's Metropolitan Transportation Plan. The improvements that would affect transportation in the study area are shown on **Appendix Table I-1**. The current financial environment for the proposed improvements does not support what is assumed to be in place by 2010. Therefore, the future year transportation analysis assumes that the 2010 improvements will be in place in 2020. The year 2010 network used in the analysis will be the same as the base year (2000).

Appendix Figure I-1. Study Area Screenlines



Appendix Table I-1. Assumed Regional Transportation Improvements

	Highway	Transit
2010	SR-520/I-5 (rev) I/C: HOV rev. ramp	Light Rail Transit Northgate to SeaTa
2010	SR-520: HOV added each direction	Seattle Intermediate Capacity Transi (Ballard-W. Seattle)
2020	SR-520: One General Purpose lane added each direction	Light Rail Transit Tacoma to Everett, Seattle to Eastside
2020		Seattle Intermediate Capacity Transi City-W. Seattle, Ballard to UW to Co City)

FUTURE TRANSPORTATION DEMAND

Growth in Demand

Daily and PM peak hour estimates of vehicle demand were developed for the four screenlines in the study area. Overall, the vehicle growth for the four screenlines increases by between 6 and 13 percent between 2000 and 2010. The growth between 2010 and 2020 is much less, varying between one and four percent.

The estimated vehicle growth is dependant on the changes in mode choice in the future. **Appendix Table I-2** shows the estimate of mode choice to the study area for the base year, 2010 and 2020. The year 2010 assumes similar transit service to that which is currently provided. By 2020, it is assumed that the Sound Transit Link Light Rail will extend to Northgate via the University area. In 2010 there is a similar amount of transit ridership, while the carpool percentage increases. In 2020, transit and carpool shares account for 61 % of trips to the study area.

Appendix Table I-2. Mode Choice Estimates

	2000		2010		2020	
	Trips	%	Trips	%	Trips	%
Single Occupant Vehicle	59,372	52	54,176	45	49,816	39
Carpool (2+ person)	21,092	19	33,265	27	38,506	31
Transit	31,548	29	32,510	28	38,384	30