X. APPENDICES

A. List of Abbreviations

B. Response to Comments on Study Methodology

C. Assumptions Used For EMME2-Based Transit Growth Forecast Projections

A. LIST OF ABBREVIATIONS

avg.	average
CBD	central business district
CCTV	closed-circuit television
cont.	continued
CR	Commuter Rail
HOV	high-occupancy vehicle
IDS	International District Station
ITS	intelligent transportation system
LPA	Locally-Preferred Alternative
LR	Light Rail
MTP	Metropolitan Transportation Plan
N/A	not applicable
OUM	Office of Urban Mobility
P&R	park-and-ride
PARIS	Park-and-Ride Information System
PRD	Park-and-Ride Demand model
PSNS	Puget Sound Naval Shipyard
PSRC	Puget Sound Regional Council
ROW	right-of-way
ST	Sound Transit
TAZ	transit analysis zone
WSDOT	Washington State Department of Transportation
WSF	Washington State Ferries
WTP	Washington Transportation Plan

B. RESPONSE TO COMMENTS ON STUDY METHODOLOGY

Memorandum

To: Jean Mabry, WSDOT Project Manager
Participating Agencies

From: Robert Spillar, Parsons Brinckerhoff Project Manager

Date: September 8, 2000

Subject: Response to Comments on Puget Sound Park-and-Ride Update Study Methodology Report

The purpose of the Puget Sound Park-and-Ride (P&R) Study is to develop a comprehensive update to the regional P&R system plan for King, Kitsap, Pierce and Snohomish Counties. The Washington State Department of Transportation (WSDOT) as the project sponsor requested that Parsons Brinckerhoff develop a draft methodology report which documents the proposed process to develop demand estimates for the years 2000 (existing), 2010, and 2020 for the primary travel corridors within the four-county region. In addition, WSDOT requested that various agencies throughout the region comment on the methodology report. This memorandum summarizes the comments received as of August 23, 2000 and provides a brief description of how the comments will be incorporated in the final report. The project plan requires your comments be incorporated into the study process and addressed in the final draft report. A revised methodology report will not be published in the interim. Please do not hesitate to contact the WSDOT project Manager (Jean Mabry 206-389-3038) if you have questions about the methodology or further comments that you would like addressed.

INTRODUCTION AND OVERVIEW

- Indicate that WSDOT's role in the development of P&R facilities in the mid 1970s ranged from securing the right-of-way for construction on behalf of the transit agencies providing service to actually construction the facilities themselves *"as lead agency as well as securing state and federal funding*".

  PB will request WSDOT to assist in providing this history and will incorporate the information into the final report as an introduction to the study.

- Indicate the recommendations from this study will be "*used as a guide for recommending facilities within the MTP Update*". In order for the Puget Sound Regional Council to approve these recommendations, they must meet regional growth and transportation goals as established by VISION 2020 (which includes reducing automobile trips). It needs to be demonstrated how trips will be reduced in the region.

  This will be incorporated into the project introduction planned for the final report.

- The planning horizon for the Puget Sound Regional Council MTP Update is 2030. In order for any recommendations from the P&R study to be potentially included in the MPT Update, the findings will need to be compatible with this future year.

- The planning horizon for the forecasts is the year 2020. Although this is inconsistent with the planning horizon for the PSRC MTP, the requirement of the consultant is to provide a list of short-, medium-, and long-range candidate projects. The long-range category of projects would be proposed for potential implementation after the year 2015. Because of their long-range character, identification of these projects will be very preliminary and whether they are implemented between 2015 and 2020 or between 2015 and 2030 does not significantly affect their identification. Furthermore, because of the number of variables that determine park-and-ride demand (i.e., service levels, population densities, travel costs, etc.) it is likely that by the year 2015, another system update will be required. At that time, a better estimate of the long-range projects can be made based on the improved knowledge of the future transit environment. .

- The study is a comprehensive update to the regional P&R system plan, but the study area does not account for all state routes in the four-county area. The report should address why some state routes are not included in the study area.

  The study is designed to evaluate primary commuting corridors. Some corridors include multiple state routes, even though the name of the particular corridor may not reflect this fact. Furthermore, individual park-and-ride facilities may draw demand from multiple state routes, even though the facility is located on a particular route. These concepts, and the fact that not all state routes are being evaluated, will be discussed in the methodology section of the final report.

- It might be helpful to provide more information on the current deficiencies of P&R system plan to provide a clear rational why the plan update is needed.

  This will be incorporated into the project introduction section of the final report.

- This memorandum should include a technical description of the King County P&R demand estimation model or a summary of PB's monograph. Please provide endorsements (e.g., review committee) and/or critiques of this methodology. In addition, it might be helpful to identify other studies that have used this methodology. All this type of information would lend to the creditability of this report.

  A better description of the PRD estimation model will be incorporated into the final report along with examples of where and how the model has been used. However, because the estimation model was developed specifically for the King County/Central Puget Sound region, any examples of its use will be unique to this region.

- Is SR-302 in Kitsap County?

  The portion of Kitsap County served by SR 302 will be incorporated in the P&R analysis. Corridors may be more generally defined as opposed to being aligned along a single route (i.e., SR 302). Facilities are being considered as part of the analysis in the vicinity of Purdy and in the vicinity of Key Center. Whether these are considered part of a SR 302 corridor or as part of a SR 16 and SR 3 corridor does not affect the analysis.

Existing and Future Year Demand

- It is not clear how latent demand will be estimated, particularly for the existing year (2000). Past experience at P&R's in Pierce County has shown that demand for transit tends to be constrained by the limitations on parking, not transit service. It seems like the unconstrained demand for transit should be estimated, and then the demand for parking should be developed. Is this how the demand will be estimated or vice versa?

  Existing facility capacity will not be considered in the estimation of demand. The estimation model does not include as one of its inputs the existing capacity provided by a particular facility (i.e., it is not capacity constrained). On the other hand, the PRD estimation technique is a regression model, based on observations of P&R conditions in the Central Puget Sound Region in 1995. The largest lots (at that time) that were included in the model were in the range of 1000 spaces. These lots were not typically over-capacity at the time. The estimation model will and does estimate demand in excess of 1000 for some locations. These estimates are believed to be relatively accurate, but certainly are on the outer fringe of the reliability of the model.

  The Tacoma Dome park-and-ride facility, however, presents several unique challenges. The Pierce Transit model for park-and-ride facilities is somewhat different than that seen in King County. In Pierce County, park-and-ride service is concentrated at two or three central nodes as opposed to being distributed over numerous lots throughout the county. Hence, demand for the Dome and Lakewood Transit centers is very high, drawing from all over the Tacoma portion of the region. Hence, it is likely that the demand at these individual regional-type park-and-ride facilities is higher than what can be estimated.

  To overcome these challenges, we are constructing a hypothetical system of park-and-rides within Pierce County, replicating a dispersed concept based on existing facilities within the county and ideal spatial coverages seen elsewhere within the region. We will estimate demand for a hypothetical system at the corridor level. Our estimate at the Dome may in fact result in a low estimate. However, at the corridor level, we believe our estimates will be much more accurate, hence providing an estimate of area-wide or corridor P&R demand. This demand, when summed for the corridor, should match or surpass the demand seen at the few regional P&R facilities operated by Pierce Transit (i.e., the Dome and Lakewood). This process replicates the implementation policy in Pierce County to concentrate the service from one or two key locations where the burden of access is placed on the private automobile rather than on the transit agency.

- A better definition of the corridor coverage may be helpful. In addition, the related concept of "potential existing spatial constraints" should also be defined more clearly. Documentation of the assumptions associated with these two concepts would be helpful.

  These concepts will be better explained in the final report, with graphics and tables.

- Will the 2.5-mile radius service area effectively work for the Kitsap Peninsula?

  The 2.5-mile radius is typical of what is seen regionally for park-and-ride facilities. In the outer-lying portions of the region, existing facilities and proxy facilities are located typically in the highest areas of population compared to the surrounding land uses. Furthermore, we are not applying the 2.5-mile

radius as a hard line – rather using it to identify traffic analysis zones (TAZ) that are potentially served (touched) by such a radius. The basic reason for identifying these TAZ's is for the purpose of developing a growth rate to apply to that lot for the population-based forecasting method. Because we are placing proxy lots throughout Kitsap County, we will be able to capture potential demand everywhere within the County. During implementation, these demands can be summed to determine the most efficient amount of capacity to provide.

Service Assumptions

- It might be worthwhile to mention the Washington State Ferries (WSF) terminals as a major destination in the region.

  Mention of this fact will be made in the final report for Kitsap County. We are treating all routes headed for the Ferry terminal as if they were transit routes to downtown Seattle.

- The uniqueness of transit service to the ferry terminals in Kitsap County should be noted. The service in Kitsap County is timed to coordinate with the ferry schedule, thus it operates in pulses with several buses on the same route serving one ferry, rather than operating on regular schedule of 10 to 15 minutes.

  The number of transit vehicles leaving during the peak period is a key factor in the estimation model, rather than the headway provided. The above mentioned fact will be kept in mind during the estimation process.

- Kitsap Transit may need to provide service for increased passenger-only ferry service with varying frequencies and/or different destinations (i.e., from Kingston and Southworth) in the future. Parking is very limited at the terminals, thus ferry riders will need to access/egress the ferry via transit (buses or vanpools).

  As part of our analysis, we are not evaluating the ferry terminal parking. However, potential passenger-only ferry service from Kingston, Bainbridge, and Bremerton will be noted as part of the analysis.

- Are the service assumptions under Sound Transit Phase I service plan the most realistic for future years as many new P&R's will be built near the end or beyond Phase I. Should the plans for P&R's be based on more abundant transit given the experience of a constant shortage of parking space in the region?

  We will be making our best estimate of P&R demand based on a range of transit assumptions that are consistent with ST's Phase 1 and other information gained from the transit agencies. Experience in King County is that our estimates show demand well in excess of existing corridor capacities and hence provide a sound basis for generating projects. It is anticipated that another P&R system plan update would be considered after 2010. At that future point in time, a better definition of needs beyond 2015 can be defined and P&R project lists be increased.

- This study should consider not only frequencies of transit service between P&R's and major employment centers but also to the twenty-one design urban centers (as designated by the Puget Sound Regional Council).

P&R facilities can be seen to demonstrate the highest demand when service is destined for the primary employment concentrations within the region (Seattle CBD, University District, Bellevue, and Everett and Renton Boeing locations). When the regression model was developed, the Tacoma CBD was not incorporated in the regression models. For Pierce County, a substitution of the Tacoma CBD for the University District is being made. Initial estimates for Pierce County indicate fairly good estimates based on the assumption that in the South-end the Tacoma CBD operates as the secondary employment draw, similar to the University District in the central portion of the region.

Other employment centers, while important to the regional commuting patterns, do not tend to draw major park-and-ride demand. This may largely be due to the type of transit being provided. For example, even the ST 2010 and 2020 is primarily focused on the five major employment centers in the region as listed above. Centers like Kirkland and SeaTac tend to be demand generators (for park-and-ride facilities) rather than attractions.

- The study does not appear to take into account programmed HOV facilities, should they be a factor in the locations and demand estimation?

  Planned HOV facilities will most affect transit travel times, by reducing scheduled time to key locations. The benefits of peak direction HOV facilities are taken into account where possible via the assumed transit travel times. These are incorporated as part of the transit growth rates reduced from the Sound Transit model. We do not have the ability to estimate benefits of programmed (i.e. future) HOV facilities directly in the estimation model.

- It is important to note how the Kitsap County corridors and P&R lots will impact ferry usage.

  Impacts to the Ferry system will not be specifically analyzed as part of this study. Existing P&R facility demand (observed) will be reported as part of this study. Likewise, existing potential demand will also be estimated as will future demand. Implementation policies enacted by the region and Kitsap Transit may generate demands and impacts on the ferry system. However, quantification of these impacts may not be within the scope of this study.

Regression Model

- It appears from the methodology report that the regression model will be limited to estimating demand at P&R's with less than 1,500 spaces. What will be used for P&R's with the greater than 1,500 spaces (as is the case at the Tacoma Dome Station P&R).

  The Tacoma Dome and other large regionally-oriented P&R facilities represent a shift in the type of P&R service provided (a shift to large mega-facilities that draw from the whole of the Pierce County or similar draw area) as compared to the distributed concept observed when the PRD model was developed. When the PRD model was developed, it was based on a system of medium to large lots spread over the entire urban study area (i.e., facilities ranging in size from between 200 and 1000 spaces placed close to their intended market). The Tacoma Dome, Lynnwood, Everett Station, and similar facilities shift the burden of access more decidedly to the user's court. In other words, these larger-regional facilities represent a concentration of service and capacity that require/draw potential users from a greater distance. Hence, the transit service is more efficient because it does not penetrate the urban fabric as extensively as in the previous service concept. Similarly, a greater

- burden of access is shifted to the private user's side of the access equation, requiring potential users to travel greater distances to use the premium services provided. This is not to suggest that one service concept is superior to the other, only to recognize that there is a difference. To account for this issue, "proxy" facilities are being defined within the larger draw areas observed for the regional lots (i.e., for Tacoma Dome, proxy lots are being evaluated in South Tacoma, Tacoma Narrows, and West Lakewood). Existing demand (or a portion of this demand) estimated for these proxy locations must be assumed to be realized at the Tacoma Dome and current SR 512 Park-and-Ride facilities due to the fact that the proxy lots do not currently exist. Hence, although the PRD model may under-predict the demand at the specific regional facility, when demand is summed at the corridor level, the overall demand would be assumed to represent a reasonable estimate for the corridor (in the case of the Tacoma Dome, existing estimates at the Dome facility under-estimate the demand by approximately 200 to 400 vehicles, but for the corridor the estimates exceed current observed demand by about 1000 vehicles. This is consistent with what was expected within this corridor and compensates for the underestimation at the Dome).

- The discussion should include reference to the potential WSF service reductions due to the budget shortfall.

  As part of the discussion of the next steps towards implementation, the reduction in Ferry service will be discussed. Given that our charge for this project is to develop long-term forecasts for P&R demand, this issue becomes more of an implementation and timing issue rather than an overall demand issue.

Population-Based Projections

- Should the study use population as a basis for P&R demand? Any forecasts based on population should be linked to land use. For example, Seattle has the highest population, but some areas may not include land uses that support P&R facilities.

  The purpose of the study is to estimate potential future demand. Population growth is one indicator of potential future park-and-ride demand growth. Implementation policy related to existing and future land use within Seattle is better accommodated at the next level of analysis. Obviously, there is a trade-off in costs that must be evaluated (i.e., the cost of providing the local transit circulation necessary to generate passengers versus the cost of providing park-and-ride capacity and single-point transit access.)

- The Puget Sound Regional Council land use model has two main inputs: population and employment. Is it acceptable to only use the population projections? Is it safe to assume that Kitsap County will remain more of a bedroom community? These types of assumptions should be documented.

  Employment in the suburban market (i.e., the park-and-ride demand generation portion of the region) should not affect park-and-ride demand. Although many current policies strive to encourage a reverse commute (i.e., from the central city to suburban employment), park-and-ride facilities have difficulty in serving this demand. Furthermore, in developing the PRD model, origin population (rather than destination employment) was a primary factor in many of the estimation equations. It was typically found that the higher the residential population within the ideal service area of a park-and-ride, the greater the potential for demand. This is not to say that suburban employment, as a draw factor, is not important. Service to the University District (or substitute secondary employment

destination) as well as Everett (or substitute tertiary employment destination) is incorporated into the models.

EMME2-Based Transit Growth Forecast Projections

- What are the 2010 and 2020 service assumptions in the Sound Transit LPA network? Please confirm how the Sound Transit travel demand model will be used for estimating future demand. It is not clear how the model will be used for estimating future demand when the model only includes service level assumptions up to 2010.

  Service assumptions for 2010 are that LRT is constructed between Northgate and approximately Tukwila/SeaTac. Regional express service is provided from Tacoma to Everett and east to Issaquah, Bellevue, Kirkland, Renton, and Redmond. Based on the method assumed for generating future growth rates, this service is assumed to expand at a constant rate through 2020.

- How does the Sound Transit travel demand model forecast 2010 and 2020 service levels?

  The model is a pivot point model and a brief explanation of the forecasting process will be incorporated in the final report.

- Does the Sound Transit's Locally Preferred Alternative (LPA) network include King County's updated service assumptions based on the County Executive's proposed TRIP-21 transit improvement program as well as service estimates for 2010 and 2020 (based on the annual growth factor of the expected sales tax revenue growth)? If the network includes these service level assumptions, they should be noted in the methodology.

  King County's update to transit (Trip-21) is being incorporated in the demand estimation process by estimating transit demand at individual park-and-ride and proxy facility locations under the new transit assumptions. The ST model is only being used to generate future growth rates of overall transit demand within each corridor. Hence, the estimation method first estimates the higher P&R demand resulting from the improved transit service then forecasts that higher demand estimate into the future. The ST model does not, by definition, include the improved transit in the background transit growth rates, but it is likely that the improved transit at park-and-ride facilities would change the background growth rates significantly.

- Does it make sense to use different sets of service assumptions (e.g., Sound Transit's model for the majority of the region and PSRC's model for the remainder)? Should there be a consistent set of service assumptions for the entire region?

  This issue will be discussed with our modeling experts and confirmed in the final report.

- Using the PSRC travel model for Kitsap County to account for growth in ferry demand requires consultation with modeling experts at PB on this matter.

  This issue will be discussed with our modeling experts and confirmed in the final report.

Demand Estimation Summary

- Vanpool and carpool demand should be examined in more detail. These P&R users likely represent a significant amount of demand in the region, and this demand may not be met with just "reserve capacity". WSDOT has recently commissioned a study of unconstrained demand that should be examined.

  The PRD model incorporates carpooling and vanpooling as part of the estimation process. However, carpooling and vanpooling is not forecast separately from general demand for the target park-and-ride facilities. Data generated by the latest carpool and vanpool analysis will be incorporated in the final report. Allowance of additional capacity for such non-transit demand is an implementation consideration. For example, transit agencies and/or state agencies could choose to limit the use of their facilities to transit-users only. Likewise, they could supply specific facilities such as those at churches and/or other joint use facilities for vanpool and carpool use. Hence, the reservation and/or supply of additional space for non-transit uses (i.e., carpool, vanpool, private bus operations, ski bus operations, etc. is very dependent on implementation and operation policies).

- The methodology recommends using 85% as the capacity threshold (leaving 15 percent for short-term parking and reserve capacity). The methodology should also refer to the 85% or some relevant percentage as the threshold to commence expansion or identification of additional spaces in the travel corridor.

  Discussion of this issue will be incorporated in the final report.

Cost Estimates

- *Not all P&R facilities in Kitsap County fit the definition of Facility Type 3 as many of these facilities are not remote and are actually quite costly to build on land that is adjacent to the water. In addition, not all P&R's in Kitsap County intercept long-distance trips from outside the region, in many cases Kitsap Transit is trying to intercept trips before they get to the ferry terminals at P&R's.*

  This will be noted in the development of facility definitions and cost estimates.

General Issues

- Is the report proposing a methodology for the study or is this methodology actually the basis for the final report?

  The proposed methodology presented in the memorandum is being used to generate demand estimates at the corridor level. It will be incorporated into the final report.

- It would be helpful to have example calculations for each of the P&R lot estimation methods to compare the results. A corridor like SR-104 would be interesting as it includes segments not covered in the model (Jefferson County) and other segments that are in the models (Kitsap County). The various examples could be put in an Appendix.

  Corridor estimates will be provided in the draft report and therefore provide this context.

- There appears to be a couple issues reading the document electronically (e.g., missing figures and isolated wording, etc.,).

  This comment is noted and will be rectified in the distribution of the draft final report and other materials.

- The use of the terms “estimation” and “forecasting” interchangeably is confusing. Estimation should refer to some statistical way of specifying the actual condition (or universe) based on observation of only a portion of that universe. Forecasting is the disciplined foretelling of what is likely to occur in the future.

  This confusion will be addressed in the draft and final report. The term estimation will be applied to any estimate of demand in the Year 2000. All future forecasts will be referred to as forecasts.

C. ASSUMPTIONS USED FOR EMME2-BASED TRANSIT GROWTH FORECAST PROJECTIONS

The transit ridership growth factors were developed using the Sound Transit (ST) and Puget Sound Regional Council (PSRC) travel demand models. Both Sound Transit and the PSRC have developed EMME2-based travel models that predict future year (2020) transit ridership. It was expected that these models would predict an overall growth in transit ridership that was higher than the background population growth. This is based on the assumption that the transit modal share is expected to increase as the urban areas of the region continue to densify and the other travel networks become increasingly congested.

The Sound Transit Locally Preferred Alternative (LPA) network and service assumptions, prepared in November 1999 were used as the basis for the modeling effort within the Sound Transit forecast area. The Sound Transit model basically covers the more urban areas of King, Snohomish and Pierce Counties. The ST model is an incremental model that pivots off existing demand and service levels. The peak period in the ST model is a PM peak period from 3:00pm to 6:00pm. The ST model includes 737 transportation analysis zones (TAZs) that were originally based on the PSRC zonal system, but were further refined to better capture the trip making patterns in the more urban areas of the region. In some cases the TAZs in the ST model are exactly the same as the TAZs in the PSCR model, while in other cases the ST zones have been disaggregated or aggregated. The base year in the ST model is 1992 and future year used for this study was 2020.

The ST model can be contrasted to the PSRC model which is a fully synthetic model with a full four step modeling process. The PSRC model includes all four counties in the central Puget Sound region: King, Snohomish, Pierce, and Kitsap. The peak period in the PSRC model is an AM peak period from 6:00am to 9:00am. The PSRC model includes 850 TAZs. The base year in the PSRC model is 1995, while 2020 is the future year.

The initial recommendation was to use the ST model within the ST forecast area, and to use the PSRC model for Kitsap County and the outlying areas of the region. Because the ST model was developed specific to transit, it was thought this model should be used wherever possible in this study. For Kitsap County it was proposed to use the growth in passenger ferry access to estimate a modal growth rate. It was later determined that the growth in passenger ferry ridership would not be consistent with the methodology used for the other counties, so it was not used for this study. The following list summarizes the steps undertaken to develop the transit ridership growth rates.

1) The ST model includes specific transit ridership at a number of park & ride lots in the region. The estimated demand at park & ride lots in Pierce County was taken from the ST model to determine if growth factors could be developed based on the demand at specific lots. Because the ST model is an incremental model that estimates demand based on existing demand and service levels, the model did not appear to reliably forecast demand at park & ride lots that were not in the model in the base year (1992). Furthermore, there were some existing park & ride lots that were not in the model.

2) The ST model did not include demand estimates at some of the park & ride lots in the study area. In addition, the reliability of the estimates at the newer lots in the ST model was somewhat inconsistent. Given these two factors, it was determined that the transit

growth factors would be developed based on an average demand. It was assumed that future P&R transit demand would grow at a similar rate to the background growth in transit demand within the covered service area of the individual P&R facility.

3) The study area's TAZs were divided up into a series of corridors to estimate the average demand. Given the fact that the ST model network did not cover the entire study area, the PSRC model was used for some of the outlying areas in the region. The corridors are briefly described below along with the model used to develop the growth factors:

    a. Southeast Snohomish County (PSRC model): As the name suggests, this corridor encompassed the southeastern portion of Snohomish County including landmarks such as Lake Stevens and SR-2.

    b. North Snohomish County (PSRC model): This corridor included Snohomish County north and east of Everett.

    c. Snohomish County Urban (ST model): This area comprised the more urban area of Snohomish County in the vicinity of I-5 from Everett to the King County border.

    d. Kitsap County and Peninsula area (PSRC model): This corridor included all of Kitsap County found in the PSRC model as well as the peninsula area of Pierce County (e.g., Gig Harbor).

    e. South Pierce County (PSRC model): This corridor encompassed the more sparsely populated portions of southern Pierce County.

    f. Piece County Urban (ST model): This corridor included the urban areas of Pierce County in the vicinity of I-5.

    g. Pierce County Puyallup (ST model): This corridor included the Puyallup and Bonney Lake areas of Piece County.

    h. King County SR-167 (ST model): This corridor focused on SR-167 from south Lake Washington to the Pierce County border.

    i. King County I-5 South (ST model): This corridor was loosely based on I-5 from West Seattle to the Pierce County border.

    j. King County I-5 North (ST Model): This corridor followed I-5 from north of the Ship Canal bridge to the Snohomish County border.

    k. King County I-405 (ST Model): The corridor followed I-405 from Renton in the south to the Snohomish County border in the north.

4) The next step was to estimate the growth factors based on the base and future year peak period demand estimated by the models for each of the corridors. The transit growth factors were then compared to population growth rates for each corridor. As expected the overall growth in transit ridership was higher than the background population growth as the region continues to densify and the other travel networks become more congested. Table A.1 summarizes the transit growth factors in comparison the population growth factors for the corridors in Snohomish, King, Kitsap, and Pierce.

Table A.1: Transit Ridership Growth Factors versus Population Growth Factors for the Peak Periods

Corridor		Growth Rate
SE Snohomish	**AM Peak Transit Demand**	
Transit ridership from PSRC Model		
	Transit	1.031
	Population	1.019
North Snohomish	**AM Peak Transit Demand**	
Transit ridership from PSRC Model		
	Transit	1.052
	Population	1.020
Snohomish Urban	**PM Peak Transit Demand**	
Transit ridership from ST Model		
	Transit	1.029
	Population	1.020
South Pierce	**AM Peak Transit Demand**	
Transit ridership from PSRC Model		
	Transit	1.045
	Population	1.013
Pierce Urban	**PM Peak Transit Demand**	
Transit ridership from ST Model		
	Transit	1.016
	Population	1.015
Pierce Puyallup	**PM Peak Transit Demand**	
Transit ridership from ST Model		
	Transit	1.035
	Population	1.014
Kitsap & Peninsula	**AM Peak Transit Demand**	
Transit ridership from PSRC Model		
	Transit	1.035
	Population	1.018
King I-5 North	**PM Peak Transit Demand**	
Transit ridership from ST Model		
	Transit	1.017
	Population	1.005
King I-405	**PM Peak Transit Demand**	
Transit ridership from ST Model		
	Transit	1.022
	Population	1.012
King I-5 South	**PM Peak Transit Demand**	
Transit ridership from ST Model		
	Transit	1.020
	Population	1.011
King SR-167	**PM Peak Transit Demand**	
Transit ridership from ST Model		
	Transit	1.021
	Population	1.015