PSRC and City of Bellevue Multimodal Concurrency Pilot Project

A Special Report to the Joint Transportation Committee

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PSRC AND CITY OF BELLEVUE
MULTIMODAL CONCURRENCY PILOT PROJECT

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I. Executive Summary

Downtown Bellevue, like other regional growth centers in the Puget Sound region, is currently experiencing dramatic growth in both population and employment. As more workers, residents, and shoppers congregate in the same amount of space, maintaining a high level of mobility will be increasingly challenging. Roadways will likely be unable to meet the additional demand placed upon them, underscoring the need to invest in a multimodal network of services and facilities that will facilitate the free movement of people and goods. Such a system will emphasize effective travel choices including transit, as well as biking and walking. Efforts will also need to be made to remove single occupant vehicle trips from the system through Transportation Demand Management (TDM) options, including telecommuting, flexible work schedules, and ridesharing.

In the 2008 session, the Washington State Legislature allocated funding for the Puget Sound Regional Council (PSRC) to conduct a pilot project demonstrating a process for analyzing multimodal concurrency within a designated regional growth center. This report responds to that proviso and documents the work conducted by PSRC in consultation with the City of Bellevue and King County Metro. The pilot project focuses on Downtown Bellevue as a case study with the intent of developing a scalable multimodal concurrency measurement and analysis template that other jurisdictions could employ to manage multimodal travel demand and potentially incorporate into their concurrency management systems.

Regulatory Concurrency => As required by Washington State's Growth Management Act, the short-term process for determining if a proposed development will add trips to the transportation network that will cause a jurisdiction's level-of-service standards to be compromised.

Planning Concurrency => As proposed in this report, a long-range planning exercise that compares forecast population and employment growth to the capacity of a planned multimodal transportation network. If a gap is found in the ability of a planned transportation system to accommodate estimated demand, an action scenario is developed that outlines multimodal improvements necessary to close that gap.

Multimodal Concurrency => A Regulatory or Planning Concurrency process that incorporates considerations for all modes of transportation including, but not limited to transit, automobile, bicycle and pedestrian as well as benefits of transportation demand management efforts.

The focus of this pilot project is on multimodal concurrency within the long-range planning process herein called "Planning Concurrency". In contrast to the existing "Regulatory Concurrency" that typically has a five-to six-year horizon, this longer horizon allows the ability to incorporate multimodal levels of service into local and regional long-range planning efforts. The end result is a process for projecting a multimodal level of service (LOS) that may be used in either Regulatory or Planning Concurrency processes.

This report includes:

- A description of background legislation driving Regulatory Concurrency and the need for a multimodal approach.
- Project context and city of Bellevue background.

- Comparisons of Regulatory Concurrency and Planning Concurrency.
- A generic template that can be used by regional growth centers to forecast a future, multimodal transportation system.
- A summary of the methodology used to conduct the City of Bellevue Multimodal Pilot Project.
- A summary of institutional barriers that inhibit the feasibility of implementing a true multimodal concurrency program. These issues are raised by all would-be parties to multimodal concurrency and require further discussion. This report simply identifies these issues.
- Background land use and transportation policy from the state, regional and local levels.

Key Findings:

- In growth centers, all modes are needed to meet travel demand.
- Citizens and employers care about how the transportation system performs – exempting dense areas from concurrency does not address this.
- What's important is the use of alternative modes, not the just the capacity provided. Performing a market analysis is key to evaluating effective strategies.
- Transit metrics need to include multiple dimensions in order to address all factors that affect transit performance.
- Roadway, transit and land use planning need to be done together and reinforced with investment decisions to ensure that local growth can be supported.
- Long-range planning focus: How can future growth within centers be adequately served by all modes (while recognizing the need to translate the long-term approach into an approach that can be used for Regulatory Concurrency)?
- Suggested process for conducting Regulatory or Planning Concurrency analysis:
    - Step 1) Identify total person trip demand in established horizon year based on projected growth.
    - Step 2) Conduct a Gap Analysis based on current and planning capacity to determine the person-trip "gap" for all modes.
    - Step 3) Conduct an Action Scenario analysis (design/testing of transportation demand management (TDM), transit improvements, transportation system management (TSM), non-motorized investments, pricing, and general purpose roadway capacity expansion) including transit market analysis, to propose the most efficient transit service configuration to meet projected travel demand.

Potential Next Steps:

- "Multimodal Concurrency" is a complex concept. The Legislature has made several changes to the statute which move in the direction of multimodal concurrency, however there has not been a comprehensive rewrite of transportation planning or Regulatory Concurrency requirements which states clear intent as related to how multiple modes of transportation are to be incorporated into concurrency. The Legislature may want to consider such an amendment to clarify their intent.
- Current practice demonstrates that transit agencies and local jurisdictions are working together to coordinate long-range transportation planning efforts. However, no formal framework under the state's Growth Management Act exists that would ensure roadway and transit level-of-service standards in local comprehensive plans are coordinated with transit agency short- and long-range planning. Such a legal framework could help to ensure that growth centers are adequately served by transportation needed to make them work.
- Incorporating a cost/benefit analysis in the planning-level multimodal concurrency analysis would be useful to underscore the efficiencies associated with multimodal transportation investments.
- Establish a multimodal concurrency approach in concert with a regionally coordinated, and locally implemented, set of institutional planning principles that support the context for its implementation. To this end, the Puget Sound Regional Council should pursue resources to support a new element in its Work Program. The focus of this work will be to explore implementation of this pilot methodology in a way to support the Vision 2040 emphasis on mobility within, and access to, centers. This project, in order to be successful, would be done in a collaborative fashion with the legislature, local jurisdictions and transit agencies.
- Further explore how the proposed metrics respond to a range of input. For example, the transit metric output is based on a ridership assumption. Analyzing how this output changes based on different assumptions would give jurisdictions more information on which to base a transit concurrency standard.
- Further explore the potential for additional emerging pedestrian and bicycle metrics to measure useful dimensions of concurrency goals.
- Monitor developments and research in the area of TDM programs with the goal of understanding the potential impacts of specific demand management efforts.

II. Introduction

The focus of this pilot project is on multimodal concurrency within the long-range planning process herein referred to as "Planning Concurrency". In contrast to the existing "Regulatory Concurrency" that typically has six-year horizon, the longer timeframe in the Planning Concurrency process allows the ability to incorporate multimodal levels-of-service into local and regional long-range planning efforts. The end result is a process for projecting a multimodal level-of-service (LOS) that may be used for either Regulatory or Planning Concurrency processes.

This report includes:

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Background

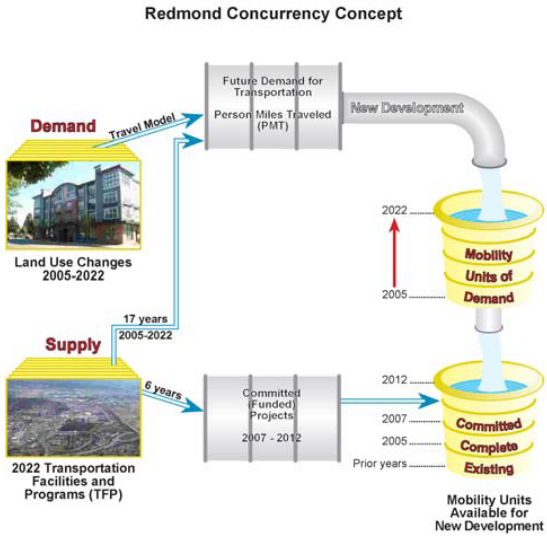
Washington State's Growth Management Act (GMA) contains a provision requiring local jurisdictions to have in place, or to have funded, necessary transportation facilities *concurrent* with new development. Throughout this report, the process of determining if the jurisdiction will meet its concurrency obligation is referred to as Regulatory Concurrency, reflecting the project-oriented nature of the procedure.

The Regulatory Concurrency provision within GMA is intended to provide a link between land use development and transportation investment. However,

GMA Concurrency Requirement

RCW 36.70A.070 (6)(b) After adoption of the comprehensive plan by jurisdictions required to plan or who choose to plan under RCW 36.70A.040, local jurisdictions must adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a locally owned transportation facility to decline below the standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with the development. These strategies may include increased public transportation service, ride sharing programs, demand management, and other transportation systems management strategies. For the purposes of this subsection (6) "concurrent with the development" shall mean that improvements or strategies are in place at the time of development, or that a financial commitment is in place to complete the improvements or strategies within six years.

it has proven to be a controversial topic. Some have expressed concern that the practice tends to favor roadway capacity solutions because simply lowering adopted level of service (LOS) standards can allow development to proceed even if it results in increased traffic congestion. There are also concerns that the system is only required for local street networks which ignores the impact of development on state highways. Further, most cities' concurrency methodology does not support robust multimodal analysis due to the unavailability of reliable measures of alternative mode improvement impacts on area mobility. While some jurisdictions such as the cities of Bellingham and Redmond (see Appendix J) have moved towards implementing a multimodal concurrency system, many cities still have LOS standards based on measuring vehicular capacity at intersections, which does not explicitly measure or recognize the capacity provided by carpools, transit, or non-motorized facilities.



In addition to the short-range Regulatory Concurrency requirement, the GMA also requires local agencies to develop and adopt longer-range comprehensive plans that contain a transportation element (RCW36.70A.070(6)). In that transportation element, the local jurisdiction must identify the land-use assumptions that provide the basis for the transportation plan; adopt level-of-service standards for roadways and transit service; determine long-term growth in population, employment and the ensuing travel demand; identify where infrastructure improvements would be needed to accommodate future growth, and multimodal strategies to address those gaps. The transportation element is also required to have a financial plan. If funding falls short of meeting adopted roadway and transit level-of-service standards the jurisdiction is required to reevaluate its land-use assumptions. This planning requirement is, in essence, a "Planning" Concurrency process that links land-use and transportation planning in an iterative and fundamental way. Land-use development, transportation standards and plans, as well as the ability to finance those transportation improvements have to be in balance, similar to the regulatory concurrency requirement.

New 2005 Concurrency Requirement for Regional Transportation Planning Organizations

RCW 47.80.030 (1) (f) "Sets forth a proposed regional transportation approach, including capital investments, service improvements, programs, and transportation demand management measures to guide the development of the integrated, multimodal regional transportation system. **For regional growth centers, the approach must address transportation concurrency strategies required under RCW 36.70A.070 and include a measurement of vehicle level of service for off-peak periods and total multimodal capacity for peak periods**"

The Washington State Legislature has been reviewing and revising the GMA Concurrency law and requirements contained therein. In 2005, they authorized a study of multimodal concurrency to analyze ways that transit, walking, and other modes could be incorporated into local concurrency systems. Additionally, in 2005 a change was made to the statute governing Regional Transportation Planning Organizations

(RTPOs), such as the PSRC, requiring them to address concurrency in regional growth centers during the development of regional transportation plans. More specifically, RTPO's are required to include measures that are vehicle-oriented during off-peak periods and multimodal for peak periods. Currently, the PSRC is engaged in an update to the central Puget Sound regional transportation plan, *Destination 2030,* which includes 27 designated regional growth centers to which the concurrency requirement applies, including Downtown Bellevue.

RCW36.70A.070(6) ***Growth Management Act Transportation Planning Process:***

A transportation element that implements, and is consistent with, the land use element

(a) The transportation element shall include the following subelements:

(i) Land use assumptions used in estimating travel;

(ii) Estimated traffic impacts to state-owned transportation facilities resulting from land use assumptions to assist the department of transportation in monitoring the performance of state facilities, to plan improvements for the facilities, and to assess the impact of land-use decisions on state-owned transportation facilities;

(iii) Facilities and services needs, including:

(A) An inventory of air, water, and ground transportation facilities and services, including transit alignments and general aviation airport facilities, to define existing capital facilities and travel levels as a basis for future planning. This inventory must include state-owned transportation facilities within the city or county's jurisdictional boundaries;

(B) Level of service standards for all locally owned arterials and transit routes to serve as a gauge to judge performance of the system. These standards should be regionally coordinated;

(C) For state-owned transportation facilities, level of service standards for highways, as prescribed in chapters 47.06 and 47.80 RCW, to gauge the performance of the system. The purposes of reflecting level of service standards for state highways in the local comprehensive plan are to monitor the performance of the system, to evaluate improvement strategies, and to facilitate coordination between the county's or city's six-year street, road, or transit program and the department of transportation's six-year investment program. The concurrency requirements of (b) of this subsection do not apply to transportation facilities and services of statewide significance except for counties consisting of islands whose only connection to the mainland are state highways or ferry routes. In these island counties, state highways and ferry route capacity must be a factor in meeting the concurrency requirements in (b) of this subsection;

(D) Specific actions and requirements for bringing into compliance locally owned transportation facilities or services that are below an established level of service standard;

(E) Forecasts of traffic for at least ten years based on the adopted land use plan to provide information on the location, timing, and capacity needs of future growth;

(F) Identification of state and local system needs to meet current and future demands. Identified needs on state-owned transportation facilities must be consistent with the statewide multimodal transportation plan required under chapter 47.06 RCW;

(iv) Finance, including:

(A) An analysis of funding capability to judge needs against probable funding resources;

(B) A multiyear financing plan based on the needs identified in the comprehensive plan, the appropriate parts of which shall serve as the basis for the six-year street, road, or transit program required by RCW 35.77.010 for cities, RCW 36.81.121 for counties, and RCW 35.58.2795 for public transportation systems. The multiyear financing plan should be coordinated with the six-year improvement program developed by the department of transportation as required by **RCW 47.05.030;

(C) If probable funding falls short of meeting identified needs, a discussion of how additional funding will be raised, or how land use assumptions will be reassessed to ensure that level of service standards will be met;

(v) Intergovernmental coordination efforts, including an assessment of the impacts of the transportation plan and land use assumptions on the transportation systems of adjacent jurisdictions;

(vi) Demand-management strategies;

(vii) Pedestrian and bicycle component to include collaborative efforts to identify and designate planned improvements for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles.

In 2008 the Legislature funded a study of multimodal concurrency to further explore methods of quantifying alternative transportation modes and incorporating them into local concurrency management programs. In response to this legislative proviso PSRC and the City of Bellevue have collaborated with King County Metro to develop multimodal measures that could be utilized for both peak and off-peak periods, concurrency approaches for the Downtown Bellevue regional growth center, and a strategy for integrating all modes (roadways, transit, walk, and bike) into considerations for sustained mobility. Recent changes to the state's Commute Trip Reduction law also emphasize trip reduction in the more dense growth centers, known under the CTR program as Growth and Transportation Efficiency Centers.

Regulatory Concurrency versus Planning Concurrency

As described above, the focus of this pilot project is on multimodal concurrency within the long-range planning process, referred to in this report as Planning Concurrency. In contrast to Regulatory Concurrency that typically has a six-year horizon; the Planning Concurrency process represents a longer time horizon allowing for the ability to incorporate multimodal levels-of-service (LOS) into local and regional long-range planning efforts. This includes the coordination between agencies responsible for land use and transportation planning, such as cities and transit agencies. The end result is a transportation planning process for projecting a multimodal LOS that may be used for either Regulatory or Planning Concurrency processes. Figures 1 and 2 compare and contrast the similarity and differences between each of the planning processes, the steps involved. A detailed comparison of these processes can be found in Appendix B.

Figure 1 **– Regulatory Concurrency Process**

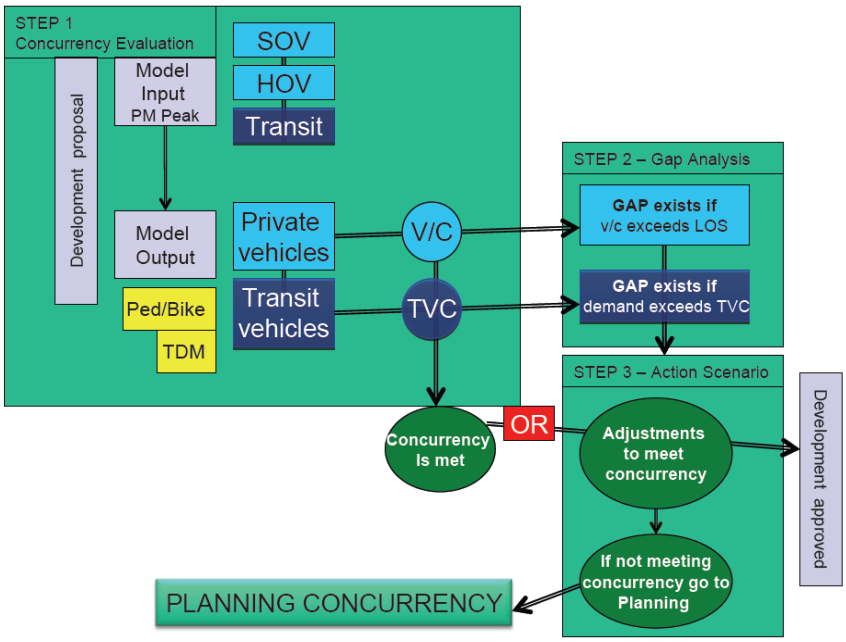
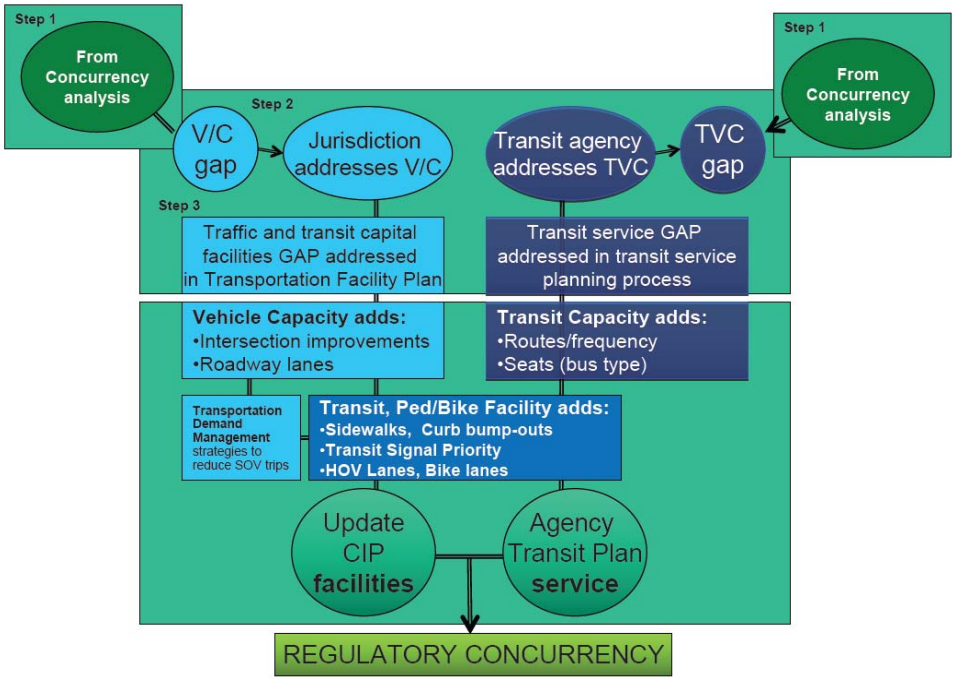


***Figure 2* – Planning Concurrency Process**



City of Bellevue: The Local Planning Context

Bellevue's Downtown Subarea Plan was updated in 2003, after a long community planning process (known as the Downtown Implementation Plan, or DIP). City staff and consultants worked with a large Citizens Advisory Committee to evaluate several transportation alternatives to serve the commercial and residential growth projected in Downtown Bellevue by 2020. Several specific project ideas came out of the DIP process, including the idea of a one-way couplet along 106th and 108th avenues NE, mid-block pedestrian crossings, and a variety of intersection and pedestrian/bicycle improvements. The DIP also called for doubling transit service and quadrupling transit ridership in and to Downtown Bellevue by 2020. The Plan also forecast the need for 40% of commute trips to be on transit by 2020.

Downtown Bellevue is currently experiencing dramatic growth in both employment and housing units. This growth has accelerated in recent years and is expected to continue at a vigorous pace into the foreseeable future. Downtown Bellevue currently has approximately 36,000 workers and 5,000 residents, and is forecasted to have 63,000 employees and 11,000 housing units by 2020. Based on current and projected development activity these forecasts still appear reasonable. The downtown roadway network will have increasing difficulty meeting the new demands. The street grid of "superblocks" poses significant challenges for traffic circulation, signal coordination, and pedestrian movement. As more workers, residents, and

shoppers congregate in the same amount of space they will rely more on transportation modes other than the private automobile. This clearly means that the future transportation system needs to become a more multimodal and truly urban system with transit as a particular emphasis, underscoring the utility of Bellevue's regional growth center as the study area for this pilot project.

Like many cities, Bellevue's existing concurrency methodology, developed in 1989 and modified in the 1990s, focuses on measuring the number of vehicles traveling through vehicles at intersections relative to the capacity of those intersections to accommodate vehicles and does not explicitly measure or recognize the capacity provided by other modes. As noted above, in Bellevue's downtown the potential to add vehicular-based roadway capacity is limited. While there is not anticipated to be a short-term concurrency problem, projections in the 2020 - 2030 timeframe show that downtown, as well as other areas of the city, are likely to surpass their current LOS standards, potentially triggering concurrency issues and potential development moratoriums. Since transportation solutions in Downtown Bellevue are likely to be more focused on transit and nomotorized modes, the city is interested in developing a concurrency measure that acknowledges and measures these trips.

While transportation solutions in Downtown Bellevue are likely to be very focused on transit in the longer term, the City has concerns about moving to a more multimodal concurrency system. While the present level-of-service standards, for example, are geared towards intersection and road capacity, these are factors that the City controls through improvements that the City funds and builds (or can have private development build as part of mitigation). Bellevue does not, however, control or allocate transit service; transit service is provided by outside agencies (specifically King County Metro and Sound Transit). The City does control all of the factors and inputs for its existing concurrency system (land use permitting authority, designation of LOS in each zone, and roadway/intersection improvements and signalization). A multimodal concurrency and LOS system that helps drive needed transit service to Downtown Bellevue and other regional growth centers would be a desirable outcome of this effort; conversely, creating a concurrency framework that makes local land-use decisions dependant on transit service that the City does not control would be problematic. From a transit perspective, agencies find the need for a coordinated planning process so that they may understand the roadway conditions on which future transit service will be operating.

III. Proposed Method - Multimodal Concurrency Template

Jurisdictions use Regulatory Concurrency to evaluate the ability of a planned transportation system to accommodate additional travel generated by a proposed development. Such development proceeds to construction only if the jurisdiction determines that the additional trips produced will not violate level-of-service (LOS) standards established through the comprehensive planning process. Many cities still have LOS standards that are based on measuring vehicular capacity at intersections, which does not explicitly measure or recognize the capacity provided by carpools, transit, or non-motorized facilities. The primary purpose of this project is to introduce a new approach to Regulatory Concurrency that addresses these additional modes of travel (bicycle, pedestrian, and transit) that can be replicated by all Washington State Regional Transportation Planning Organizations (RTPOs) and jurisdictions.

While broadening the scope of analysis to satisfy this goal, the project team realized that the resultant approach resembled a comprehensive planning effort that could be useful to jurisdictions in longer time frames than the six-year horizon required under Regulatory Concurrency. The team coined the label "Planning Concurrency" for situations in which a jurisdiction might choose to apply the method to inform longer-range planning decisions.

The Planning Concurrency approach builds off of future land use inputs (population and employment) as well as roadway and transit levels-of-service; all of which are established through a jurisdiction's comprehensive planning process required under RCW36.70A.070(6). Forecast trips are compared with roadway and transit LOS to determine any gap in the ability of the planned transportation system to accommodate estimated demand in either mode. If a gap is identified, the implementing agency performs a market analysis to determine if and/or where efficiencies and other improvements in the transit network can be achieved. Once an efficient and effective transit network is designed, trips that remain un-served are accommodated by a variety of strategies including transportation demand management (TDM), land use change, bicycle or pedestrian connectivity improvements, and roadway capacity expansion. The prioritization of one strategy type over another remains a local policy decision.

The detailed analytic method proposed below represents a scalable and transferrable multimodal concurrency method that can be used by jurisdictions for either Regulatory or Planning Concurrency, depending upon their needs and resources.

Method Overview

The proposed analysis approach occurs in three broad steps:

Step 1) **Evaluate multimodal concurrency in a chosen future year.** In this step, forecast travel demand is compared with the planned capacity of the transportation system. If the analysis concludes that the transportation system is adequate, a positive concurrency finding, then the proposed development can be constructed and no further work is required.

Step 2) If step one finds that concurrency has not been met, to the analyst must **determine the gap** between the originally proposed future transportation system and a scenario that would meet concurrency. The gap is then translated into units such as person trips, which allows scenario testing to be conducted, step (3).

Step 3) Finally, **strategies are designed and tested to close the gap** and meet concurrency requirements.

The remainder of this chapter describes the proposed method in detail by covering possible evaluation metrics (step 1), gap estimation methods (step 2), and strategy design tools (step 3). The next section demonstrates the method in a long-range, hypothetical Planning Concurrency application in the City of Bellevue.

Implications of Multimodal Concurrency

As previously mentioned, the vast majority of metrics used in concurrency measurement systems focus on vehicle volumes and roadway capacity. This approach, while appropriate for some communities, focuses transportation improvements that are required because of a negative concurrency determination on accommodating additional vehicles as opposed to trips across all modes of transportation. The primary purpose of this project is to introduce a new approach to concurrency that addresses additional modes of travel (bicycle, pedestrian, and transit) and that can be replicated by all Washington state Regional Transportation Planning Organizations (RTPOs) and jurisdictions.

This multimodal approach allows jurisdictions to establish concurrency standards that consider all modes of transportation. In other words, a city could set a policy that would fail a land use proposal in concurrency in a transit or non-motorized dimension even if it meets concurrency in the roadway dimension. While the method described below explains how this would work, it does not propose transit or nonmotorized standards or thresholds, as those specific policy decisions would be the responsibility of local jurisdictions.

Establishing the Base Year Context

While concurrency, by definition, examines the future land use of a city and its transportation system, it is wise to establish a clear understanding of current conditions as context for the analysis of impacts due to various transportation improvements (or lack thereof) over time. When undertaking a long-range Planning Concurrency analysis, the jurisdictions and transit agencies involved should comprehensively document existing multimodal transportation demand and capacity. This includes, but is not limited to, mode share, roadway capacity per LOS standards, transit capacity, and bicycle/pedestrian facility quality of service per the metrics suggested below. Transportation demand management (TDM) strategies implemented in the study area should also be inventoried. Additionally, issues related to land use, demographic

change, and economic development should be well documented to provide sufficient context. Having complete documentation of observed, real-world conditions in all of these areas will enable the parties to make well-informed decisions regarding the most appropriate strategies for realizing an efficient and seamless multimodal transportation network.

Information on existing conditions can be found at the local, regional, or state level. Local or regional modeling can provide estimates of mode share and roadway capacity whereas ridership figures and transit service improvements should be collected by the transit agency or agencies serving the study area. Additionally, if available, trips currently not being taken due to transportation demand management (TDM) efforts such as the state's Commute Trip Reduction (CTR) program should be estimated or data obtained. Issues related to land use, demographics, and/or economic development can be assembled from various local and regional sources such as local chambers of commerce or economic development groups.

Method Details

Step 1: Concurrency Evaluation

Determine horizon year. Regulatory Concurrency responds to a Growth Management Act (GMA) stipulation requiring local jurisdictions to provide the infrastructure, programs, and/or services necessary to accommodate additional growth *within six years of a new development being built*. This multimodal method can also be applied in the six-year window most cities choose to satisfy GMA. If jurisdictions wish to take a longer Planning Concurrency approach, the horizon year is best established through consultation between the jurisdiction, local and regional transit agencies and the appropriate regional planning agency. In order to compliment and build-upon existing work, the selected planning horizon should also correspond with, or at least acknowledge, other planning efforts the city may have completed, as well as planning efforts from relevant transit agencies and, if applicable, planning efforts in adjacent jurisdictions or the region at large.

Determine study area. The geographic boundaries of the analysis must be chosen, noting that different boundaries may be appropriate for different steps of the method. For Regional Growth Centers, the main analysis geography is the set of Traffic Analysis Zones (TAZ's) comprising the designated center. Useful variations from this are noted below, most typically using the TAZ's comprising the entire city for certain steps.

Determine future land use. Future growth to be accommodated must be clearly defined, either from specific development requests for Regulatory Concurrency or from an appropriate land use forecast for Planning Concurrency. Potential sources for land use forecasts are the PSRC Small Area Forecasts and the jurisdiction's citywide or regional growth center targets. In any case future land use estimates should include total population and employment within the study area for the horizon year.

Choose evaluation metrics. Include metrics for roadway, transit, and non-motorized modes. The project team performed an assessment of current roadway metrics, and researched potential measures for alternative modes.

Suggested Roadway Metric. Jurisdictions have a choice of metrics in the roadway dimension of the proposed method.

a) Highway Capacity Manual (HCM) intersection-based level-of-service[1]. Several jurisdictions reviewed for this project prefer this method because of its precision; focusing on intersection LOS allows cities to capture system management strategies (such as channelization) directly and therefore better balance potential roadway investments between expensive capital expansion and less costly efficiency measures.

b) Highway Capacity Manual (HCM) roadway segment-based Level of Service.[2] In the absence of specialized modeling or post-processing software used to calculate an intersection level-of-service, jurisdictions could potentially turn to a link (roadway segment) LOS as long as they can conclude that it would not bias the findings.

c) There are other roadway LOS methods in use across the region and within Washington State. To apply the multimodal method outlined in this report, any specific roadway LOS must be an unbiased representation of LOS and have the ability to feed a gap analysis (see below).

Suggested Transit Metric. By consulting transit agencies, local jurisdictions, and national research[3] [4], the project team devised a composite transit LOS criterion including of all the individual metrics identified on the following page.

[1] For full details see Highway Capacity Manual 2000.
[2] Ibid
[3] HCHRP Report 616.
[4] TCRP Report 88.

Transit Metric	Method
Load Factor	Volume-weighted average ratio of load to capacity (see capacity and load below).
• Capacity (supply)	Seats in time period in study area.
• Load (demand)	Riders in time period in study area.
Speed	Volume-weighted average transit speed on all transit segments within the City boundary.
Headway	Volume-weighted average headways on all routes serving study area.
Reliability	Roadway LOS in study area (as proxy) in time period.
Service Coverage	Percent of transit service area that is accessible where transit service area is defined by the desired type of possible service—e.g. three housing units per acre for hourly bus service. Accessibility would be measured as a ¼ mile network buffer from all active bus stops, ½ mile for rail.

Suggested Bicycle Metric. The project team examined national research, the Washington State Bicycle/Pedestrian plan, and local plans to create a possible composite bicycle quality-of-service criterion. The project team identified the following factors:

a) Presence of off-road bicycle facilities (defined as a facility physically inaccessible to motor vehicles, even if it lies within general roadway right-of-way). The metric is expressed as the ratio of land area in the total of quarter-mile buffers around all off-road, non-motorized facilities to total land area within the study area.

b) Aspects of the on-road bicycle experience where bikes share the general roadway, including amenities such as bike lanes and wide shoulders. The metric is the ratio of centerline miles of roadway with bicycle amenities to centerline miles of roadway without bicycle amenities within the study area.

Other factors could be consulted for additional background information but are difficult to forecast at the necessary level of detail and might not be quantifiable in a given situation.

- Posted vehicle speed limit
- Proportion of heavy vehicles in the roadway traffic volume
- Connectedness of facilities open to bicycle use (including multimodal connections)
- Availability of end-of-trip facilities such as bicycle lockers and showers

Exploring ways in which all of these factors could be combined into a single metric for bicycle facilities is a topic for future work related to establishing and

assessing non-motorized levels-of-service. The next generation of analytic tools will be more sensitive to individual improvements to the bicycle network, enabling a more robust analysis of how bicycle mode share responds to a given improvement type, and how growth in mode share may affect established levels-of-service.

Suggested Pedestrian Metric. The project team used the same sources as in the bicycle section above to suggest a composite pedestrian quality-of-service criterion. The identified factors are:

a) Presence of sidewalks. The metric is the ratio of block faces with complete, passable sidewalks to the total number of block faces within the study area.

b) Intersection density expressed as a ratio of walkable intersections per square kilometer to total intersections per square kilometer in the study area

Other factors could be consulted for additional background information but are difficult to forecast at the necessary level of detail and might not be quantifiable in a given situation.

- Posted vehicle speed limit
- Presence of a buffer between pedestrian space and vehicle lanes
- Street width
- Presence of mid-block crossings
- Presence of crosswalks and pedestrian amenities including wayfinding
- Topographical challenges

Exploring ways in which these factors could be combined into a single metric for pedestrian facilities is a topic for future work related to establishing and assessing non-motorized levels-of-service. The next generation of analytic tools will be more sensitive to individual improvements to the pedestrian network, enabling a more robust analysis of how pedestrian mode share responds to a given improvement type, and how growth in mode share may affect established levels-of-service.

Establish Concurrency Standards. As previously mentioned it is up to each jurisdiction to set policy specified standards (also called thresholds) for each of the metrics defined above which, if met, would allow a growth proposal to meet concurrency. In response to the unique nature of each community, this method allows jurisdictions to set

standards differently across the different modes to be more relevant to their particular situation or goals.

Establish Time Period for Analysis. The time(s) of day to use in determining concurrency must also be chosen. While one jurisdiction may want to focus on peak-period work trips, others may be more concerned with non-work activity dispersed throughout the day. The methodology for Planning Concurrency can be applied in any time period throughout the day; however, the project team suggests that the AM peak period is a minimum requirement, given its typical congestion and the fact that it tends to see the highest transit use for work trip purposes.

Establish the baseline state of the future transportation system. The horizon year baseline system must include all funded transportation investments for all modes within a jurisdiction. It should also include all funded investments regionwide that could affect the local transportation system. For Planning Concurrency it *may* also be appropriate to add future but currently unfunded investments to the baseline when jurisdictions can make a compelling case that investments are certain (if, for example, there are significant resources programmed in the regional TIP, however these funds are not yet available). Types of investments to consider include, at minimum:

- Roadway capacity projects
- Transit service and facility investments or changes
- Ferry system investments (if applicable)
- Bicycle and pedestrian projects and programs
- Freight-related investments (grade separations, etc.)
- Transportation system management (Intelligent Transportation Systems (ITS) projects and programs
- Transportation Demand Management (TDM) programs

Sources of funded investments include, but are not limited to, the following:

- The city's own six-year Capital Improvement Program (CIP)
- Relevant transit agency six-year Transit Development Programs (TDP's)
- The regional TIP as maintained by the RTPO
- CIP's of neighboring jurisdictions

Sources of other future investments include:

- Various departments of the local jurisdiction (public works, planning, etc.)
- Corridor planning efforts (e.g., route development plans)

- County departments of transportation
- Washington State Department of Transportation
- Appropriate local improvement districts
- Transit agencies
- Neighborhood or activist groups
- Private providers of transportation services
- Local businesses

Forecast horizon year travel demand and apply evaluation metrics. Ultimately, concurrency evaluation is complete when the jurisdiction runs a travel demand forecast model for the future year baseline, computes all evaluation metrics listed above, and compares the baseline metric results to the policy-set threshold requirements. Should any of the metrics fail, analysis proceeds to the relevant parts of the next major step: problem identification.

Step 2: Gap/Problem Identification

The general approach to problem identification is to build upon the Concurrency Evaluation in step 1 by performing additional analysis to convert the evaluation findings into a gap expressed in person-trips or other quantifiable terms. The general concept is that problems in the system arise either because too many people are trying to use a mode (a person-trip gap) or a given portion of the system is simply inadequate to support many trips at all (a quality-of-service gap). While the horizon year baseline forecast modeling and the base year observed data provide much of the necessary information for this step, it is also possible that other planning and policy work at the city has already identified problems or made policy decisions establishing certain goals. Such additional information should be added to the discussion of findings from the gap analysis method outlined below.

Determine roadway gap or issues. The roadway gap calculation builds upon the adopted roadway LOS standard and the traffic volume information it produces to derive a person-trip gap, on average, across the intersections or links cities use in their concurrency methodology. The increment of vehicle trips above the adopted LOS standard at all locations chosen for analysis would be used in a volume-weighted average calculation to produce the total "roadway person-trip gap" that this method's strategy design step must address. Averaging is necessary to ensure that trips in the study area aren't double-counted; weighting is necessary to ensure that individual intersections or segments that are particularly congested influence the strategy design sufficiently.

Determine transit gap or issues. Transit presents a more complex problem identification challenge than the roadway side, since bus transit depends on roadway performance as well as the provision of service. The proposed transit problem identification step is therefore multi-dimensional:

a) ***Identify specific capacity issues*** using the Concurrency Evaluation load factor metric (see section 1.d.ii above) on a route-by-route basis for all routes serving the study. While this can be expressed as a person-trip gap it is quicker to move directly to potential changes to existing baseline service frequency (the result being a list of headway changes on the existing routes that would close the person-trip gap sufficiently to meet a load factor of 1.2 (120% of seats).

b) ***Identify service coverage issues*** using the Concurrency Evaluation coverage metric in the study area. This addresses a quality-of-service gap issue by identifying portions of the study area un- or under-served by baseline transit and is expressed as a map of those portions of the study area failing to meet the city's chosen coverage threshold.

c) ***Identify service attractiveness issues*** by extending the Concurrency Evaluation speed and headway metrics to the route level for all service to and from the study area. The results are a table by time period for speed and headway by route for the portions of each lying within the city boundary regardless of the size of the actual study area or center. The reason to use a different geography in this case is to capture the full area over which the city could consider strategies under its own control that would enhance transit attractiveness.

Determine bicycle issues. The Concurrency Evaluation metric for bicycles produces a statement of problems or issues.

Determine pedestrian issues. The Concurrency Evaluation metric for pedestrians produces a statement of problems or issues.

Synthesize a picture of the overall problem from individual issues. There are many possible combinations of findings and issues that the problem identification method outlined in this section might produce. Any given application of this method will thus need to include a step where the analytic team documents and synthesizes the identified problems. Problems tend to be interrelated; for example, a roadway LOS failure may occur because a location is not maximizing its transit opportunities. Due to the use of professional judgment in this step, synthesizing of the overall problem statement will most likely blend into the next step: strategy design.

Step 3: Strategy Design and Testing

The design of a set of future transportation investments to meet concurrency across all dimensions should integrate all individual modal efforts into one comprehensive picture (which this proposal labels the "action strategy"). This requires some iteration to allow the analysis team to explore the interrelations between different strategies in different modes. However, given the fact that bus transit is so dependent upon roadway performance, the project team recommends that the strategy design step address transit as early as possible in the process.

Design transit strategies. The metrics from the gap/problem identification step inherently suggest some potential transit remedies but they do not provide the complete picture. For example, a roadway problem by itself would suggest the potential for additional transit even if the transit metrics all met established thresholds. For this reason the project team proposes that the multimodal concurrency method incorporate a transit market analysis any time concurrency fails in any dimension. The Puget Sound Regional Council has recently developed two tools to aid in transit service analysis and design. Where these, or similar, tools are not available, planners should use traditional sources to conduct the transit market analysis. There are two parts to the proposed transit strategy design:

a) ***Transit market analysis.*** The Transit Competitiveness Index (TCI) tool uses 2006 demographic and market survey data to allow the analysis of transit's relative competitiveness of getting to and from selected portions of the region. This method proposes a TCI analysis of both transit attractiveness from key areas of the region to the study area and transit attractiveness from the study area to other parts of the region. The analyst can be guided in which areas to focus TCI attention by examining the trip-making characteristics of the horizon year baseline travel demand forecast. The two products of this step are (1) a table and related map showing total trip flows to and from the study area from the model "districts" (larger-scale geographies used in the regional or local model software) and (2) a series of tables and maps from the TCI tool showing the potential for transit to carry trips from the districts to the study area and vice versa.

b) ***Transit service design/sketch analysis.*** The analyst would next design modified and/or additional transit service for the study area based on a comparison of ridership and trip flows from the baseline horizon year to areas in the region that the TCI has identified as having the greatest potential for transit use to and from the study area. Services with low existing or baseline forecast ridership compared to TCI-identified transit potential are the transit corridors on which to concentrate the most design effort.

   With potentially productive service improvements identified, the analyst would use the Service Planning Tool (SPT), professional judgment, and other analyses suggested by the situation to create and test service modifications

(The SPT examines a given corridor. In response to service changes entered, and reports a resulting change in transit ridership).

c) ***A list of proposed transit strategies*** for the action scenario is the product of the transit design step which shows expected person-trips served by each individual strategy.

Design transportation demand management strategies. Working from observed TDM efforts in the study area, the analyst should create a list of potential efforts that would shift trips to less congested modes or reduce trip making to the study area (such as telecommuting). While quantitative analysis of TDM efforts is not yet mature, the analyst should make every effort to attach realistic trip-making changes to proposed demand management strategies based on observed local data where feasible. Where local data is insufficient or not available, alternative sources such as the Victoria Transport Policy Institute (VTPI) contain a wealth of information related to the impacts of various TDM strategies, generally expressed as ranges of SOV trip reductions, increases in alternative mode share, or as elasticities. The product of this step is an inventory of TDM programs in the action scenario, with numbers of expected trip reductions or shifts, in total, or preferably by individual strategy.

Design bicycle strategies. The proposed bicycle Concurrency Evaluation metrics produce some direct suggestions of action steps, but the analyst would need to supplement these with suggestions from any planning efforts the city may have and through consultation with stakeholders. Although, like TDM, the ability to quantitatively analyze the trip impacts of bicycle investments is not yet mature, the analyst should make an informed suggestion of trip-making changes likely to be caused by such investments. The product of this step is an inventory of bicycle investments in the action scenario with numbers of expected trip shifts, in total, or preferably by individual strategy.

Design pedestrian strategies. Similar to the bicycle mode, the proposed pedestrian Concurrency Evaluation metrics produce some direct suggestions of action steps but the analyst would need to supplement these with suggestions from any planning efforts the city may have and through consultation with stakeholders. Walking is in a similar analytic state as cycling. The current generation of tools does not yet forecast specific reactions to specific investments. Nonetheless, the product of this step is an inventory of pedestrian investments in the action scenario with numbers of expected trip shifts, preferably by individual strategy, but at least in total.

Design roadway strategies. This method proposes to examine roadway strategies last because of their fundamental nature in providing the “backbone” for many other modes, including bus, sidewalks and bike lanes. Work in those other areas may suggest some particular use of existing roadway right-of-way such as a business-access/transit lane, sidewalk, or bike lane. The roadways may also need attention in their own right

either through specific management strategies such as signal coordination and retiming, different intersection channelization or through capacity strategies such as adding capacity for general purpose or managed lanes. The analyst should examine the gap analysis findings and all other modal suggestions to create a series of roadway strategies that integrate the action scenario into its final form. The product is a list of roadway strategies with either their model-able characteristics or a qualitative discussion of the expected effect on the Concurrency Evaluation metrics.

Test the "action scenario" comprised of all strategies together. In the final phase of the overall analysis, the project team would code and run in the travel demand forecast model the full set of strategies comprising the action scenario. The product of this step is a summary of trip making into and out of the study area by mode and by trip purpose. Since the current generation of regional modeling tools is not fully sensitive to the range of strategies that jurisdictions and transit agencies might employ to meet concurrency the team will need to augment the trip-making response forecast by the model with qualitative trip-making changes asserted by certain components of the various strategies outlined above to reach a final judgment of whether the action scenario meets concurrency standards.

The results of this analysis can be iteratively adjusted to reflect a desired state and policy direction received from decision-makers.

IV. Example - Downtown Bellevue

PSRC staff collaborated with staff from Bellevue and King County Metro to apply the template from the previous chapter in a hypothetical exercise to the Downtown Bellevue Regional Growth Center (RGC, also referred to below as "the study area"). This chapter documents the example.

Step 1: Concurrency Evaluation

This section outlines the evaluation metrics chosen, their application to the Bellevue example, and assumptions it was necessary to make given the hypothetical nature of the exercise.

Determine horizon year. Due to the collaborative nature of this project it was necessary to establish a planning horizon that aligned with future year information available and compatible with both the PSRC regional travel demand mode and the Bellevue-Kirkland-Redmond (BKR) travel demand model. The project team chose 2020 to allow use of information in the city's Downtown Subarea Plan adopted in 2003.

Determine study area. The study area is the Downtown Bellevue designated Regional Growth Center. The center is represented by four TAZ's in the PSRC model (TAZ numbers 293, 294, 295, and 296).

Determine future land use. The future population and employment for year 2020 were taken from the PSRC 2006 Small Area Forecasts:

a) Total population in the Downtown Bellevue RGC in 2020 = 13,528.

b) Total employment in the Downtown Bellevue RGC in 2020 = 62,999.

Select evaluation metrics and standards.

Roadway Metric: HCM intersection LOS. Standard: City of Bellevue adopted roadway LOS of .95 volume-to-capacity ratio at select intersections; equates to intersection near capacity.

Transit Metrics: Proposed composite transit metrics from this report (see Chapter III. Standard: see below.

Bicycle Metrics: Proposed metrics from this report (see Chapter III). Standard: see below.

Pedestrian Metrics: Proposed metrics from this report (see Chapter III). Standard: see below.

Standards/Thresholds: Since the new transit, bicycle, and pedestrian metrics have no adopted standards, this report compares results for the base case vs.

the action scenario. The project team suggests that the range of results from this pilot be used to inform future discussions of what standards would be appropriate for these metrics should jurisdictions choose to use them.

Select time period. The team chose the AM peak period (6 a.m. to 9 a.m. on a typical weekday) as the time period for analysis given the congestion typically experienced in that period and its high volume of transit for trips to work.

Baseline state of the study area transportation system. Bellevue staff provided analysis and data describing the year 2006-2007 behavior of the local transportation system.

Table 1 **- BKR Model Results for 2007 Travel Demand**

Daily Person Trips - **2007 Estimate**

Worktrips to Downtown Bellevue	42,075
Transit mode share from all areas	11%
Worktrips from Downtown Bellevue	5,391
Transit mode share to all areas	7%
Internal work trips	846
Transit mode share internal	17%
Total daily person trips	46,620

Source: Bellevue-Kirkland-Redmond Travel Demand Model
Version: MP0R9

Figure 3 **- Existing Transit Service to Downtown Bellevue**

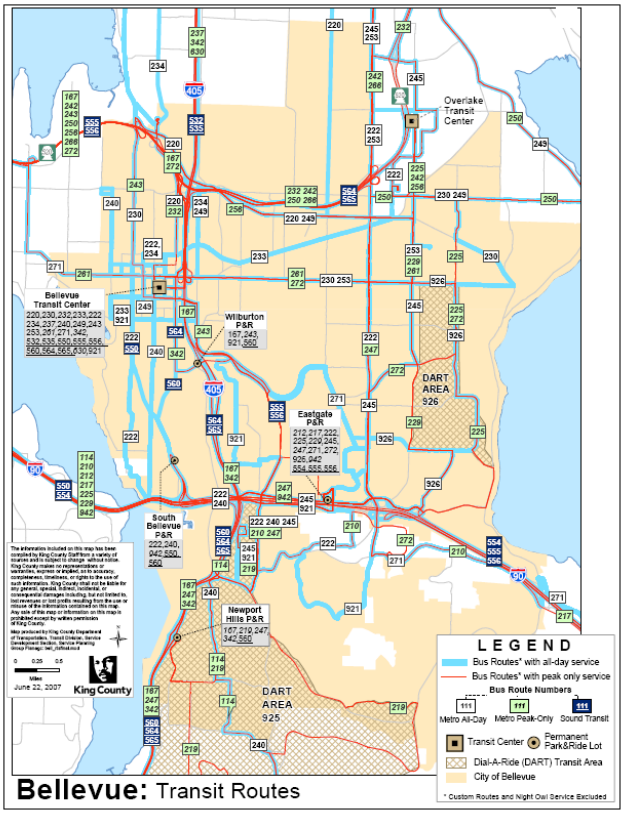
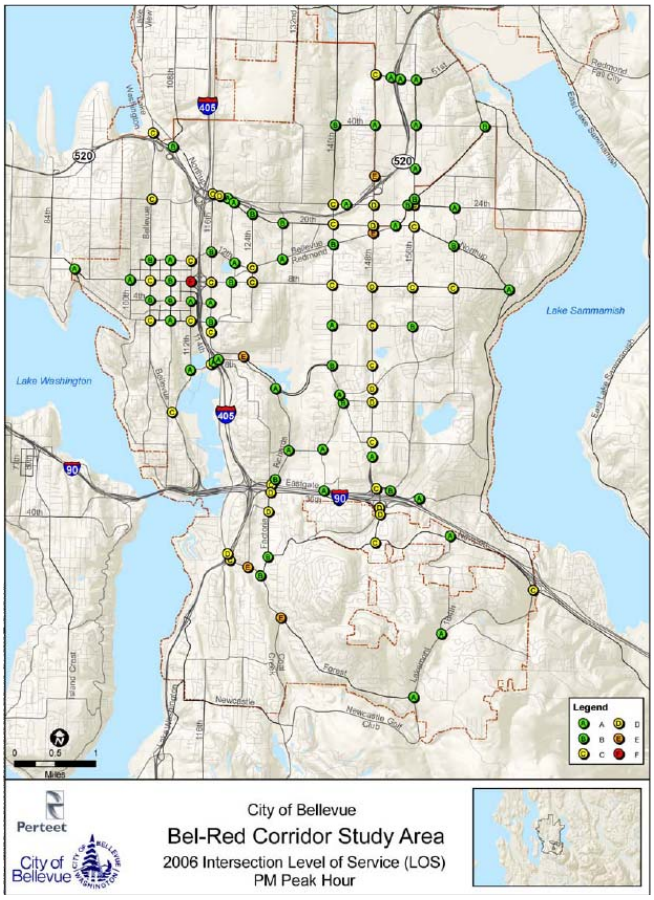
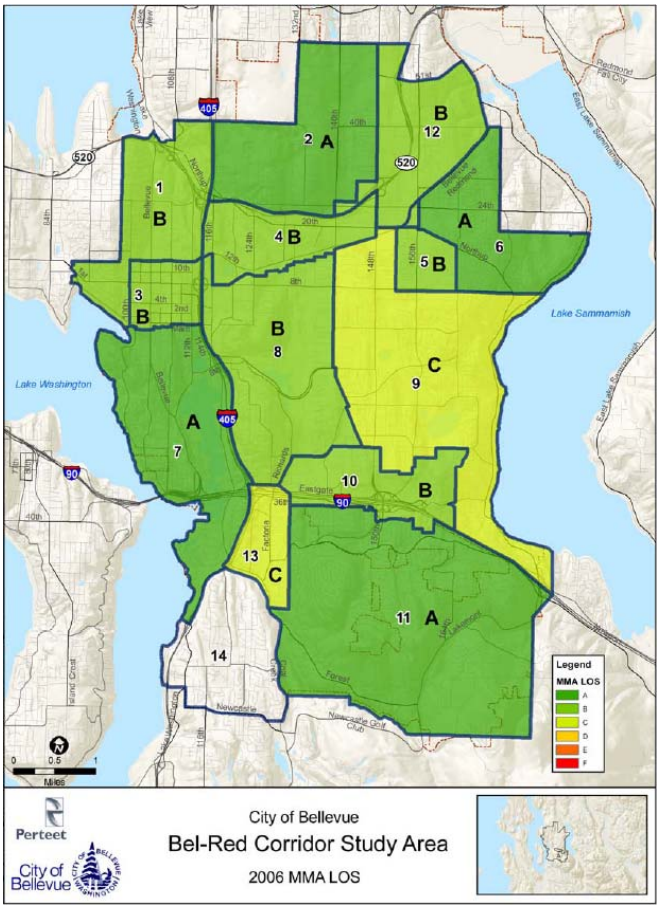


***Figure 3* - 2006 Baseline Roadway Concurrency Evaluation.**





Source: BKR model.

Forecast horizon year travel demand and application of evaluation metrics. Bellevue and PSRC, with consultation from Metro staff, shared the tasks of base case future forecasts. Bellevue analysis informed the roadway concurrency evaluation while PSRC analysis addressed the other evaluation metrics and strategy design/testing.

a) ***Roadway Concurrency Evaluation:*** Bellevue forecast analysis determined that in the BKR model in year 2020 the study area would meet concurrency standards (see Figure 4).

b) ***Transit, Bicycle, and Pedestrian Concurrency Evaluations***: see the results of the action scenario analysis beginning on page 43.

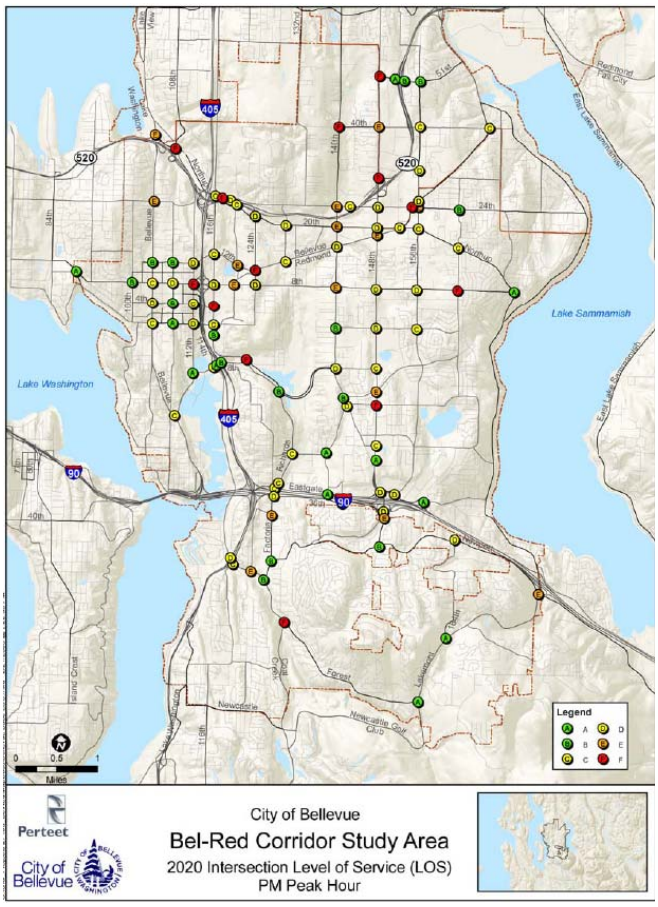
***Table 2* - Baseline 2020 travel demand data**

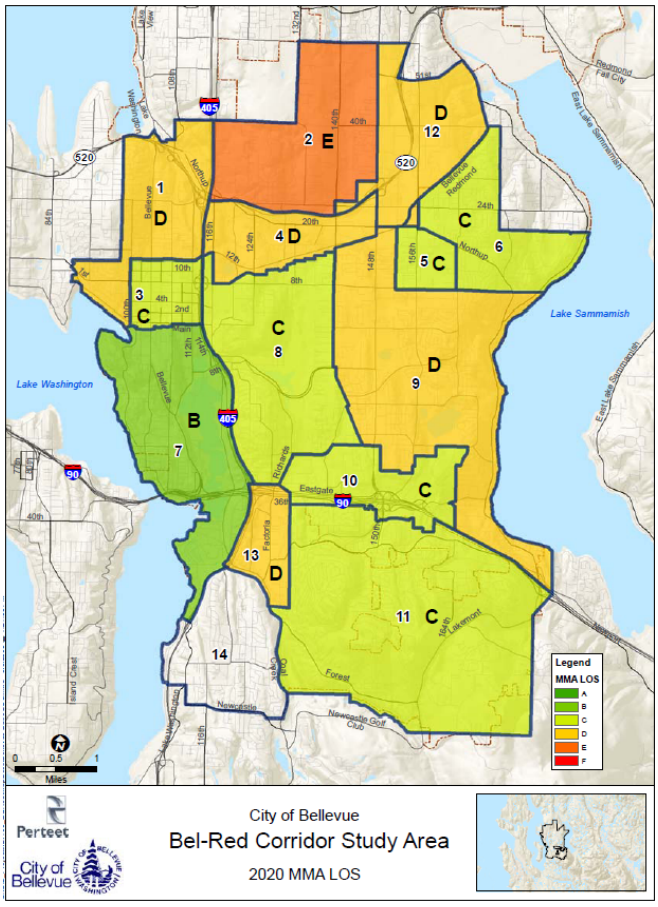
2020 Daily Person Trips:

Worktrips to Downtown Bellevue	61,452
Transit mode share from all areas	24%
Worktrips from Downtown Bellevue	12,548
Transit mode share to all areas	29%
Internal work trips	2,413
Transit mode share internal	60%
Total Daily Person Trips	71,587

Source: Bellevue-Kirkland-Redmond Travel Demand Model

***Figure 4* - 2020 Base Case Roadway Concurrency Evaluation.**





Source: BKR model.

Step 2: Gap/Problem Identification

Since the Bellevue analysis forecasts that the roadway portion of the study area's transportation system will meet concurrency standards in 2020 and since the other metrics have as yet no adopted standards, the project team made the assumption for this pilot exercise that the study area roadway system failed to meet concurrency. The gap and problem identification step of the analysis was carried out as follows:

Roadway gap/issues. In 2007, the City of Bellevue produced the Downtown Bellevue Growth and Transportation Efficiency Center (GTEC) Plan[5], which identified that a 10% reduction in Single Occupancy Vehicle (SOV) trips applied to their downtown worker population amounts to approximately 5,000 additional persons not driving alone by 2011. In addition, the GTEC plan identified that system-wide the number of peak-hour round trip transit seats available for new commuters to Downtown Bellevue in 2011 would be approximately 2,300. The team used the analysis from Bellevue's GTEC plan as a starting point for deriving a hypothetical roadway person-trip gap for this exercise since the GTEC plan considers the same study area as the Regional Growth Center and treats similar issues. Extrapolating the 5,000 drive-alone work trips figure to 2020 proportional to expected population and employment growth in the study area results in an assumed roadway concurrency person trip gap of 7,000 drive alone trips that should be shifted to other modes in the AM peak period.

Transit, bicycle, and pedestrian gap/issues. As mentioned in Chapter III the team chose to report these metrics for both the base case and action scenario to illustrate a range of change in the measures. The intent of this choice is to demonstrate a range of measure results across two distinct states of an example transportation system, allowing the reader to make their own judgment as to what concurrency standard would be appropriate for their jurisdiction were they to use these new metrics.

Synthesis of gaps and issues. Table 3 on the following page shows forecasted trip making into and out of the study area in year 2020 from the PSRC travel model. It illustrates the challenge faced in the strategy design step: the AM period forecast predicts over 63,000 person trips to and from the study area, of which over 30,000 (48%) are drive-alone. To shift 7,000 person trips from drive-alone into other choices, the action scenario must affect 28% of all drive-alone trips and 11% of all person-trips in the AM period.

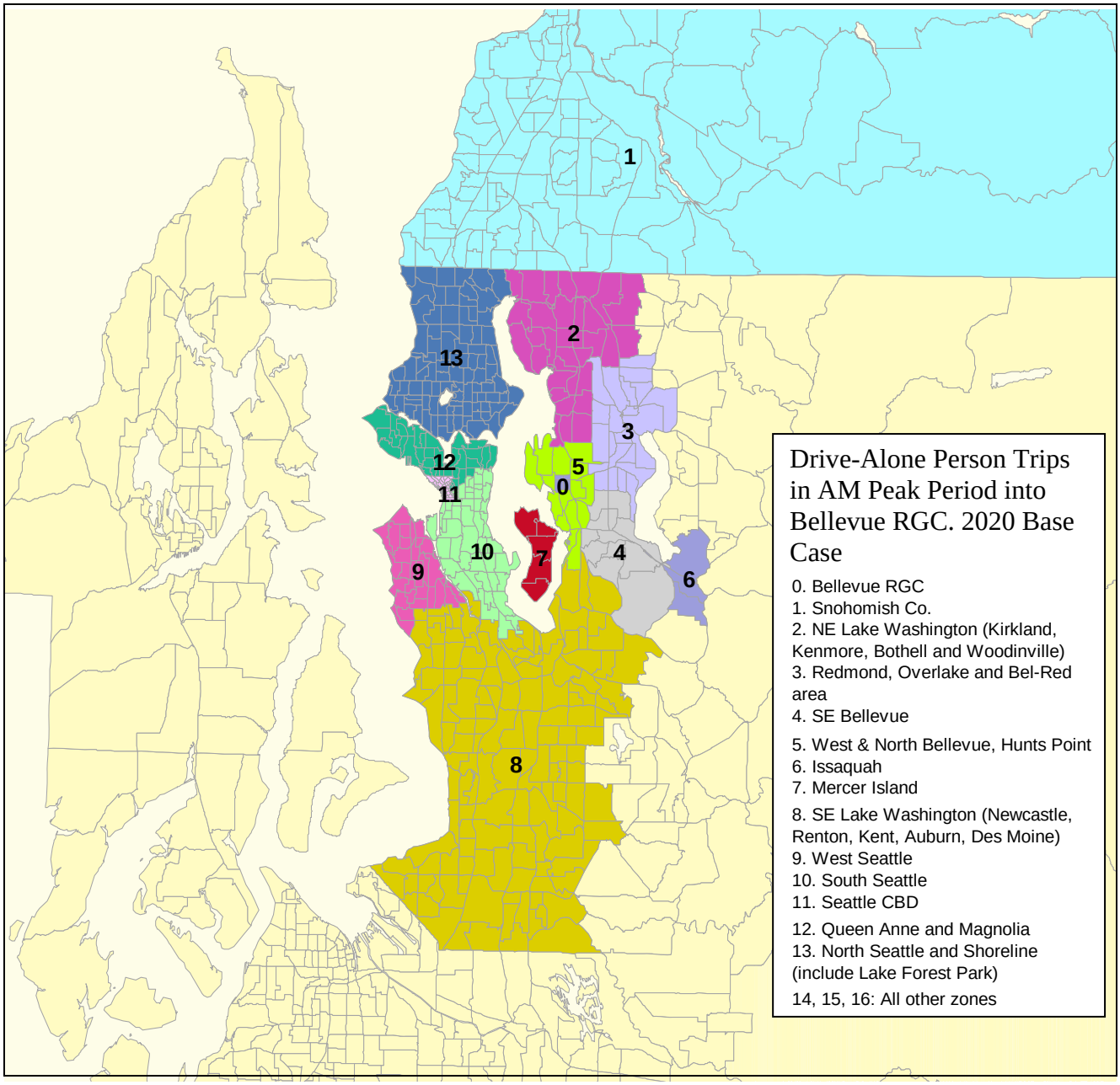
5 Downtown Bellevue Growth and Transportation Efficiency Center Plan, See Appendix G of this report

Table 3 - PSRC Base Case Modeling Results, AM Peak Period Year 2020

2020 Baseline - Bellevue MMC AM trip tables by subarea

Origin subarea	Destination subarea	Drive Alone Vehicles	Car Pool 2 Vehicles	Car Pool 3+ Vehicles	Vanpool Vehicles	Light Trk Vehicles	Med Trk Vehicles	Hvy Trk Vehicles	Transit Persons	Bike Persons	Walk Persons	**TOTAL VEHICLES**	**TOTAL PERSONS**
Bel CBD	Bel CBD	4,348	677	287	0	114	15	13	0	641	3,512	5,454	11,002
Bel CBD	1	172	25	8	0	146	39	8	11	0	2	398	456
Bel CBD	2	828	96	38	0	109	20	13	185	22	70	1,104	1,570
Bel CBD	3	1,463	156	61	0	155	25	17	402	42	110	1,877	2,738
Bel CBD	4	635	65	25	0	56	9	7	188	17	45	798	1,176
Bel CBD	5	2,361	302	133	0	92	13	11	181	189	897	2,912	4,813
Bel CBD	6	130	15	6	0	17	3	2	16	1	7	173	226
Bel CBD	7	198	20	8	0	11	2	1	23	4	10	240	316
Bel CBD	8	420	56	19	0	138	39	10	91	2	2	683	882
Bel CBD	9	53	6	2	0	13	4	2	7	0	0	80	99
Bel CBD	10	302	34	11	0	65	16	11	93	1	3	438	597
Bel CBD	11	186	19	5	0	71	17	5	281	0	0	303	616
Bel CBD	12	260	32	11	0	57	14	5	97	1	9	379	547
Bel CBD	13	340	40	14	0	71	17	5	173	1	7	487	742
Bel CBD	14	210	32	11	0	273	81	12	5	1	6	620	691
Bel CBD	15	9	2	0	0	0	0	8	0	0	0	18	21
Bel CBD	16	206	0	0	0	0	0	0	1	0	0	206	207
Bel CBD	**All Zones**	**12,121**	**1,577**	**640**	**0**	**1,388**	**314**	**130**	**1,753**	**922**	**4,677**	**16,170**	**26,700**
	occupancy	1.0	2.0	3.5	8.0	1.0	1.0	1.0	1.0	1.0	1.0		
	persons	12121	3153	2241	0	1388	314	130	1753	922	4677		26,700
person-trip share		**45.4%**	**11.8%**	**8.4%**	**0.0%**	**5.2%**	**1.2%**	**0.5%**	**6.6%**	**3.5%**	**17.5%**		
Bel CBD	Bel CBD	4,348	677	287	0	114	15	13	0	641	3,512	5,454	11,002
1	Bel CBD	1,737	338	100	2	146	39	8	344	0	0	2,370	3,320
2	Bel CBD	2,480	287	94	1	109	20	13	865	62	41	3,004	4,500
3	Bel CBD	2,467	274	96	0	155	25	17	1,257	107	85	3,034	4,996
4	Bel CBD	1,433	197	71	0	56	9	7	498	59	52	1,773	2,755
5	Bel CBD	3,055	459	182	0	92	13	11	689	392	972	3,812	6,779
6	Bel CBD	257	31	11	0	17	3	2	44	0	1	321	425
7	Bel CBD	528	78	29	0	11	2	1	156	15	13	648	981
8	Bel CBD	1,714	303	92	10	138	39	10	797	14	15	2,305	3,729
9	Bel CBD	243	25	6	1	13	4	2	84	0	0	294	427
10	Bel CBD	455	55	17	0	65	16	11	238	1	2	618	956
11	Bel CBD	46	7	3	0	71	17	5	41	0	0	149	204
12	Bel CBD	347	35	10	2	57	14	5	180	0	1	471	730
13	Bel CBD	1,111	104	24	1	71	17	5	534	0	0	1,334	2,037
14	Bel CBD	2,110	410	123	8	273	81	12	162	1	2	3,018	3,954
15	Bel CBD	156	32	7	0	0	0	9	0	0	0	204	253
16	Bel CBD	0	0	0	0	0	0	0	447	0	0	0	447
All Zones	**Bel CBD**	**22,487**	**3,312**	**1,150**	**25**	**1,388**	**314**	**131**	**6,336**	**1,293**	**4,696**	**28,808**	**47,493**
	occupancy	1.0	2.0	3.5	8.0	1.0	1.0	1.0	1.0	1.0	1.0		
	persons	22487	6625	4027	196	1388	314	131	6336	1293	4696		47,493
person-trip share		**47.3%**	**13.9%**	**8.5%**	**0.4%**	**2.9%**	**0.7%**	**0.3%**	**13.3%**	**2.7%**	**9.9%**		
Total person-trips		**30,261**	**8,423**	**5,262**	**196**	**2,663**	**613**	**248**	**8,089**	**1,574**	**5,861**		**63,190**
person-trip share		**48%**	**13%**	**8%**	**0%**	**4%**	**1%**	**0%**	**13%**	**2%**	**9%**		

Figure 5 **- Trip Origin and Destination Subareas Used for Gap and Strategy Development Steps**



Step 3: Strategy Design and Testing

The project team judged that this example analysis would best demonstrate the full range of tools and techniques if it examined the full range of strategies available to jurisdictions for addressing transportation concurrency issues. It was therefore decided to include strategies from all possible program areas to address the assumed roadway AM period gap of 7,000 person trips.

In carrying out the strategy design and testing the team iterated through a series of model runs that successively layered in different strategies suggested to the team by their examination of the base case model results, the Bellevue GTEC plan, the Bellevue Bicycle/Pedestrian plan, and the base year transit service for the study area. A similar iterative approach would be useful in future applications of this method. For brevity's sake full details of all the iterations have been omitted from this report. The reader should note, however, that the particular order of any iteration is unique to the situation at hand. The example iterations proceeded in this order (see following sections for additional details):

1. Applying parking management, first round transit service strategies, and roadway management strategies.
2. Applying increased vanpooling as a demand management strategy second round transit service strategies.

Since the PSRC travel model, like other common regional models, is not sensitive to the full array of strategies jurisdictions might apply in small areas, the team supplemented the modeling analysis with qualitative analysis of additional strategy areas, including:

- Additional, "non-modelable" transit strategies.
- Transportation Demand Management strategies other than vanpooling.
- Bicycle strategies.
- Pedestrian strategies.

The following sections document the detailed analysis used to address each strategy area.

Design transit strategies. The project team examined base year bus service provisions, the Sound Transit Phase 2 Program, and the Bellevue GTEC plan as background to designing transit strategies for the example analysis. It then conducted market analysis to suggest the type and location of the most potentially productive transit strategies, created a list of strategies, and refined those strategies using a combination of the concurrency evaluation metrics, sketch analysis, and regional travel model analysis.

Transit market analysis. Analysts used the Transit Competiveness Index tool (TCI; see Appendix E for details) to conduct the market analysis which found that Downtown Bellevue has among the highest levels of transit competitiveness with

scores of 280 – 466 for all trips from the region. These scores increase significantly to the highest TCI levels of over 2000 when examining more specific Bellevue-related travel corridors. This elevates Downtown Bellevue to among the highest priority transit service locations in the region.

The market analysis found that Downtown Bellevue has significantly higher transit-friendly market segments than is typical regionally. This gives a larger potential transit market share of 71% of the total travel market for Downtown Bellevue versus the 58% of the regional travel market willing to take transit "in the right circumstances".

Since the 13 subareas were formed based on the highest TCI scores for a given travel shed, or corridor with existing bus service each of the 13 has some areas of high transit competitiveness. In addition, all of the 13 Subareas already have some service to Downtown Bellevue, although a transit trip may require one or more transfers.

Table 4 shows all 13 subareas ranked by size of potential transit market as identified by the TCI analysis. The top 6 subareas are all on the eastside immediately adjacent or in City of Bellevue except for North Seattle/Shoreline. These are the "low hanging fruit" for transit service improvements that the TCI analysis indicates would result in significant ridership increases. The remaining 7 subareas have lower overall potential transit markets and may be better served by selective park and rides in the few transit competitive areas.

***Table 4* - 2006 Potential Transit Trip Market Identified by TCI Analysis**

Zone Area	Work Trips	Other Trips	All Trips
Redmond/Overlake/Bel-Red	3,100	20,400	23,500
SE Lake - Newcastle/Renton/Auburn/Des Moines	3,800	12,000	15,800
NE Lake - Kirkland/Kenmore/Bothell/Woodinville	3,100	13,500	16,600
SE Bellevue	2,000	14,900	16,800
West Bellevue/Hunts Pt	1,200	10,000	11,100
North Seattle/Shoreline	2,500	5,000	7,500
Snohomish Co.	1,200	2,200	3,400
Mercer Island	500	3,000	3,500
South Seattle	800	2,600	3,300
Issaquah	600	2,000	2,600
West Seattle	1,000	1,200	2,100
Seattle CBD	100	1,800	1,900
Queen Anne and Magnolia	500	700	1,200
Potential Transit Trips – 13 zones groups	20,100	89,100	109,200

Using the market analysis, the team identified these opportunities for transit strategies:

a) ***Downtown Circulator.*** A strong opportunity for transit to affect mode share is to add a downtown circulator. In other communities, a downtown or regional center circulator has supported development goals while providing transit service for the short (<1/2 mile) trips within the regional center. The potential for a Downtown Bellevue circulator ranges from 1,000 to 6,000 trips a day taken on transit within the 4 TAZs rather than by auto[6]. A local circulator within the downtown and adjacent high density residential areas has potential to increase the local walk mode share in addition to the streetcar/circulator ridership[7].

b) ***East Bellevue to Overlake/Redmond.*** The Bel-Red to Overlake segment along Bel-Red Road and SR 520 to Redmond ranks highest for potential ridership with up to 9% of the trips to Bellevue and 11% of the trips from Bellevue to this zone group attracted to transit[8]. The existing strong work-trip corridor to Downtown Bellevue could be strengthened by increased frequency of mid-day service to capture more of the non-work other trips, and enhancing the existing core service. As East Link LRT service is established and grows incrementally to Redmond, more of the non-work trips may be attracted to the LRT, thereby reducing the need for additional buses operating through Downtown Bellevue from increased off-peak service in this corridor.

c) ***SE Bellevue.*** From the TCI analysis, a gap in service area was identified in SE Bellevue, between Eastgate and Lake Washington near I-90. This area has the greatest opportunity for new local transit service (community connector).

d) ***North Bellevue and West Bellevue/Meydenbauer Bay, South and East Bellevue.*** Additional local service (community connector) to residential neighborhoods between downtown and adjacent freeways to pick up short other (non-work) trips, such as shopping, medical, and especially recreational to Downtown Bellevue. These zone areas had high TCI's in all trip type evaluations. The potential exists to

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6 APTA's Public Transportation Ridership Statistics, APTA Ridership Report: Fourth Quarter 2008: King Co. Dept of Transportation (South Lake Union Streetcar) 1,300 daily riders; Sound Transit (Tacoma Link) 3,200; Memphis Area Transit (Riverfront and Main St Trolleys) 2,800 daily riders; Portland Streetcar daily_ridership_graph.pdf (Initial segment loop through Pearl District to Portland State University) 6,000 weekday riders in 2004.

7 Portland Streetcar – The Portland Experience, Development Oriented Streetcars, 2009 APTA/TRB LRT Conference presentation

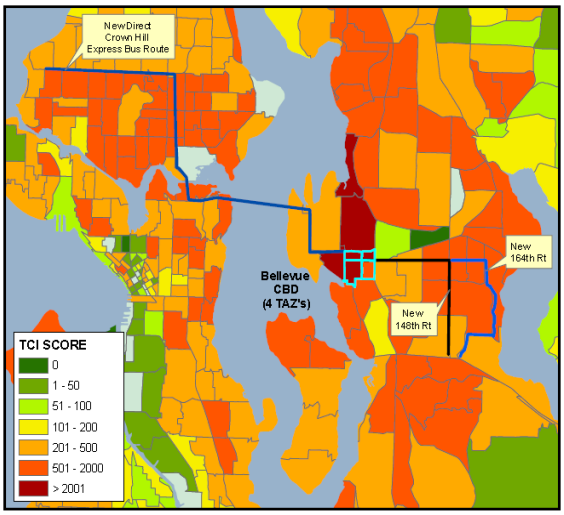
8 TCI Analysis: % of Total Trips Ranked tab in TCI's of All 6 O-D pairs.xls

reroute some regional/local routes to spread through the neighborhoods to add service off peak.

e) ***North I-405 (Kirkland/Kenmore/Bothell) and South I-405/167(Newcastle/Renton/Kent).*** The areas with the greatest potential for transit ridership outside of Bellevue are immediately adjacent to Downtown Bellevue: and the first few cities immediately north and south of Bellevue along I-405. The highest TCI score outside of Bellevue was the Zone area immediately along Lake Washington in SW Kirkland. This potential exists to add additional service through this area, particularly in the off-peak mid-day to enhance the connection to Downtown Bellevue from downtown Kirkland.

f) ***North Seattle.*** New peak hour express service from Ballard and Crown Hill through Greenlake and the U-District to Downtown Bellevue would serve the growing population who live in North Seattle but work in Downtown Bellevue. For other trips, North Seattle had low TCI scores suggesting low transit competitiveness as a result of low transit demand for other or non-work trips to and from Bellevue, with the exception of the University District which is a strong attractor for work trips from Bellevue and originator of other trips to Bellevue.

Figure 6 **- New bus service suggested by market analysis**



g) ***Work Trips to Bellevue.*** Other locations, such as West Seattle, Queen Anne/Magnolia, South Seattle, Mercer Island had fairly high TCI's (350 – 477) only for the work trips to Bellevue but low volumes of total trips. Currently, West Seattle and Queen Anne/Magnolia suffer from

significant transfer penalties because of wait time at transfer points; this may contribute to the small transit demand market for these areas.

h) ***Other findings that did not lead to strategy suggestions.*** Snohomish Co. had moderately high TCI scores (136) for the work trips to Bellevue, but they were spread out in islands of high TCI surrounded by pools of low TCI (below 100), suggesting park and ride express service rather than direct transit service from home to work. For all other trips (other to Bellevue, work and other trips from Bellevue), these locations showed low TCI scores, suggesting low transit competitiveness for non-work trips. The only exception was the Beacon Hill Zone area in South Seattle which showed moderate transit competitiveness for other trips to and from Bellevue, which supports the justification of an East Link LRT freeway stop on Rainier Ave as it heads towards Bellevue.

Transit service design/sketch analysis. The results of the Transit Sketch Planning tool analysis identified the transit service improvements summarized in Table 5. In general, most of the corridors analyzed by the SPT indicated that existing transit service was reasonably quick and direct, that is, transit in-vehicle time was acceptable compared to auto in-vehicle time, and the number of transfers was low. The exceptions were: (1) from North Seattle to Bellevue where the SPT identified a high transfer rate suggesting new direct (no transfer) service which resulted in the addition of route MK801; and 2) East Bellevue to Downtown Bellevue, which the SPT identified long transit in-vehicle time relative to auto travel time. This indicated existing transit in this area is very circuitous, so routes MK253x and MK253y were added to provide a more direct path from East Bellevue to Downtown Bellevue.

In all other corridors, reducing headways to reduce waiting time for transit was identified as the most effecting way to increase ridership. The proposed new headways were calculated by the project team in a manner that illustrates many of the steps that would be used in the transit concurrency evaluation capacity metric:

1. As a starting point the team assumed that half of the drive-alone person-trip gap would be addressed by transit strategies.
2. Staff moved the assumed trips from the drive-alone trip tables to the transit trip tables in the travel demand forecast model and re-ran only the transit assignment module.
3. The result was a transit assignment the assumed number of shifted trips on transit rather than in drive-alone vehicles.

4. Staff then created a table of the bus routes serving the study area from the transit-only assignment to show ridership, vehicle capacity, and headways.
5. Headways of the bus routes were adjusted so that each route met the target load factor of 1.2 and used as inputs to the final regional model analysis.

Service improvements for All Day (Core) Service:

1. The downtown circulator was not analyzed due to the fact that the regional travel demand model underestimates short transit trips that occur in a circulator due to the few number of transportation analysis zones (TAZ) that represent Downtown Bellevue.
2. New service from SE Bellevue, Factoria and east to Lake Washington was added due to the long transit in-vehicle time identified by the SPT due to circuitous bus routes that served the area. New routes, MK253x and MK253y providing more direct service for this area were added. Also the headway on MK921 was reduced.
3. The Bel-Red Corridor to Overlake and Redmond Town Center was identified by the SPT as having good transit service and that the most productive service change would be to reduce headways on existing routes such as the MK220, MK222, MK233, MK249,and MK253.
4. The Northwest Bellevue and Kirkland to Bellevue corridor was identified as having good existing transit service so headways were reduced on routes MK230, MK234, MK237, and ST535.
5. The West Bellevue/Meydenbauer Bay circulator was judged to be too small a service area to be evaluated by the SPT or to be modeled in the regional travel demand model.
6. The SW Bellevue/Beaux Arts circulator represents a service that is smaller than the resolution of the SPT and regional travel demand model and was not analyzed.
7. The University of Washington Transit Center is served by the new MK801 route and by the existing route MK271 that had a headway reduction.
8. The downtown Seattle/Rainier Ave area is served by the Light Rail system in Sound Transit Phase 2.
9. The Factoria/Newcastle area was identified as having good transit service so a shorter headway on route MK240 was assigned to reduce wait time.

Peak Hours Service for Work Trips

1. The Kent to Bellevue transit service on surface routes was identified as having good existing transit service so wait time was reduced with shorter headways on routes ST564, ST565, and modifying route MK167 to stop at the Bellevue Transit Center.
2. New service from Ballard to Bellevue was viewed to be accommodated by existing bus service feeding the light rail service.
3. New direct service was added from Crown Hill to Bellevue, because the SPT identified this corridor as having a high transfer rate, this resulted in route MK801 added.
4. Transit service from West Seattle to Bellevue is accommodated by existing bus routes connecting to light rail service (SPT not used).
5. The Bothell area to Bellevue corridor was identified by the SPT as having good service. Headway was reduced on route MK230 which uses local streets, not I-405.
6. The Kenmore/Juanita to Bellevue area was identified by the SPT as having good bus service, wait times reduces by reducing the headway of route MK234.

Table 5 - Bus Service Modifications and Additions from the Transit Sketch Planning Analysis

Bus Route	Description	Base Headway	2020 Headway	Service Area	Inbound/ Outbound
MK220a	220 REDM-BELLEVUE WB	32	7.5	Redmond	I
MK220b	220 REDM-BELLEVUE EB	40	7.5	Redmond	O
MK222a	222 OVRL-EGT-BELV WB	26	7.5	Overlake	I
MK222b	222 OVRL-EGT-BELV EB	2	15	Overlake	O
MK230a	230 KNGSG-BTC-RED SB	23	20	Wood/Kirk	I
MK230b	230 KIRKLN-BEL TC SB	32	20	Wood/Kirk	I
MK230c	230 KNGSG-BTC-RED NB	26	15	Wood/Kirk	O
MK230d	230 KIRKLN-BEL TC NB	32	15	Wood/Kirk	O
MK233a	233 AVNDL-OVLK-BL SB	26	20	Redmond	I
MK233b	233 AVNDL-OVLK-BL NB	32	20	Redmond	O
MK234a	234 KENMR-KRK-BEL SB	26	15	Wood/Kirkland	I
MK234b	234 KENMR-KRK-BEL NB	26	7.5	Wood/Kirkland	O
MK237	237 WDNV-405-BELV SB	53	30	Kirkland	I
MK240a	240 BEL-NEWC-RENT SB	26	13	Renton	O
MK240b	240 BEL-NEWC-RENT NB	26	15	Renton	I
MK240c	240 BEL TC-NEWCST NB	88	20	Newcastle	I
MK243	243 JC PK-LKC-BEL EB	53	7.5	NE Seattle	I
MK249a	249 BEL-OVRLK-RDM SB	32	7	Redmond	I
MK249b	249 BEL-OVRLK-RDM NB	32	7.5	Redmond	O
MK253a	253 RED-OVRLK-BEL SB	26	20	Redmond	I
MK253b	253 RED-OVRLK-BEL NB	26	18	Redmond	O
MK261	261 OVLK-BTC-SCBD WB	40	15	Overlake/SeattleCBD	I
MK271a	271 ISSQH-BELV-UW WB	26	20	Isasquah/UW	I
MK271b	271 EGATE-BELV-UW WB	40	20	Eastgate/UW	I
MK271c	271 ISSQH-BELV-UW EB	32	20	Issaquah/UW	I
MK271d	271 EGATE-BELV-UW EB	53	30	Eastgate/UW	I
MK342	342 SHRL-BELV-RNT SB	53	7.5	Shoreline/Renton	I
MK921a	921 BELV-SOMERSET SB	53	30	Eastgate/Somerset	O
MK921b	921 BELV-SOMERSET NB	32	20	Eastgate/Somerset	I
ST532a	532 BELVUE-EVERTT SB	15	10	Everett	I
ST535a	535 BELV-LYNNWOOD NB	36	30	Wood/Kirk Lynnwood	O
ST535b	535 BELV-LYNNWOOD SB	36	30	Wood/Kirk Lynnwood	I
ST555	555 ISSAQ-BTC-NGT EB	36	20	Issaquah/Ngate	I
ST556	556 ISSAQ-BTC-NGT WB	36	30	NE Seattle	I
ST560a	560 BEL-STAC-WSEA EB	30	30	W Seattle/Setac	I
ST560b	560 BEL-STAC-WSEA WB	30	30	W Seattle/Setac	O
ST564a	564 S HL-AUB-OVLK NB	45	30	Kent/Auburn	I
ST565a	565 FED-REN-OVRLK NB	30	20	Kent/FedWay/Auburn	I
ST565b	565 FED-REN-OVRLK SB	45	30	Kent/FedWay/Auburn	O
MK630a	630 KNSGT-405-BEL SB	30	20	Kingsgate	I
MK630b	630 KNSGT-405-BEL NB	30	20	Kingsgate	O
MK253x	NEW 164th TO BEL WB	N/A	10	East Bellevue 164th	I
MK253y	NEW 148th TO BEL WB	N/A	10	East Bellevue 148th	I
MK167a	167 AU-KNT-405-UW NB	40	20	Auburn/Kent/UW	I
MK801e	NEW CRHILL-BelRD EB	N/A	15	N Seattle	I
MK801f	NEW CRHILL-BelRD WB	N/A	15	N Seattle	O

Transportation demand management (TDM) strategy design. Drawing upon work from the Bellevue GTEC plan and Transportation 2040 alternatives development, the project team identified the strategies described below as the most likely to produce the desired trip-making effects.

Pricing. PSRC and the City of Bellevue agreed that the most appropriate form of pricing to be tested in the pilot project was parking charges in the Downtown Bellevue study area. Table 6 shows base case parking charges in 2020 as well as the proposed action scenario pricing scheme. According to one iteration of the PSRC travel demand model an average increase in hourly parking costs of nearly 40% and an increase in daily parking fees of 11% across the study area had a relatively small impact on trips to Downtown Bellevue; reducing projected AM inbound SOV demand by 329 trips (-1.5%) while increasing demand for alternative modes.

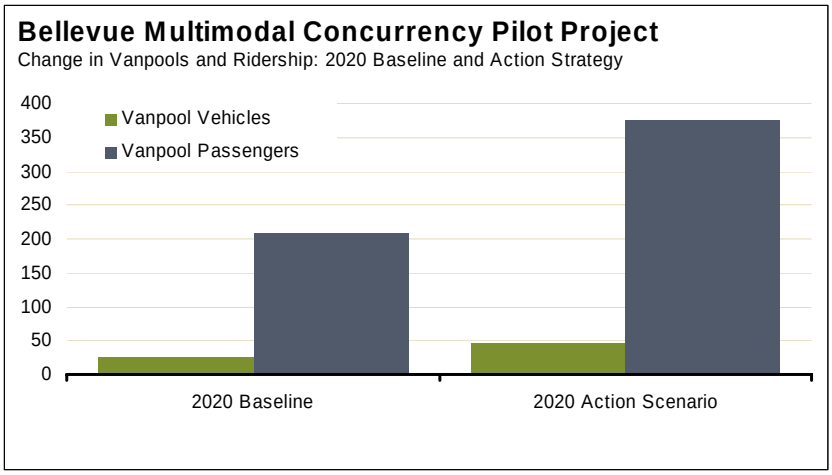
Table 6 **- 2020 Daily and Hourly Parking Rates in Downtown Bellevue TAZ's for the Base Case and Action Scenario**

TAZ ID	Base Daily Rate	Action Scenario Daily Rate	% Increase	Base Hourly Rate	Action Scenario Hourly Rate	% Increase
293	$ 16.49	$ 18.64	13.1%	$ 5.72	$ 7.67	34.2%
294	$ 15.34	$ 16.69	8.8%	$ 5.16	$ 7.01	35.8%
295	$ 12.06	$ 13.47	11.7%	$ 4.04	$ 5.92	46.4%
296	$ 14.56	$ 16.08	10.4%	$ 4.53	$ 6.81	50.4%
Avg.	**$ 14.61**	**$ 16.22**	**11.00%**	**$ 4.86**	**$ 6.85**	**41.68%**

Vanpools. The project team identified significant growth in vanpooling as an essential strategy for meeting trip reduction goals established for the pilot. Baseline estimates indicate that 26 vanpools' destination was within the study area in 2020; translating to approximately 208 daily peak period trips∗. Utilizing regional vanpool growth established for the Transportation 2040 alternatives, the project team determined that an additional 22 vanpools could potentially serve Downtown Bellevue. Based on applying an 8 person load factor, vanpools would meet the mobility needs of 376 peak period commuters in 2020.

∗ PSRC's travel demand model includes and 8 person load factor for all vanpool vehicles.

***Figure 7* - Change in Vanpool Vehicles and Ridership: 2020 Baseline – 2020 Action Strategy**



Other transportation demand management strategies. In 2006, the City of Bellevue, through a partnership with King County Metro and TransManage, developed the Downtown Bellevue Growth and Transportation Efficiency Center Plan. The plan documents the existing land-use and transportation context as well as inventories planned multimodal transportation improvements. The partnership established an SOV trip reduction goal of removing 5,000 daily peak period trips by 2011 and a menu of transportation demand management strategies that are tailored to the unique mobility options and travel needs of Downtown Bellevue employees and residents. The following tables and descriptions summarize investments in TDM outlined in the Downtown Bellevue GTEC Plan. To view the full Downtown Bellevue GTEC Plan please refer to Appendix G.

> ***Product Subsidies and Discounts.*** This category contains basic products that support trip reduction efforts to be made available with discounts subsidized by the GTEC. The FlexPass product, in particular, is a key element of the GTEC. The FlexPass is a product available to employers for their employees that provides unlimited rides on Metro bus and Sound Transit. Employers pay based on estimated number of rides taken by their employees. The FlexPass has been shown to increase transit ridership and is offered through the GTEC to employers at a discount level as a cornerstone tool for reducing employees' drive-alone trips. The Home Free Guarantee product is also important for providing assurance to employees that they have a way to travel in case of emergency.

***Table 7* - Product Subsidies and Discounts**

Strategy	Roles/Stakeholders
FlexPass Discount Incentive (for employers): Offer a special price on a FlexPass with a greater-than-normal discount for new or all Area FlexPass customers. Provide a discount in both the first and second years. This will result in a more gradual increase in the cost to the employer over the first three years. *Note: The FlexPass may be replaced with a comparable product following implementation of the Smart Card fare payment system.*	Source of funds: Initially, WSDOT mitigation funds; once this funding stream ends, the cost would be backfilled with GTEC funds. County and TransManage: Administer
Home Free Guarantee: Provide free taxi ride in case of emergency for downtown employees through King County Metro's existing program (pooling the risk). Perhaps have employers contribute a match; assumption is 25%.	County to administer through existing program

*Note: Shaded strategies will be heavily promoted to small employers and/or their employees as a portfolio of options under a brand name.

Services and Education. This category comprises activities the city and its partners will offer in order to assist employers, employees, and property managers navigate the world of non-drive-alone commuting. The 2006 Market Analysis showed that small employer awareness of products, and even of commuting habits of their own employees, was fairly low. Therefore, these strategies are key to raising awareness and assisting the various audiences with services in setting up their programs. In particular, carpool ridematching services (and, secondarily, vanpool) are a cornerstone of the GTEC strategy, which is to promote these modes based on their advantages and room to grow in this market and the limits to how many new riders the transit system can absorb.

***Table 8* - Services and Education**

Strategy	Roles/Stakeholders
Rideshare Programs and Services: Focus on implementing RideshareOnline.com ridematching tool for carpool, commuter van, and custom bus services as a daily mode and as a complement to other modes. In addition, for carpools, utilize the County's Carpool Management Program to register carpoolers, track participation, and interact with users, and promote the program through marketing and outreach.	County: Design and manage Carpool Management Program. Staff for outreach events, program material inventory, signage, and reporting City: Partner advocate TransManage: Local leadership and liaison into employment sites (existing and in development)
Employer Commute Consulting Services: Provide free commute consulting services for downtown employers with 99 or fewer employees. Tie in with branded portfolio of small employer programs in how the offer is presented. Steps include mailing a letter/ brochure, following up with phone calls, offering to meet, and helping to develop program.	City: Program design, with TransManage input; mailing TransManage: Remainder
TransManage Storefront/Individualized Commute Planning Services: Set up a storefront at a downtown location near the Transit Center, such as the Rider Services Building. Activities would include pass sales and free personal assistance in commute planning, covering all non-SOV modes, geared toward individual needs.	Promotion and implementation to be done by TransManage.

Table 8 **- Services and Education (cont.)**

Strategy	Roles/Stakeholders
****Employer/Employee Newsletter:*** Create and distribute a periodic (such as quarterly) newsletter, electronically and in hard copy, with stories to personalize commute experiences, interviews, promotion information, ridesharing/Flexcar partners sought, etc. Distribute to small employers and their employees downtown.	TransManage to produce; other agencies give input as appropriate.
****Workshops – How to start a commute benefit program:*** Offer annual free workshop for employers on how to start an employee commute benefit program, timed with annual Employer Commute Consulting Services outreach (described above).	City: Mailing/web/email notices Trans-Manage to conduct workshop
****Workshops – How to get more out of your existing FlexPass:*** Offer free annual workshop for employers on how to get more out of your existing FlexPass, and what to expect for your renewal.	City: Mailing/web/email notices Trans-Manage to conduct workshop
****Zip Code Workshops/Events:*** Conduct zip code workshops/events on a quarterly basis, inviting residents of several different zip codes per month. Events would be open to all downtown employees and promoted especially to employees of small employers. Staff will present and explain the various travel options, and individuals can meet others in their zip code in order to find carpooling and vanpooling partners. Could be tied into the small employer portfolio brand.	TransManage to design workshops, with input from County and City. TransManage to conduct workshops.
****Enhanced Flexcar Services:*** Set up a special "employer matchmaking" program so that employers can get together and pool their resources to pay up-front guarantee required to initiate a Flexcar, thus lowering the cost for each participating employer. Include production of a map showing where within Bellevue Flexcars are located; assess Flexcar locations and work with Flexcar to locate optimally.	Promotion: Ongoing, all agencies, embedded in other promotions List development and maintenance: TransManage Matching Services: Trans-Manage
****Voluntary CTR Site Designation:*** Allow certain worksites to become voluntary CTR sites. Voluntary CTR employers would become listed with the State as part of the city's CTR site count. They would take part in surveys, submit program reports and have them reviewed, and be eligible to receive assistance and feedback with planning their commute programs.	Funding: State CTR funds allocated for voluntary sites, backfilled with state GTEC implementation funds as needed. Provide Services: County or TransManage
****Transportation Management Program (TMP) Education:*** Work with property managers of TMP buildings on an ongoing basis to make them more aware of their TMP activities and the services that the BDA is providing. Communications should include activities they are currently doing, what is required, and what they need to do that they are not doing. The existence of a legal obligation to perform certain activities can help to make them happen, once they are informed. The strategy to update the TMP code will require further interaction to ensure they are meeting their obligations.	TransManage to do hands-on ongoing communication; paid for building with TMP revenues. City to conduct update of TMP code and perform associated communications with property managers.
Telework Assistance: Use recognition as a Bellevue Leaders Telework category to encourage promotion of this option. Webinar orientation and toolkit development.	City: Integrate into brand/ web efforts. County: Mail letters and CTR employer follow-up. TransManage: Non-CTR employer follow-up.
Welcome Activities: Educate residents, employees, and employers about travel options as they move into Bellevue through toolkits and events and materials such as a walking map.	County: Staffing for events, transit and ridesharing collateral, funding City: Contribute collateral, map development, funding TransManage/Bell. Econ. Partnership: Organize and staff events, contribute TransManage event collateral, delivery of packets, fare media sales

*Note: Shaded strategies will be heavily promoted to small employers and/or their employees as a portfolio of options under a brand name.

Incentives and Rewards. Financial incentives and other rewards are key to making it both economical and enticing for employers and individuals to try something new. There is some overlap with the FlexPass product listed in Table 7.

Table 9 **- Incentives and Rewards**

Strategy	Roles/Stakeholders
FlexPass Discount Incentive: See Table 4-1.	
Incentives: Offer financial incentives for carpools to support the County's demonstration project to help achieve planned trip reductions on I-405. Additional carpool incentives or encouragement to employers anticipated to continue following I-405 program.	County lead and funding contribution for initial County I-405 program. State - Initial funding to County via I-405 mitigation program. City – Input on program design to supplement I-405 program.
Commute Club: Create an online commuter club open to all Downtown residents and employees who state that they currently drive alone. Members log non-SOV commute trips, and when they reach a certain threshold they are eligible to receive a modest prize such as a $50 gift card. Consider annual re-eligibility.	Promotion & signups: TransManage and City Monitoring of calendars & award distribution: City or County, depending on which agency hosts the commute calendar.
Individual Parking Cash-Out: Offer parking cash-out to individuals. This strategy would be feasible where tenants pay only for the actual parking spaces they use each month. Employers would be required to enroll in the program prior to their employees being eligible. The program would subsidize a three-month trial period during which an individual would give up their space in return for a transit subsidy and additional cash or gift card incentive. Following the three-month trial period, the employee could choose to permanently give up their parking space in return for a transit pass provided by the employer.	TransManage to promote and sign up individuals. City to handle financial administration.
Recognition: Provide employer recognition for outstanding trip reduction efforts; potential venue would be to regularly designate an “Employer of the Quarter” in the employer newsletter. Include a small article that tells the employer’s story – what they do, how, and why.	Setup of evaluation criteria: All agencies Implementation: TransManage
In Motion, Phase II: Resident-based trip reduction program offering travel option information and incentives. For Phase II, target new residential units coming on board in 2008-09 and “near-in” residents to downtown	County lead & funding contribution City funding contribution

*Note: Shaded strategies will be heavily promoted to small employers and/or their employees as a portfolio of options under a brand name.

Marketing and Promotions. In order to raise awareness as called for by the Market Analysis, as well as to increase utilization of products and services offered, the following marketing and promotional activities are included in the GTEC.

Table 10 **- Marketing and Promotions**

Strategy	Roles/Stakeholders
Building-Centered Options: Engage property managers in outreach efforts designed to improve non-drive-alone mode share in their buildings by going above and beyond Transportation Management Program requirements. Tailor incentives according to unique needs of building. Develop relationships with property managers that allow information to be distributed, both electronically and in hard copy, and that allow access/presence in buildings—this program utilizes the property manager as a conduit for communicating with individual tenants and employees in a building.	City-County funding agreement to share costs (30% city, 70% county pass-through federal grant). City agreement with Trans-Manage. TransManage to develop relationships with property managers, communicate with tenants and employees, and enter buildings to perform in-person outreach on an ongoing basis.
FlexPass Mailing/Promotion: Promote Area FlexPass program in Downtown and Greater Bellevue to increase sales and transit/HOV ridership through quarterly mailings, promotion at existing events, and city web integration. (See crossover opportunities with I-405 mitigation incentive programs and small employer workshops.)	City: Contracts County: Staff at events, materials TransManage: Lead for outreach (labor)
Transit Promotion: Increase transit ridership on particular routes using a variety of strategies such as: • Identifying routes with good ridership potential • Mailing materials to surrounding ridership sheds • Providing incentives such as free ride tickets • Promoting service through employers and other networks • Improving signage along a corridor • Developing maps and/or interactive online tools showing route destinations	City lead County and TransManage: Program development support
Communications: Ongoing communication of city's new transportation demand management brand identity and website, developed in 2007. This is a city-wide activity being leveraged as a GTEC tool.	TransManage to perform work under contract with city.
Social Marketing: Use social marketing as a methodology in all efforts and develop distinct campaigns as strategies to target audience segments. This is an ongoing concept that is incorporated into other strategies such as the In Motion residential trip reduction program. In addition, this strategy includes the Partners in Transit program, which is a partnership with a member-based organization to launch a member-based drive-less campaign.	City: Integrate into brand/ web efforts County: Lead for Partners in Transit
I-405 Mitigation: Promotion of TDM programs to mitigate impact of I-405 construction through Bellevue. Specific activities are **Downtown Area FlexPass campaign** (listed above as separate GTEC strategy) and **outreach to workers in the hospitality industry**. Other activities: **vanpool relocation** and **neighborhood In Motion** (residential trip reduction program).	County lead

Market Research. Market research is included in the GTEC in order to ensure that products are suited to the audiences and that strategies continue to reach the appropriate market in an effective way.

***Table 11* - Market Research**

Strategy	Roles/Stakeholders
Expansion of Mode Share Survey: Expand the Mode Share Survey to collect more information from employees of small employers. The online version of the state survey instrument can now be customized. Expand questions in order to better identify levels of awareness, deterrents to non-drive-alone travel, and what would motivate employees of small employers to switch from driving alone.	City-hired consultant to conduct survey
Small Employer Focus Groups: Use employer focus groups to test potential product adjustments and messages; monitor success of small employer program.	City lead, consultant City and County assist in design TransManage: advisory, outreach to participants

Bicycle and pedestrian strategy design. Bellevue recently completed a Bicycle and Pedestrian plan from which the project team took non-motorized strategies for this example analysis. Table 12 summarizes these investments citywide.

***Table 12* - Bellevue Bicycle and Pedestrian Strategies Citywide**

Strategy Type	Description	Existing Mileage	Proposed Additional Mileage
Pedestrian Sidewalk - Residential Street	5 foot-wide sidewalk; should only be built if space does not exist for a buffer such as a planting strip	Data not available	27.1 miles
Pedestrian Sidewalk - Collector Arterial Street	6 foot-wide sidewalk and 4 foot wide planter strip	Data not available	52.9 miles
Pedestrian Sidewalk - Major/Minor Arterial Street	8 foot-wide sidewalk and 4 foot-wide planter strip; width of sidewalks should be increased to 8 feet, in order to accommodate higher pedestrian volumes and encourage walking	Data not available	5.9 miles
Pedestrian Sidewalk - Downtown Principal Connection	12 foot-wide sidewalk and 4 foot-wide planter strip	Data not available	3.16 miles
Bicycle Lane	5 feet wide: striped area running parallel to street corridors, solely designated for the use of one-way bicycle traffic	33.2 miles	80.4 miles
Bicycle Shoulder with Fog Line	14 foot-wide travel lanes; vary in width and has no bicycle stenciling	26.1 miles	20.9 miles
Shared Shoulder with Fog Line	14 foot-wide travel lanes; fog line is essentially a bike shoulder, also used by parked vehicles and/or pedestrians. This type of facility should only be recommended for areas where traffic and speed levels are very low.	43 miles	20.9 miles
Shared Wide Outside Lane	variable travel lane widths; This type of bicycle facility is the same as the wide outside lane facility, differing only in that on-street parking might be present, and no sidewalks. This type of facility should only be recommended for areas where traffic and speed levels are very low.	23.2 miles	1.12 miles

Table 12 **- Bellevue Bicycle and Pedestrian Strategies Citywide (cont'd)**

Strategy Type	Description	Existing Mileage	Proposed Additional Mileage
Off Street Paths	10-14 feet wide	11.5 miles	37.9 miles
Pedestrian Walking Trail	2-6 foot-wide trail; soft surface walking trail	Data not available	12.5 miles
Multiple Use Gravel Trail	8-12 foot-wide trail	Data not available	4.4 miles
Boardwalk	6-10 foot-wide trail; typically built in wet areas to facilitate access, drainage and wildlife passage year round	Data not available	4.3 miles

Roadway strategy design. Roadway strategies include both capacity and system management efforts and were taken from the City of Bellevue and regional long-range transportation plans. They consist of:

Projects within the Study Area from the Regional TIP Complete by year 2010
NE 2nd St. Roadway Enhancement, Bellevue Way to 112th Ave NE add center left turn lane (widen to 5 lanes) One Way Couplet - 106th & 108th Ave NE, NE 12th St. to Main St. [convert to one-way couplet] - 106th Ave NE (three general purpose lanes northbound) - 108th Ave NE (three general purpose lanes southbound plus northbound transit only contraflow lane between 4th & 8th)
Project within the Study Area from the Regional Plan Complete by year 2010
<MTP-3666> NE 8th St., 106th Ave NE to 108th Ave NE (add one WB general purpose lane)
Project within the Study Area from the Regional TIP Complete by year 2020
124th Ave NE, NE 4th St. (8th) to Northup Way: add center left turn lane (widen to 5 lanes), change to principal arterial)
Project within the Study Area from the Regional Plan Complete by year 2020
<MTP-3477> Bellevue Way HOV Lanes & Transit Priority, I-90 to S Bellevue P&R

Results of "action scenario" strategies and their effect on trip-making in the study area. The project team conducted analysis of the proposed strategies in the PSRC regional travel demand model and supplemented the quantitative model results with qualitative assessments of strategies to which the model is not sensitive. The following sections report the modeling and qualitative analysis culminating in an integrated set of findings.

Action Scenario Travel Demand Modeling. The modeling results (see Table 13) show a net reduction of about 1,200 drive-alone person trips with a corresponding increase in vanpool person trips of over 180 and transit person trips by over 1,800.

***Table 13* - PSRC Action Scenario Modeling Results, AM Peak Period Year 2020**

Origin subarea	Destination subarea	Drive Alone Vehicles	Car Pool 2 Vehicles	Car Pool 3+ Vehicles	Vanpool Vehicles	Light Trk Vehicles	Med Trk Vehicles	Hvy Trk Vehicles	Transit Persons	Bike Persons	Walk Persons	**TOTAL VEHICLES**	**TOTAL PERSONS**
Bel CBD	**All Zones**	11,745	1,570	645	0	1,388	314	130	2,077	925	4,726	**15,792**	**26,701**
All Zones	**Bel CBD**	21,547	3,267	1,159	47	1,388	314	131	8,012	1,307	4,744	**27,854**	**48,414**
All Bellevue Trips		**29,052**	**4,149**	**1,508**	**47**	**2,662**	**613**	**248**	**9,914**	**1,582**	**5,886**	**38,279**	**63,911**
	occupancy	1.0	2.0	3.5	8.0	1.0	1.0	1.0	1.0	1.0	1.0		
	persons	29052	8298	5278	378	2662	613	248	9914	1582	5886		63,911
person-trip share		**45.5%**	**13.0%**	**8.3%**	**0.6%**	**4.2%**	**1.0%**	**0.4%**	**15.5%**	**2.5%**	**9.2%**		
difference from base		-1209	-125	16	182	0	0	0	1825	7	24		

Additional Transit Analysis. In addition to the actual travel model analysis the project team concluded that there was enough basis in the literature and observed transit performance from actual implementations to justify additional trip-making responses to: (a) the strategies that were actually modeled and (b) additional strategies to which the model is not sensitive. The rationale and proposed trip effects include:

Factoring the forecast transit person trip share up based on the market research informing the TCI. This involved factoring the forecast 1,800 trips up by 22% to reflect the 71% of the travel demand market that is willing to take transit for trips accessing Bellevue versus the regional average of 58% of the travel demand market willing to take transit "in the right circumstances". This market share adjustment results in a total of 2,200 AM peak hour transit riders in 2020 to Bellevue. The rationale for this adjustment is that the TCI incorporates knowledge about the preferences of users to which the travel model is insensitive.

Accounting for the effects of the proposed downtown circulator bus. With high TCI scores of 200 – 500 within the 4 downtown TAZs, a strong opportunity for transit to affect mode share would be to add a Downtown circulator to connect the shopping areas with the office and residential areas. The City of Bellevue has already developed a proposal with King County Metro for a circulator bus to start tentatively in 2010 with forecast ridership of 550 daily riders (770 riders in 2020).

Accounting for the effects of the proposed transit ride free zone in the downtown area. Offering free transit service within a specified zone is a successful trip reduction strategy that has been used in other locations.. In Portland, TriMet added the all day Fareless Square in 1975 and expanded it in 2001. In Seattle, King County Metro established their 6 am to 7 pm Ride Free Area which included the Downtown Transit Tunnel when it opened in 1992. Based on the KCM 20% figure and a downtown Bellevue ridership base case of 8,100 in 2020 from the PSRC TDM model,

1,600 new riders would be attracted to transit solely because of the Ride Free Zone in 2020.9

Examining range of results in the transit concurrency evaluation metrics. Table 14 reports the results of the proposed transit metrics in the Base Case versus the Action Scenario. Recalling that the pilot project has assumed a concurrency issue caused by roadway congestion and therefore a desire to shift trips to transit, the results show that the metrics are sensitive to potential changes to the transit system. The weighted average load factor decreases significantly and average frequency was increased (as shown below the headways are cut in half, on average). The slight average speed decline shown was found, upon examination of the modeling results, to be caused by the additional transit riders in the Action Scenario using the slower of the available routes.

Table 14 **- Transit Metrics Results**

Metric	2020 Base Case	2020 Action Scenario
Weighted Average Load Factor	0.67	0.44
Weighted Average Speed	15.1	14.5
Weighted Average Headway	31.2	14.9
Reliability	Not Examined (roadway LOS is proxy)	
Service Coverage	97%	97%
Bus Service Hours	4,790	10,408

Accounting for potential effects of TDM strategies beyond the parking charges and vanpool increases incorporated in the modeling.

Quantitative analytic tools are not yet sensitive to the impacts of TDM strategies on the transportation system. Typically, when discussing these impacts the analyst draws upon empirical data and evidence of behavioral change from a comparable program that has been implemented in a similar setting in another part of the country or world. The *potential* impacts are often represented as ranges or as elasticities measuring the change in behavior due to the implementation of a given strategy, highlighting the inexact nature of these analyses. There are a variety of sources for this information including implementing agencies that have experience with the TDM strategy in question, or clearinghouse organizations such as the Victoria Transport Policy Institute

9 The PSRC's Regional Travel Demand Model does not capture incentives for short transit trips. Therefore the project team looked to the experiences of other transit agencies. From Sound Transit's Ride Free Area Analysis (February 2009), they found that 23% of the forecast Central Link LRT ridership in the Downtown Transit Tunnel consists of trips beginning and ending in the Ride Free Area. Sound Transit also found that charging a fare at tunnel stations results in a loss of 43.4% of all tunnel riders or approximately 9.1% of all LRT riders. In that analysis, they cite that King County Metro has found that 85% of the downtown Ride Free Area ridership would not use transit if they had to pay, even a nominal sum of $ 0.80. In addition, for Fall 2008, KCM averaged 20% of all its Downtown Seattle Ridership (trips ending, beginning or within Downtown) was solely within the Ride Free Area during fare free hours.

(VTPI) or the Center for Urban Transportation Research (CUTR) that provide access to data and qualitative analyses of numerous TDM programs.

While methods of estimating the impacts of TDM are less precise than a quantitative approach, proposed strategies are generally developed through a process of assessing the available transportation infrastructure and using professional judgment to design the most appropriate program or service. Policy guidance may also dictate an end result which may have a direct affect on the strategies selected. In the case of the Bellevue GTEC, strategies were crafted in response to extensive market research and tailored to the unique mobility options available to employees and residents in Downtown Bellevue.

Accounting for potential effects of bicycle strategies. While no methods exist to estimate of bicycle ridership specifically in response to bicycle infrastructure or program investments, full build out of Bellevue's Pedestrian and Bicycle Transportation Plan shows promise in terms of the provision of facilities necessary to induce bicycle use. As shown in Table 15, under the full build out scenario, nearly all of the study area will be accessible to bicycles through off road trail facilities while the presence of both off-road and on-road facilities increases significantly. Current literature suggests that there is a large potential trip response to this large additional supply of bike facilities. In addition both metrics are clearly sensitive to the supply of bicycle facilities in the transportation system and therefore potentially useful in future applications of this method. However, as mentioned in Chapter IV, the topic of non-motorized performance is evolving rapidly and other factors should be considered as the development of other potential metrics matures.

Table 15 **- Bicycle Metric Results**

Metric	Definition	Base Case (Study Area)	Base Case (City Wide)	Action Scenario (Study Area)	Action Scenario (City Wide)
Off-road Facility Presence	Ratio of area of quarter-mile buffer around all off-road non-motorized facilities to total land area within the study area	26%	20%	98%	53%
On-Road Facility Presence	Ratio of centerline miles of roadway with bicycle amenities to centerline miles of roadway (including local roads) without bicycle amenities	4%	13%	35%	25%

Accounting for potential effects of pedestrian strategies. Similar to the question of bicycle issues no trip-making estimation methods that capture the effects of pedestrian-related facility improvements are in common use. However, as shown in Table 16. the study area is already positively positioned to attract walking as a potential mode with nearly the entire area accessible with adequate sidewalks and over half of the area having pedestrian friendly intersections. While this shows less potential affect of pedestrian investments on trip-making within the study area the metrics agree with anecdotal evidence of the extent of the study area's existing pedestrian infrastructure, indicating that the metrics are sensitive to pedestrian facility supply. As with bicycling, national discussions of pedestrian performance metrics are evolving rapidly. While this proposal appears to provide metrics sensitive to strategy choices, other factors should be considered in any future application of this method.

Table 16 **- Pedestrian Metric Results**

Facility Type	Metric Definition	Base Case (Study Area)	Base Case (City Wide)	Action Scenario (Study Area)	Action Scenario (City Wide)
sidewalk presence	Ratio of block faces with complete, passable sidewalks to the total number of block faces within the study area	88%	28%	84%	37%
Intersection density	Number of walkable intersections (including crosswalks) per square kilometer in the study area compared to total roadway intersections per square kilometer	54 int/km^2 walkable; 62 int/km^2 total	data not available	54 int/km^2 walkable; 62 int/km^2 total	data not available

Analysis Findings Summary. Table 17 on the following page summarizes the AM period trip-making effects of all the Action Scenario strategies and assumptions taken together.

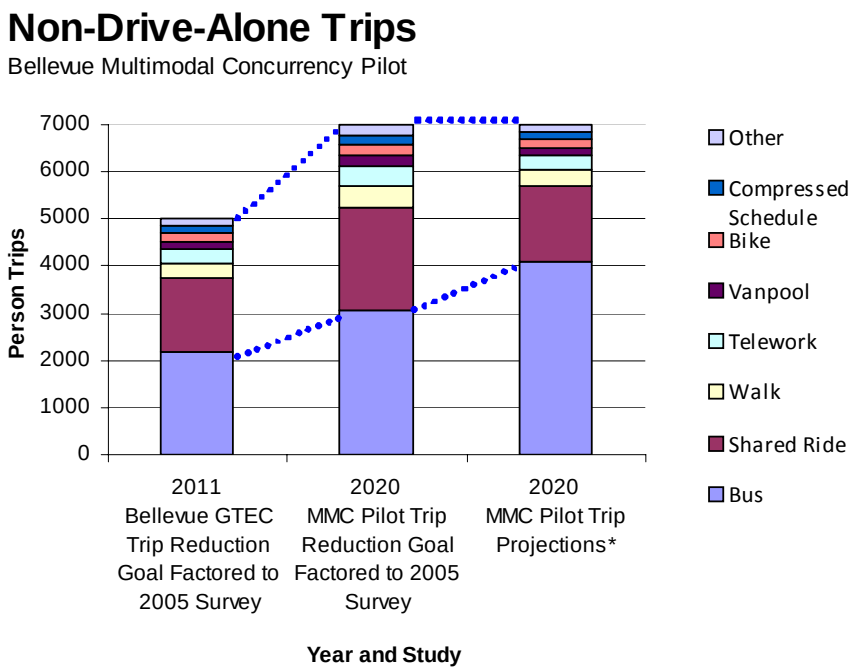
Table 17 **- 2020 Drive-Alone Trip Reduction Expected from Action Scenario Strategies**

Trip reduction goal extrapolated from Bellevue GTEC plan		7,000
Model-able strategies, including: • transit frequency increases (headway decreases) • new bus routes • vanpool program expansion • roadway efficiency and capacity investments		1,800
Additional increment of ridership expected from the modeled transit investments but to which the model is insensitive		400
Downtown circulator bus		300
Ride-Free zone		1,600
Travel Demand Management programs, including: • Product Subsidies and Discounts • Services and Education • Incentives and Rewards • Marketing and Promotions • Market Research		Unknown
Bicycle strategies		Unknown
Bicycle Lane	5 feet wide: striped area running parallel to street corridors, solely designated for the use of one-way bicycle traffic	
Bicycle Shoulder with Fog Line	14 foot-wide travel lanes; vary in width and has no bicycle stenciling	
Shared Shoulder with Fog Line	14 foot-wide travel lanes; fog line is essentially a bike shoulder, also used by parked vehicles and/or pedestrians. This type of facility should only be recommended for areas where traffic and speed levels are very low.	
Shared Wide Outside Lane	variable travel lane widths; This type of bicycle facility is the same as the wide outside lane facility, differing only in that on-street parking might be present, and no sidewalks. This type of facility should only be recommended for areas where traffic and speed levels are very low.	
Multiple Use Gravel Trail	8-12 foot-wide trail	
Pedestrian strategies		Unknown
Off Street Paths	10-14 feet wide	
Pedestrian Sidewalk - Residential Street	5 foot-wide sidewalk; should only be built if space does not exist for a buffer such as a planting strip	
Pedestrian Sidewalk - Collector Arterial Street	6 foot-wide sidewalk and 4 foot wide planter strip	
Pedestrian Sidewalk - Major/Minor Arterial Street	8 foot-wide sidewalk and 4 foot-wide planter strip; width of sidewalks should be increased to 8 feet, in order to accommodate higher pedestrian volumes and encourage walking	
Pedestrian Sidewalk - Downtown Principal Connection	12 foot-wide sidewalk and 4 foot-wide planter strip	
Pedestrian Walking Trail	2-6 foot-wide trail; soft surface walking trail	
Boardwalk	6-10 foot-wide trail; typically built in wet areas to facilitate access, drainage and wildlife passage year round	

Since the analytic tools do not yet exist (although there is hope for the future) to forecast trip response from all potential strategies in jurisdictions' toolkits, this analysis could not show a quantitative finding that the assumed trip reduction goal would be conclusively reached in the Action Scenario. However, the findings that the quantifiable trip response from transit is large (4,100 of the 7,000 goal) and that the proposed alternative mode concurrency evaluation metrics are sensitive to specific changes in the transportation system are encouraging.

For comparison purposes Figure 8 charts and Table 18 tabulates the trip-making findings. The 2011 GTEC trip reduction goal (5,000 trips) factored to the 2005 Bellevue Downtown Mode Share Survey appear first for reference; the factored GTEC goal extrapolated to 2020 appear next; last appear the transit trip changes forecast or asserted by the Action Strategy analysis. The non-transit trip-making numbers shown for the Action Scenario are shown for illustrative purposes. They are again proportional to the shares observed in the 2005 survey that would be necessary to achieve the 7,000 drive-alone trip reduction assumption used in this pilot study after deducting the quantified transit response.

Figure 8 **- Non-Drive-Alone Trips – Comparison of GTEC Plan and MMC Study Assumptions and Results**



* Transit project as quantified in subsection (f); other modes factored from 2005 study

Table 18 **- Non-Drive-Alone Trips – Comparison of GTEC Plan and MMC Study Assumptions and Results**

	Non-SOV trip target	Bus	Shared Ride	Walk	Tele-work	Vanpool	Bike	Compressed Schedule	Other
2005 Bellevue Survey (share)	100%	44%	31%	6%	6%	3%	3%	3%	3%
2011 Bellevue GTEC Trip Reduction Goal Factored to 2005 Survey	5,000	2,188	1,563	313	313	156	156	156	156
2020 MMC Pilot Trip Reduction Goal Factored to 2005 Survey	7,000	3,063	2,188	438	438	219	219	219	219
2020 MMC Pilot Trip Projection*	7,000	4100	1,611	322	322	161	161	161	161
2020 MMC Pilot Trip Projection (Share)*	100%	59%	23.0%	4.6%	4.6%	2.3%	2.3%	2.3%	2.3%

* Transit project as quantified in subsection (f); other modes factored from 2005 study

In conclusion, the application of the proposed multimodal concurrency method demonstrates that it could be meaningfully applied to a real case where the jurisdictions involved have access to the necessary tools and data.

V. Institutional Issues

While state, regional, local and transit policy guidance supports multimodal planning, multiple institutional issues are obstacles to implementation. The City of Bellevue, King County Metro and PSRC developed the following list of institutional issues with additional comments provided by the city of Seattle. This list is broken into three sections:

- Organizational Responsibilities,
- Technical Approach, and
- Regional issues

Organizational Responsibilities

In recent years there has been progress in the coordination between transit agencies and local jurisdictions with regards to land use and transportation planning. However, a challenge remains in that no single agency has ultimate responsibility for both land use and transit planning decisions.

- ***Strengthened legislation.*** Even though the Growth Management Act does allow for alternative transportation mitigation measures to satisfy concurrency level-of-service (LOS) standards, jurisdictions have been reluctant to impose them. They fear of being unable to demonstrate the nexus between a development's impact and infrastructure constructed elsewhere in the subarea. Multimodal concurrency measures will need to overcome this hurdle as well. As the necessary analytic tools are not yet mature, a legislative approach (declaring the validity of non-motorized and transit infrastructure, as well as transportation demand management strategies to mitigate development) would be worth considering.
- ***Long-term, dependable mobility partners.*** For example, Downtown Bellevue and other activity centers in the region rely increasingly on transit service to meet mobility goals. Jurisdictions will have confidence to approve development in a multimodal regulatory concurrency scenario only if they have assurance that transit will be a long-term, dependable mobility partner.
- ***Secure funding sources.*** Secure funding resources are essential to ensure that transit agencies are able to be long-term, dependable partners in concurrency with jurisdictions.
- ***Effective performance measurement.*** The City of Seattle's transit plan has an ongoing monitoring component for several transit service performance measures. While the city would be reluctant to have these included in a concurrency measure due to a lack of local control, these measures will continue to play a role in identifying where service investments are desired.

- ***Coordinate land use and transportation planning.*** When a coordinated land use and transportation planning approach is pursued, infrastructure and service responsibilities should be explicitly defined between cities and transit agencies. Transit agencies would likely be responsible for transit service (seat capacity, routes and frequency). Cities would likely be responsible for assessing and mitigating roadway concurrency, as well as providing potential capacity improvements to support transit. Each partner would be jointly responsible for coordinating and implementing transit-supportive infrastructure such as transit signal priority (TSP), or HOV and queue jump lanes.
- ***Jurisdiction investment in transit supportive capital improvements.*** Because local jurisdictions do not control transit service provision, multimodal concurrency should consider transit elements local jurisdictions can control as a means of satisfying concurrency transit levels of service. Examples include providing capital improvements in the right of way (curb bulbs, queue jumps, business access and transit [BAT] lanes, etc.) and operational improvements (e.g., signal timing) to satisfy concurrency level-of-service requirements.
- ***Recognize private transit services.*** Transit planning will also need to recognize and anticipate that employers may create private transit service as a TDM measure (e.g., Microsoft Connector or the University of Washington Health Sciences Express).

Technical Approach

- By identifying the gap, the analyst can propose to make strategic investments that will enhance transit's role in the mobility of people to and within the study area. Capacity and frequency are measures that have been suggested as ways to quantify multimodal concurrency. Though each measure is helpful, there are also the following limitations:
    - Capacity: A focus on capacity is concerned only with relieving overcrowded transit service at specific times of the day, particularly during the peak period. This may not facilitate the ultimate goal of providing maximum transit mobility to and within a community.
    - Frequency: Additions to an already congested roadway network will only marginally improve the competitiveness of transit.
    - Speed and reliability: Because multimodal concurrency is meant to provide additional mobility as the roadway becomes too congested to accommodate an acceptable vehicle level of service, a measure that identifies a transit speed or reliability deficiency will guide municipalities toward transit priority treatments that they can control, that are within the institutional framework of vehicular concurrency, and that will add significantly to the relative competitiveness of transit. San Francisco employs a transit impact fee approach that considers not only new transit trip generation by development, but also considers impacts on transit speed and reliability caused by new auto trip congestion. Impact fees

collected may be used for additional transit service or transit-supportive capital investments. Similarly, a multimodal concurrency approach could allow speed and reliability or passenger amenity (shelter, real time information, etc.) investments by local jurisdictions or developers to mitigate impacts necessary to meet transit concurrency LOS.

- ***Coordinate transit level-of-service with roadway level of service.*** Establish a level of service (LOS) metric for transit service that is consistent with and compatible with measures of LOS for general purpose capacity used by cities *(NOTE: Not all cities use volume/capacity ratios, or intersections, as their level of service measure. Some (like Renton) use travel time, for example)*. Consider two components for transit LOS:
    - Transit vehicle capacity (120% of seating).
    - Transit service frequency (no less than 30-minute peak hour headway).
- ***Establish non-motorized levels-of-service.*** Better quantifying the non-motorized component of the commute would allow the inclusion of these modes into Regulatory Concurrency assessments. Planning Concurrency sets up the potential for a greater non-motorized mode share with land use patterns, bicycle facilities and sidewalks. However, in Regulatory Concurrency non-motorized modes are not accounted for in approving development because non-motorized levels-of-service do not exist and the current generation of analytic tools is not sensitive to the capacity and implications of non-motorized improvements.
    - Other multimodal assessment tools (including the soon-to-be released Multimodal Level of Service tool in the 2009 Highway Capacity Manual) have limitations. The new Highway Capacity Manual method does a much better job of addressing the user experience when assigning an LOS standard, but the method does not balance the issues across modes very effectively. The data needed to support these methods can also be difficult and expensive to collect. The City of Seattle has used a number of other tools and approaches, including implementing a Complete Streets ordinance and developing a voluntary mitigation payment system for development based on subarea plans.
- ***Consider modifications to parking regulations and code.*** Availability and costs for convenient parking are key determinants in travel mode choice. Rather than measuring intersection LOS for autos, a multimodal concurrency approach for an individual project could factor in parking provisions (amount of spaces and fees) that are at levels compatible with sustainable transportation system development.

- ***Consider how to measure person delay.*** Developing a reliable tool to measure person delay would be an excellent outcome of this work. We also recommend sharing the findings of this pilot with the Institute of Transportation Engineers for consideration when they next update their trip generation tables.

- Impact fees and local control of municipal roadways may be better tools for managing right-of-way than mandating additional transit service. If, as with vehicular concurrency, multimodal concurrency began with assessing the infrastructure needs of a specific community for transit, this would encourage the development of specific transit pathways through that community. It would do so by elevating, at the municipal level, the discussion of:
    - Transit signal priority treatments
    - Stop placement
    - Bus bulbs
    - Passenger amenities
    - Repurposing of existing right of way
    - Transit lanes
    - On-street parking
    - Transit speed
    - Improvement of vehicular and transit conflicts
- ***Do not limit a multimodal concurrency approach to peak travel periods.*** The current concept of multimodal concurrency is to limit the multimodal measures to the peak period. A multimodal concurrency approach that does not consider midday concurrency is inconsistent with the policy direction of Metro and will undervalue the transit benefits within a given community. Many of the types of medium-or high-capacity transit services that could fill the necessary peak period mobility needs (i.e., light rail or bus rapid transit) are intended to be all-day transit services. These transportation assets should receive credit for the mobility they provide regardless of when they provide it.

  Transit will not become the mobility resource it could be if it is limited to peak period service. Metro's experience has shown that the productivity of midday services can be competitive with peak period services. To the extent that there is any need for midday concurrency, it should include a multimodal component.

- ***Alternative technical approaches.*** Currently, San Francisco is investigating an auto trips generated (ATG) measure. It assumes all auto trips have negative impacts (congestion, emissions, safety, etc.). Because impact fees would be collected on every vehicle trip, developers would be motivated to build types of development that minimize auto trips, by proximity to transit and/or by investing in other modal infrastructure and TDM. Efforts are underway to establish a nexus between development and these types of investments and strategies, as well as to evaluate how impact fee charges might be established. The Puget Sound region should follow San Francisco's activities, as an ATG approach could obviate the need for multimodal concurrency.

Regional Coordination

- ***Synchronize planning horizons.*** Jurisdictions and transit agencies currently have different long-range planning horizons. For both regulatory concurrency and planning

concurrency, these would have to be synched up and integrated to ensure that transit service, transit-supportive infrastructure, and roadway improvements are available concurrent with new development.

- ***Transit serves multiple jurisdictions and activity centers.*** Long transit routes serving regional growth centers may traverse one or more other jurisdictions. Improvements made to transit-supportive infrastructure within centers may be rendered less effective if there are transit bottlenecks in another portion of the route that are not addressed.
    - Capacity constraints are dynamic. There may be choke points in the transit network where capacity is critical but other parts or directions of the route that are not. How transit capacity and demand are aggregated is important.
- ***Focus mobility improvements where they are needed***. Based on projected land use assumptions, some regional growth centers will require more mobility improvements than others. If an automated system is considered in the future, a tiered system of ranking the centers based on forecast residential and employee density per acre might be a starting point.
- ***Focus on the big picture, not just service investments.*** A multimodal concurrency process that only focuses on service investments could result in transit plans that are not well integrated with the region at large and create unnecessary tension between transit providers and local jurisdictions.

VI. Key Findings and Potential Next Steps

Key Findings

- In growth centers, all modes are needed to meet travel demand.
- Citizens and employers care about how the transportation system performs – exempting dense areas from concurrency does not address this.
- What's important is the use of alternative modes, not the just the capacity provided. Market analysis is key to evaluating strategies that work.
- Transit metrics need to include multiple dimensions in order to address all factors that affect transit performance.
- Roadway, transit and land use planning need to be done together and reinforced with investment decisions to ensure that local growth can be supported.
- Long-range planning focus: How can future growth within centers be adequately served by all modes (while recognizing the need to translate the long-term approach into an approach that can be used for Regulatory Concurrency)?
- Suggested process for conducting Regulatory or Planning Concurrency analysis:

    Step 4) Identify total person trip demand in established horizon year based on projected growth.

    Step 5) Conduct a Gap Analysis based on current and planning capacity to determine the person-trip "gap" for all modes.

    Step 6) Conduct an Action Scenario analysis (design/testing of transportation demand management (TDM), transit improvements, transportation system management (TSM), non-motorized investments, pricing, and general purpose roadway capacity expansion) including transit market analysis, to propose the most efficient transit service configuration to meet projected travel demand.

Potential Next Steps

- "Multimodal Concurrency" is a complex concept. The Legislature has made several changes to the statute which move in the direction of multimodal concurrency, however there has not been a comprehensive rewrite of transportation planning or Regulatory Concurrency requirements which states clear intent as related to how multiple modes of transportation are to be incorporated into concurrency. The Legislature may want to consider such an amendment to clarify their intent.

- Current practice demonstrates that transit agencies and local jurisdictions are working together to coordinate long-range transportation planning efforts. However, no formal framework under the state's Growth Management Act exists that would ensure roadway and transit level-of-service standards in local comprehensive plans are coordinated with transit agency short- and long-range planning. Such a legal framework could help to ensure that growth centers are adequately served by transportation needed to make them work.
- Incorporating a cost/benefit analysis in the planning-level multimodal concurrency analysis would be useful to underscore the efficiencies associated with multimodal transportation investments.
- Establish a multimodal concurrency approach in concert with a regionally coordinated, and locally implemented, set of institutional planning principles that support the context for its implementation. To this end, the Puget Sound Regional Council should pursue resources to support a new element in its Work Program. The focus of this work will be to explore implementation of this pilot methodology in a way to support the Vision 2040 emphasis on mobility within, and access to, centers. This project, in order to be successful, would be done in a collaborative fashion with the legislature, local jurisdictions and transit agencies.
- Further explore how the proposed metrics respond to a range of input. For example, the transit metric output is based on a ridership assumption. Analyzing how this output changes based on different assumptions would give jurisdictions more information on which to base a transit concurrency standard.
- Further explore the potential for additional emerging pedestrian and bicycle metrics to measure useful dimensions of concurrency goals.
- Monitor developments and research in the area of TDM programs with the goal of understanding the potential impacts of specific demand management efforts.

Appendix A

Local, Regional and Transit Policy Direction

Local, Regional, and Transit Policy Direction

Policy support for the incorporation of alternative modes into the concurrency process exists at multiple levels. The following excerpts have been pulled from the city of Bellevue Comprehensive Plan, PSRC's VISION 2040, and King County Metro's Comprehensive Plan for Public Transportation. Themes include considerations for bicycle and pedestrian facilities and amenities, improved coordination with appropriate transit agencies for the provision of adequate services, and the facilitation of multimodal connections.

Local Policy Direction

Implementing a multimodal concurrency program supports the broad Bellevue community goal of increasing mobility while reducing dependence on single occupant vehicles. The following goals and policies have been outlined in the city of Bellevue Comprehensive Plan (Transportation Element) to support this overarching objective by providing a framework that emphasizes alternative modes of transportation during the development of city plans, programs, projects, and processes. These policies are important to the success of the City of Bellevue in maintaining a high level of mobility in a future that places increasing demand on an efficient and reliable multimodal transportation system.

Goal: ***To implement a fully multimodal transportation system that supports the land use vision of the Comprehensive Plan and the role of Downtown Bellevue as the Eastside urban center.***

Goal: ***To reduce the use of single-occupant vehicles and vehicle miles traveled, through a coordinated program of regulations, marketing, and provision of alternative travel options.***

Goal: ***To provide multiple travel options, for transit users, pedestrians, bicyclists, and rideshare users, as well as the drivers of private vehicles.***

POLICY TR-23: Coordinate improvements and operations among travel modes, providing connections between modes.

POLICY TR-24: Incorporate pedestrian and bicycle facility improvements into roadway projects, and incorporate transit/high-occupancy vehicle improvements where feasible.

POLICY TR-27: Follow guidance provided in the city's long-range transportation plans, transportation studies, and subarea plans to identify, prioritize, and implement transportation system improvements.

POLICY TR-29: Develop the transportation system in a manner that supports the regional land use and transportation vision presented in Vision 2020, Destination 2030 and the Countywide Planning policies for King County.

POLICY TR-32: Develop and implement strong interjurisdictional agreements for cooperative solutions to land use and transportation problems that cross the city border.

POLICY TR-36: Observe the following guidelines in adopting and revising arterial level of service standards by Mobility Management Area:

1. Reflect the availability of alternative travel options and community goals that may be as important as managing congestion, such as goals for land use, neighborhood protection from wider streets, or economic vitality. For example, allow more congestion in some areas of the city under the following conditions:
    a. In return for stronger emphasis on transit, walking, and other alternatives to the single-occupant vehicle, and
    b. Where the impacts of wider streets are judged to be worse than the congestion they are designed to solve.
2. Establish roadway levels of service adequate to prevent system failure and to protect residential neighborhoods from cut-through traffic.

POLICY TR-37: Review proposed developments and require mitigation of traffic impacts where necessary. Prohibit development approval if the development will cause the area level of service in one or more Mobility Management Areas to fall below the adopted standard, unless demand management or other system improvements are provided to mitigate the transportation impacts.

POLICY TR-53: Work with transit providers to maintain and improve public transportation services to meet employer and employee needs. Develop and implement attractive transit commuter options, such as park and ride facilities and local shuttle systems with sufficient frequencies to increase use of transit for commuting and reduce reliance on private automobiles.

POLICY TR-54: Work with transit providers to create, maintain, and enhance a system of supportive facilities and systems such as:

1. Transit stations and centers;
2. Passenger shelters;
3. Park and ride lots;
4. Dedicated bus lanes, bus layovers, bus queue by-pass lanes, bus signal priorities;
5. Pedestrian and bicycle facilities;
6. Pricing;
7. Kiosks and on-line information; and
8. Incentive programs.

POLICY TR-56: Develop partnerships with transit providers to implement projects providing neighborhood–to–transit links that improve pedestrian and bicycle access to transit services and facilities.

POLICY TR-57: Coordinate with transit providers to enhance transit service information and provide incentives to encourage and facilitate transit use.

Goal: To provide a regional transit service at levels that support the land use goals of the city.

Goal: To provide high performance transit connections with the other urban centers in the region.

Goal: To develop programs to encourage ridership on regional transit.

POLICY TR-61: Work with transit providers to maintain and expand direct and frequent regional bus routes to support the city's land use and mode split goals.

Goal: To provide a regional transit service at levels that support the land use goals of the city.

Goal: To provide high performance transit connections with the other urban centers in the region.

Goal: To develop programs to encourage ridership on regional transit.

POLICY TR-70: Promote transit use and achieve land use objectives through transit system planning that includes consideration of:

1. Land uses that support transit, including mixed use and night-time activities;
2. Transit-oriented development opportunities with the private and public sectors;
3. A safe and accessible pedestrian environment, with restrictions on auto access;
4. Integrating multiple access modes, including buses, carpools and vanpools, bicycles and pedestrians;
5. Urban design and community character that support and facilitate transit use; and
6. Protecting nearby neighborhoods from undesirable impacts.

POLICY TR-71: Improve transit connections between downtown Bellevue and other designated urban centers.

Regional Policy Direction (VISION 2040)

In 2008, PSRC's General Assembly adopted VISION 2040, the long-term strategy for accommodating expected growth in people and jobs while enhancing the environment and quality of life in the region through 2040. As a key element of VISION 2040, multicounty planning policies provide a regional direction for countywide and local planning in the central Puget Sound region. These policies represent regional values and present a vision of how the region should look and function in 2040. The PSRC and City of Bellevue Multimodal Concurrency Pilot Project most directly supports the following VISION 2040 goals and policies.

Goal: The overall quality of the region's air will be better than it is today.

MPP-En-19: Continue efforts to reduce pollutants from transportation activities, including through the use of cleaner fuels and vehicles and increasing alternatives to driving alone, as well as design and land use.

Goal: The region will reduce its overall production of harmful elements that contribute to climate change.

MPP-En-23: Reduce greenhouse gases by expanding the use of conservation and alternative energy sources and by reducing vehicle miles traveled by increasing alternatives to driving alone.

Goal: The region will use design to shape the physical environment in order to create more livable communities, better integrate land use and transportation systems, and improve efforts to restore the environment.

MPP-DP-35: Develop high quality, compact urban communities throughout the region's urban growth area that impart a sense of place, preserve local character, provide for mixed uses and choices in housing types, and encourage walking, bicycling, and transit use.

MPP-DP-40: Design transportation projects and other infrastructure to achieve community development objectives and improve communities.

Goal: The region's communities will be planned and designed to promote physical, social, and mental wellbeing so that all people can live healthier and more active lives.

MPP-DP-43: Design communities to provide an improved environment for walking and bicycling.

MPP-DP-45: Promote cooperation and coordination among transportation providers, local government, and developers to ensure that joint- and mixed-use developments

are designed to promote and improve physical, mental, and social health and reduce the impacts of climate change on the natural and built environments.

MPP-DP-54: Develop concurrency programs and methods that fully consider growth targets, service needs, and level-of-service standards. Focus level-of-service standards for transportation on the movement of people and goods instead of only on the movement of vehicles.

MPP-DP-55: Address nonmotorized, pedestrian, and other multimodal types of transportation options in concurrency programs – both in assessment and mitigation.

MPP-DP-56: Tailor concurrency programs for centers and other subareas to encourage development that can be supported by transit.

Goal: As a high priority, the region will maintain, preserve, and operate its existing transportation system in a safe and usable state.

MPP-T-3: Reduce the need for new capital improvements through investments in operations, pricing programs, demand management strategies, and system management activities that improve the efficiency of the current system.

Goal: The future transportation system will support the regional growth strategy by focusing on connecting centers with a highly efficient multimodal transportation network.

MPP-T-9: Coordinate state, regional, and local planning efforts for transportation through the Puget Sound Regional Council to develop and operate a highly efficient, multimodal system that supports the regional growth strategy.

MPP-T-10: Promote coordination among transportation providers and local governments to ensure that joint- and mixed-use developments are designed in a way that improves overall mobility and accessibility to and within such development.

MPP-T-11: Prioritize investments in transportation facilities and services in the urban growth area that support compact, pedestrian- and transit-oriented densities and development.

MPP-T-14: Design, construct, and operate transportation facilities to serve all users safely and conveniently, including motorists, pedestrians, bicyclists, and transit users, while accommodating the movement of freight and goods, as suitable to each facility's function and context as determined by the appropriate jurisdictions.

MPP-T-15: Improve local street patterns – including their design and how they are used – for walking, bicycling, and transit use to enhance communities, connectivity, and physical activity.

MPP-T-16: Promote and incorporate bicycle and pedestrian travel as important modes of transportation by providing facilities and reliable connections.

Goal: The region will invest in transportation systems that offer greater options, mobility, and access in support of the regional growth strategy.

MPP-T-23: Emphasize transportation investments that provide and encourage alternatives to single-occupancy vehicle travel and increase travel options, especially to and within centers and along corridors connecting centers.

MPP-T-24: Increase the proportion of trips made by transportation modes that are alternatives to driving alone.

MPP-T-26: Strategically expand capacity and increase efficiency of the transportation system to move goods, services, and people to and within the urban growth area. Focus on investments that produce the greatest net benefits to people and minimize the environmental impacts of transportation.

King County Metro Goals, Objectives, and Policies*

King County is required to prepare, adopt and carry out a general comprehensive plan for the public transportation that will best serve the residents of King County and to amend said plan from time to time to meet changed conditions and requirements. The following goals, objectives and policies constitute King County's Public Transportation Comprehensive Plan and will provide a framework for future Council decisions on public transportation services and facilities within the metropolitan area.

GOALS - The following six broad goals define the role of public transportation in shaping the region's future.

1.1 Ensure the availability to move around the region – provide reliable, convenient and safe public transportation services throughout the region for King County.

1.2 Support growth management goals, including preserving communities and open space, supporting communities' ability to develop in ways that preserve and enhance their livability and limiting intrusion into rural areas.

1.3 Improve the region's economic vitality – increase access to jobs, education and other community resources.

1.4 Preserve environmental quality – conserve land and energy resources, and reduce air pollution.

1.5 Be a responsible regional partner – build partnerships with state and local jurisdictions, members of affected communities, employers, neighboring transit agencies and the regional transit authority to maximize the effectiveness and efficiency of transit services.

* Source: King County Metro 2007 Comprehensive Plan for Public Transportation

1.6 Work with other jurisdictions to ensure that land use and transportation planning and implementation are coordinated.

OBJECTIVES – The following 14 objectives are grouped by focus area.

Market Share

Objective 2.1 Increase the portion of trips by people using transit and ridesharing within King County.

Mobility

Objective 2.2 Reduce average HOV travel time relative to SOV travel by increasing HOV speed and reliability.

Objective 2.3 Improve transit access to jobs and other activities.

Objective 2.4 Increase travel opportunities on public transportation by developing a range of integrated and complementary services and facilities, and making the system easier to use and understand.

Cost and Efficiency

Objective 2.5 Provide the most efficient and effective services and facilities possible within available resources.

Social, Economic and Environmental Benefits

Objective 2.6 Provide improved HOV services that support local and regional comprehensive plans and policies consistent with the Growth Management Act.

Objective 2.7 Encourage creation and enhancement of pedestrian-friendly and HOV-supportive communities.

Objective 2.8 Increase transportation options that use less energy, consume less land resources and produce fewer air pollutants.

Objective 2.9 Reduce the average miles and hours travelled per day per person in single-occupant vehicles.

Objective 2.10 Provide services and facilities that benefit all socio-economic groups.

Financial Feasibility

Objective 2.11 Develop a system that is affordable to build, run and use with available funding.

Objective 2.12 Identify new funding sources through cooperation with public jurisdictions and the private sector.

POLICIES **-** The following policies provide a framework for achieving King County Metro's long-range public transportation vision, and will be used to guide decisions on priorities and specific improvements.

Policy Coordination

Policy 3.1.1 *Growth Management* - Support local and regional growth management plans and policies. Within each subarea, focus new and existing services and facilities to support targeted land use concentrations identified in local comprehensive and regional plans and within the urbanized growth area of King County.

Work with local jurisdictions to meet the goals and requirements related to transit services and facilities that are contained in the Growth Management Act, the Countywide Planning Policies and the Multi-County Planning Policies.

Policy 3.1.2 *Transportation Demand Management* - Within subareas, give priority (such as a larger share of that subarea's service subsidy, earlier implementation of services improvements, capital improvements, or technical assistance) to areas or employers implementing effective demand management programs (such as ride-matching, subscription buses, or incentive programs) or HOV-supportive land use actions (such as increased density or transit-oriented design policies). Collaborate with jurisdictions and other affected parties to implement service and facilities in conjunction with these programs. Work with local jurisdictions to establish evaluation criteria for determining priorities.

Policy 3.1.3 *Commute Trip Reduction* - Work with employers to ensure that viable, non-SOV commute options exist for employees in order to achieve reductions in SOV use.

Policy 3.1.4 *Regional Transit Project* - Fulfill local transit agency responsibilities as defined in the Regional Transit System Plan.

Policy 3.1.5 *Transit Oriented Development* - Use transit and public or private partner resources to pursue development opportunities at transit facilities and within a reasonable walking distance of such facilities. DOT shall pursue public-private development opportunities, calculate the cost to the public transportation fund, and estimate and report on:

- increased ridership;
- increased development within centers;
- reduced greenhouse gas emissions, and
- increased opportunities for walking, biking and transit use.

Individual TOD projects shall be measured to identify the degree to which they provide the above program benefits and other project specific benefits related to transit

operating or facilities enhancements, local jurisdictional goals and other transportation goals identified in this plan.

Service and Capital Development

Policy 3.2.1 *Service Concept* - Work collaboratively with governments and communities to implement a locally based, regionally linked network of public transportation services and facilities addressing regional, inter-community, and local service needs. Actively develop, implement and promote non-conventional public transportation options as part of that system.

Policy 3.2.2 *Mobility* - Provide mobility for persons who by choice, disability, or circumstance rely on public transportation as their primary means of travel.

Policy 3.2.3 *Service Quality* - Regularly review customer satisfaction with the public transportation systems. Design and operate services and facilities to meet both existing and future customer needs and improve satisfaction where needed.

Policy 3.2.4 *System Integration and Access* - Plan, design and implement a system of services and facilities that support integration of regional and local services, and that facilitate access to the system for pedestrians, bicycles, transit collection/distribution services, and persons with disabilities, thereby providing a viable alternative to auto usage.

Policy 3.2.5 *Environmental Protection* - Support preservation of environmental quality with services and capital investments resulting in fewer detrimental impacts on air and water quality, noise reduction and better regional mobility.

Policy 3.2.6 *Services and Facility Development and Implementation Guidelines* - Establish services and facility development guidelines to ensure the effectiveness and efficiency of the system, and address public transportation's role in growth management. These guidelines shall be used to allocate and implement service changes and capital improvements during the six-year planning and annual service investment processes. These guidelines will include, but not be limited, to:

- descriptions of the conditions under which different types of services and facilities are appropriate;
- basic and enhanced transit level-of-service targets;
- facility access requirements, including non-motorized access;
- mode split goals; and
- performance measures.

These guidelines also will include evaluation criteria for allocating services and facilities including, but not limited to, consideration of:

- demand management programs; and
- HOV supportive land use actions, such as parking supply reductions and transit-friendly design standards.

It is understood that the Regional Transit Committee of the Metropolitan King County Council will be responsible for reviewing the proposed guidelines and criteria.

Policy 3.2.7 *Locally-Developed Transit Services* - If local or regional agencies propose and finance development of public transportation services that are complementary to Metro's plans and services and that Metro may operate, such as local bus circulator, streetcar, or other locally developed service concept, Metro may be a full partner and must be consulted at the earliest possible stage of development to establish the project's feasibility; identify the system-level requirements, costs, issues, implications and impacts; and clarify potential roles and responsibilities in order to form a basis for interagency agreement. For King County funds to be contributed to support the King County Metro Transit operation of a locally-developed project on an ongoing basis, the project must be consistent with service allocation provisions adopted in the Six-Year Transit Development Plan or successor plans and subarea priorities.

Policy 3.2.8 *Ballot measures* - Proposed King County Metro public transportation improvements, including those specified in a proposed ballot measure for voter authorized funding, which would constitute adoption of or amendment to countywide plan or policy shall be subject to review and recommendation by the Regional Transit Committee and legislative approval under the terms of King County Charter Section 270.30. When the funding source is approved by the voters, the associated improvements shall be incorporated into the Transit Strategic Plan.

Local Jurisdiction and Community Involvement

Policy 3.3.1 *Planning* - Ensure a balance between local and regional service needs by involving members of the community, local jurisdictions, and the regional transit authority (where applicable) in the planning, review and implementation of services and facilities. Within each subarea, collaborate with members of the community, employers, and staff and elected officials of local jurisdictions to collectively develop services and capital development priorities to be included in transit planning efforts including, but not limited to, the six-year plans and annual service change and capital investment programs.

Policy 3.3.2 *Role of the Public in Planning* - Develop and implement an open public involvement program designed to obtain input from the public for transit service and facility planning. This process should focus on achieving successful and productive public participation in transit service and facility planning efforts.

Policy 3.3.3 *Role of Local Jurisdictions in Planning* - Establish a collaborative planning process with local jurisdictions to address local service and facility needs. Metro staff will work with local jurisdictions' staff and elected officials to ensure input into the guidelines for service and facility development, and into the plans for service and facilities within each jurisdiction. Local jurisdiction will have the opportunity to propose local transit service and facility plans to Metro and to review and comment on the transit service

and facility plans being considered by Metro. Adopted service plans should reflect the needs of local jurisdictions.

It is understood that the Regional Transit Committee of the Metropolitan King County Council will be responsible for reviewing the proposed guidelines and plans for local transit services and facilities, and will provide recommendations to the Metropolitan King County Council, to ensure consistency and coordination among local services and facility plans with countywide and regional plans.

Policy 3.3.4 *Implementation* - Work with local jurisdictions to expedite review and development of service and capital facility improvements.

Financial

Policy 3.4.1 *Operating Subsidy Allocation* - Distribution of any new service resources shall be consistent with the Six-Year Transit Development Plan, as it may be amended from time to time.

Policy 3.4.2 *Transportation System Management (TSM) Capital Allocation* - Implement a public transportation capital development program to:

- construct and purchase basic system infrastructure (e.g., operating bases); and
- facilitate the provision of regional services (e.g., park-and-ride lots); and
- enhance the provision of local services (e.g., transit corridor improvements, bicycle and pedestrian access improvements).

Through the six-year planning process, develop evaluation criteria to allocate TSM resources among subareas and competing projects. These criteria will include, but not be limited to, HOV-supportive policies in local and regional comprehensive plans, local support, and performance indicators.

Policy 3.4.3 *OR/OE Ratios* - Establish, and review annually, targets for system-wide and subarea operating-revenue-to-operating-expense (OR/OE) ratios, and OR/OE for each type of public transportation services.

Policy 3.4.4 *Multi-Year Financial Planning* - Maintain a multi-year financial plan and cashflow projection of six years or more, estimating service growth, operating expenses, capital requirements, reserves and debt services.

Policy 3.4.5 *Partnerships –*

General Partnerships: Maximize the effectiveness of local public transportation funds by pursuing joint financing of service, capital development opportunities, and ridership incentive programs with other public agencies and with private interests.

Transit Now Partnerships: The Six-Year Transit Development Plan or successor plans will identify a portion of planned service hour expansion to be dedicated for service partnerships to leverage other public and private resources to make public

transportation investments of mutual interest. Partnership agreements with public and/or private entities will specify the service improvements to be made as well as the partner contributions, which may take the form of direct financial investment or investments in transit speed and reliability that will improve transit costs and increase ridership. Service resources dedicated to partnership programs shall be distributed based solely on performance and participation criteria, without regard to their impact on other service allocation policies.

Appendix B

Regulatory Concurrency versus Planning Concurrency

The term "concurrency" generally refers to the Growth Management Act (GMA) requirement that jurisdictions adopt roadway level-of-service standards that serve as a threshold for whether to approve or deny a proposed development that would add person trips to the transportation system. Throughout this report, the GMA process is referred to as Regulatory concurrency, reflecting the enforcement nature of the procedure. Regulatory Concurrency is associated with a series of process assumptions, requirements and a six year timeframe that that make integrating long-range planning difficult.

Regulatory Concurrency, by its very nature, has a temporal aspect to it that requires jurisdictions or the developer to provide any transportation improvements or programs to reduce demand within six years of development. Since the majority of transportation implementation plans generally plan to a horizon between 7 and 10 years, six years is not necessarily enough time to incorporate these multimodal planning processes into a traditional concurrency process.

It is important to emphasize that the current concurrency requirement, as per the Growth Management Act (GMA), relates to roadway level of service. This project attempts to demonstrate a hypothetical approach for including multimodal capacity and multimodal service options.

The following narrative provides a hypothetical description of Regulatory and Planning concurrency through step-by-step example and flow-charts:

1. Regulatory Concurrency scenario to address concurrency for a specific development proposal; and
2. A Planning Concurrency approach for addressing long-range multimodal concurrency.

1. Regulatory Concurrency Scenario for a Specific Development Proposal

City of Bellevue - Capital Investment Program provides funding for projects for the 6-year concurrency horizon

KC Metro/Sound Transit – Transit Service Implementation Plans provide the current transit routes and capacity serving the area

Metrics:

- Roadways: Volume/Capacity (V/C) at system intersections
- Transit: Transit Vehicle Capacity (TVC) is related to routes/frequency and the number of seats

Standard: Adopted Level of Service (LOS) at intersections, aggregated for purposes of concurrency in Mobility Management Areas (MMA)

LOS violation (concurrency failure) would occur if the vehicular trips from a development proposal would exceed the intersection or MMA LOS standards

- Solution would be to either modify the project to reduce vehicle trips (TDM, pricing, reduce project) or require the proposed development to increase roadway capacity or improve intersections.

LOS violation (concurrency failure) could trigger additional capacity roadway or transit projects or other mitigation to be determined through the Planning Concurrency scenario

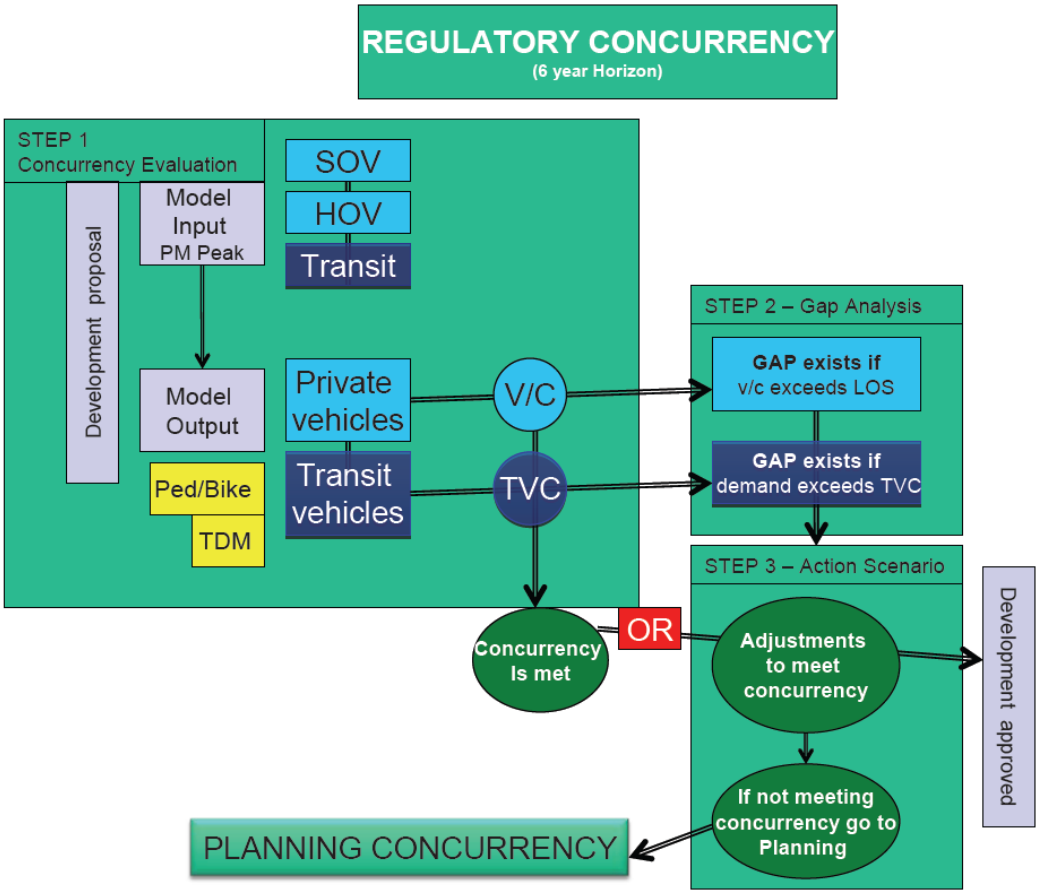
BASE is Home-based person trips in three modes:

- Single Occupant Vehicles (SOV)
- High Occupant Vehicles (HOV)
- Transit Vehicles
- Nonmotorized commute options such as telecommuting, walking and bicycling are included as are transportation demand management (TDM) strategies.

Model Input provides information on the number of new person trips, distributed in the various modes that are expected from a proposed development

Model Output provides information on the distribution of the expected new person trips from a proposed development both geographically and by mode.

- Model output will determine the impact of the new development on the capacity of the roadway system (V/C) and the transit service (TVC)
- If a future GAP is identified in V/C and/or TVC that can not be reconciled in concurrency, then the jurisdiction will engage the **Planning Scenario** to determine the appropriate and effective way to fill the gap



2. A long-range planning approach for addressing multimodal concurrency

City of Bellevue - Transportation Facilities Plan provides a prioritized project list and partial funding for roadway and intersection projects in a 12-year horizon

KC Metro/Sound Transit – Strategic Plans and Comprehensive Plans to guide annual operating and transit capital program decisions considering budget and financial plan assumptions for a 10-year horizon.

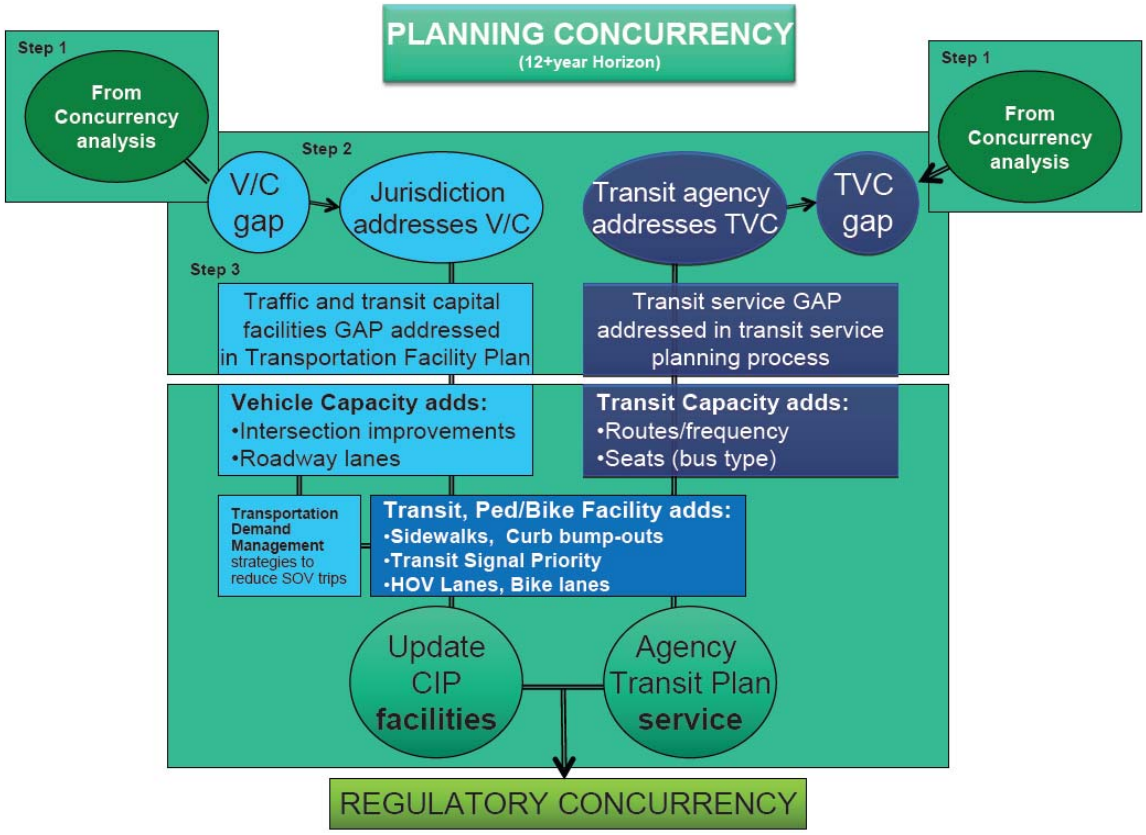
If the Regulatory Concurrency scenario identifies a future GAP in V/C and/or TVC that can not be reconciled, this informs the long range planning process for the jurisdiction and the transit agency. The jurisdiction and the transit agency collaborate to plan the appropriate and effective means to improve capital facilities and/or service.

- Traffic Facilities: The jurisdiction would identify potential improvements to intersections and roadway corridor general purpose automobile capacity. The following improvements would be considered in updates to the jurisdiction's transportation facility plan:

- Turn lanes or through lanes at intersections
- Roadway general purpose traffic lanes along a corridor

- Transit, Bike, Pedestrian Facilities: While the majority of these investments would be made by the local jurisdiction, the jurisdiction and the transit agency would jointly identify potential capital improvements to transit infrastructure facilities that would enhance transit speed, reliability and/or passenger convenience and comfort. The transit connections with non-motorized investments will compliment the bicycle and pedestrian planning of the local jurisdiction as well.
  The following would be considered by the jurisdiction – in coordination with the transit agency - in updates to the jurisdiction's transportation facilities plan:
  - Transit Infrastructure Facility Capital Improvements: curb bulbs, transit signal priority, HOV/transit lanes, queue jumper lanes at intersections
  - Pedestrian access to transit stops/stations
  - Bicycle facility interface with transit, including commuter bicycle parking,

- Transit Service: The transit agency would identify improvements or additions to transit service and/or passenger convenience and comfort. The following would be considered in updates to the transit agency's strategic transit plan:
  - Promote ridership during off-peak times
  - Enhance passenger shelters to promote ridership
  - Provide new transit routes to serve areas where higher demand is expected
  - Increase frequency of service on existing routes where demand is expected to exceed supply
  - Increase transit seat capacity on existing routes – deploy larger vehicles on high demand routes
  - Promote ridership during off-peak times
  - Enhance passenger shelters to promote ridership


PLANNING CONCURRENCY
(12+year Horizon)
Step 1
From Concurrency analysis
Step 1
From Concurrency analysis
Step 2
V/C gap
Jurisdiction addresses V/C
Transit agency addresses TVC
TVC gap
Step 3
Traffic and transit capital facilities GAP addressed in Transportation Facility Plan
Transit service GAP addressed in transit service planning process
Vehicle Capacity adds:
•Intersection improvements
•Roadway lanes
Transit Capacity adds:
•Routes/frequency
•Seats (bus type)
Transportation Demand Management strategies to reduce SOV trips
Transit, Ped/Bike Facility adds:
•Sidewalks, Curb bump-outs
•Transit Signal Priority
•HOV Lanes, Bike lanes
Update CIP facilities
Agency Transit Plan service
REGULATORY CONCURRENCY

Appendix C

2007 City of Bellevue Concurrency Update

Final Report

November 13, 2007

CONCURRENCY UPDATE
LOS Snapshot as of September 15, 2007

Introduction

The Washington State Growth Management Act (GMA) of 1990 requires that local jurisdictions adopt ordinances to establish *concurrency* measurement mechanisms to determine the ability of the transportation system to support new development. The City of Bellevue's adopted Traffic Standards Code (TSC Chapter 14.10) establishes the city's transportation concurrency requirements, level of service (LOS) standards and methodologies, and compliance determination process. The Director's Guidelines of 2001 further define the specifications of this procedure.

An assessment of transportation concurrency is prepared annually by the Bellevue Transportation Department to update information on land use developments and transportation conditions within the city. The primary objective is to provide a snapshot of the latest transportation system LOS findings to inform land use and transportation decision-making. In addition, the concurrency report is used to identify problem areas so that traffic mitigation options may be explored to effectively accommodate changing conditions.

This report summarizes existing LOS analysis results as well as the future concurrency LOS forecast from the city's Concurrency Model platform (MP6-R9). This model takes into account development applications that had received either design review or building permit approvals from the City's Planning and Community Development Department (PCD) as of September 15, 2007. The transportation network assumed in the analysis is the 2006 existing roadway network, plus fully funded capacity improvement projects in the Amended 2007-2013 Capital Investment Program (CIP) as adopted by the Bellevue City Council.

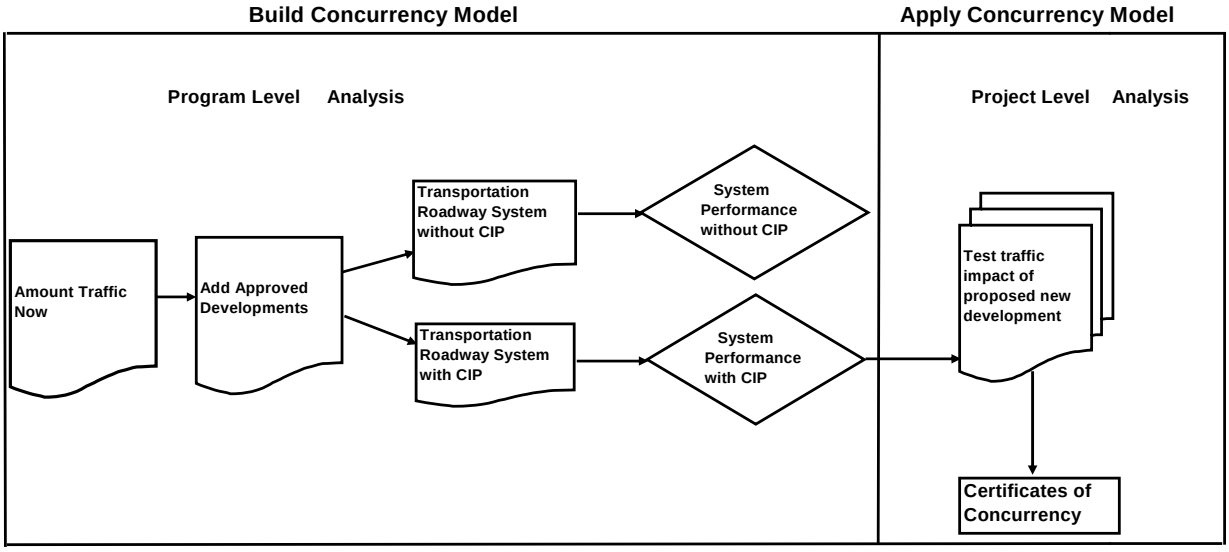
The concurrency snapshot reflects short-range projections about average traffic conditions within the city during the PM peak 2 hour period. The conditions described represent computed volume-to-capacity (v/c) ratios for 104 "system" intersections within fourteen Mobility Management Areas (MMAs). System intersections are arterial street intersections controlled (and to be controlled) by traffic signals, and MMAs are geographic sub-areas of the city, designated for traffic analysis purposes.

Methodology

The analysis documented in this report is based on the Highway Capacity Manual (HCM) 209/2-Hour average method updated in 2000. This is the City's adopted LOS analysis procedure as outlined in the Traffic Standards Code (Chapter 14.10). The city adopted this method in 1998.

Based on the 2000 HCM 209 document, the operational method provides a complex set of procedures to intersection-specific geometric, traffic and signal conditions for a performance rating, i.e. level of service, including:

- For intersection capacity analysis, peak hour traffic volumes are averaged over a two-hour period from 4 PM to 6 PM, which generally represents the most congested traffic conditions.
- Uniform traffic demand has been assumed over the two-hour period, as represented by a peak hour factor (PHF) of 1.
- Intersection utilization is estimated and reported in v/c ratios.
- The intersection v/c ratios are averaged for the system intersections in each MMA and then compared with the adopted standards for each MMA to estimate available reserve capacity.
- Each sub-area has a "congestion allowance", which is the maximum number of intersections allowed to exceed the standard v/c ratio for that sub-area.
- Lastly, development is considered concurrent if resulting traffic impacts do not cause the area-wide average to exceed the adopted v/c ratio and the number of congested intersections in the area does not exceed the congestion allowance.



Note: This LOS snapshot was prepared at a PROGRAM level as opposed to a PROJECT level (usually referred to as development review project modeling). This distinction is important because the two approaches produce slightly different results. At the PROGRAM level, all analysis is done using the city's 6-year EMME/2 travel demand model platform (MP6), including trip generation, where broad categorical trip rates are used. In contrast, a PROJECT level concurrency analysis involves a combined ITE (Institute of Transportation Engineers) and EMME/2 approach. Trip generation applies detailed ITE based trip generation and pass-by percentage rates for the specific building size or use. The mode split for drive-alone and share-ride, traffic distribution and assignment modeling steps are done within the MP6 EMME/2 model.

Figure 1: New Development Approved as of 9/15/2007

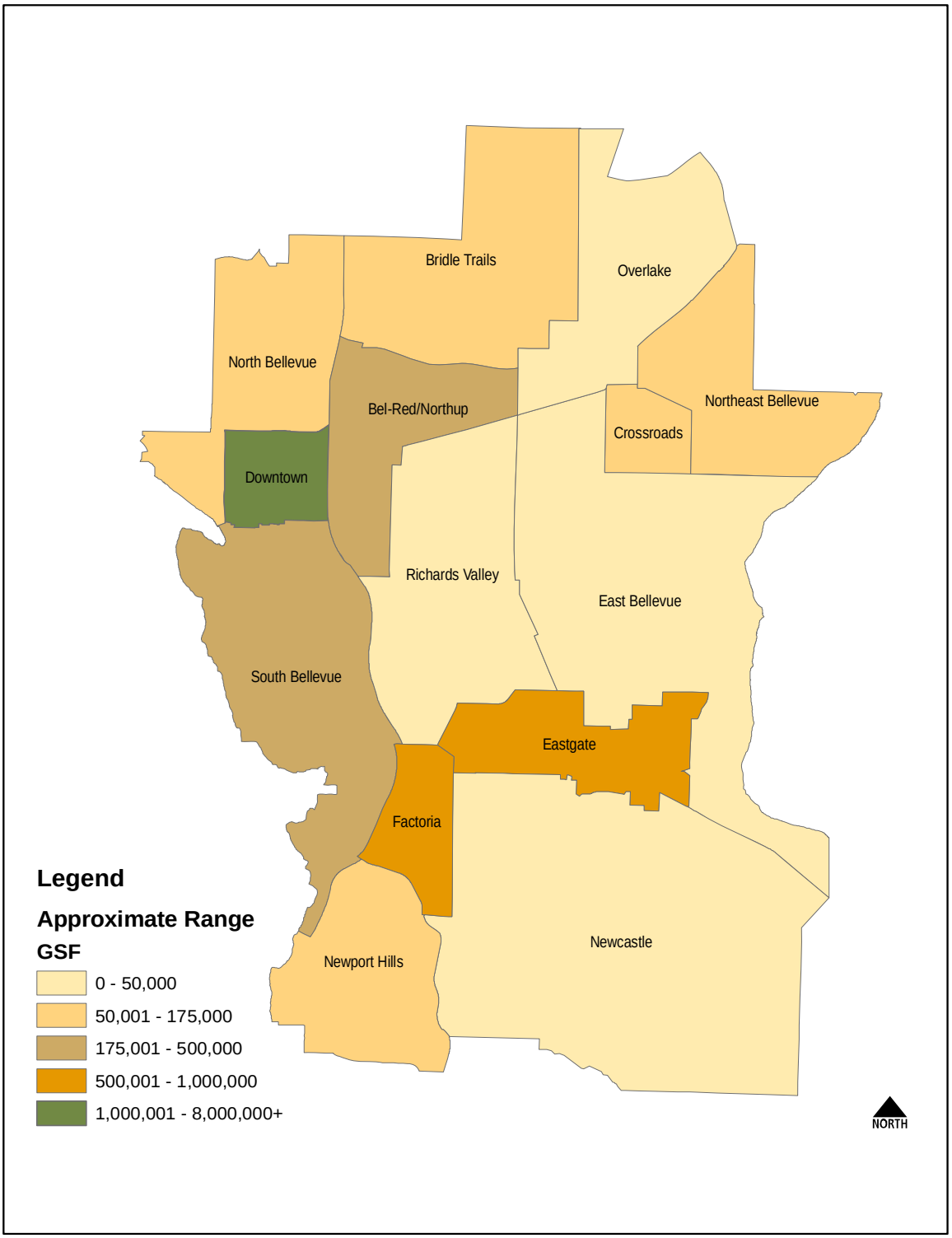


Figure 1 shows MMAs where development occurred or was approved during a period from 1/1/07 to 9/15/07. Development is shown by the approximate range of gross square feet. A detailed breakdown is provided in Tables 1 and 2.

Assumptions

LAND USE: The cities of Redmond and Kirkland provided their 2006 land use for validation of the 2006 existing BKR (Bellevue-Kirkland-Redmond) model platform. The land use estimates for Bellevue include all existing year 2006 land use extracted from the land use permit tracking system (AMANDA) as of December 31, 2006 and permitted developments approved by the City of Bellevue by the current update (September 15, 2007). These permitted developments represent the new increment of land use change for concurrency testing. Table 1 provides an MMA-level summary of the estimate of the existing 2006 land use. Since not all development occurs on formerly vacant land, the land use information also accounted for demolition and conversions of land use. This provides the net amount of development in the various land use categories. Table 2 provides details of new and permitted land use. Tables 3 and 4 list the MMA level summary of estimated new and permitted land use, and concurrency land use in mid-September 2007, respectively.

Vacancy rates are assumed citywide for modeling of existing and concurrency land use snapshots: Office = 10%, Retail = 5%, and Industrial = 7.5%. Actual vacancy rates may differ from the assumed pro forma rates but the assumed rates provide reasonable averages that are generally consistent over time.

Table 1: Base Year Land Use Summary as of 12/31/06

		COMMERCIAL DEVELOPMENT			DWELLING UNITS	
MMA	SUBAREA	OFFICE	RETAIL	OTHER	S_Family	M_Family
1	North Bellevue	1,690,913	106,234	474,857	2,049	3,031
2	Bridle Trails	557,716	498,039	339,302	1,622	3,176
3	Downtown	6,909,828	3,825,658	1,441,902	8	4,125
4	Bel-Red/Northup	4,047,854	1,963,345	5,376,484	128	1,008
5	Crossroads	136,785	861,300	177,907	11	3,317
6	Northeast Bellevue	391,830	8,600	539,478	3,230	160
7	South Bellevue	1,269,735	98,496	1,447,895	2,617	2,019
8	Richards Valley	565,508	21,411	462,639	2,385	3,130
9	East Bellevue	601,981	424,362	1,764,384	7,206	2,731
10	Eastgate	2,937,201	324,820	3,082,138	293	818
11	Newcastle	147,338	65,368	648,019	8,449	1,084
12	Overlake*	614,298	933,772	981,815	19	265
13	Factoria	1,427,820	930,868	528,974	327	1,120
14	Newport Hills	14,698	179,591	48,112	3,675	632
	TOTAL	21,313,503	10,241,862	17,313,906	32,019	26,616

* Bellevue portion only

This concurrency update indicates that more than 5.6 million additional gross square feet (GSF) of non-residential development and nearly 4,500 residential dwelling units are permitted or being built in the city since the update for year end 2006. A comparison of the land use totals by category for the 14 MMAs results in the following observations for concurrency:

TABLE 2: Projects Contributing to Change (As of September 15, 2007)

Development Name	MMA	Office	Retail	Other	SF Units	MF Units
Parkside Villa	1	-	-	-		5
15th Street, LLC now known as 405 Office	1	9,782	-	-		-
1200 Bellevue Way Townhomes -	1	-	-	-		49
The Commons	1	31,620		-		
Westminster Chapel	2	-	-	51,608		-
1020 Residential Tower	3		3,925	-		129
Belletini	3	3,618	19,658	-		150
BRE Belcarra	3			-		300
Vue Hanover	3	2,482		-		202
Williams Sonoma Expansion	3	-	22,595	-		-
Gregg's Bellevue Cycle	3	-	11,918	-		-
Main Street	3			-		65
Bellevue at Main	3					138
Ventana on Main	3			-		68
Metro 112	3			-		300
Meydenbauer Inn	3		-	-		68
The Summit - Phase II/Bldg C	3	390,000		-		
Tower 333 - Office Building	3	447,015	10,423	2,620		-
Avalon Meydenbauer	3	3,161	89,961	-		368
Bellevue Towers	3	-	16,114	-		557
City Center II	3	558,921	16,765	-		
The Bravern	3	733,042	265,847	-		455
Lincoln Square North Office Tower	3	573,367	-	-		-
Bellevue Place Hyatt and Retail Expansion	3	-	4,134	339,267		-
Washington Square	3	7,455	8,603	-		373
European Tower	3			-		18
Ashwood II (Ashwood Commons)	3	15,460	64,502	-		274
Gateway	3			-		130
Lexus of Bellevue - Dealership	4	29,961	66,517	-		-
Wilburton Instructional Service Center	4	3,116	5,325	1,200		-
Spectrum Controls	4	8,450	-	-		-
Overlake Hospital Medical Center - S Tower	4	-	-	140,000		-
Group Health Cooperative Medical Center	4			200,000		
Crossroads II	5	27,856		-		
Crossroads Plaza	5		9,600	-		
Enclave at Fox Glen (Bellevue Townhomes)	5			-	-	26
Rozenblat Townhomes	5	-	-	-		20
Youth Eastside Services	5	15,653	2,984	2,222		-
5 Corners Development	5	33,610	-	1,216		-
Bel Red Office	5	19,871		-		
Sherwood Forest Elementary School	6	-	10,122	55,489		-
Mercer Slough Environmental Education Ctr	7	-	-	10,252		-
Bellevue Club	7	-	15,574	-		-
Residence Inn by Marriott	7	-	-	115,500		-
Advanced Dentistry Northwest	7	2,000		-		
Bellevue City View	7	-	-	-		47
305 Bellevue Way Townhomes	7	-	-	-		9
Bellevue Pump Station Upgrade	7			2910		
Bellevue CC Science & Technology Bldg	10	-	-	62,556		-
Landerholm Plaza	10	27,256		-		
Advanta	10	614,919	-	-		-
Sierra Suites Hotel	10	-	-	97,132		-
Marketplace @ Factoria	13		151,000	-		685
Two Newport Office Building	13	131,833		-		
Newport Heights Elementary School	14	-	19,299	58,681		-
	Total	3,690,448	814,866	1,140,653	-	4,436

Note: Shaded cells are Downtown Bellevue sites (MMA 3).

1. Between the end of 2006 and September 15, 2007, the new and permitted office development is more than 3.6 million GSF, growing from about 21.3 million GSF to 25 million GSF. Of additional office space citywide, 75% is sited within Downtown Bellevue (MMA 3). Retail development will increase by over 814,850 GSF from about 10.2 million GSF to 11. million GSF. About 66% of the city's new retail land use is located on downtown sites.

2. The Other development category consists of hotels, churches, school buildings, social services, maintenance facilities and child care facilities, which total over 1.1 million GSF citywide. Downtown Bellevue and BelRed/Northup MMAs each will take 30% of this growth due to new hotel rooms and the medical facilities (as shown specifically in Table 2). Also the Bridle Trails, Crossroads, Northeast Bellevue, South Bellevue, Eastgate, and Newport Hills MMAs each have some projects in the Other land use category.

3. New or permitted housing developments between the end of 2006 and September 15, 2007 consist of 4,436 multi-family units and 55 additional single-family units. More than 80% of new multi-family permitted development is in downtown Bellevue and a large amount in Factoria. The citywide residential pattern is 51% single-family and 49% multifamily units.

TABLE 3: Summary of New & Permitted Land Use by MMA as of 9/15/2007

		COMMERCIAL DEVELOPMENT			DWELLING UNITS	
MMA	SUBAREA	OFFICE	RETAIL	OTHERS	S_Family	M_Family
1	North Bellevue	41,402	-	-	-	54
2	Bridle Trails	-	-	51,608	-	-
3	Downtown	2,734,521	534,445	341,887	-	3,595
4	Bel-Red/Northup	41,527	71,842	341,200	-	-
5	Crossroads	96,990	12,584	3,438	-	46
6	Northeast Bellevue	-	10,122	55,489	-	-
7	South Bellevue	2,000	15,574	128,662	-	56
8	Richards Valley					
9	East Bellevue					
10	Eastgate	642,175	-	159,688	-	-
11	Newcastle	-	-	-	-	-
12	Overlake*					
13	Factoria	131,833	151,000	-	-	685
14	Newport Hills	-	19,299	58,681		-
	TOTAL	3,690,448	814,866	1,140,653	55	4,436

Note: The Single Family includes only the net new units completed in first half of 2007.

Table 4: Concurrency Land Use Summary as of 9/15/2007

(2006 Existing Land Use + Permitted Land Use)

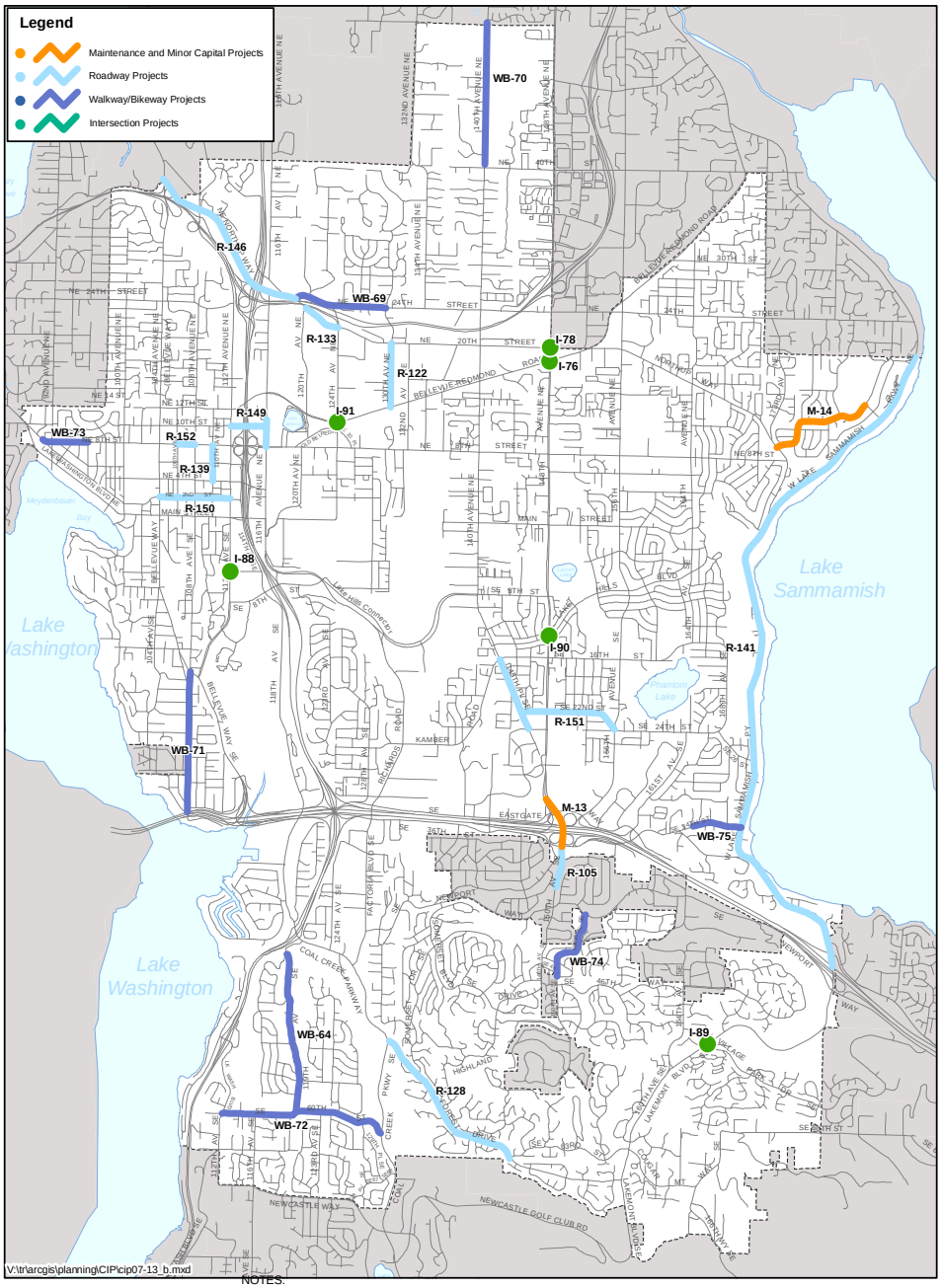
		COMMERCIAL DEVELOPMENT			DWELLING UNITS	
MMA	SUBAREA	OFFICE	RETAIL	OTHERS	S_Family	M_Family
1	North Bellevue	1,732,315	106,234	474,857	2,049	3,085
2	Bridle Trails	557,716	498,039	390,910	1,622	3,176
3	Downtown	9,644,349	4,360,103	1,783,789	8	7,720
4	Bel-Red/Northup	4,089,381	2,035,187	5,717,684	128	1,008
5	Crossroads‘	233,775	873,884	181,345	11	3,363
6	Northeast Bellevue	391,830	18,722	594,967	3,230	160
7	South Bellevue	1,271,735	114,070	1,576,557	2,617	2,075
8	Richards Valley	565,508	21,411	462,639	2,385	3,130
9	East Bellevue	601,981	424,362	1,764,384	7,206	2,731
10	Eastgate	3,579,376	324,820	3,241,826	293	818
11	Newcastle	147,338	65,368	648,019	8,449	1,084
12	Overlake*	614,298	933,772	981,815	19	265
13	Factoria	1,559,653	1,081,868	528,974	327	1,805
14	Newport Hills	14,698	198,890	106,793	3,675	632
	TOTAL	25,003,951	11,056,728	18,454,559	32,074	31,052

TRANSPORTATION: The adopted 2007-2013 CIP, as amended through September 15th, 2007, is used for this analysis and report. The concurrency model network includes all funded projects that would add capacity to roadways and intersections. These capacity projects include roadway widening, intersection signalization and channelization, and access improvements. The 2007-2013 CIP capacity project locations are shown in Figure 2.

The current CIP intersection capacity projects are listed as follows:

I-76	148th Avenue NE/Bel-Red Road
I-78	148th Avenue NE/NE 20th Street
I-83	Redmond BROTS Projects
I-88	112th Avenue SE/SE 6th Street Signal
I-89	Lakemont Blvd/Village Pk Drive
I-90	148th Ave SE/Lk Hills Blvd

Fig. 2: 2007 - 2013 Transportation CIP Projects



NOTES:

1. Projects R-44 and R-145 are not shown as they are study projects.

2. Projects R-46, R-87, R-130, R-136, R-147, R-153, R-154, R-155, R-156, R-157, WB-49, WB-56, I-83, I-84, M-1, M-2, M-3, M-7, M-8, M-12, M-15, and M-19 are not shown as they are in multiple or non-specific locations in the City.

3. Projects R-82 and R-83 are not shown as they are administrative projects.

4. Project WB-53 is not shown as it is a maintenance program project.

NORTH

= 5,400 feet

City of Bellevue
IT Department
GIS Services
Plot Date: 1/25/2007

The CIP roadway capacity projects are listed as follows (note: * indicates projects completed by 2006; work continued into 2007 for the others):

R-105*	150th Ave SE - Newport Way to SE 36th St
R-128*	Forest Drive Improvements – Intersection geometry, add left turn pocket
R-133	Northup Way - 120th to 124th Avenues NE
R-139	110th Ave NE - NE 4th St to NE 6th St
R-149	NE 10th Street Extension
R-151	145th Place SE/SE 16th Street to SE 24th Street AND SE 22nd Street/145th Place to 156th Place SE
R-152	NE 8th Street/106th Avenue NE to 108th Avenue NE

This concurrency update includes the 2006 base year LOS analysis as a benchmark to compare concurrency LOS with and without the 2007-2013 CIP projects.

TRAFFIC COUNTS: Figure 3 shows the change in observed 2006 compared to 2005 measures of Average Annual Weekday Traffic (AAWT) in Bellevue. Table 5 shows the actual difference between 2005 and 2006 PM peak 2-hour average traffic volumes for all 104 system intersections in Bellevue, as well as 300 citywide intersections. As shown by Table 5, intersection PM peak hour volumes increased by an overall citywide average of 2% from 2005 to 2006, while system intersections show an average increase of 3.3%.

The 2006 base year PM peak 2 hour average counts were used along with the 2006 existing intersection geometry and signal timing plan to calculate system intersection volume to capacity (v/c) ratios for LOS analysis based on the 2000 HCM/209 method. The results are summarized at the MMA level, compared with City's LOS standards (Table 6), and shown in Table 7.

The concurrency model outputs from MP6-R9 were adjusted using a post processor (a computer program) to account for model validation differences. The base year 2006 2-hour average counts were post - processed to adjust the model output for the predicted concurrency intersection traffic volumes. Based on the forecast volume, intersection v/c ratios were analyzed for future 6-year conditions with and without the 2007-2013 CIP capacity projects (as shown in Table 8).

Figure 3: Change in Annual Average Weekday Traffic 2006 - 2005

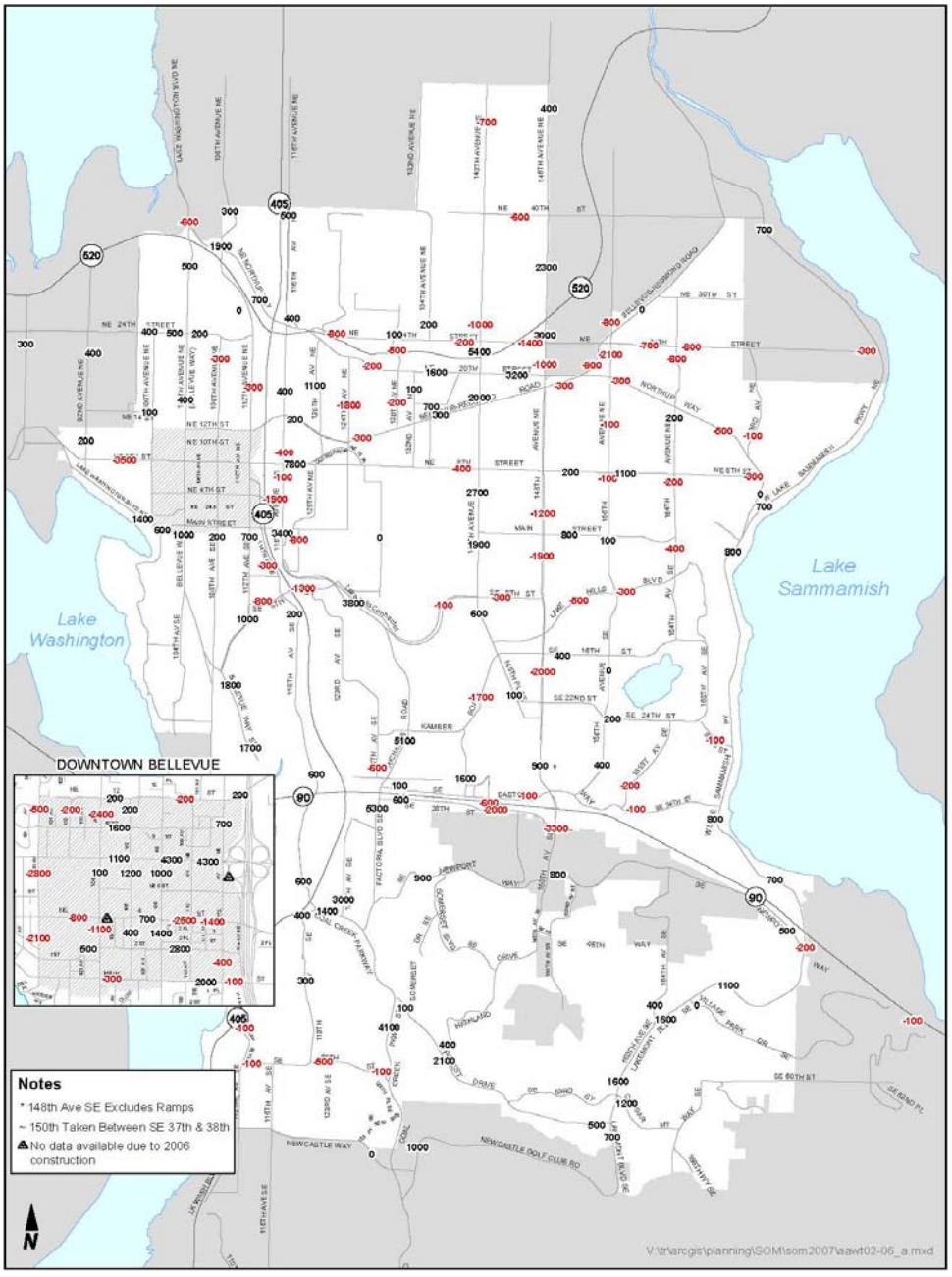
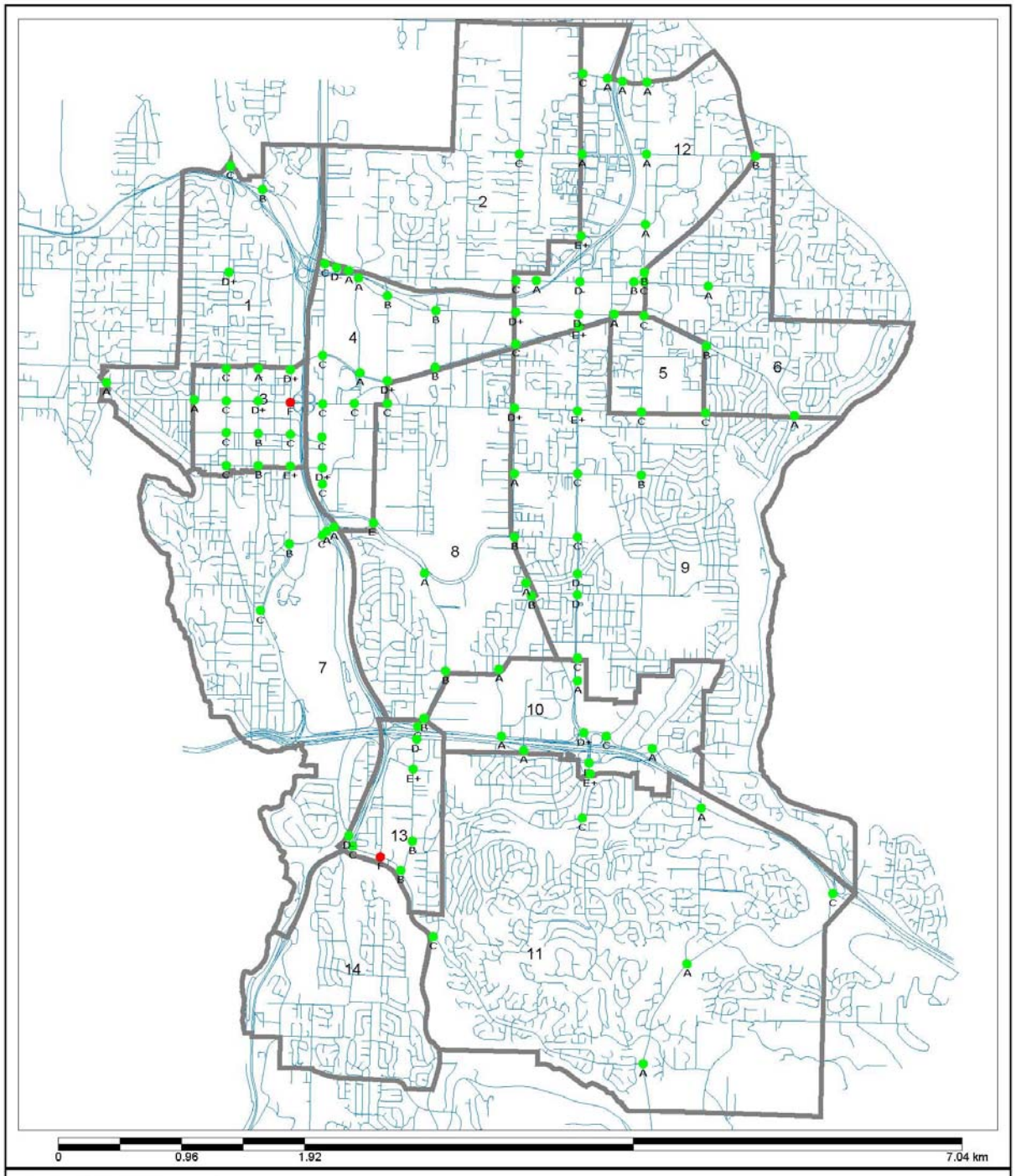


Figure 3 shows the change in annual average weekday traffic between 2006 and 2005.

Figure 4 shows intersection LOS analysis for the 2013 horizon year if no CIP Improvements are made.



MP6_R9 (2006 base)

Figure 4 2013 No Action PM PK 2hr Average System Intersection LOS

Prepared by Bellevue Transportation Modeling Group

Table 5: Changes from 2005 to 2006 in PM Peak 2-Hour Average Intersection Volumes

2006 2hr Avg - 2005 2hr Avg		Total Turning Movement Volumes for all MMA System Intersections												MMA	%
MMA	#	NB_L	NB_T	NB_R	SB_L	SB_T	SB_R	EB_L	EB_T	EB_R	WB_L	WB_T	WB_R	Delta	Change
North Bellevue	1	-119	254	24	24	238	48	103	1	-82	109	119	36	755	8.5%
BridleTrails	2	-2	18	-2	29	41	-1	0	1	-3	0	2	-34	53	1.7%
Downtown	3	-6	359	247	141	236	68	30	418	127	180	320	162	2282	6.1%
Bel-Red/Northup	4	42	46	-27	72	357	186	-80	56	195	97	354	-61	1237	2.9%
Crossroads	5	-34	-147	-24	51	91	65	20	4	-24	4	-44	-37	-78	-0.8%
NE Bellevue	6	35	16	19	-4	151	-29	-5	-88	68	15	10	-5	183	3.4%
South Bellevue	7	-36	-58	-76	-116	22	1	-77	-46	368	-96	34	-43	-123	-1.0%
Richards Valley	8	151	211	-171	-49	750	111	66	-34	115	-74	-71	-44	961	5.8%
East Bellevue	9	-29	95	156	-35	1083	-290	-113	-40	66	132	-34	-16	975	3.4%
Eastgate	10	-71	-81	25	117	262	-23	-186	13	-163	41	-8	-53	-115	-0.6%
Newcastle	11	-12	15	107	196	226	58	7	-23	7	78	70	-42	687	7.4%
Overlake	12	-84	14	113	43	228	94	55	423	75	166	319	92	1558	2.8%
Factoria	13	-78	170	-118	-40	372	-58	-100	595	-11	-94	88	-116	607	2.3%
Newport Hills	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Other Non-System	0	-150	331	156	70	269	368	85	560	17	-8	316	55	2091	0.8%
Total All Intersections		-393	1243	429	499	4326	598	-195	1840	755	550	1475	-106	11073	2.0%
Total System Intersections		-243	912	273	429	4057	230	-280	1280	738	558	1159	-161	8982	3.3%

Notes:

NB_L Northbound Left	SB_L Southbound Left	EB_L Eastbound Left	WB_L Westbound Left
NB_T Northbound Thru	SB_T Southbound Thru	EB_T Eastbound Thru	WB_T Westbound Thru
NB_R Northbound Right	SB_R Southbound Right	EB_R Eastbound Right	WB_R Westbound Right

Total System Intersection		
Left	Thru	Right
464	7408	1080
0.9%	4.3%	2.2%

TABLE 6

Average Intersection

Levels Of Service (LOS) Definition

[Range of Volume -to-Capacity Ratios with User Impressions]

LOS Categories	**Average Volume-to-Capacity Ratios**		**Description** *(Subjective Impression of User)*
LOS A	Less than or equal to 0.600		Highest driver comfort.Little delay. Free flow.
LOS B	0.601 - 0.70		High degree of driver comfort.Little delay.
LOS C	0.701 - 0.80		Some delays. Acceptable level of driver comfort. Efficient traffic operation.
LOS D	LOS D+ *(High D)*	0.801 - 0.85	Some driver frustration. Efficient traffic operation.
	LOS D- *(Low D)*	0.851 – 0.90	Increased driver frustration. Long cycle length.
LOS E	LOS E+ *(High E)*	0.901 - 0.95	Near capacity. Notable delays. Low driver comfort. Difficulty of signal progression.
	LOS E- *(Low E)*	0.951 - 1.00	At capacity. High level of congestion. High level of driver frustration.
LOS F	Greater than or equal to 1.001		Breakdown flow. Excessive delays.

Note: The information reported in Table 6 represents the City's adopted Traffic Standards Code (Chapter 14.10) for satisfying concurrency requirements under the Washington Growth Management Act. It is also used in the City of Bellevue Vital Signs as a transportation performance indicator.

LOS Snapshots

This section presents four LOS snapshots for comparison over time. One was previously reported and three are new (Appendix A provides a complete list of system intersections with PM peak 2-hour average v/c ratios and LOS for last year's and this year's concurrency update, including 2005 and 2006 existing conditions, as well as 2013 with or without the CIP capacity projects). The four snapshots are:

1. 2005 Old Existing LOS Snapshot reporting observed year 2005 PM Peak 2-hour average traffic counts (See Table 7 for summary by MMA).

2. 2006 New Existing LOS Snapshot reporting observed year 2006 PM Peak 2-hour average traffic counts (See Table 7 for summary by MMA and Figure 5 for intersection specific details).

3. Future Concurrency LOS Forecast without CIP Projects (No Action) including land use permits as of September 15, 2007. However, the LOS calculation was based on existing intersection geometry and signal timing plans. For the purpose of comparison with the concurrency LOS, none of the uncompleted 2007-2013 CIP projects were included (See Table 8 for summary by MMA).

4. Future Concurrency LOS Forecast (CIP Scenario) including land use permits as of September 15, 2007 and the Council adopted 2007-2013 CIP capacity projects. (See Table 8 for summary by MMA and Figure 5 for intersection specific details).

The LOS snapshots portray traffic conditions on an average scale for a two-hour PM peak period on a typical weekday, ignoring specific spikes in the demand pattern. Overall the two-hour v/c ratios do not fully reflect delays and backups that might occur due to unpredictable conditions such as weather or accidents, or special events of a temporary nature such as construction.

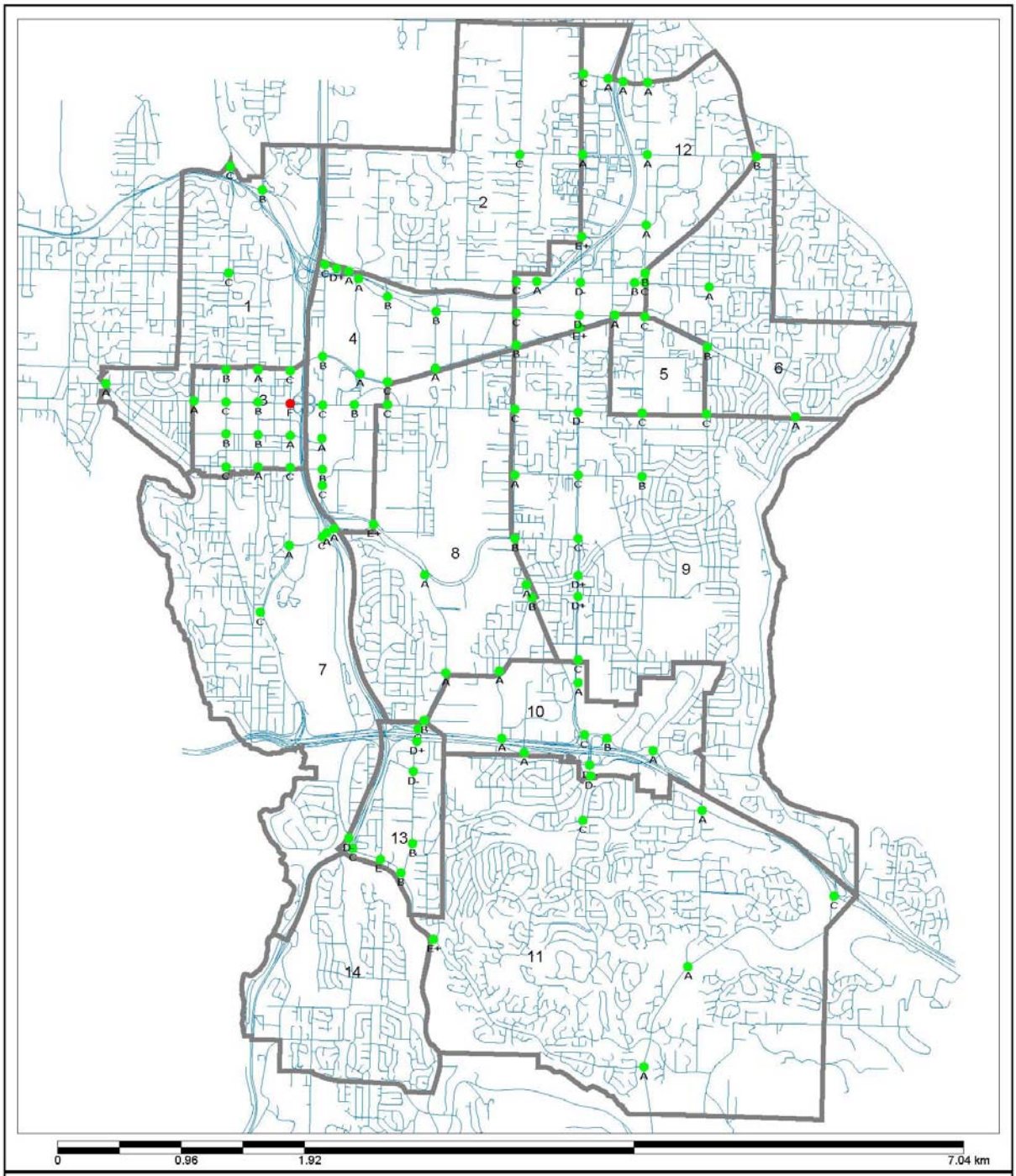
Table 7: Comparison of 2-Hour Average LOS in Annual Concurrency as of 9/15/07

--- 2000 Highway Capacity Manual (HCM) 209/Two-Hour Method

Based on existing 2-hour PM peak average counts				2005 Existing *Based on 2005 Counts*			2006 Existing *Based on 2006 Counts*			
MMA#	MMA Name	LOS Standard (Volume/ Capacity Ratios)	No of Intersections Allowed Over the Standard	Average V/C Ratio	% Capacity Available	No of Intersections Over the Standard	Average V/C Ratio	% Capacity Available	No of Intersections Over the Standard	Change in V/C Ratio* From 2005 to 2006
1	North Bellevue	0.85	3	0.553	35%	0	0.619	27%	0	0.066
2	Bridle Trails	0.80	2	0.559	30%	0	0.532	34%	0	-0.027
3	Downtown	0.95	9	0.632	33%	1	0.660	31%	1	0.028
4	Bel-Red/Northup	0.90	10	0.646	28%	0	0.666	26%	0	0.020
5	Crossroads	0.90	2	0.646	28%	0	0.663	26%	0	0.017
6	North-East Bellevue	0.80	2	0.622	22%	0	0.632	21%	0	0.010
7	South Bellevue	0.85	4	0.604	29%	0	0.600	29%	0	-0.004
8	Richards Valley	0.85	5	0.573	33%	1	0.598	30%	1	0.025
9	East Bellevue	0.85	5	0.720	15%	0	0.749	12%	1	0.029
10	Eastgate	0.90	4	0.644	28%	1	0.607	33%	0	-0.037
11	Newcastle	0.80	3	0.740	8%	0	0.732	9%	0	-0.008
12	Overlake	0.95	9	0.652	31%	1	0.663	30%	0	0.011
13	Factoria	0.95	5	0.754	21%	1	0.782	18%	1	0.028
	TOTAL		63			5			4	0.158

Notes:

- MMA 14 Newport Hills has no signalized intersections, and so is not considered here.
- Critical intersection movements, geometry, and signal phasing/timing plans affect LOS results.
- Intersection volume reduction may contribute to v/c ratio decline, as may the 2005 completed CIP capacity projects.
- Positive v/c ratio changes indicate MMA degradation while negative shows MMA improvement.
- In 2006 four intersections failed the LOS standards.
- Four MMAs show v/c ratio declines (improvements) in the range of -0.004 to -0.037.
- Nine MMAs show v/c ratio increases (degradation) in the range of 0.010 to 0.066



MP0_R8 (2006 base)

Figure 5: 2006 PM PK 2hr Average System Intersection LOS

Prepared by Bellevue Transportation Modeling Group

Table 8: Comparison of Concurrency System Intersection LOS Snapshots

--- 2000 Highway Capacity Manual (HCM) 209/Two-Hour Method

2013 MP6-R9 Concurrency Model Platform				2013 w/o CIP			2013 w/ CIP			
MMA#	MMA Name	LOS Standard (Volume/ Capacity Ratios)	No of Intersections Allowed Over the Standard	Average V/C Ratio	% Capacity Available	No of Intersections Over the Standard	Average V/C Ratio	% Capacity Available	No of Intersections Over the Standard	Change in V/C Ratio* From mp6r8 to mp6r9
1	North Bellevue	0.85	3	0.660	22%	0	0.651	23%	0	-0.009
2	Bridle Trails	0.80	2	0.537	33%	0	0.522	35%	0	-0.015
3	Downtown	0.95	9	0.762	20%	1	0.730	23%	1	-0.032
4	Bel-Red/Northup	0.90	10	0.720	20%	0	0.685	24%	0	-0.035
5	Crossroads	0.90	2	0.677	25%	0	0.685	24%	0	0.008
6	North-East Bellevue	0.80	2	0.649	19%	0	0.639	20%	0	-0.010
7	South Bellevue	0.85	4	0.643	24%	0	0.629	26%	0	-0.014
8	Richards Valley	0.85	5	0.637	25%	1	0.632	26%	1	-0.005
9	East Bellevue	0.85	5	0.771	9%	3	0.763	10%	2	-0.008
10	Eastgate	0.90	4	0.665	26%	1	0.616	32%	0	-0.049
11	Newcastle	0.80	3	0.769	4%	0	0.771	4%	0	0.002
12	Overlake	0.95	9	0.677	29%	0	0.661	30%	0	-0.016
13	Factoria	0.95	5	0.817	14%	1	0.815	14%	1	-0.002
	TOTAL		63			7			5	-0.185

Notes:

- MMA 14 Newport Hills has no signalized intersections, and is therefore not considered here.
- Change in v/c ratio is due to the 2007-2013 CIP capacity projects or/and traffic redistribution.
- The number of system intersections that would fail the LOS standards drops from seven to five and the overall v/c ratio shows a decline (or improvement), with the CIP projects completed.
- With the CIP projects completed, twelve MMAs show a decline in v/c ratios (improvements) in the range of -0.002 to -0.049.

Findings

An overview of the above LOS Snapshots indicates the following:

Existing LOS Snapshot (traffic related to existing land use compared for 2005 and 2006 as shown in Table 7):

- The number of intersections failing the LOS MMA standards was five in 2005 and four in 2006. This quantity of failing intersections does not approach the maximum number of failing intersections allowed (congestion allowance) in any MMA.

- In four of the 13 MMAs, the average v/c ratio declined (improvement), resulting in increased reserve capacity in the Bridle Trails, South Bellevue, Newcastle, and Eastgate MMAs. MMA v/c ratios declined in the range of -0.004 (South Bellevue MMA) to -0.037 (Eastgate MMA).

- In nine of the 13 MMAs, the average v/c ratio increased (degradation), resulting in less available capacity in the North Bellevue, Downtown, Bel-Red/Northup, Crossroads, Northeast Bellevue, Richards Valley, Factoria, East Bellevue and Overlake MMAs. MMA v/c ratios increased in the range of 0.010 (Northeast Bellevue MMA) to 0.066 (North Bellevue MMA).

- All MMAs met their congestion allowance and were within the average v/c ratios allowed (or LOS standard). The Bridle Trails MMA has the most (34%) reserve capacity before reaching its LOS standard of 0.80.

Concurrency 2013 LOS Snapshot (permitted land use with the 2007-2013 CIP projects) compared with 2013 LOS Snapshot without CIP as shown in Table 8:

- The 2013 LOS Snapshot without the CIP assumes that the City does not provide the programmed capacity improvement projects to offset the permitted land use.

- There would be seven system intersections failing the LOS standards in 2013 without the 2007-2013 CIP capacity projects built, one each in the Downtown, Richards Valley, Eastgate and Factoria MMAs and three in the East Bellevue MMA.

- The 2013 LOS Snapshot with the 2007-2013 CIP assumes that the City completes the 2007-2013 programmed capacity improvement projects to offset the permitted land use. It is forecast that five system intersections would fail the LOS standards, one each in the Downtown, Richards Valley, and Factoria MMAs and two in the East Bellevue MMA.

- In comparison with the "No Action" scenario, the " With CIP" scenario forecasts that in 11 of the 13 MMAs, v/c ratios would decline, indicating a gain in reserve capacity in the range of 0.002 to 0.049, including the North Bellevue, Bridle Trails, Downtown, Bel-Red/Northup, North-East Bellevue, South Bellevue, Richards Valley, East Bellevue, Eastgate, Overlake, and Factoria MMAs.

- With the CIP completed by 2013, the Eastgate MMA would gain the most (6%) in reserve capacity, but all MMAs are within the LOS standard both in terms of their respective v/c ratios and the congestion allowance. Only five intersections citywide exceed their respective MMA standards (refer to Appendix A).

- Under the "With CIP" scenario, the Crossroads and Newcastle MMAs are projected to increase their v/c ratios by 0.008 and 0.002, respectively, resulting in a very slight loss of reserve capacity when compared with the "No Action" scenario.

Discussion About Findings

The changes in the average LOS conditions are primarily attributable to the following reasons:

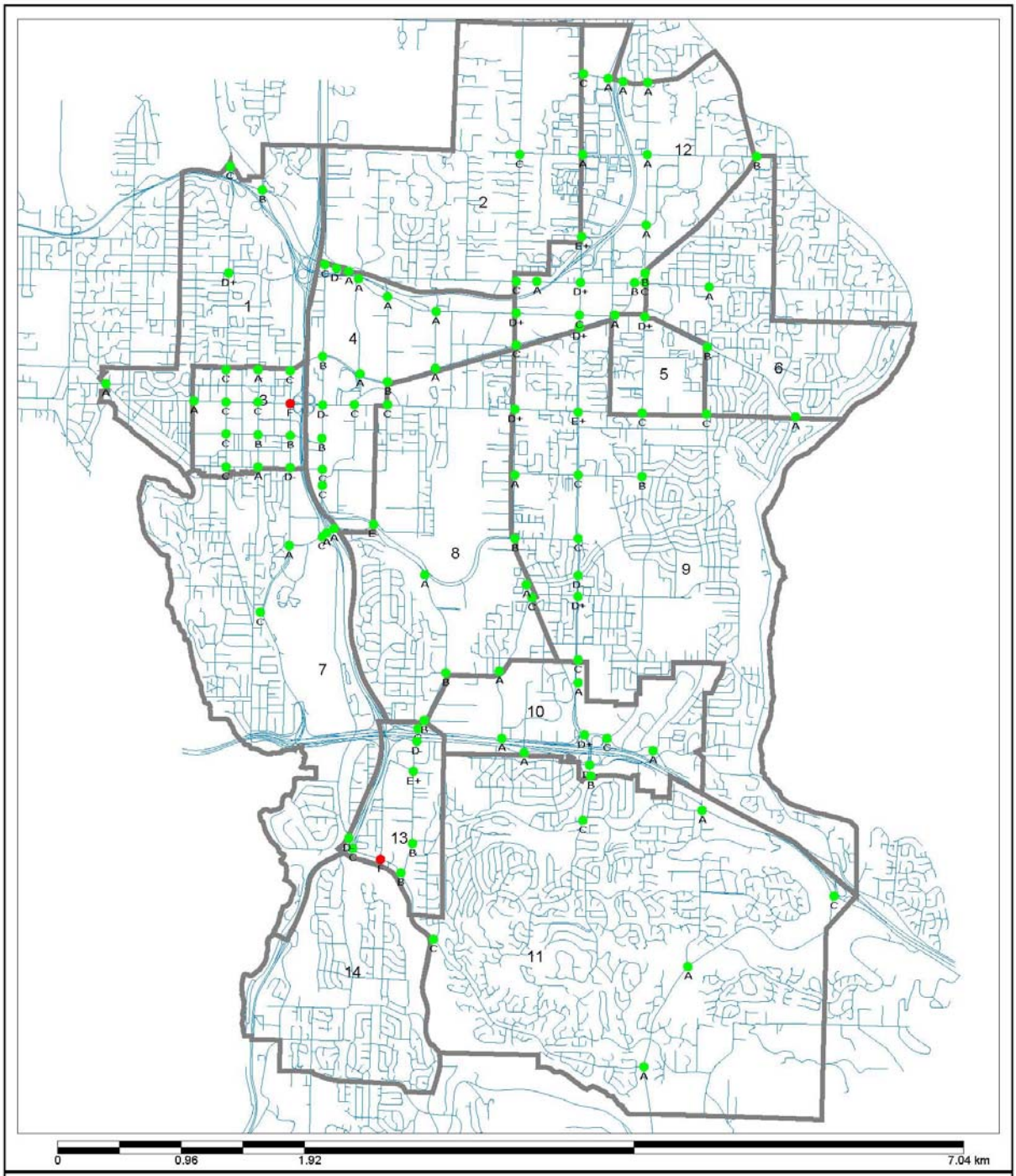
- Average 2 hour PM peak traffic volumes increased in Bellevue overall by 2.0% in 2006 compared to 2005. The loss in reserve capacity can be attributed to the volume increase in the system intersections.

- By 2013, completed CIP capacity projects will contribute to the transportation system improvements, reducing overall failed intersections from seven to five and improving eleven MMAs when compared with the "No CIP" scenario.

Concurrency analysis can be an effective tool to gauge the need for capacity projects to facilitate land developments while maintaining the transportation system at acceptable standards.

Implementation of the 2007-2013 CIP capacity projects will improve system intersection operations in a majority of the city.

Following the release of this Concurrency Report, the concurrency model platform (MP6-R9) will be used as a background condition for project-level development review modeling for next year until a new concurrency update is completed in 2008 for the 2007 time period.



MP6_R9 (2006 base)

Figure 6: 2013 PM PK 2hr Average System Intersection LOS w/2007-2013 CIP

Prepared by Bellevue Transportation Modeling Group

Conclusion

In conclusion, this concurrency update indicates the following:

- The 2007-2013 CIP will mitigate traffic volume growth in eleven MMAs while serving permitted land developments.

- Funded 2007-2013 CIP capacity projects, such as NE 10th Street Extension (R-149), NE 8th widening (R-152), and 150th Ave SE (R-105) will significantly improve system intersections in the Downtown, Bel-Red/Northup, and Eastgate MMAs, respectively.

- Improved signal design, intersection channelization and markings, and continuous efforts to improve signal system operations have added to arterial system operational efficiency.

- Bellevue improved the Bellevue-Kirkland-Redmond (BKR) region-wide model with addition of a pm peak transit model and a non-motorized component for the 2006 base year. The model will facilitate consideration of non-motorized travel and of transit system improvements in future concurrency determinations.

APPENDIX A:

PM PEAK 2-HOUR AVERAGE LOS FOR 2005, 2006, AND 2012 AND 2013 WITH OR WITHOUT CIP
(By Bellevue Modeling and Forecasting Group on 10/15/07)

Area	1: North Bellevue		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
INT	ADDRESS													
69	Bellevue Way NE	NE 24th Street	0.572	A	0	0.754	C	0	0.841	D+	0	0.839	D+	0
74	Bellevue Way NE	Northup Way NE	0.615	B	0	0.759	C	0	0.784	C	0	0.762	C	0
78	108th Ave NE	Northup Way NE	0.756	C	0	0.668	B	0	0.696	B	0	0.687	B	0
93	Lk Washington B	NE 1st/NE 10 St.	0.269	A	0	0.293	A	0	0.319	A	0	0.316	A	0
		Area wide average ->	0.553	A	0	0.619	B	0	0.660	B	0	0.651	B	0
	LOS Threshold	0.850												
	Allowance	3			0			0			0			0

Area	2: Bridle Trails		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
INT	ADDRESS													
118	Northup Way	NE 24th Street	0.559	A	0	0.532	A	0	0.537	A	0	0.522	A	0
123	140th Ave NE	NE 40th Street	-----	---	0	-----	---	0	-----	---	0	-----	---	0
		Area wide average ->	0.559	A	0	0.532	A	0	0.537	A	0	0.522	A	0
	LOS Threshold	0.800												
	Allowance	2			0			0			0			0

Area	3: Downtown		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
INT	ADDRESS													
3	100th Ave NE	NE 8th Street	0.500	A	0	0.447	A	0	0.521	A	0	0.532	A	0
5	Bellevue Way NE	NE 12th Street	0.660	B	0	0.660	B	0	0.733	C	0	0.732	C	0
7	Bellevue Way NE	NE 8th Street	0.581	A	0	0.708	C	0	0.744	C	0	0.739	C	0
8	Bellevue Way NE	NE 4th Street	0.640	B	0	0.674	B	0	0.774	C	0	0.762	C	0
9	Bellevue Way	Main Street	0.768	C	0	0.758	C	0	0.766	C	0	0.758	C	0
20	108th Ave NE	NE 12th Street	0.377	A	0	0.397	A	0	0.501	A	0	0.543	A	0
21	108th Ave NE	NE 8th Street	0.654	B	0	0.695	B	0	0.817	D+	0	0.787	C	0
22	108th Ave NE	NE 4th Street	0.536	A	0	0.605	B	0	0.689	B	0	0.650	B	0
24	108th Ave	Main Street	0.458	A	0	0.475	A	0	0.625	B	0	0.592	A	0
25	112th Ave NE	NE 12th Street	0.732	C	0	0.711	C	0	0.820	D+	0	0.713	C	0
26	112th Ave NE	NE 8th Street	1.074	F	1	1.074	F	1	1.234	F	1	1.144	F	1
36	112th Ave	Main Street	0.669	B	0	0.794	C	0	0.947	E+	0	0.873	D-	0
72	112th Ave NE	NE 4th Street	0.574	A	0	0.587	A	0	0.731	C	0	0.668	B	0
		Area wide average ->	0.632	B	0	0.660	B	0	0.762	C	0	0.730	C	0
	LOS Threshold	0.950												
	Allowance	9			1			1			1			1

Area	4: Bel-Red/Northup		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
INT	ADDRESS													
29	116th Ave NE	NE 12th Street	0.674	B	0	0.634	B	0	0.728	C	0	0.675	B	0
30	116th Ave NE	NE 8th Street	0.710	C	0	0.708	C	0	0.786	C	0	0.881	D-	0
32	120th Ave NE	NE 12th Street	0.539	A	0	0.510	A	0	0.551	A	0	0.549	A	0
34	124th Ave NE	Bellevue-Redmond	0.807	D+	0	0.796	C	0	0.817	D+	0	0.644	B	0
35	124th Ave NE	NE 8th Street	0.710	C	0	0.706	C	0	0.755	C	0	0.732	C	0
37	130th Ave NE	Bellevue-Redmond	0.568	A	0	0.574	A	0	0.605	B	0	0.593	A	0
68	130th Ave NE	NE 20th Street	0.577	A	0	0.604	B	0	0.619	B	0	0.601	A	0
73	116th Ave	Main Street	0.602	B	0	0.680	B	0	0.819	D+	0	0.768	C	0
88	124th Ave NE	Northup Way NE	0.624	B	0	0.652	B	0	0.697	B	0	0.541	A	0
114	116th Ave NE	Northup Way NE	0.697	B	0	0.723	C	0	0.779	C	0	0.763	C	0
116	115th Place NE	Northup Way	0.617	B	0	0.823	D+	0	0.855	D-	0	0.868	D-	0
117	120th Ave NE	NE 20th Street	0.524	A	0	0.575	A	0	0.594	A	0	0.574	A	0
131	116th Ave SE	SE 1st Street	0.718	C	0	0.724	C	0	0.768	C	0	0.741	C	0
139	116th Ave NE	NE 4th Street	0.607	B	0	0.578	A	0	0.716	C	0	0.615	B	0
233	120th Ave NE	NE 8th Street	0.723	C	0	0.699	B	0	0.712	C	0	0.730	C	0
		Area wide average ->	0.646	B	0	0.666	B	0	0.720	C	0	0.685	B	0
	LOS Threshold	0.900												
	Allowance	10			0			0			0			0

Area 5: Crossroads

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
58	Bellevue-Redmond	NE 20th Street	0.532	A	0	0.511	A	0	0.522	A	0	0.525	A	0
62	156th Ave NE	Northup Way	0.784	C	0	0.775	C	0	0.791	C	0	0.803	D+	0
63	156th Ave NE	NE 8th Street	0.623	B	0	0.704	C	0	0.719	C	0	0.726	C	0
		Area wide average ->	0.646	B	0	0.663	B	0	0.677	B	0	0.685	B	0
	LOS Threshold	0.900												
	Allowance	2			0			0			0			0

Area 6: North-East Bellevue

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
75	164th Ave NE	NE 24th Street	0.618	B	0	0.551	A	0	0.561	A	0	0.551	A	0
76	164th Ave NE	Northup Way	0.540	A	0	0.609	B	0	0.619	B	0	0.608	B	0
87	164th Ave NE	NE 8th Street	0.706	C	0	0.735	C	0	0.766	C	0	0.757	C	0
111	Northup Way	NE 8th Street	-----	---	0	-----	---	0	-----	---	0	-----	---	0
		Area wide average ->	0.622	B	0	0.632	B	0	0.649	B	0	0.639	B	0
	LOS Threshold	0.800												
	Allowance	2			0			0			0			0

Area 7: South Bellevue

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
14	112th Ave SE	Bellevue Way SE	0.767	C	0	0.702	C	0	0.734	C	0	0.732	C	0
89	112th Ave SE	SE 8th Street	0.596	A	0	0.570	A	0	0.606	B	0	0.564	A	0
102	118th Ave SE	SE 8th Street	0.719	C	0	0.709	C	0	0.777	C	0	0.778	C	0
219	I-405 NB Ramps	SE 8th Street	0.569	A	0	0.515	A	0	0.540	A	0	0.534	A	0
226	I-405 SB Ramps	SE 8th Street	0.367	A	0	0.503	A	0	0.560	A	0	0.537	A	0
		Area wide average ->	0.604	B	0	0.600	A	0	0.643	B	0	0.629	B	0
	LOS Threshold	0.850												
	Allowance	4			0			0			0			0

Area 8: Richards Valley

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
43	140th Ave SE	SE 8th Street	0.551	A	0	0.641	B	0	0.663	B	0	0.684	B	0
44	145th Place SE	Lake Hills Blvd	0.560	A	0	0.570	A	0	0.584	A	0	0.593	A	0
45	145th Place SE	SE 16th Street	0.612	B	0	0.648	B	0	0.697	B	0	0.709	C	0
71	Lk Hills Connec	SE 8th St/7t	0.930	E+	1	0.905	E+	1	0.974	E-	1	0.956	E-	1
82	Richards Rd	Kamber Rd	0.630	B	0	0.588	A	0	0.617	B	0	0.611	B	0
85	Richards Rd	SE 32nd Street	0.511	A	0	0.618	B	0	0.692	B	0	0.665	B	0
134	Richards Rd	Lk Hills Connec	0.452	A	0	0.480	A	0	0.520	A	0	0.504	A	0
280	139th Ave SE	Kamber Road	0.339	A	0	0.336	A	0	0.348	A	0	0.330	A	0
		Area wide average ->	0.573	A	0	0.598	A	0	0.637	B	0	0.632	B	0
	LOS Threshold	0.850												
	Allowance	5			1			1			1			1

Area 9: East Bellevue

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
41	140th Ave NE	NE 8th Street	0.728	C	0	0.794	C	0	0.835	D+	0	0.813	D+	0
42	140th Ave	Main Street	0.552	A	0	0.577	A	0	0.591	A	0	0.584	A	0
49	148th Ave NE	NE 8th Street	0.844	D+	0	0.888	D-	1	0.917	E+	1	0.908	E+	1
50	148th Ave	Main Street	0.784	C	0	0.776	C	0	0.782	C	0	0.784	C	0
51	148th Ave SE	Lake Hills Blvd	0.847	D+	0	0.849	D+	0	0.880	D-	1	0.874	D-	1
52	148th Ave SE	SE 16th Street	0.698	B	0	0.818	D+	0	0.854	D-	1	0.837	D+	0
55	148th Ave SE	SE 24th Street	0.764	C	0	0.733	C	0	0.734	C	0	0.729	C	0
65	148th Ave SE	NE 8th Street	0.641	B	0	0.706	C	0	0.723	C	0	0.719	C	0
83	156th Ave	Main Street	0.626	B	0	0.602	B	0	0.619	B	0	0.617	B	0
		Area wide average ->	0.720	C	0	0.749	C	0	0.771	C	0	0.763	C	0
	LOS Threshold	0.850												
	Allowance	5			0			1			3			2

Area 10: Eastgate

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
56	148th Ave SE	SE 27th Street	0.541	A	0	0.474	A	0	0.480	A	0	0.478	A	0
86	156th Ave SE	SE Eastgate Way	0.655	B	0	0.656	B	0	0.774	C	0	0.735	C	0
92	161st Ave SE	SE Eastgate Way	0.334	A	0	0.412	A	0	0.574	A	0	0.567	A	0
101	150th Ave SE	SE Eastgate Way	0.822	D+	0	0.789	C	0	0.834	D+	0	0.826	D+	0
171	142nd Ave SE	SE 36th Street	0.503	A	0	0.456	A	0	0.475	A	0	0.454	A	0
174	150th Ave SE	SE 38th Street	0.899	D-	0	0.899	D-	0	0.935	E+	1	0.678	B	0
227	150th Ave SE	I-90 EB Off-Ram	1.015	F	1	0.817	D+	0	0.866	D-	0	0.816	D+	0
272	139th Ave SE	SE Eastgate Way	0.386	A	0	0.351	A	0	0.379	A	0	0.375	A	0
		Area wide average ->	0.644	B	0	0.607	B	0	0.665	B	0	0.616	B	0
	LOS Threshold	0.900												
	Allowance	4			1			0			1			0

Area 11: Newcastle

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
98	Coal Creek Park	Forest Drive	0.775	C	0	0.707	C	0	0.743	C	0	0.749	C	0
133	150th Ave SE	SE Newport Way	0.684	B	0	0.726	C	0	0.780	C	0	0.783	C	0
228	Lakemont Blvd (	SE Newport Way	0.760	C	0	0.763	C	0	0.784	C	0	0.780	C	0
229	Lakemont Blvd	Forest Drive	-----	---	0	-----	---	0	-----	---	0	-----	---	0
242	164th Ave SE	Lakemont Blvd	-----	---	0	-----	---	0	-----	---	0	-----	---	0
257	164th Ave SE	SE Newport Way	-----	---	0	-----	---	0	-----	---	0	-----	---	0
		Area wide average ->	0.740	C	0	0.732	C	0	0.769	C	0	0.771	C	0
	LOS Threshold	0.800												
	Allowance	3			0			0			0			0

Area 12: Overlake

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
39	140th Ave NE	NE 20th Street	0.750	C	0	0.795	C	0	0.826	D+	0	0.810	D+	0
40	140th Ave NE	Bellevue-Redmond	0.712	C	0	0.694	B	0	0.709	C	0	0.704	C	0
47	148th Ave NE	NE 20th Street	0.933	E+	0	0.863	D-	0	0.881	D-	0	0.776	C	0
48	148th Ave NE	Bellevue-Redmond	0.884	D-	0	0.923	E+	0	0.945	E+	0	0.835	D+	0
59	Bellevue-Redmond	NE 24th Street	0.600	B	0	0.649	B	0	0.662	B	0	0.628	B	0
60	156th Ave NE	Bellevue-Redmond	0.643	B	0	0.682	B	0	0.680	B	0	0.685	B	0
61	156th Ave NE	NE 24th Street	0.678	B	0	0.759	C	0	0.770	C	0	0.765	C	0
64	140th Ave NE	NE 24th Street	0.626	B	0	0.715	C	0	0.730	C	0	0.783	C	0
79	148th Ave NE	NE 40th Street	0.592	A	0	0.536	A	0	0.557	A	0	0.531	A	0
81	148th Ave NE	NE 24th Street	0.970	E-	1	0.853	D-	0	0.865	D-	0	0.849	D+	0
138	Bellevue-Redmond	NE 40th Street	0.614	B	0	0.667	B	0	0.680	B	0	0.685	B	0
188	148th Ave NE	NE 29th Place	0.867	D-	0	0.910	E+	0	0.936	E+	0	0.927	E+	0
189	NE 29th Place	NE 24th Street	0.402	A	0	0.410	A	0	0.416	A	0	0.406	A	0
239	156th Ave NE	NE 40th Street	0.610	B	0	0.592	A	0	0.598	A	0	0.595	A	0
249	148th Ave NE	NE 51st Street	0.750	C	0	0.754	C	0	0.782	C	0	0.784	C	0
250	SR-520 SB Ramps	NE 51st Street	0.261	A	0	0.274	A	0	0.274	A	0	0.277	A	0
251	SR-520 NB Ramps	NE 51st Street	0.449	A	0	0.440	A	0	0.443	A	0	0.442	A	0
255	156th Ave NE	NE 51st Street	0.521	A	0	0.552	A	0	0.576	A	0	0.555	A	0
264	156th Ave NE	NE 31st Street	0.522	A	0	0.533	A	0	0.535	A	0	0.527	A	0
		Area wide average ->	0.652	B	0	0.663	B	0	0.677	B	0	0.661	B	0
	LOS Threshold	0.950												
	Allowance	9			1			0			0			0

Area 13: Factoria

INT	ADDRESS		2005 Existing			2006 Existing			2013 No-CIP			2013 w/ CIP		
105	Richards Rd	SE Eastgate Way	0.724	C	0	0.721	C	0	0.764	C	0	0.773	C	0
202	128th Ave SE/Ne	SE Newport Way	0.566	A	0	0.618	B	0	0.671	B	0	0.656	B	0
203	SE Newport Way	Coal Creek Pkwy	0.599	A	0	0.629	B	0	0.647	B	0	0.649	B	0
204	128th Ave SE	SE 36th Street	0.821	D+	0	0.825	D+	0	0.881	D-	0	0.861	D-	0
220	I-405 NB Ramps	Coal Creek Park	0.647	B	0	0.713	C	0	0.739	C	0	0.730	C	0
221	I-405 SB Ramps	Coal Creek Park	0.870	D-	0	0.880	D-	0	0.871	D-	0	0.896	D-	0
222	128th Ave SE	SE 38th Place	0.961	E-	1	0.881	D-	0	0.933	E+	0	0.930	E+	0
284	124th Ave SE	Coal Creek Park	0.845	D+	0	0.986	E-	1	1.027	F	1	1.021	F	1
		Area wide average ->	0.754	C	0	0.782	C	0	0.817	D+	0	0.815	D+	0
	LOS Threshold	0.950												
	Allowance	5			1			1			1			1

Total Intersections Exceeding Threshold	5	5	7	5

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CONTACT INFORMATION

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Appendix D

Select City of Bellevue Concurrency Regulations and Procedures

Select Regulations and Procedures from Chapter 14.10 of the City of Bellevue Traffic Standards Code

14.10.040 Review of development proposals.

A. *Application*. The director will review any proposal which is subject to this chapter under BCC 14.10.020 to determine its impact on each mobility management area it affects.

B. *Development Approval.* A proposal (consisting of a development project and mitigation, if any) meets the requirements of this chapter if the volume of traffic resulting from the proposal when added to the background traffic volumes of the affected intersections (1) would not cause degradation of the area-wide level-of-service in any mobility management area, and (2) would not cause the congestion limit to be exceeded in any mobility management area. The developer may rely on capacity provided by fully funded projects, including projects in the current capital investment program as defined in BCC 14.10.010(I), and capacity provided by street improvements under contract as part of other approved development proposals.

C. *Development Denial.* The proposal will not be approved under this chapter if it causes degradation not mitigated by (1) the existing street network, (2) fully funded projects, (3) street improvements under contract as part of other approved development proposals which are fully funded, or (4) developer mitigation constructed in accordance with BCC 14.10.050.

D. *Director's Decision and Appeal Process.*

1. The director will determine if mitigation is required under this chapter.

2. If mitigation is required, the director shall determine if the mitigation proposed by the developer meets the requirements of BCC 14.10.050. Notice of the director's decision and the transportation improvements required shall be published once in a newspaper of general circulation in the city or consolidated with any other notice required by the Bellevue Land Use Code or Environmental Procedures Code.

3. Any party who has standing to appeal may appeal the director's decision to the hearing examiner pursuant to the Process II appeal procedures, BCC (Land Use Code) 20.35.250.

4. Any appeal of the director's decision must be filed with the city clerk within the time period required in Process II, BCC (Land Use Code) 20.35.200 et seq.

E. *Changes to Fully Funded Projects.* If the list of fully funded projects is modified after the time the proposal vests under BCC 23.10.032, the applicant may elect to rely on the new capacity provided by the modified list of fully funded projects; provided, that such election must be made prior to issuance of a building permit. (Ord. 5081 § 5, 1998; Ord. 4978 § 30, 1997; Ord. 4823 § 4, 1995; Ord. 4606 § 2, 1993.)

14.10.050 Methods of providing transportation improvements.

A. *Mitigation Methods*. If mitigation is required to meet the area-average level-of-service standard or congestion allowance in any mobility management area, the applicant may choose to (1) reduce the size of the development until the standard is met, (2) delay the development schedule until the city and/or others provide needed improvements, or (3) provide the mitigation per subsection B of this section.

B. *Payment for and Timing of Improvements.*

1. Construction improvements to intersections subject to the city's direct operational control which are required of a developer under BCC 14.10.040 must be under construction within six months after issuance of a certificate of occupancy, final plat approval, or other such approval. The director shall require an assurance device to guarantee completion of such improvements in accordance with LUC 20.40.490.

2. The developer may provide funding in an amount equal to the director's cost estimate for improvements required under BCC 14.10.040. The director may require actual construction rather than provision of funding. Payment for transportation improvements must occur by the time of building permit issuance, final plat approval, or other such approval.

3. All funds received by the city under subsection (B)(2) of this section shall be expended within six years of receipt. Any funds not expended within six years of receipt shall be refunded in full to the property owner currently of record, plus interest earned, less a reasonable administrative charge for processing.

4. The director may recommend to the city council approval of latecomer agreements as provided by state law or for other reimbursement from properties benefited by the improvements.

5. A proposal for construction of transportation improvements to intersections partially or wholly outside the city's direct operational control, or payment for those improvements in an amount equal to the director's cost estimate, which improvements are required of a developer to meet the requirement of BCC 14.10.040(B), must be submitted to the agencies which have control for approval. Should the agencies elect to postpone the proposed improvements, or refuse to accept the proposed mitigation, the director shall collect and hold the amount estimated for mitigation until the improvement is made or until six years have elapsed. Any funds not expended within six years of receipt shall be refunded in full to the property owner currently of record, plus interest earned, less a reasonable administrative charge for processing. An assurance device in accordance with LUC 20.40.490 may, with the agencies' approval, substitute for the payment or construction.

C. *Transportation Demand Management.*

1. As a mitigation measure, the developer may propose and establish transportation demand management strategies to reduce single-occupancy vehicle trips generated by the project. The director will determine the corresponding trip volume reduction, which for purposes of determining compliance with this chapter shall not be greater than 30 percent. The director will have discretion to grant an exception to the 30 percent limit.
2. The director shall monitor and enforce the transportation demand management performance as directed under BCC 14.60.070 (Transportation Management Program) and through programs developed for the downtown in accordance with BCC 14.60.080 (Transportation Management Program – Downtown). The director will determine if a performance assurance device will be required.

D. *Decision Criteria – Acceptable Mitigation.* Acceptable mitigation requires a finding by the director that:

1. The mitigation is consistent with the comprehensive plan.
2. The mitigation contributes to system performance.
3. If the mitigation proposed involves an intersection, the intersection must be operating at a v/c ratio of 0.851 or greater, except in residential group #2, where intersections must be operating at a v/c ratio of 0.800 or greater.
4. Improvements to an intersection or roadway may not shift traffic to a residential area.
5. Improvements to an intersection or roadway may not shift traffic to other intersections for which there is no acceptable mitigation available.
6. Improvements to an intersection or roadway may not shift traffic to intersections within another jurisdiction which would violate that jurisdiction's policies and regulations.
7. Improvements to an intersection or roadway may not shift traffic to another mobility management area when such a shift would violate that mobility management area's objectives and standards.
8. The effect of the improvement may not result in a reduction or loss of another transportation objective, including but not limited to high occupancy vehicle lanes, sidewalks, or bicycle lanes.
9. The adverse environmental impacts of the facilities improvement can be reasonably alleviated.
10. The improvement will not violate accepted engineering standards and practices.

Notwithstanding the foregoing, the director has the authority, in the director's sole discretion, to require correction of a documented safety-related deficiency. (Ord. 5309 § 3, 2001; Ord. 5081 § 6, 1998; Ord. 4823 § 5, 1995; Ord. 4606 § 2, 1993.)

Appendix E

PSRC Transit Competitiveness Index Analysis

Downtown Bellevue Regional Growth Center

Puget Sound Regional Council
PSRC

June 18, 2009

To: File

From: Jennifer Ryan, PE
Principal Planner

Subject: **Transit Competitive Index Results for Bellevue Multimodal Concurrency Analysis**

INTRODUCTION

Downtown Bellevue, like other regional growth centers in the Puget Sound area, is currently experiencing dramatic growth both in employment and residents. As more workers, residents and shoppers congregate in the same amount of space, mobility of people and goods will be increasingly challenging. The typical downtown roadway network will likely not have the capacity to meet the potential new demands of single occupant vehicle (SOV) commuters. Therefore, efficiency of a future, multimodal, transportation system is crucial. Such a system will emphasize effective travel choices including transit as well as biking and walking. Efforts will also need to be made to divert SOV trips from the system through Transportation Demand Management (TDM) options including telecommuting, flexible work schedules, carpools and vanpools.

In the 2008 session, the State Legislature asked the Puget Sound Regional Council (PSRC) to conduct a pilot study to demonstrate a process for analyzing "multimodal concurrency" within a designated regional growth center. This report summarizes the work conducted by PSRC, the city of Bellevue, and King County Metro for addressing multimodal concurrency. This pilot project focused on one regional growth center, Downtown Bellevue, with the intent of developing a scalable "multimodal concurrency" measurement and management template that other jurisdictions could apply to manage travel demand and potentially incorporate into their concurrency management systems.

The purpose of this memo is to describe how the Transit Competitive Index (TCI) tool is being used to support the Bellevue Multimodal Concurrency Pilot Project. TCI methodology, findings and recommendations are presented.

> ***A Market Based Analysis***: "What areas or corridors are the most promising for improved transit service to reduce congestion?"

For the transit portion of the Pilot Project, the central question relates to the potential market for transit trips to and from downtown Bellevue. To be answered are questions such as "What areas or corridors are the most promising for improved transit service to reduce congestion?" The TCI estimates the competitiveness of transit service as compared to an auto trip on a congested roadway for trips between two areas.

Bellevue Multimodal Concurrency Pilot Project

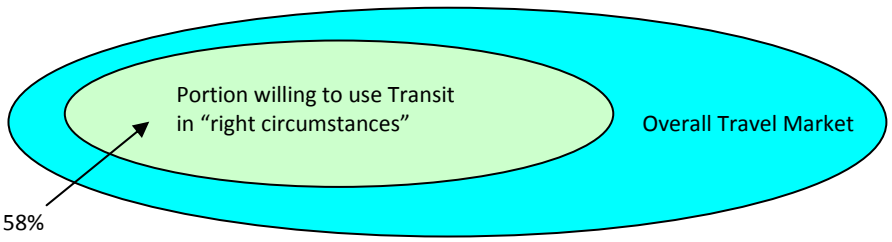
In keeping with the State Growth Management Act (GMA), Bellevue currently utilizes a concurrency method based on adopted roadway intersection level of service LOS standard that serves as a threshold to approve or deny a proposed development that will add person trips to the transportation system. This project introduces a demonstration of a multimodal LOS.

This pilot project is starting with a base year of 2006 and a forecast year of 2020. This forecast year is beyond the typical 6 year concurrency horizon of the existing "regulatory" concurrency efforts, This longer horizon allows for the ability to incorporate a multimodal level of service concept into regional long range planning efforts.

Transit Competitive Index (TCI) – What is it and why are we using it?

Currently, PSRC is able to model travel trips for the region as a whole in a fairly accurate manner, however, model results for specific areas tend to vary widely and are not as accurate. As a result, PSRC developed two new sketch-level tools in 2008 to look at corridor level transit service and markets: the Transit Competitive Index (TCI) and the Service Planning Tool. PSRC uses the TCI to identify transit patterns and service gaps in the overall transit market. It is based on the 2006 roadway network, including roadway congestion levels, and is independent of the existing transit network. The TCI analysis compiles dozens of market conditions, weighted in proportion to their relative effect on travel choice (transit, car, etc.) along with attitudinal preferences as related to transit. The resulting composite index score, the TCI score, is ranked relative to the TCI score of areas with density considered to be transit supportive, or having TCI's of 100+.

Figure 1. Market share for Transit Demand in the Region



From recent work done for the update of the regional transportation plan, Transportation 2040, the TCI identified that 58% of the regional population would be willing to take transit "in the right circumstances". These circumstances might be a bus near their house or direct service to work or school, or easy transfers for shopping or recreational trips. It might also include easy bicycle loading on buses and good access to trailheads or parks. The TCI includes a breakdown of eight market segments that represent the overall regional travel market. Of these markets the following six market segments were found to be willing to take transit "in the right circumstances":

- **Productive Riders** comprise the smallest segment (5.2 percent). They are the most environmentally conscious segment with a very high level of transit receptiveness. They are willing to tradeoff travel times for comfort and productive use of their time and were not as

sensitive to travel time as the other segments. They did not need to travel to a variety of places during a day. They used transit extensively (above 30 percent), and 40 percent of the segment used transit for work purposes. Their socioeconomic profile can be best described as mid-income young-professional urbanites.

- **Mobile Riders** comprise 8 percent of the regional population. They have higher than average needs for travel flexibility and low sensitivity to comfort and productive use of travel time. This segment is somewhat sensitive to travel time and has average sensitivity travel stress. They are usually environmentally conscious and receptive of transit services. For the most part, they are well-educated, family oriented, young-to-mid age professional urbanite couples with kids. Transit usage was only six percent.

- **Routine Riders** comprise 8.9 percent of the regional population. They have the highest level of transit receptiveness and lowest need for travel flexibility. The respondents in this segment were sensitive to the environment, were somewhat uneasy when traveling, and were not sensitive to travel time. However, they also did not like to tradeoff travel time with intangible benefits of transit services. The segment mainly traveled for work (nearly 65 percent of the trips were for work), and it had the highest market share for transit of more than 34 percent. The socioeconomic profile of this segment included young, well-educated, professional urbanites making above average wages.

- **Comfortable Movers** comprise 14.1 percent of the regional population. They have high needs for travel flexibility, but a willingness to tradeoff travel time with comfort and productivity. They are sensitive to environmental issues and somewhat receptive to transit services. Their socioeconomic profile is a close reflection of the regional average: middle aged, well educated, larger households, and located in suburban areas. Their transit usage was below four percent.

- **Easy Goers** comprise 15.1 percent of the regional population. They have attitudes towards daily travel that reflect the region's as a whole. They display a lower than average need for flexibility and lower sensitivity to travel time, but show higher needs of comfort and productivity. They are in general retired (or otherwise out of the labor force), elderly females with below average education living in suburban areas. Their transit usage is about 12 percent with 47 percent of these transit trips made for non-work purposes.

- **No Frills 9 to 5ers** are the second smallest market segment, comprising 6.2 percent of the regional population. They have the lowest sensitivities to comfort, productive use of time, travel flexibility, and time sensitivity. They are somewhat stressed during travel, and they show below average sensitivity to the environment and transit receptiveness. They are in general mid-aged suburban professionals with higher income levels and high levels of mobility. They use transit for about 10 percent of their trips, which reflects the regional average.

The remaining 42% of the regional market that would not take transit in any circumstances, based on their attitudinal preferences, was formed from the remaining 2 market segments: Multi-trip Drivers and Comfortable Drivers.

- **Comfortable Drivers** are the largest market segment, comprising 22.7 percent of the regional population. They have very high needs for flexible travel options. They are sensitive to travel time, but do not feel stressed when they travel. They have the lowest level of transit receptiveness and low levels of environmental consciousness. Nevertheless, they were willing to tradeoff some travel time in return of comfort, productivity and a stress-free travel. Their socioeconomic characteristics can be generally described as unemployed or retired elderly females living alone or with a spouse/partner in suburban or rural areas and earning a modest income. More than half (52 percent) of their travel is for non-work purposes, but transit is not a viable option for this segment. All trips were made by private vehicles.
- **Multi-trip Drivers** are the second largest market segment, comprising 19.7 percent of the regional population. They are the most sensitive segment to travel time and a need for flexible travel options. They do not have positive attitudes towards transit services or environmental awareness and they are somewhat stressed during their travel. They are on average young-to-mid age professional suburbanites with kids and higher incomes. They not only travel to a variety of locations but for a variety of purposes. They do not use transit.

Downtown Bellevue

Today, Downtown Bellevue has approximately 26,000 workers and 5,000 residents. The forecast for Downtown Bellevue assumed 63,000 employees and 11,000 housing units by 2020. Based on current and projected development activity, these forecasts still appear reasonable.

Downtown Bellevue today has the following mode split or breakdown of what types of trips are taken (from Bellevue/Kirkland/Redmond (BKR) model results for 2007):

Work Trips to Bellevue	42,075	with 11% on transit
Work trips from Bellevue	5,391	with 7% on transit
Internal Work trips	846	with 17% on transit
Total	46,620	

METHODOLOGY

The Transit Competitive Index (TCI) was used to identify the areas or corridors that are the most promising for increasing transit ridership to Downtown Bellevue. The TCI tool evaluates several types of trips: to work, to non-work or other trips, and all trips. "Other" trips are typically for medical appointments, recreation, shopping, and social activities.

To start the analysis, the Downtown Bellevue transportation analysis zones, or TAZs, were identified in the tool. These four TAZs are outlined in blue in Figure 2. A series of TCI evaluations were made based on Work and Other Trips to Bellevue from the region, and Work and Other Trips from Bellevue (by the 5,000 residents who live Downtown) to the region. The results of those analyses are displayed in TCI Analysis 1, Downtown Bellevue at the end of the memo.

Figure 2. Downtown Bellevue TAZ's
(4 TAZ's highlighted in light blue)

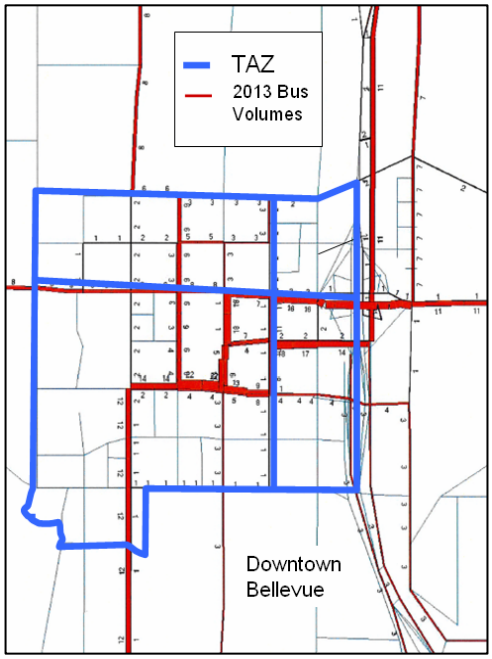
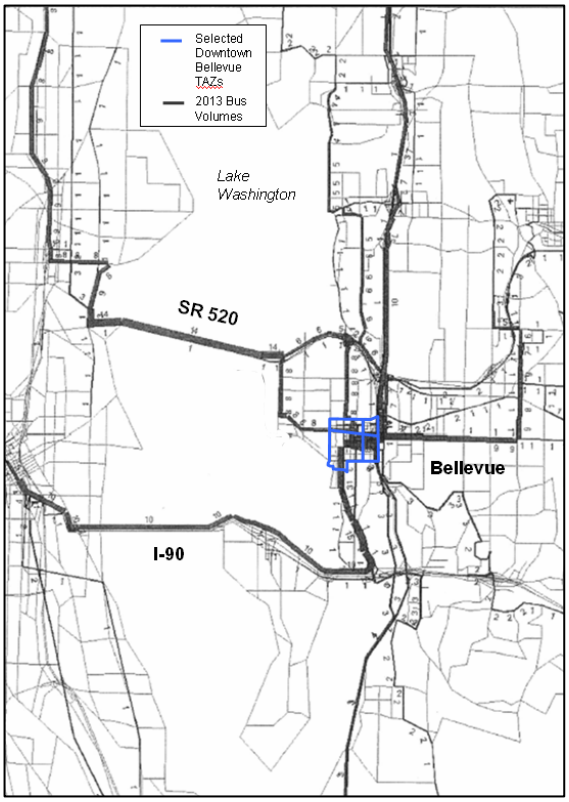


Figure 3. 2013 Bus Volumes serving Downtown Bellevue



The second step was to identify the other end of the transit trips that either start or end in Bellevue. From the initial identification of the transportation analysis zones (TAZs) representing Downtown Bellevue in the TCI analysis, a larger drawing illustrating the 2013 Bus Volumes serving those TAZs was used to identify the larger geographic areas or "travel sheds" accessing Bellevue, see Figure 3. From these bus volumes, larger travel sheds were identified and sorted into "Zone Groups":

TAZ: A Transportation Analysis Zone is a unit of geography used in transportation planning. They are based on census block data from the 2000 Census and include socio-economic data as well as trip information. As PSRC's TAZ's are based on populations of about 10,000, the actual size of the TAZs varies with smaller TAZs in more dense urban areas and larger TAZs in the rural areas.

1. North Seattle/Shoreline Zone Group (This captures the travel shed for the buses using the SR 520 bridge to serve North Seattle to Shoreline/Lake Forest Park.)
2. Snohomish County Zone Group (This captures the travel shed for the express buses to Bellevue that use I-405 North to I-5 routes from the urban areas of Snohomish Co. Not all of Snohomish County was included in this zone group, only those TAZs with TCI's over 100.)
3. NE Lake Zone Group – Kirkland, Kenmore, Bothell and Woodinville (This captures the travel shed for the buses using I-405 North to Kirkland, Kenmore, Bothell and Woodinville.)

4. Redmond, Overlake, and Bel-Red Zone Group (This captures the travel shed for buses headed directly east from Downtown Bellevue via NE 8th St to Bel-Red Road, and 116th Ave NE , along with the buses that head northeast along I-405 N to SR 520 to Overlake and Redmond. The travel shed includes the buses after they reach the Overlake area and disperse to the north to Redmond and east to Lake Sammamish.)
5. SE Bellevue Zone Group (This captures the travel shed for buses using 116th Ave SE to Lake Hills Connector Road to serve SE Bellevue south of NE 8th St, and buses serving the area immediately south of the Downtown to I-90. This travel shed goes east to Lake Sammamish, west to Lake Washington and south to I-90. It includes the neighborhoods of Beaux Arts and Lake Hills.)
6. West Bellevue Zone Group (This captures the travel shed for buses using NW 8th St and Bellevue Way NE to access NW Bellevue, Clyde Hill and Medina to the west.)
7. Mercer Island Zone Group (This captures the travel shed for buses using I-90 to access Mercer Island.)
8. Issaquah Zone Group (This captures the travel shed for buses using I-90 to access Issaquah from the south and along SR 520 to access Issaquah from the north. Not all of Issaquah was included in this zone group, only those TAZs with TCI's over 100.)
9. SE Lake Newcastle/Renton/Auburn/ Des Moines Zone Group (This captures the travel shed for the buses using I-405 south of I-90 and around the south end of Lake Washington to Tukwila and south through the Kent Valley to Des Moines and Federal Way. Not all of the Kent Valley was included in this zone group, only those TAZs with TCI's over 100.)
10. West Seattle Zone Group (This captures the travel shed for future potential express buses to use I-90 to access West Seattle.)
11. South Seattle Zone Group (This captures the travel shed for buses using I-90 to access South Seattle.)
12. Seattle CBD Zone Group (This captures the travel shed for buses using the I-90 direct access ramps to access downtown Seattle.)
13. Queen Anne and Magnolia Zone Group (This captures the travel shed for future potential express buses using SR 520 to Denny Way to 15th Ave NW to access South Lake Union, Queen Anne and farther to the west, Magnolia from Downtown Bellevue. This Zone group uses the Mercer St exit off I-5 rather than heading north through the University District like all of the other North Seattle buses.)

These Zone Groups are shown in Figure 4, overlaid on the Work Trips to Bellevue TCI Map. Finally, the Transit Competitive Index was calculated for the 13 Zone Groups.

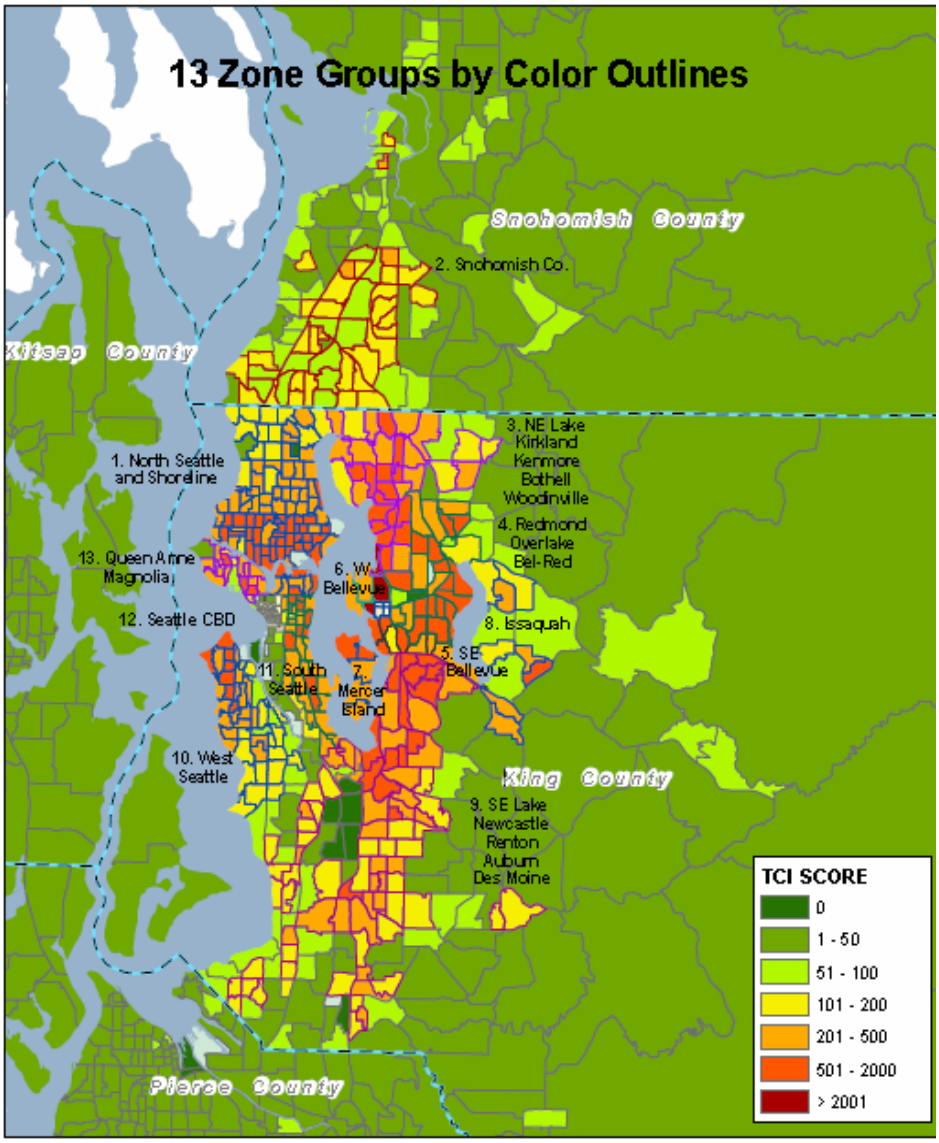
What does the TCI score mean?

The TCI score ranks the transit competitiveness of a particular zone or area for a trip to another zone or area destination. So for the Work Trips to Bellevue TCI Scores, the TCI scores were

calculated as all day work trips from any zone or TAZ in the region to Downtown Bellevue. The color scoring starts with green (dark, medium and light) for TCI scores under 100, which are not considered transit competitive for work trips starting in those zones. Yellow-colored zones have TCI scores slightly over 100 and are considered to be transit competitive. Orange-colored zones have TCI scores over 200 to 500 and are considered to be strongly transit competitive for work trips to Downtown Bellevue. Dark orange-colored zones are highly transit competitive with TCI scores over 500 and red-colored zones are very highly transit competitive with TCI scores over 2000. In Figure 2, the zones north of downtown to SW Kirkland and southwest to Meydenbauer Bay show very high TCI scores reflecting the dark red shading, indicating that work trips starting from those areas to Downtown Bellevue are very highly competitive in favor of transit when compared to an auto trip.

A ranking of the zones with the highest TCI scores helps identify market demand patterns and focus attention on the areas with the strong transit markets. Further analysis can be done to determine the most productive service improvements for a given corridor. Although the work trip data in the TCI is for all day trips, since most work trips happen during the peak hours, an evaluation of mode choice for work trips for a corridor may give insight to mode choice during the peak hours. Likewise, since Other trips are also all day, but more evenly distributed through-out the day, they may give insight as to how the transit market demand changes during the mid-day.

Figure 4. The 13 Zone Groups on a Work Trips to Downtown Bellevue TCI Map.



TCI RESULTS

The main finding of the TCI analysis is that Downtown Bellevue has a higher level of transit competitiveness than the region as a whole for both work and other trips. The Downtown has TCI scores of 280 – 466 for all trips from the region; scores that increase significantly to the highest TCI levels of over 2000 when specific corridors are looked at. These high TCI scores elevate Downtown Bellevue to among the highest priority transit service locations in the region.

The market analysis identifies that Downtown Bellevue has significantly higher transit-friendly market segments than is typical regionally. This gives a larger potential transit market share of 71% of the total travel market for Downtown Bellevue versus the 58% of the regional travel market willing to take transit "in the right circumstances".

Since the 13 Zone Groups were based on the highest TCI scores for a given travel shed or corridor with existing bus service, see Figure 4 (notice how the outlined zones are avoiding the low transit competitive green zones) all of the 13 corridors have some areas of high transit competitiveness. Beyond these 13 Zone Groups, the transit competitiveness of the walk-to-transit market drops off significantly. There may be a strong park & ride market, but the TCI does not address that. In addition, all of the 13 Zone Groups already have some service to Downtown Bellevue, although a transit trip may require one or more transfers.

In Chart 1, all 13 Zone Groups are ranked by size of potential transit market as identified by the TCI analysis. The top 6 Zones are all on the eastside immediately adjacent or in City of Bellevue except for North Seattle/Shoreline. These are the "low hanging fruit" for transit service improvements that the TCI analysis indicates would result in significant ridership increases. The remaining 7 zone groups have lower overall potential transit markets and may be better served by selective park and rides in the few transit competitive areas. It is surprising to note that Downtown Seattle has low transit potential based on the TCI's identification of a transit market of only 1,900 for both work and other trips, while the actual route between the two downtowns experiences a daily ridership of 6,000+ riders on Sound Transit Route 550. This can be explained by noting that the TCI does not include ridership demand from transfers or park and rides, only local walk or drive to transit, and both downtowns are major transfer points.

The Top Transit Opportunities identified:

- **Downtown Circulator.** A strong opportunity for transit to affect mode share is to add a Downtown circulator. In other communities, a downtown or regional center circulator has supported development goals while providing the short (<1/2 mile) trips within the regional center. The potential for a Downtown Bellevue circulator ranges from 1,000 to 6,000 trips a day taken on transit/streetcar within the 4 TAZs rather than by auto[1]. A local circulator within the downtown and adjacent high density residential areas has potential to increase the local walk mode share in addition to the streetcar/circulator ridership[2].

1 APTA's Public Transportation Ridership Statistics, APTA Ridership Report: Fourth Quarter 2008: King Co. Dept of Transportation (South Lake Union Streetcar) 1,300 daily riders; Sound Transit (Tacoma Link) 3,200; Memphis Area Transit (Riverfront and Main St Trolleys) 2,800 daily riders; Portland Streetcar daily_ridership_graph.pdf (Initial segment loop through Pearl District to Portland State University) 6,000 weekday riders in 2004.
2 Portland Streetcar – The Portland Experience, Development Oriented Streetcars, 2009 APTA/TRB LRT Conference presentation

- **East Bellevue to Overlake/Redmond** – The Bel-Red to Overlake segment along Bel-Red Road and SR 520 to Redmond ranks highest for potential ridership with up to 9% of the trips to Bellevue and 11% of the trips from Bellevue to this zone group attracted to transit[3]. The existing strong work-trip corridor to Downtown Bellevue could be strengthened by increased frequency of mid-day service to capture more of the non-work other trips, and enhancing the existing core service. As East Link LRT service is established and grows incrementally to Redmond, transit will become a more competitive option for non-work trips, thereby reducing the need for additional buses operating through Downtown Bellevue from increased off-peak service in this corridor.
- **SE Bellevue** - From the TCI analysis, a gap in service area was identified in SE Bellevue, between Eastgate and Lake Washington near I-90. This area has the greatest opportunity for new local transit service (community connector).
- **North Bellevue and West Bellevue/Meydenbauer Bay, South and East Bellevue** – Additional local service (community connector) to residential neighborhoods between downtown and adjacent freeways to pick up short other (non-work) trips, such as shopping, medical, and especially recreational to Downtown Bellevue. These zone areas had high TCI's in all trip type evaluations. The potential exists to reroute some regional/local routes to spread through the neighborhoods to add service off peak.
- **North I-405 (Kirkland/Kenmore/Bothell) and South I-405/167(Newcastle/Renton/Kent)** - The areas with the greatest potential for transit ridership outside of Bellevue are immediately adjacent to Downtown Bellevue: and the first few cities immediately north and south of Bellevue along I-405. The highest TCI score outside of Bellevue was the Zone area immediately along Lake Washington in SW Kirkland. This potential exists to add additional service through this area, particularly in the off-peak mid-day to enhance the connection to Downtown Bellevue from downtown Kirkland.
- **North Seattle** – New peak hour express service from Ballard and Crown Hill through Greenlake and the U-District to Downtown Bellevue would serve the growing population who live in North Seattle but work in the job center in Bellevue. For other trips, North Seattle had low TCI scores suggesting low transit competitiveness as a result of low transit demand for other or non-work trips to and from Bellevue, with the exception of the University District which is a strong attractor for work trips from Bellevue and originator of other trips to Bellevue.
- **Work Trips to Bellevue**- Other locations, such as West Seattle, Queen Anne/Magnolia, South Seattle, Mercer Island had fairly high TCI's (350 – 477) only for the work trips to Bellevue but low volumes of total trips. Currently, West Seattle and Queen Anne/Magnolia suffer from significant transfer penalties because of wait time at transfer points; this may contribute to the small transit demand market for these areas.
  Snohomish Co. had moderately high TCI scores (136) for the work trips to Bellevue, but they were spread out in islands of high TCI surrounded by pools of low TCI (below 100), suggesting park and ride express service rather than direct transit service from home to work. For all other trips (other to Bellevue, work and other trips from Bellevue), these locations showed low TCI

3 TCI Analysis: % of Total Trips Ranked tab in TCI's of All 6 O-D pairs.xls

scores, suggesting low transit competitiveness for non-work trips. The only exception was the Beacon Hill Zone area in South Seattle which showed moderate transit competitiveness for other trips to and from Bellevue, which supports the justification of an East Link LRT freeway stop on Rainier Ave as it heads towards Bellevue.

Chart 1	2006 Potential Transit Trip Market identified by TCI Analysis		
Zone Area	Work Trips on Transit	Other Trips on Transit	All Trips on Transit
Redmond/Overlake/Bel-Red	3,100	20,400	23,500
SE Lake - Newcastle/Renton/Auburn/Des Moine	3,800	12,000	15,800
NE Lake - Kirkland/Kenmore/Bothell/Woodinville	3,100	13,500	16,600
SE Bellevue	2,000	14,900	16,800
West Bellevue/Hunts Pt	1,200	10,000	11,100
North Seattle/Shoreline	2,500	5,000	7,500
Snohomish Co.	1,200	2,200	3,400
Mercer Island	500	3,000	3,500
South Seattle	800	2,600	3,300
Issaquah	600	2,000	2,600
West Seattle	1,000	1,200	2,100
Seattle CBD	100	1,800	1,900
Queen Anne and Magnolia	500	700	1,200
Potential Transit Trips – 13 zones groups	20,100	89,100	109,200

MODELING SUGGESTIONS

From the results, the next step would be to determine what types of improvements to model and then model the various service improvements to determine if they would significantly improve transit ridership. Based on the TCI results, the first step would be to improve the headways or frequency of the buses from the Top 7 Zone Groups. Then add the 3 new routes identified below along with a Downtown Circulator to improve transit ridership within the Downtown core and increase both the transit and the walk mode shares.

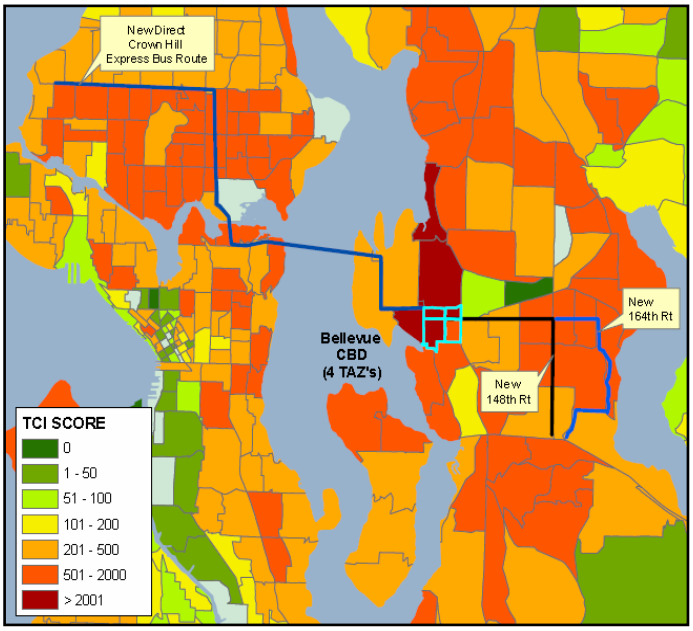
Following on these suggestions, the first step for the Service Planning Tool analysis is to focus on improving transit service to:

<u>All Day (Core) Service from Bellevue (will serve 50% of potential transit demand or up to 83,000 trips):</u>

1. Downtown Circulator within the Downtown area.
2. New service to SE Bellevue, particularly from Eastgate, Factoria, and east of Lake Washington

3. Bel-Red Corridor to Overlake and Redmond Town Center (strong other transit market)
4. Northwest Bellevue to through SE Kirkland to Overlake Transit Center (surface streets, not on freeway), with additional community connections service within NW Bellevue, and within Kirkland
5. West Bellevue/Meydenbauer Bay circulator to Downtown Bellevue
6. SW Bellevue/Beaux Arts Village circulator to Downtown Bellevue
7. University of Washington Transit Center
8. Downtown Seattle with stop at Rainier Ave/N. Beacon Hill (high other TCI origin for Bellevue)

Figure 5. Proposed new transit service on a Work Trips to Bellevue TCI map



9. Factoria through Newcastle east of I-405 to North Renton (all east of I-405)

<u>Peak Hour service for Work Trips from (~5% of demand or up to 15,000 trips):</u>

1. Kent on surface routes east of SR 167 to I-405
2. New service to North Seattle from Ballard along 45th/Market St to U-Dist
3. New service to North Seattle from Crown Hill along 85th to U-Dist
4. West Seattle from 35th Ave SW and Roxbury to I-90
5. Bothell/UW, south through Kingsgate, then I-405
6. Kenmore through Juanita then I-405

<u>Most likely Express Peak Hour (work trip) Park and Ride areas</u>

1. Snohomish County (very spread out TCI's)
2. Issaquah
3. Shoreline
4. Kent Valley west of SR 167 and south of Seattle
5. Northgate

For all other areas, consider telecommute or vanpool.

Transit Sketch Planning Tool

The Transit Sketch Planning Tool allows transit planners to understand customers' preferences for more direct service, more frequent service and less wait times at park and rides or transfer centers in addition to reduced travel times. Once the most promising corridors have been identified by the Transit Competitive Index for improved existing service or new service to fill a gap, the sketch planning tool can be used to model incremental changes to existing service to reflect shorter headways or reduced transfers, etc, or new direct service that eliminates transfers or new service to a neighborhood. While the Transit Competitive Index identifies the potential transit demand market, the sketch planning tool identifies the incremental ridership increases from incremental changes within that market.

Using market segment data by census block group, the Sketch Planning Tool determines the mode choice behavior for each market segment identified by attitudinal data collected from the PSRC 2006 Household study. These are the same eight market segments utilized by the Transit Competitive Index:

- Productive Riders
- Routine Riders
- Easy Goers
- Comfortable Drivers
- Mobile Riders
- Comfortable Movers
- No Frills 9-to-5ers
- Multi-trip Drivers

The SPT contains a series of calculations that predict what changes in transit ridership (bus or rail) will result from changes in level of service characteristics for a set of production-attraction zones.

For the Bellevue Multi-modal Concurrency Project, the Sketch Planning Tool was used to evaluate the ridership potential for the three new routes and the ridership sensitivity of the existing routes to respond to more frequent service.

Appendix F

Description of Transit Sketch Planning Tools at the PSRC

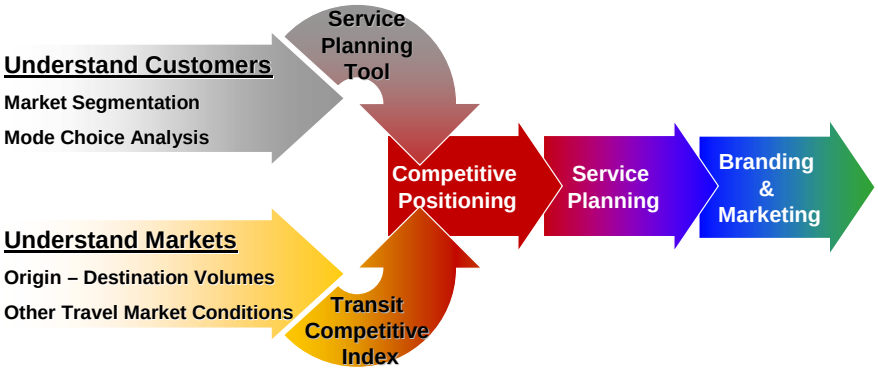
Transit Sketch Planning Tools at the PSRC

March 2009

Background

In coordination with local agency staff and transit operators, the Puget Sound Regional Council (PSRC) has been developing new tools to improve the transit analysis and forecasting capabilities for use in the Transportation 2040 plan update process. These new tools are part of an overall integrated modeling framework.

The two new transit sketch planning tools are called the Transit Competitiveness Index (TCI) and the Service Planning Tool (SPT). These tools identify corridors where transit is a highly competitive mode (to understand markets) and then interactively allow users to test the level of service that would produce the highest ridership in that corridor (to understand customers).



The tools were developed to support regional transit planning and also may be useful at the local transit planning level. The three primary purposes of these tools:

1. Understand how to adjust transit service to better serve markets in future year 2040.
2. Identify how to improve transit ridership in congested corridors, e.g. SR 520.
3. Understand transit patterns to Regional Centers, e.g. Bellevue Multimodal Concurrency effort.

The TCI and SPT use multiple sources of demographic, economic, urban form, and traveler attitudinal data. Sources include information from the regional travel demand model and the 2006 attitudinal survey. More details on the data sources are provided on pages 9-12 of the attached document.

1. **Transit Competitiveness Index** – To better understand the market, the TCI analysis compiles dozens of market conditions, weighted in proportion to their relative effect on travel choice (transit, car, etc.). The TCI allows for a transit demand pattern and gap analysis. Step by step details on how to use the TCI model are provided on page 5 of the attached document.

2. **Sketch Planning Tool** - To understand the customer, the SPT contains a series of calculations that predict changes in transit ridership (bus or rail) that will result from changes in level of service characteristics for a set of travel patterns (production – attraction zones). The main functionality of SPT is aimed at predicting the changes in the number of trips for each defined mode based on changes to the existing levels of service. Step by step details on how to use the TCI model are provided on page 7 of the attached document.

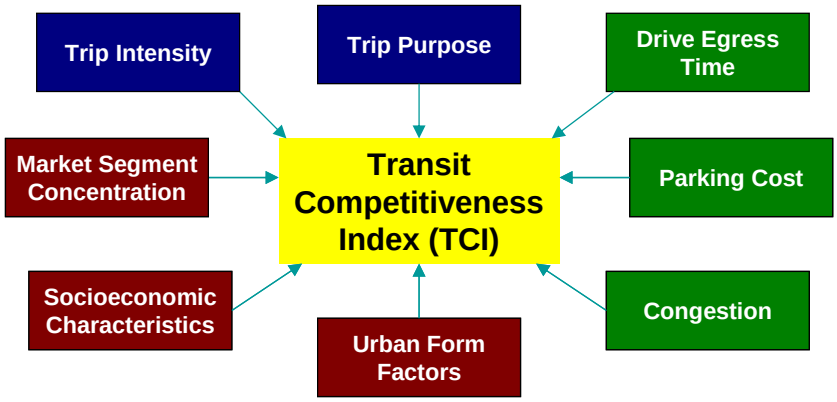
There are a number of advantages to using the new tools, including the speed and interactive nature of the analysis, and the fact that the TCI tool looks at potential markets irrespective of existing service. This provides more opportunities to design effective service.

As with any analytic tools, there are some limitations, including the fact that both the TCI and SPT are based on estimates from the current year (2006) data. In the future, the TCI and SPT tools can be updated with the future travel patterns forecasts from Transportation 2040's preferred alternative when it is developed in 2010. With the future forecasts, the TCI can identify strong future transit travel patterns and provide data for a gaps analysis. The SPT can optimize transit service plans for the preferred alternative in the transportation plan update. Additional details on the advantages and limitations of these tools are provided on page 4 of this document.

Overview

Transit Competitiveness Index (TCI)

The competitive conditions for transit exist through the PSRC region regardless of what kind of transit service is currently deployed or could be deployed, and they have critical consequences on how much capital and operating expense will be needed for an effective transit system to attract riders. PSRC now has a software tool for measuring these conditions in each travel market. The tool calculates a Transit Competitive Index (TCI) for an origin, destination or O-D pair within the region.



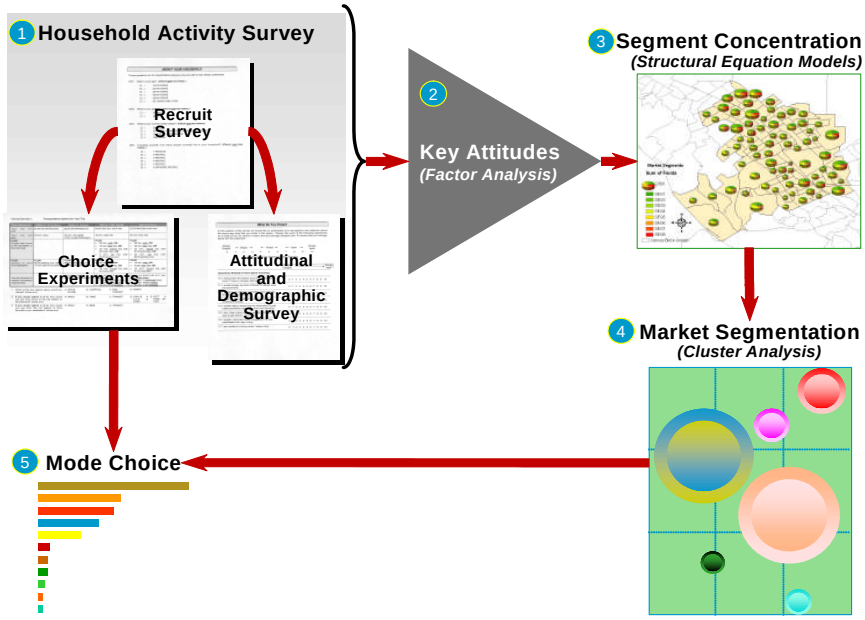
This composite metric provides a single score that is comprised of dozens of specific market conditions that are weighted in proportion to their relative effect on mode choice. This is done using the coefficients in the mode choice models estimated for each market segment.

Service Planning Tool (SPT)

Just as in any private business, most transit providers understand that their potential customers are not all are the same. The service planning tool applies the same market research techniques to drill down into the key attitudes and preference that drive a potential rider's mode choice as have been used in the private sector for many years. There are five steps in the process to understand the customers of our regional transit system using the service planning tool (SPT):

1. Conduct a household activity survey to collect attitudinal, demographic, and preference data on potential customers throughout the region (both riders and non-riders).
2. Use the survey to identify and predict traveler attitudes.
3. Divide the traveler market into eight segments based on three key traveler attitudes (transit receptiveness, travel flexibility, and comfort and time use).
4. Estimate market segments for each census block group in the region.
5. Use the survey to predict mode choices for each traveler based on demographics, traveler attitudes, market segments, and level-of-service characteristics.

This service planning tool process is demonstrated below.



What are the new tools used for?

Regional and local planning agencies

As a regional planning agency, PSRC will use the transit sketch planning tools to support transportation planning activities:

- Identify the strongest transit markets for the transportation plan update (TCI)
- Develop the transit alternatives for these markets (SPT)
- Evaluate transit markets (TCI) and metrics (SPT) for multimodal concurrency
- Evaluate station locations (TCI) and estimate preliminary ridership (SPT) for transit projects (e.g., BNSF rail)
- Optimize transit service plans for the preferred alternative in the plan update (SPT)

Other local planning agencies could use the new tools for similar planning activities.

Transit operators

Transit operators around the region may use the new tools to support transit planning activities, such as:

- Evaluate transit markets to identify under- or over-served markets (TCI)
- Test alternative service plans for short term planning (SPT)
- Maximize ridership for transit projects (SPT)

What are the advantages and limitations of the tools?

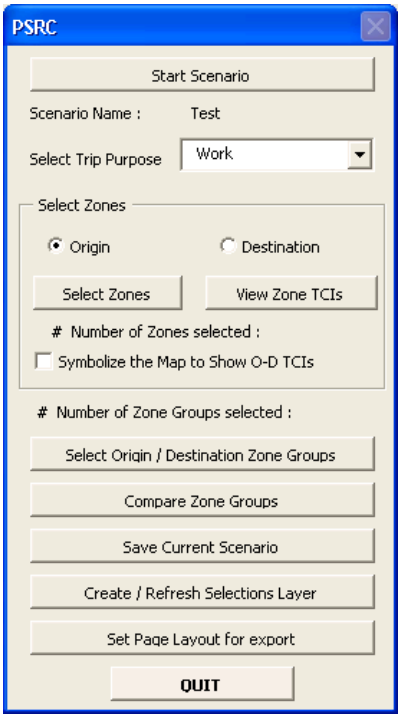
There are a number of advantages to using the new tools:

- The SPT application is faster than running regional or local travel models.
- The SPT is interactive so that multiple service plans can be tested.
- The TCI uses weighting factors that are proportional to each component's ability to generate transit trips.
- Transit markets are defined irrespective of current service in the TCI so that potential markets are not limited by current service patterns.
- Both the TCI and SPT tools are consistent with regional travel model assumptions (times, costs, land use, etc.).
- Both tools account for traveler attitudes on comfort, time use, flexibility, etc. which are not accounted for in our regional travel forecasting models.

And, as always, there are some limitations:

- Both the TCI and SPT are based on estimates from the current year (2006) data; future year applications still need to be constructed.
- The SPT tests individual service plan changes and does not reflect system-wide interactions. As a result, the SPT is not intended to replace regional travel model's estimates of system-wide ridership.
- The TCI methodology does its calculations at a fairly high level of granularity. For example, all work trips are considered similar in their transit competitiveness. In reality some types of trips may be more competitive than others.

How do we use the new tools?



To better understand transit markets

The TCI software is menu-driven and provides options to identify and save scenarios, choose trip purpose (work, other, or all), and select locations to analyze (origins, destinations, or origin-destination pairs). Once these selections are made, the TCI contains a series of calculations to produce the index value and component contributions to that value for a production zone(s), attraction zone(s) or combined production-attraction zone(s)[1]. An index value of greater than 100 is considered to be a market that is competitive for transit, where an index value less than 100 is a market that is considered to be not very competitive.

Step 1. Calculate utilities for bus, rail, and auto travel assuming a base case for the region. The utility equation for each market segment and trip purpose (work, other) includes the following variables:

- Cost ($)
- In-vehicle travel time (minutes)
- Out-of-vehicle travel time (minutes) separated by access, egress, and wait time for transit and terminal time at the origin and destination for auto
- Average workers per household
- Fraction of zero-vehicle households and average vehicles per household
- Fraction of the population with age greater than 75
- Fraction of the population that is college students
- Fraction of the population that is full-time workers
- Fraction of the population that is part-time workers
- Average household income
- Traveler attitudes (environmental consciousness, stress, transit receptiveness, need for flexibility, and time sensitivity)
- Urban form (urban parkland and retail floor area ratios)

Step 2. Adjust the utilities for location-specific attributes of a set of zones for each market segment and trip purpose.

Step 3. Calculate the probability of using transit (bus or rail) for each market segment and trip purpose (work, other) with the nested logit choice model.

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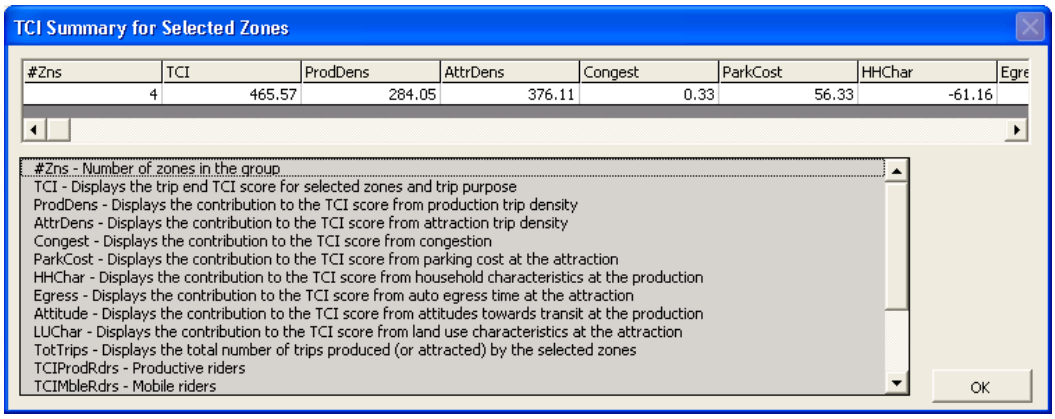
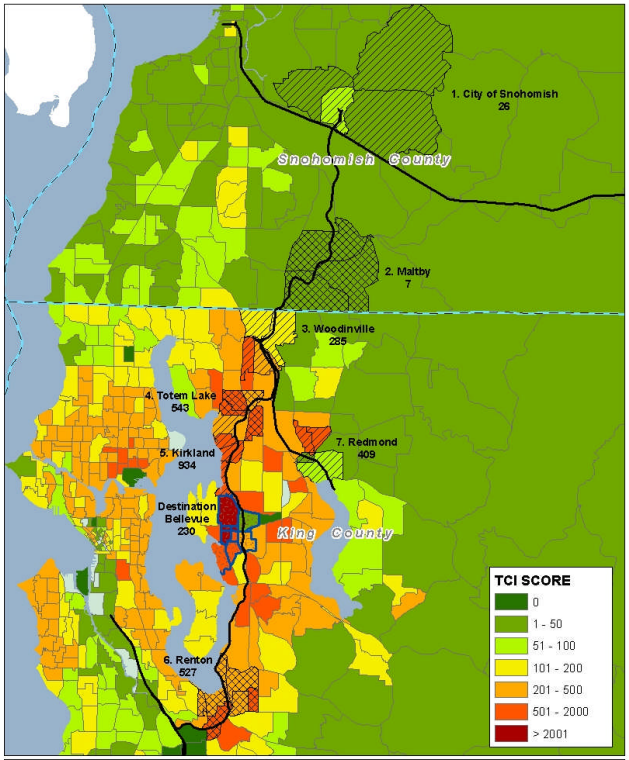
[1] Production zones are the household-related part of trip-making (such as residential neighborhoods); attraction zones are the non-household-related part of trip-making (such as employment centers). These are not the same as origins and destinations, which are the beginning and ending location of a trip.

Step 4. Aggregate TCIs for each production-attraction set of zones. TCIs are additive across trip purposes and market segments.

Step 5. Report contributions from different components for each market segment.



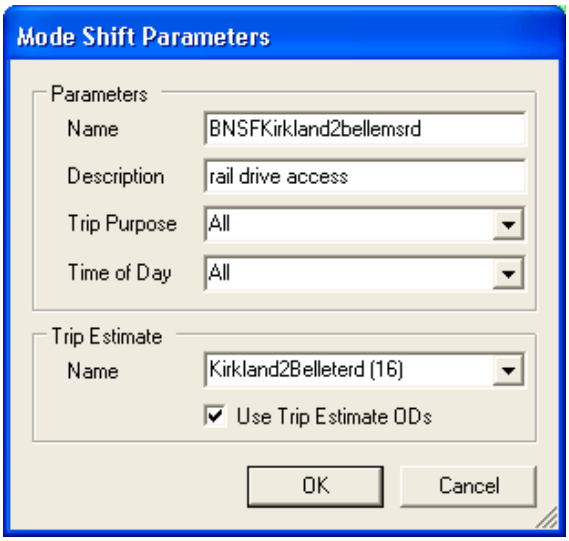
Step 6. Scale the TCI for work, other, and all trips such that a TCI score of 100 corresponds to a production zone, attraction zone, or production-attraction zone pair that is at the threshold of being transit competitive.



Additional Notes.

- TCI is proportional to the number of trips so that twice as many trips have twice the potential for transit ridership.
- TCI is inversely proportional to production zone area so that half the area has twice the potential for transit ridership.
- TCI is inversely proportional to attraction zone area so that half the area has twice the potential for transit ridership.

To better understand potential transit customers



The SPT contains a series of calculations that predict what changes in transit ridership (bus or rail) will result from changes in level of service characteristics for a set of production-attraction zones. The SPT is also menu driven and allows the user to define and save scenarios representing different sets of mode shift and trip estimate parameters.

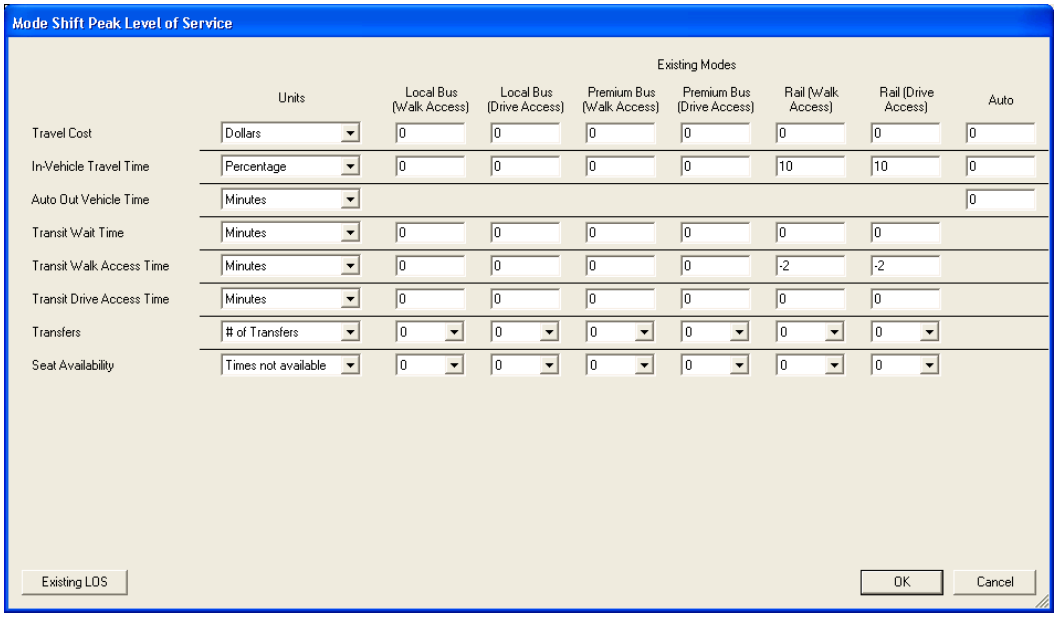
Step 1. The SPT application applies a pivot point mode choice model to predict changes in ridership. Pivot point analysis is limited to ridership for existing modes, so the tool also provides functionality to allow the number of trips for a new mode to be predicted based upon the most similar existing mode. This is identified as the trip estimate.

If the trip estimate is desired, a process to identify the origin and destination traffic analysis zones (TAZs) is conducted. There are various means to identify TAZs:

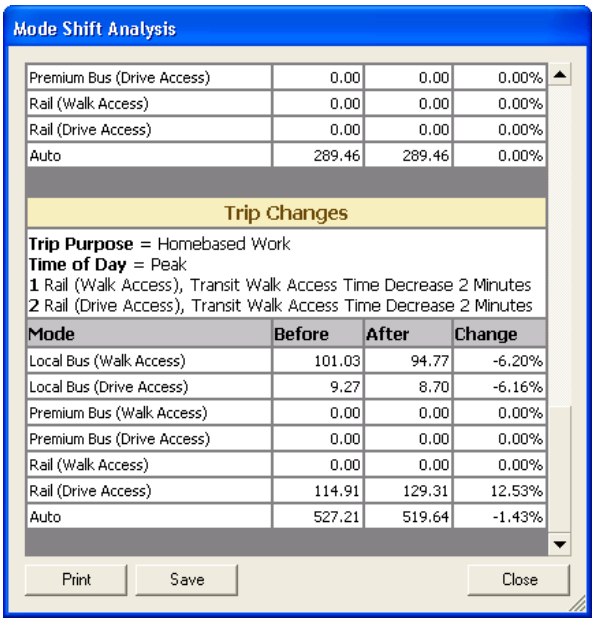
- *Select by Query*. This option is used to select TAZs based on attribution. The 'Select by Attributes' Dialog can be used to build a Where clause based on the attribute fields.
- *User Select*. This option is used to select TAZs by clicking-and-dragging a rectangle on the Map.

- *Select by Polyline*. This option is used to select TAZs by drawing a Polyline on the Map. The Polyline is drawn by clicking each vertex and double-clicking to finish.
- *Select by Polygon*. This option is used to select TAZs by drawing a Polygon. The Polygon is drawn by clicking each vertex and double-clicking to finish.
- *Select by Feature*. This option is used to select TAZs by selecting features of interest (e.g., Bus Stops, Rail Routes, Counties, etc).

Step 2. The main functionality of SPT is aimed at predicting the changes in the number of trips for each defined mode based on changes to the existing levels of service. These changes can be in either absolute values (e.g., auto travel cost increases by $5 if a congestion charge is applied), or as a percentage of the existing level of service (e.g., premium bus travel time reduces by 10% when a new bus-only lane is introduced). The mode shift scenario allows the user to enter all of the level of service changes for all modes. This scenario is then analyzed using a mode shift algorithm to predict the changes in the number of trips for each mode.



Step 3. The SPT is populated from the results of a regional transit analysis model based on proposed level of service (e.g., travel cost and time) for various modes (e.g., bus, auto, etc.). The resulting trip changes show the change in ridership for each trip purpose (work and other), for each time of day (peak and offpeak) and for each mode (walk and drive access for each transit mode -- local bus, premium bus, rail, and auto). The trip changes are reported as percentage changes and the before and after trips are shown as well. These results can be printed or saved for further analysis.



What data are used in the tools?

Demographics and Economics

The person and household characteristics data are used to apply the Structural Equations Model (SEM) that is used to determine the traveler attitudes and subsequently the market segments.

Person and Household Characteristics

Age
- Ages 18-24
- Ages 25-34
- Ages 35-44
- Ages 45-64
- Ages 65+

Gender
- Male
- Female

Education Level
- Less than high school or high school
- Vocation/technical training/some college
- College
- Graduate/post-graduate degree

Employment Status
- Part time employee
- Full time employee
- Retired or not working

Housing and Development Type
- Urban multi-family
- Urban mixed development
- Urban single family/Suburban multi-family
- Suburban mixed development
- Suburban single family
- Exurban-rural areas

Resident Location
- Not a residence of King County
- Resident of King County but not Seattle
- Resident of the City of Seattle

Number of workers in the Household
- Zero worker
- One worker
- Two or more workers

Household size
- One person
- Two persons
- Three persons
- Four or more persons

Vehicle Ownership in the Household
- No vehicles
- One vehicle
- Two vehicles
- Three or more vehicles

Vehicle Availability
- Less than 0.5 vehicles per driver in the HH
- 0.51 to 0.75 vehicles per driver in the HH
- 0.76 to 1.33 vehicle per driver in the HH
- 1.34 to 2.0 vehicles per driver in the HH
- More than 2.0 vehicles per driver in the HH

Licensed Drivers in the Household
- One licensed driver
- Two licensed drivers
- Three licensed drivers
- Four or more licensed drivers

Household Income group (2006$)
- Under $50,000
- $50,000 to $100,000
- Over $100,000

Note: Household income is assumed to increase with inflation. In the TCI, household income is coded as the income in $10,000 for the production zone.

Urban Form

There are two urban form variables used in the models:
- Ratio of urban parkland to total area for the attraction zone
- Ratio of retail floor area to building area for the attraction zone

Traveler Attitudes and Market Segments

There are 21 attitudinal characteristics derived from the 2006 household survey that are combined to produce six *traveler attitudes*.

Traveler Attitudes

Environmental Consciousness
- I would be willing to pay more when I travel if it would help the environment
- I would switch to a different form of transportation if it would help the environment
- People who drive alone should pay more to help improve traffic congestion situation
- Use of transit can help improve the environment

Travel Stress
- Driving on Puget Sound freeways is stressful for me
- I am usually anxious and unsettled when traveling
- I avoid making certain trips at certain times because it is too stressful to make the trip
- Having a stress-free trip is more important than reaching my destination quickly
- I don't like to drive but it is usually the fastest way to get where I need to go

Transit Receptiveness
- I am comfortable riding a bus
- I prefer not to make trips alone because I like time to myself
- I know how to reach my destination using public transportation
- I wouldn't mind walking a few minutes to get to my destination

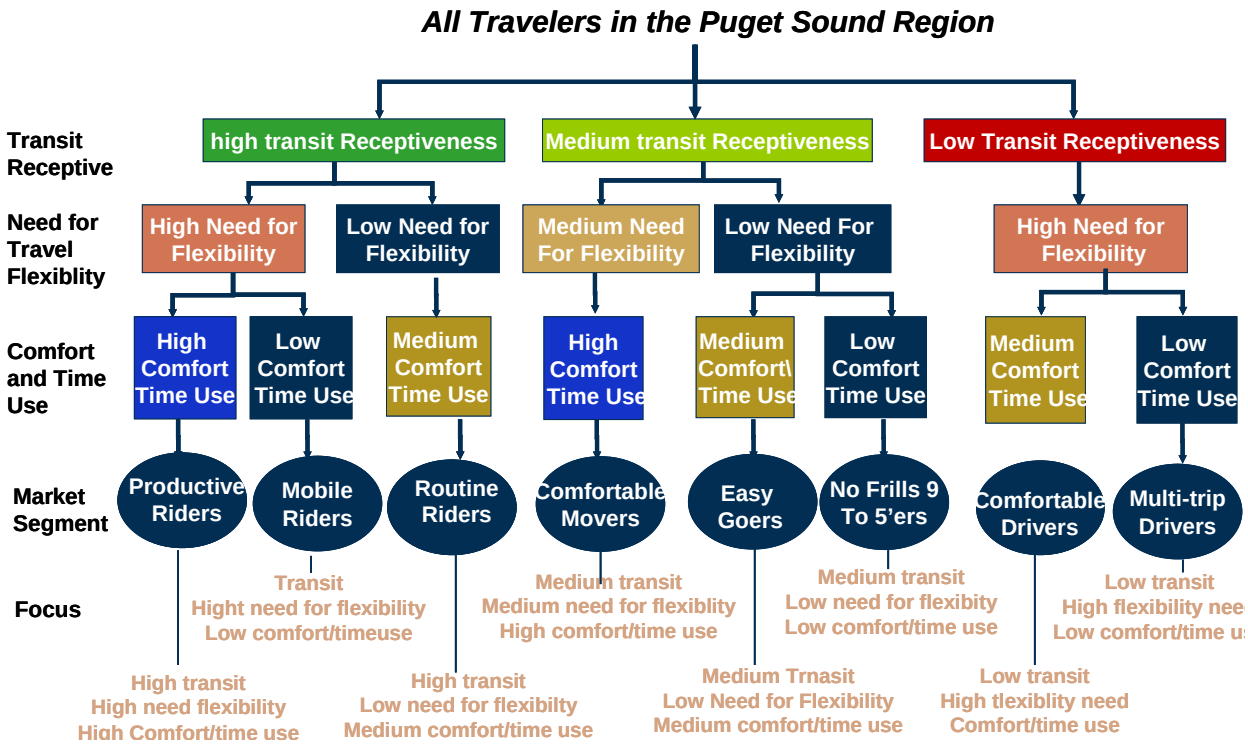
Need for Travel Flexibility
- I don't know how to reach my destination using public transportation
- I need to make trips to a wide variety of locations each week
- I need to have the flexibility to make many trips during the day if necessary
- I am usually in a hurry when I make a trip
- I use the most convenient form of transportation regardless of cost

Time Sensitivity and Schedule Constraints
- I would change my form of travel if it would save me some time
- I always take the fastest route to my destination even if I have a cheaper alternative
- I am usually in a hurry when I make a trip
- I need to make trips according to a fixed schedule
- I use the most convenient form of transportation regardless of cost
- I don't mind delays as long as I am comfortable

Comfort and Time Use
- I don't mind delays as long as I am comfortable
- I wouldn't mind the traffic congestion if it was predictable from day-to-day
- I don't mind taking a longer trip if I could make productive use of my time when I travel

The six traveler attitudes are used to segment the travel market into eight *market segments*, based on their attitudes on transit receptiveness (high, medium or low), travel flexibility (high or low need), and comfort and time use (high, medium or low need).

Market Segments



Travel Characteristics

Travel is classified by purpose, mode and time period in the travel demand forecasting models.

Trip Characteristics

Time Period
- Peak (6-9am and 3-6pm)
- Off-peak (12-6am, 9am-3pm, 6pm-12am)

Modes
- Auto
- Local bus (walk and drive access)
- Premium bus (walk and drive access)
- Rail (walk and drive access)

Trip Purpose (Origin and Destination)
- Home-based work and college
- Other

Level of Service
- Travel cost ($)
- In-vehicle time (minutes)
- Wait time (minutes)
- Access time (minutes)

Egress time (minutes)

Travel Costs

There are four types of direct costs in the travel demand forecasting models: auto operating cost, parking costs, tolls, and transit fares. Auto operating costs at 12 cents per mile (in 2000 year dollars) are applied to all auto modes and to the auto-access to transit modes. Daily standard and carpool parking costs are used in the work model. Non-work models use hourly parking costs. Ferry fares paid when crossing the Sound with a vehicle also are considered as auto operating costs. In 2006, there was only one toll bridge, the Tacoma Narrows Bridge, which charges $3.00 in one-direction. All occupants of shared-ride modes share the auto operating costs and parking costs equally. A zone-to-zone transit fare matrix representing the fares for each transit mode also is used as input to the model. A bi-directional averaging procedure is used for cost. All travel costs are assumed to increase with inflation. A separate analysis of the impacts of increasing gas prices on travel behavior is being conducted to demonstrate the sensitivity of vehicle miles traveled to changes in cost.

Appendix G

Downtown Bellevue Growth and Transportation Efficiency Center Plan

Downtown Bellevue
Growth and Transportation Efficiency Center Plan

Updated Final Draft
October 23, 2007

Table of Contents

1. Executive Summary

1.1 Introduction

In the past few decades, Bellevue has evolved from a bedroom community to a major regional center. In the process it has become the second largest employment center in King County and the economic hub of the Eastside. The strong local economy has led to the creation of a dynamic Downtown that is one of the chief Urban Centers in the region. Past land use decisions have funneled the city's share of regional job and housing growth into Downtown Bellevue, evolving the downtown into a center of economic and human activity.

With this growth comes the challenge of moving people and goods amid increasing traffic congestion. The need to support and encourage alternatives to driving alone has long been recognized in Bellevue and throughout the region and state. The downtown's first development-conditioned transportation management programs (TMPs) were implemented in the early 1980s, and other transportation demand management activities followed, including passage of the state Commute Trip Reduction (CTR) law in 1991. Under the CTR law, employers work to achieve specified targets for reducing the number of drive-alone commute trips by their employees. The CTR law affects larger employers, generally those with 100 or more full-time employees at a worksite.

These and other previous trip reduction efforts on the part of employers, the city, transit agencies, and others have already reduced dependence on the single-occupant automobile in the Downtown. However, additional trips will need to be reduced downtown to retain mobility in the face of continued growth. The 2008-2011 Downtown Bellevue Growth and Transportation Efficiency Center plan provides a customized downtown-wide trip reduction program to meet this challenge.

The new state Growth and Transportation Efficiency Center (GTEC) program is a component of the 2006 revision of state CTR law. The state allows jurisdictions the option of designating and planning for GTECs in areas of dense population and employment, with potential state funding for implementing the plans. The goal of the state's GTEC program is to improve access to dense employment and population centers while increasing the portion of people not driving alone during peak periods on the state highway system.

Under this GTEC plan, the city of Bellevue has set goals and targets designed to maintain or improve transportation access and increase the proportion of non-drive-alone travel as the Downtown continues to grow. In contrast to the base CTR program, the GTEC program extends to downtown workers and residents in their entirety—not just larger employment sites. These goals and targets are designed to support achievement of local and regional goals for transportation and land use.

Bellevue faces obstacles in reducing single-occupant-vehicle travel and maintaining mobility in the Downtown. Bellevue's downtown street grid was laid out in the 1950s. Following innovative theories of the time, circulation was based on 600-foot-long "superblocks," and the primary transportation objective was easy automobile access. Today, this large grid remains. The resulting lack of connections creates challenges for nonmotorized travel and general circulation in the Downtown, although the situation has been improved with completion of missing links in the street grid, mid-block pedestrian routes, and an east-west pedestrian corridor that transects the downtown. Other access challenges in the downtown are its square shape that is difficult to

fully serve by transit; wide arterials that are daunting for pedestrians to cross; and sidewalks directly adjacent to traffic lanes.

To its credit, Downtown Bellevue boasts a transit center with abundant service, generally pedestrian-friendly urban design, innovative architecture and public art, and a downtown park, library, and other urban amenities that give it a sense of identity and place. The city's Downtown Implementation Plan seeks to create a place that is "viable, livable, and memorable," and a combination of public and private efforts are continuing to lead the Downtown successfully in that direction.

1.2 Growth and Transportation Efficiency Center (GTEC) Planning Process

The state law, rules, and guidelines for GTECs specify that GTEC plans are to be certified for compliance with regional growth management strategies by regional transportation planning organizations, and then forwarded to the state for approval and funding determination. These regional and state activities will occur in late 2007 and early 2008, following plan development in the first half of 2007. This plan comprises the city's application for GTEC certification to the Puget Sound Regional Council.

As a first step in developing the plan, in early 2007 the city of Bellevue identified stakeholders and a process for plan development that would allow the stakeholders to work together to produce an effective plan. A GTEC project team was set up that included representatives from the city, the downtown transportation management association ("TransManage"), and the King County Metro Market Development group. TransManage, an arm of the Bellevue Downtown Association, works with the employer, property manager, employee, and resident communities in a face-to-face manner and thus provided the perspectives of these groups to the team. King County Metro staff contributed their expertise on developing markets for non-drive-alone modes. The project team met several times from February through May 2007 to discuss the vision, goals, objectives, process, targets, and various plan elements.

Throughout plan development, the city performed outreach to the business and employer community by presenting and receiving feedback at two TransManage Advisory Board meetings. This advisory board includes members of the business community, Bellevue Downtown Association board members, an employee transportation coordinator, and transit agency representatives. In late May 2007, the city distributed special GTEC informational flyers to the members of the downtown community—employers, property managers, and residents—plus hand delivery to many employers for distribution to their employees. The flyers provided information about the plan, and opportunities for input, including a City of Bellevue Downtown Open House and Transportation Commission and City Council briefings. The city posted information and a preliminary draft GTEC plan on its website and provided a special email address and phone number for comments and questions. As a result of these efforts, city staff received and evaluated more than 40 comments.

The city reached out to other jurisdictions by conducting an Eastside jurisdiction meeting in April 2007 to share information and brainstorm insights and ideas. This was in addition to ongoing county and regional coordination meetings, as well as informal coordination. Also, the city worked with transit agencies to acquire transit information.

1.3 Downtown Bellevue Growth and Transportation Efficiency Center: Vision, Goals, and Objectives

The vision for Downtown Bellevue as a GTEC draws from the Downtown Implementation Plan and other plans and policies for the Downtown.

Vision of Downtown Bellevue as a Growth and Transportation Efficiency Center:

- *A viable, livable, memorable, accessible, pedestrian-friendly area;*
- *Serving as the symbolic and functional heart of the Eastside region;*
- *Containing a dense, compact mixture of jobs and housing;*
- *Supported by a viable network of transportation infrastructure and services in order to move more people with fewer cars;*
- *Resulting in a human-scaled, active environment.*

The goal for Bellevue's GTEC defines the future condition that needs to be achieved in order to produce the GTEC vision.

Goal of Downtown Bellevue Growth and Transportation Efficiency Center:

To evolve an environment supportive of non-drive-alone travel and grow the non-single occupant vehicle travel market, in order to reduce the single-occupant vehicle rate and vehicle miles traveled in Downtown Bellevue and thereby preserve mobility and livability in the face of future growth.

Objectives for Bellevue's GTEC describe methods for achieving the goal and vision. They reflect working partnerships between the public and private sectors, provision of a supportive plan framework and environment, and interacting with downtown commuters and employers to promote awareness of alternative travel options.

Objectives of Downtown Bellevue Growth and Transportation Efficiency Center:

- *To utilize public/private partnerships in order to market and promote multiple transportation options across all non-drive-alone modes.*
- *To increase awareness of travel options via marketing, outreach, and incentives.*
- *To provide incentive programs that are attractive to the downtown work force and population.*
- *To provide a framework of city and transit agency plans, policies, regulations, urban design guidelines, transit service, and infrastructure that supports alternative modes.*
- *To supply pedestrian and transit amenities that enhance the environment and encourage non-drive-alone travel.*
- *To address barriers to changing travel modes, such as parking issues.*
- *To maximize use of the regional high-occupancy vehicle system by downtown commuters.*
- *To work toward clearly defined single-occupant vehicle and vehicle miles traveled reduction targets.*
- *To measure progress toward targets during plan implementation in relation to overall market indicators.*
- *To serve as a model for other communities.*

1.4 GTEC Benefits

Development of a GTEC plan consolidates and strengthens the city's work to provide and market multiple travel options. If people have more choices for travel modes and are made aware of them, they retain greater ability to travel in and within downtown. Shifting trips to modes other than the single-occupant vehicle can lessen negative impacts of the automobile, including traffic congestion and poor air quality, and can reduce parking development costs. In short, GTEC efforts can make it possible for more people to access and move within downtown, making it a more convenient, lively, and human-scaled place in which to live, work, and visit.

1.5 Downtown Bellevue GTEC Targets and Planning Horizon

Targeted Population. The State's base CTR program is targeted toward larger employers, generally those with 100 or more full-time employees who are scheduled to arrive at work between 6:00 a.m. and 9:00 a.m. The GTEC provision, however, is designed to go beyond this designated employer population by providing for a customized trip reduction program that is tailored to a particular community and addresses populations not served by the base CTR program.

For Downtown Bellevue, this emphasis is quite beneficial. Approximately 98 percent of downtown employers have fewer than 100 employees; this represents 81 percent of all downtown employees. A 2006 downtown transportation demand management market analysis showed a relatively low awareness of alternative transit options on the part of employers with fewer than 100 employees. Reaching out to reduce trips among the smaller employer population is an effort that Bellevue has already begun, and the downtown GTEC will provide a means to strengthen this effort.

A secondary focus of the GTEC will be residents of downtown. The downtown residential population has increased rapidly since the mid-1990s. As of 2007, there are 5,000 residents downtown, and their numbers are expected to increase to 14,000 by 2020.

In addition, the downtown employs a large number of retail workers. Bellevue contains one of the largest downtown regional centers in the state, and retail workers will continue to constitute a significant portion of downtown employees over time. However, due to commute times that do not always line up well with transit service, higher job turnover, and other factors, retail workers are less likely to shift to non-drive-alone commuting. Further, it makes sense to focus mode shift efforts on workers traveling primarily during peak commute times when the transportation system is under the greatest pressure. Retail workers will be considered in trip reduction programs because of their high numbers downtown, but not to the same degree as those working in other employment sectors.

GTEC Targets and Measuring Progress. State rules require that GTECs set a target for reduction of the single-occupant vehicle (SOV) rate for workers and/or residents of the GTEC. This target is required to be more aggressive than the base CTR program SOV reduction target, which is 10 percent by 2011. "More aggressive" can be defined as an absolute number of single-occupant vehicle trips and vehicle miles reduced than would occur under the base CTR program.

The city's GTEC target is based on applying the 10 percent rate to all employees downtown and deriving the absolute number. This amounts to approximately 5,000 additional persons not driving alone by 2011, as opposed to approximately 1,000 under the base CTR program.

1.6 Proposed GTEC Program Strategies

In order to meet this more aggressive target, the city proposes a number of strategies for the GTEC. These can be divided into three categories: plans, policies, and regulations; transportation infrastructure and service improvements; and marketing, incentives, and commute services.

Plans, Policies, and Regulations. In order to create a livable community and gain maximum efficiency out of the transportation system, transportation demand management and trip reduction efforts have been an important focus of the city for a number of years. Therefore, the city's planning and policy framework to support GTEC goals is largely in place. The GTEC planning process included a review of these plans and policies.

Transportation Infrastructure and Service Improvements. The city has long recognized the need for sufficient transportation infrastructure to support multiple travel options, and projects to improve sidewalks, pedestrian circulation, and transit efficiencies have been undertaken for many years. Two pedestrian and bicycle improvements to improve access to downtown are included in the city's 2007-2013 Capital Investment Program. In spite of these improvements, some gaps in pedestrian and bicycle infrastructure have been identified and recommended for completion in Chapter 2, Background and Gap Analysis.

Transit service and infrastructure is key to reducing drive-alone trips. King County Metro and Sound Transit provide extensive service to the Downtown, as is warranted by its density and large employment population. Chapter 2, Background and Gap Analysis, has identified gaps in transit service needed to support the GTEC. This GTEC Plan includes a recommendation that the city continue its ongoing work with transit partners to provide service as needed.

Marketing, Incentives, and Commute Services. These activities provide a means to inform, increase awareness, and induce the willingness to give another travel option a try. The intent of this element of the GTEC plan is to work in partnership with employers, property managers, and employees (as well as the secondary target of residents) to identify what marketing and incentive activities would be attractive to them.

Bellevue's strategies will emphasize small employers, support carpooling and vanpooling in addition to other modes, and promote the FlexPass (or comparable future product). Bellevue has identified a package of marketing, incentive, and service strategies including the following (described further in Chapter 4, Strategies):

- FlexPass incentives and promotion
- Carpool, vanpool, and Vanshare promotions, such as enhanced ridematching and incentives for adding riders
- Free commute program consulting services offered to employers
- Customized building-wide programs or events offered to property managers
- Branded portfolio of services and incentives promoted to small employers
- *In Motion* residential-based trip reduction program
- Transit route promotion

- Various programs offered to help mitigate I-405 construction
- Parking issues inventory – catalog of issues for non-drive-alone commuters
- City of Bellevue transportation demand management (TDM) brand, identity, and website update
- Review/update of the city's building Transportation Management Program code

1.7 Key Funding and Service Partnerships

Bellevue's GTEC plan relies on extensive partnerships with other agencies. The transit systems run by King County Metro and Sound Transit are key to providing safe and reliable options to driving alone. These transit agencies are recognized as strongly significant in contributing considerable resources toward the common goal of increasing ridership and reducing the drive-alone rate.

TransManage, the Transportation Management Association arm of the Bellevue Downtown Association (a not-for-profit entity), provides services regarding multiple travel options to Downtown residents, employees, employers, and property managers. Often in a liaison role between government entities and the private sector, TransManage "eases the way" in promoting alternatives to driving alone and implementing various incentives provided by agencies. TransManage also provides management services for development-conditioned Transportation Management Program (TMP) buildings in the downtown. Building owners pay a fee for this service that is considered part of this GTEC plan. In addition to TMP services, TransManage's role in the GTEC will be to implement many of the marketing and incentive programs that are included in the plan.

The Market Development group at King County Metro has been working in close partnership with City of Bellevue staff to increase and promote multiple travel options in the downtown. They share with the city of Bellevue and the Bellevue Downtown Association/TransManage a desire to maintain vitality and mobility in the downtown. King County Market Development passes through federal funds for downtown trip reduction efforts.

The Washington State Department of Transportation (WSDOT) is constructing capacity improvements to I-405 near Downtown Bellevue beginning in 2007. As part of this work, WSDOT has set aside construction mitigation funds to be spent promoting non-drive-alone travel options in the downtown. Thus, WSDOT is a significant financial partner in the GTEC plan.

This comprehensive package of funding and service partnerships is leveraged by local funding provided through the City of Bellevue Capital Investment Program.

1.8 Relationship to Commute Trip Reduction Plan

The GTEC plan is a component of the State Commute Trip Reduction (CTR) law that focuses on the downtown and enables a customized trip reduction program for the full employment and resident population. Bellevue is also updating its local Commute Trip Reduction plan, which defines the city's policies and programs for implementing the State Base CTR program. (The base CTR program generally affects worksites with 100 or more full-time employees that are scheduled to arrive at work between 6:00 and 9:00 a.m.) In sum, the GTEC provides an opportunity to reach a broader population in an area where trip reduction efforts can benefit both Bellevue and the region.

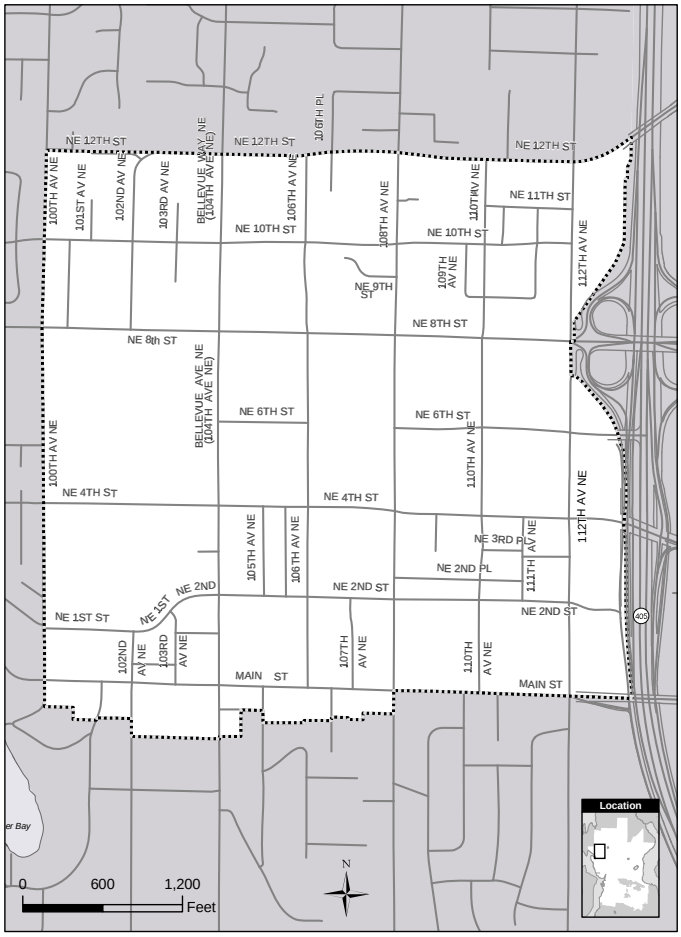
2. Background Information and Gap Analysis

This chapter of the GTEC plan describes how the city sees the future of the downtown, and how the GTEC vision is integrated into that downtown vision. It describes the city's existing planning, policy, and regulatory framework for the GTEC. It also reviews existing and future baseline transportation conditions that are pertinent to the downtown GTEC, including transportation infrastructure and transit service. This chapter identifies transportation infrastructure and transit gaps and areas for improvement regarding support of GTEC goals. A compilation of specific Comprehensive Plan policies that relate to transportation demand management is included as Appendix A.

2.1 Downtown Bellevue Description, Boundaries, and Eligibility for GTEC

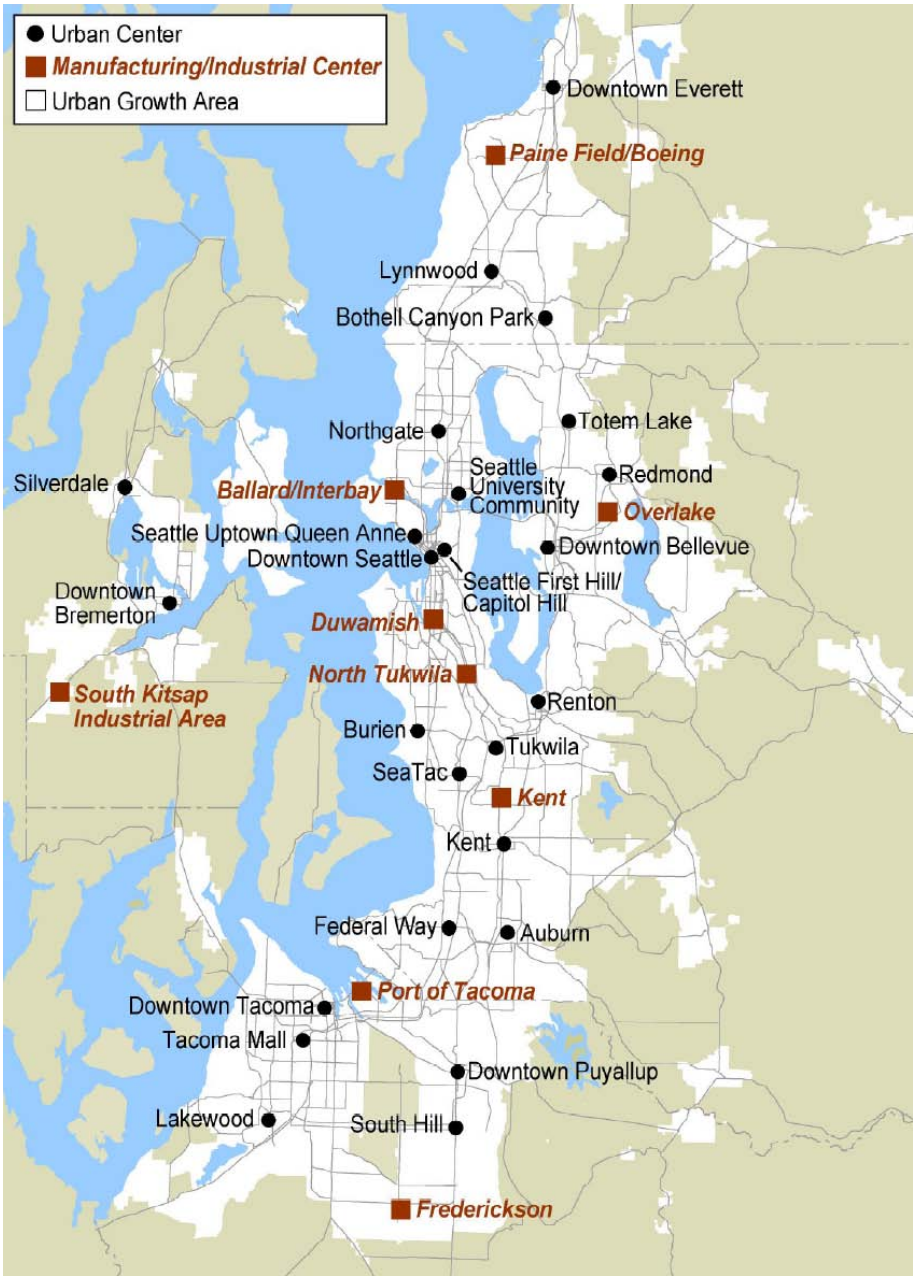
Downtown Bellevue consists of approximately thirty 600-foot blocks, plus four smaller blocks, and contains approximately 410 acres. The downtown contains two percent of the city's land area and 75 percent of the city's zoning capacity. The specific boundary of the Downtown Bellevue GTEC matches the city's Downtown Subarea boundary. See Figure A.

Figure A. Downtown Bellevue GTEC Boundary (Downtown Subarea)



As shown in Figure B, Downtown Bellevue is within the urban growth area (as defined by the Countywide Planning Policies under the 1990 state Growth Management Act), and has been designated a Regional Growth Center under the Growth Management Act's regional implementation framework.

Figure B. Downtown Bellevue Regional Growth Center Designation



2.2 Regional Transportation Policy Consistency

Vision 2020, the Central Puget Sound region's plan for growth, economic development, and transportation strategy, aims to develop diverse communities that are economically and environmentally healthy, and to connect them with a high-quality multimodal transportation system. Adopted in 1995 by the Puget Sound Regional Council, this plan is currently being updated as *Vision 2040*.

The City of Bellevue's Growth and Transportation Efficiency Center plan supports the applicable policies in *Vision 2020* and is in keeping with the overall intent of the plan to concentrate growth and activity into centers while providing multiple transportation options to provide connections to and between centers.

The overarching transportation policy in *Vision 2020*, RT-8, and its sub-policy RT-8.1, emphasize a transportation system that includes a variety of mobility options, which is also one of the primary goals of the GTEC.

Vision 2020 policy RT-8.11 speaks to demand management and education programs, which are a major emphasis of the Downtown Bellevue GTEC. Policy RT-8.12 speaks to making transit a competitive choice, and the GTEC plan advocates for this as well. RT 8-14 and RT-8.27 promote investments in alternatives to the single-occupant vehicle within and connecting centers; this GTEC provides such investment within the center and advocates for HOV system support along connecting corridors.

Policies RT-8.17 through RT-8.21 speak to land use and development patterns supporting pedestrian and transit usage, and these same principles are promoted in the GTEC.

2.3 Downtown Vision

Existing city plans and policies will shape conditions under which the downtown can thrive as a GTEC. The city already strongly supports the vision and goals associated with the downtown GTEC throughout its Comprehensive Plan, regulations, and supporting plans and practices. The depth and breadth of this support includes policy areas such as transportation, economic development, land use, housing, and the environment.

The city's Downtown Subarea Plan vision is for a livable, memorable, economically viable, accessible urban center that serves as the heart of the Eastside—a vision that is completely compatible with the intent of the state GTEC program. The primary goal in the Downtown Plan is for the downtown to become "the symbolic and functional heart of the Eastside Region through the continued location of cultural, entertainment, residential, and regional uses." Downtown Subarea Plan policies recognize that progress has been made toward concentrating the city's share of regional growth into a vital center, and that challenges and opportunities remain toward achieving the city's downtown vision.

2.4 City Transportation Demand Management Plans and Policies

As stated in the Comprehensive Plan, the city aims to shift behavior away from excessive reliance on the single-occupant vehicle in order to manage congestion, reduce spending on new transportation facilities, and lessen environmental and neighborhood impacts. Similar to this GTEC plan, the Transportation Demand Management component relies on a three-pronged

approach as demonstrated in its stated goal: "To reduce the use of single-occupant vehicles and vehicle miles traveled through a coordinated program of regulations, marketing, and provision of alternative travel options."

***Plan/Policy Gap**: The Transportation Demand Management component of the Comprehensive Plan does not include environmental considerations as one of the purposes of reducing the use of single-occupant vehicles.*

The Comprehensive Plan does connect transportation demand management with the environment in the Environmental Element, which has a policy for working with the private sector to reduce growth in vehicle trips (Policy EN-79). Therefore, this not a fundamental policy gap but rather a gap in where policy language is placed.

The Comprehensive Plan contains mode share targets in the Mobility Management component of the Transportation Element. The focus of this component is to balance resources to provide multiple travel options in support of the city's mobility goals, an approach that maximizes the people-carrying capacity of the system and encourages use of alternatives to the single-occupant vehicle. This component seeks to ensure that all members of the community are mobile, including those without the income to maintain an automobile and those with disabilities. The city recognizes that needs by mode vary according to geographic area and tailors the standards accordingly, one of the areas being the downtown.

The city has established commute mode share targets for activity centers, including the downtown. The current non-drive-alone commute mode share target for the downtown is 40 percent for the year 2005. This GTEC plan establishes a new commute mode share target for the downtown that will be incorporated into the Comprehensive Plan at a later date.

The transportation model for the 2003 Downtown Implementation Plan included transit and carpool/vanpool commute mode share assumptions for a horizon year of 2020. In addition to the assumed 2020 transportation network and land use, a non-drive-alone commute mode share of 49 percent was assumed (transit at 40 percent and other modes at nine percent). This 2003 plan assumed a doubling of transit service on existing routes and a quadrupling of transit ridership. The Preferred Alternative that was selected for the final plan was based on this model—in other words, a 49 percent commute non-drive-alone rate was shown to allow the downtown transportation system to function at the planned level of performance.

The Downtown Subarea Plan contains transportation demand management policies to promote alternative modes, and supports TDM coordination between the city, transit agencies, and the private sector.

Chapter 3 of the GTEC plan provides the most recent data on the commute travel percentages by various transportation modes.

2.5 Regional Travel Patterns

This section portrays downtown-oriented travel patterns from regional points outside of the city, using data from the city's Bellevue-Kirkland-Redmond transportation model . Figures C and D show daily person trips into Downtown Bellevue via all vehicular modes of travel (including single-occupant vehicle, transit, carpool, and vanpool) in 2005 and projected for 2012. For both

years, the largest numbers of daily person trips come from the north and south, with a large number also coming from the west (Seattle).

Figure C. 2005 Daily Person Trips

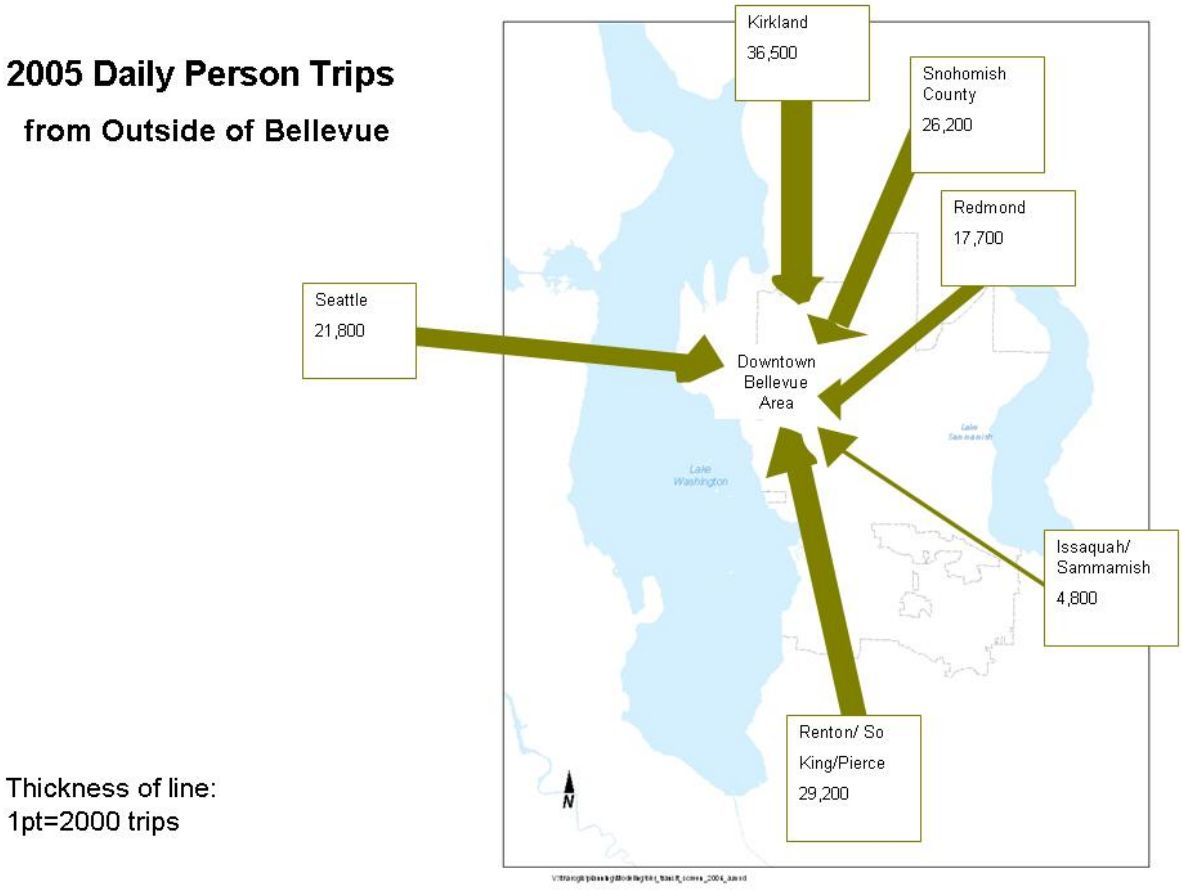
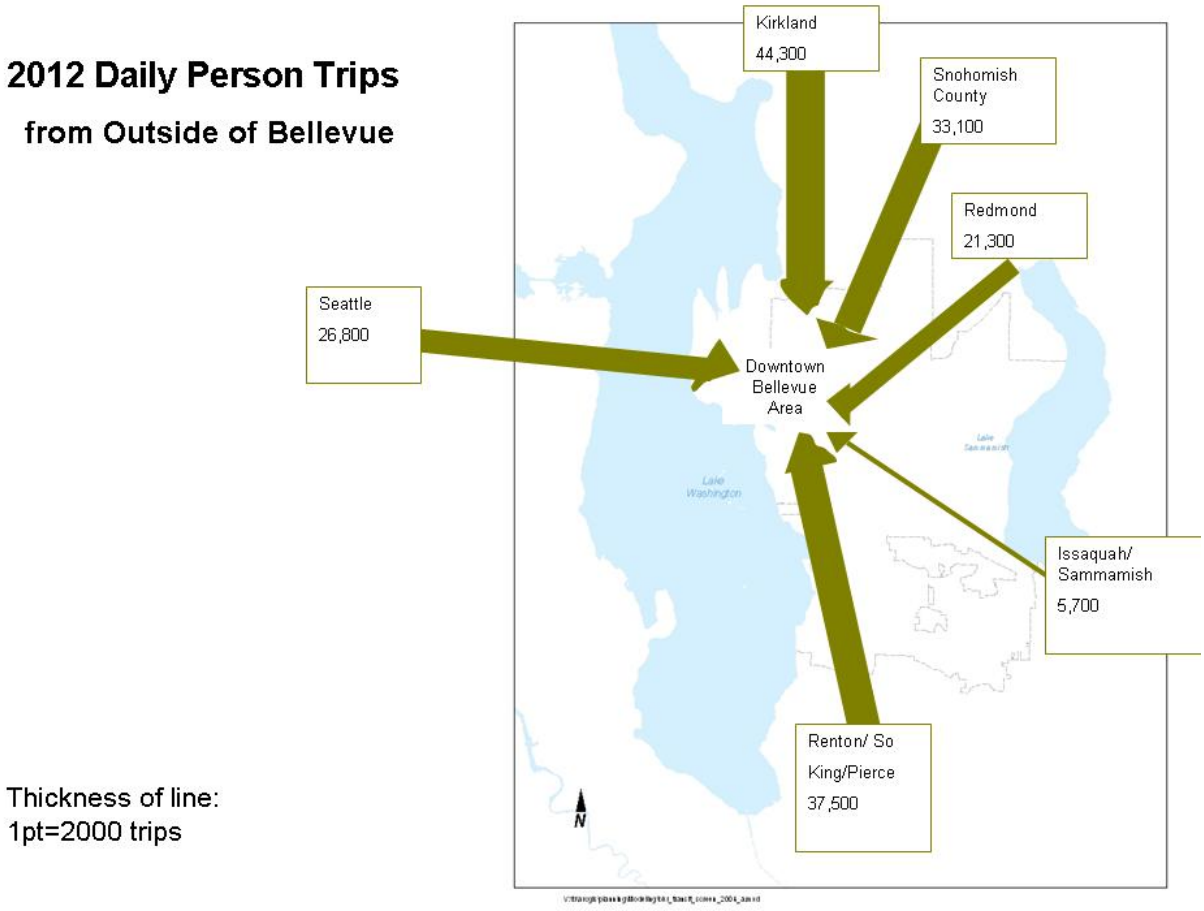


Figure D. 2012 Daily Person Trips



Data show that people travel relatively long distances to get to Downtown Bellevue. The daily person trips into the downtown from outside of Bellevue shown in Figures C and D represent approximately 50 percent of the daily person trips into downtown. According to the city's 2005 Mode Share Survey, the average commute trip length into downtown Bellevue is 14.46 miles.

2.6 Traffic Conditions

Downtown Streets. Table 2-1 shows intersection p.m. peak two-hour average volume-to-capacity ratios for downtown intersections in 2005 and projected for 2012. The assumed non-single-occupant vehicle (non-SOV) mode share, calculated by the model and used as input, is 72 percent. This model assumption of 72 percent non-SOV does not include transit or nonmotorized trips but just carpooling and vanpooling. However, this makes the 72 percent figure appropriately conservative, since the trip reduction target number for this GTEC plan is 63.9 percent for 2011 and includes all non-SOV modes (see Chapter 3).

Volume-to-capacity ratios are defined below in terms of user impressions:

Definition Average Volume-to-Capacity Ratio	Description Subjective Impression of User
Less than or equal to 0.600	Highest drive comfort Little delay Free flow
0.601 – 0.700	High degree of drive comfort Little delay
0.701 – 0.800	Some delays Acceptable level of drive comfort Efficient traffic operation
0.801 – 0.900	Some drive frustration Long cycle length
0.901 – 0.950	Near capacity Notable delays Low drive comfort Difficulty of signal progression
0.951 – 1.000	At capacity High level of congestion High level of drive frustration
Greater than or equal to 1.001	Breakdown flow Excessive delays

Table 2-1 also assigns “letter grades” to the intersection according to the volume-to-capacity ratio, and a “0” or “1” depending on whether that intersection exceeds the volume-to-capacity standard. The city’s volume-to-capacity ratio standard for the downtown is 0.95. The table shows that one intersection exceeds this standard for both 2005 and 2012. However, one intersection exceeding the standard is allowed within the city’s “congestion allowance” of nine intersections for downtown.

Table 2.1. Downtown Bellevue Intersection Levels of Service

ADDRESS		2005 Existing			2012 w/ CIP*		
North-South	*East-West*						
100th Ave NE	NE 8th Street	0.500	A	0	0.538	A	0
Bellevue Way NE	NE 12th Street	0.660	B	0	0.725	C	0
Bellevue Way NE	NE 8th Street	0.581	A	0	0.610	B	0
Bellevue Way NE	NE 4th Street	0.640	B	0	0.779	C	0
Bellevue Way	Main Street	0.768	C	0	0.778	C	0
108th Ave NE	NE 12th Street	0.377	A	0	0.539	A	0
108th Ave NE	NE 8th Street	0.654	B	0	0.748	C	0
108th Ave NE	NE 4th Street	0.536	A	0	0.594	A	0
108th Ave	Main Street	0.458	A	0	0.457	A	0
112th Ave NE	NE 12th Street	0.732	C	0	0.723	C	0
112th Ave NE	NE 8th Street	1.074	F	1	1.127	F	1
112th Ave	Main Street	0.669	B	0	0.692	B	0
112th Ave NE	NE 4th Street	0.574	A	0	0.685	B	0
Area-wide average ->		0.632	B	0	0.692	B	0
LOS Threshold	0.950						
Allowance	9			1			1

*"2012 w/CIP" means these figures assume completion of the city's Capital Investment Program projects slated to be completed by 2012.

This table shows that most intersections in the downtown are operating acceptably, and that this is not expected to change to any great extent by 2012.

State Highway System – Hours of Delay. Commuters to Downtown Bellevue experience significant delay on the state highway system. According to the Puget Sound Regional Council, the estimated hours of delay for all vehicles in all lanes (calculated by subtracting actual travel time from free-flow travel time and multiplying this by the number of vehicles) for key corridors/ time periods were as follows:

- I-90 between I-5 and I-405, westbound in the am peak: **317.3 hours**
- I-405 between I-90 and SR 520, northbound in the am peak: **399.5 hours**
- I-405 between I-90 and SR 520, southbound in the pm peak: **702.1 hours**
- SR 520 between I-5 and I-405, eastbound in the am peak: **240.6 hours**
- SR 520 between I-5 and I-405, westbound in the pm peak: **677.2 hours**

These hours of delay represent significant costs to the city and region.

State High-Occupancy-Vehicle (HOV) System Performance. The HOV facilities on I-405, I-90, and SR 520 are critical to HOV and non-HOV traffic alike. WSDOT estimates show that, from 1994 to 2005, HOV volumes grew faster than general-purpose traffic on these freeways. According to a 2005 study by the Washington State Transportation Center (TRAC), HOV lanes on I-5, I-405, and westbound SR 520 have failed to meet the speed standard jointly set by the Washington State Department of Transportation and the Puget Sound Regional Council, which is that HOV lane vehicles should maintain or exceed an average speed of 45 mph or greater at least 90 percent of the time during the peak hour over a six-month period.

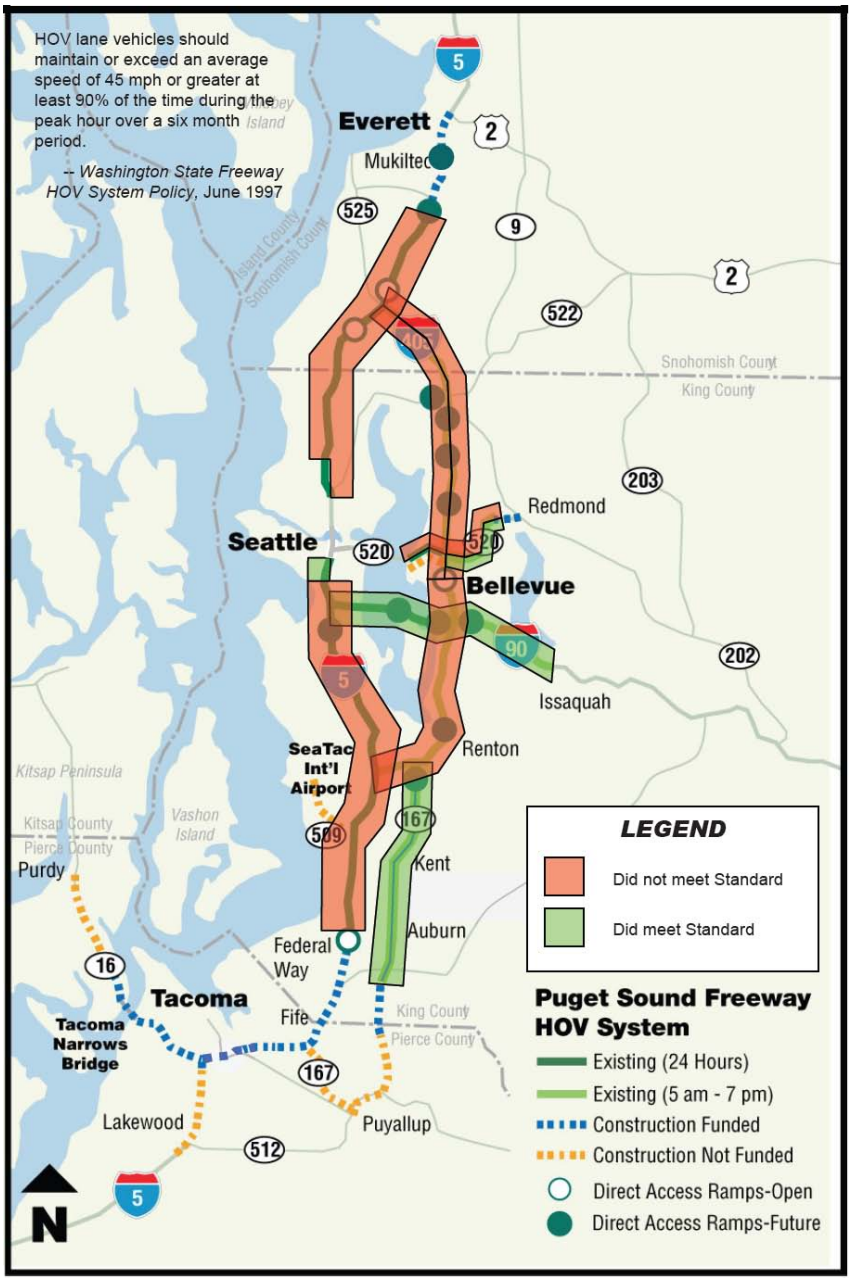
Specifically, the following HOV systems serving Downtown Bellevue commuters failed to meet the standard, according to WSDOT:

- Northbound and southbound I-405 through Bellevue; and
- Westbound SR 520.

This means that the two largest areas of origin for people traveling to Bellevue (from the north and the south, indicated in Figures C and D) have HOV facilities that are failing at peak hours.

I-90 HOV lanes east of I-405 did meet the standard. I-90 west of I-405 does not have an HOV facility that serves peak-hour commuters to Downtown Bellevue. Figure E shows the locations of freeway HOV facilities and where standards have been met for the region.

Figure E. Meeting the HOV Performance Standard in 2005



According to WSDOT, general-purpose speeds and throughput of vehicles have been on the decline since 2000. The trend is expected to continue. For instance, available WSDOT estimates on I-405 in Kirkland (northbound during the p.m. peak hour) show a decline in throughput from approximately 1,600 vehicles per lane in 2006 to approximately 1,200 vehicles per lane in 2020.

Nevertheless, these HOV lanes are throughputting more people and usually maintaining higher speeds than the adjacent general-purpose lanes. For example, WSDOT data shows that on southbound I-405 from north of Bellevue (236th Street SE) to Downtown Bellevue, in the 6-9 a.m. time frame, the HOV lane provided a travel time savings of 1.05 minutes per mile. The comparable figure for northbound I-405 (from Andover Park E. to Downtown Bellevue) was 1.25 minutes saved per mile.

GTEC Support Gap: **Most of the HOV facilities serving the downtown are failing to meet standards.**

2.7 Parking Plans and Policies

Parking Codes and Regulations. The city's land use code contains the regulatory aspects of the city's parking framework in subsection 20.25A.050 Downtown Parking, Circulation and Walkway Requirements. For the land use category and zoning most pertinent to the GTEC—Office (Business Services/ Professional Services/General Office) in the core area of downtown (Downtown Zones -0-1 and -0-2)—the city has established minimum and maximum parking requirements: a minimum of 2.0 and a maximum of 2.7 parking stalls per 1,000 square feet of office space. Outside of the core area, the parking minimum and maximum are higher—minimum 2.5 stalls per 1,000 square feet and maximum 3.0 stalls per 1,000 square feet.

Retail parking minimums and maximums are greater—a minimum 3.3 to 4.4 stalls per 1,000 square feet, and a maximum of 5.0 stalls per 1,000 square feet. Retail requirements are less in a development with mixed commercial and residential uses or when associated with a hotel or motel.

The City Code contains a provision for shared parking. This concept refers to utilizing a parking facility for more than one use, particularly at differing times of the day or week. Shared parking results in less space devoted to automobiles in the downtown and is permitted upon approval of the director of Planning & Community Development. Requirements include a convenient pedestrian connection between the properties, that directional signs are provided, and that the parking agreement be recorded for each property in King County records. If hours of operation of the shared uses do not overlap, parking must be provided equal to the supply needed for the higher-requirement project. Where hours of operation do overlap, a reduction of 20 percent in the total required parking is allowed.

Regarding accommodation of ridesharing vehicles, the city's parking code also requires a vanpool/carpool loading facility adjacent to an entrance door. The code also specifies vehicle height clearances that accommodate vanpool parking.

Downtown Subarea Plan – Parking. The Downtown Subarea Plan characterizes the parking supply as being generally sufficient, although short-term parking is limited in a few areas. This section emphasizes the importance of parking availability for visitors, and states that if peak-hour parking occupancy routinely exceeds 85 percent, parking management strategies should

be implemented to manage existing supply, and that these management strategies should attempt to shift as many commuters as possible to alternative modes so they do not compete with visitors for the most convenient parking spaces. This plan states that additional strategies, if necessary, may include the provision of additional parking through street parking, more shared use of facilities, or as a last resort, constructing public parking structures at critical locations. (Currently, according to the PSRC Parking Summary 2006, the downtown has approximately 30,700 total spaces and a p.m. occupancy rate of 61.6 percent.)

A key policy (Policy S-DT-152) is to monitor parking utilization, costs (paid by commuters), employee populations, the transportation management program, and transit and ridesharing levels, and revise parking and transportation management requirements if needed to achieve mode split targets in the Transportation Element of the Comprehensive Plan.

Downtown Implementation Plan policies call for a public/private comprehensive examination of short-term parking problems in the downtown, as well as investigating allowing downtown developers to pay a fee into a “pool” in lieu of providing parking on-site. Pooled funds would then be used to provide short-term public parking where needed. This is consistent with a 1997 Urban Land Institute downtown study that found parking that is linked to specific buildings rather than shared parking facilities causes a redundancy of parking spaces. This report recommended (among other things) new downtown parking structures and a parking management program.

Comprehensive Plan “Park Once” Strategy. A parking-related strategy from Bellevue's update of the Downtown Subarea plan was to establish a "park once" concept in Downtown Bellevue. The "park once" strategy was intended to encourage and allow travelers to Downtown Bellevue to park in a central location and walk to several destinations instead of having to drive their car and park at multiple locations. This strategy was recommended because a high percentage of parking in Downtown Bellevue, particularly for shoppers, is proprietary. Intercept surveys and focus groups were undertaken in 2003 to explore the likelihood of success of the “park once” strategy. Results showed some interest in this concept on the part of visitors, although visitors valued the convenience of parking close to their destination. Results also revealed that a more pedestrian-friendly downtown and interesting things to look at along the way would encourage people to walk more often to their destinations. The “park once” strategy was not implemented because subsequent discussions with downtown stakeholders and garage operators did not generate agreement on when or how to change parking management practices.

Parking Supply. Although, as mentioned above, the Downtown Subarea Plan characterizes the parking supply as being generally sufficient, and the PSRC Parking Summary 2006 indicates a p.m. occupancy rate of 61.6 percent, there appear to be some building locations where demand exceeds supply, particularly at buildings that are fully occupied and, especially, where less than the maximum allowable parking supply was constructed. The trend appears to be that demand is beginning to outpace supply, as tenants squeeze more employees into their rented floor area and new developments choose to supply fewer parking spaces than the maximum allowed. These reductions in parking supply occurring naturally through market forces will help support transportation demand management goals as well as reduce the costs of development.

Commuter Parking Subsidies. It is known from employers who report information under the Commute Trip Reduction law that many downtown employers subsidize monthly commuter parking for their employees. Employer practices range from offering fully subsidized ("free") employee parking to subsidizing employee parking at various levels or not at all. There likely are instances in which parking charges are bundled with leases in the downtown. In order for market forces to be at work, employers need to have the choice as to whether to purchase parking for their employees, or whether to direct their funds toward transit and other non-drive-alone subsidies instead; and employees need to have the option to shift their employer-paid parking subsidies to other commute modes.

Commuter Daily Parking Issues. In the downtown core, the TransManage Downtown Bellevue Parking Survey indicates that monthly parking fees ranged from $55 to $199.80 in the third quarter of 2006. The average daily parking rate in the downtown is $12.66, according to the 2006 Puget Sound Regional Council Parking Summary. For those who commute by a mode other than driving alone, the need to occasionally drive alone for errands and appointments is recognized as legitimate and significant, especially in an environment such as Bellevue's where transit and walking may not be viable choices for errands and appointments. However, free park days and reasonably priced daily parking with in and out privileges are not necessarily available and convenient to many commuters. The relatively high cost of these occasional parking needs can tip the scales in favor of choosing monthly parking. Additionally, anecdotal evidence indicates that a lack of weekend access to parking facilities is a deterrent to some employees' choice of a transit pass over monthly parking.

GTEC Support Gap: *Various aspects of how parking is currently managed in the downtown may discourage non-drive-alone commuting. Monthly parking subsidies for employees are common, their lack of opportunity to choose on a daily basis—with reasonable cost and convenience—whether to pay for parking or use another mode may be a deterrent to non-drive-alone commuting.*

Detailed Parking Problem Statement:

1. Existing parking pricing and mechanisms for downtown commuter parking serve to deter non-drive-alone commuting to some degree. A significant number of commuters may not have access to reasonably priced daily parking with in and out privileges that is convenient to their work locations, or to sufficient free park days with in and out privileges. In and out privileges are generally allowed for monthly parkers but not daily parkers. This is a major deterrent to non-SOV commuting, because when they need to drive occasionally, it is often due to an appointment during the day. Such commuters may be required to pay twice in one day for daily parking.

   As an example, suppose that a commuter receives no free park days, but needs to attend medical appointments twice per month. If he were to pay for daily parking twice each day for two days at a cost of $10 per entry, this would $40 per month out of his pocket. However, if he were to choose the free or subsidized parking space, he would not have to pay any additional out of his pocket to attend these appointments.

   The cost of occasional daily parking should be considered when pricing scenarios are compared between transit and HOV; it generally can be thought of as a surcharge placed on top of the choice to be a regular HOV commuter. Therefore, depending on access to free park days, daily parking costs can have a dampening effect on HOV mode choice in the

following scenarios.

- Commuters who receive parking subsidies that are greater than or equal to their HOV.
- Commuters who must choose between transit or parking subsidy – the transit choice may incur increased daily parking costs.
- Commuters who receive a greater subsidy for HOV than for parking may be motivated to take transit; however, their true daily parking costs may outweigh the benefit of the HOV subsidy.
- Commuters who receive neither a parking subsidy nor an HOV subsidy may be deterred from using HOV – it may be easy to find a monthly parking space that costs less than a transit pass plus occasional daily parking costs.

In addition, weekend parking has been noted anecdotally as a deterrent to non-SOV commuting. For at least one location, commuters who give up monthly parking lose access to the building's parking garage on weekends. There is very limited street parking in the downtown, and the free parking in the downtown is proprietary customer parking. Finding a place to park means they would need to pay for parking in a public garage, but these may not be available in a convenient location, as many are closed on weekends.

2. Equipment limitations already complicate administration of free park days. Presumably, garage operators would require new or modified equipment in order to administer a variable-price payment structure, such as access cards linked to customer accounts, credited with a full month of parking value, debited for each daily use and partially refunded at the end of the month.

3. Carpool/Vanpool Issues:
   - There have been anecdotal reports of garage geometry limitations that make it difficult to maneuver vans.
   - Although a majority of building transportation management programs provide for preferential carpool and vanpool parking, there are locations where it is not available.
   - Carpool/vanpool parking subsidies do not cross buildings. These subsidies may be offered by particular employers or by building managers through their Transportation Management Programs, or they may not be offered at all. The most convenient building to park for the majority of persons in a carpool or vanpool may not offer any parking subsidy. Even though parking costs are shared among those sharing the vehicle, the need to pay for parking is a deterrent to ridesharing.
   - Loading and unloading facilities that are convenient from the street are scarce.

4. Limited Public Parking: Downtown Bellevue has very limited public parking, approximately 300 spaces. This is less than one percent of total downtown parking spaces. Since all are free, there is no opportunity to generate city revenue from parking facilities to return to the community in the form of pedestrian amenities and efforts to discourage auto trips.

5. While some daily parking is available in the downtown, parking providers have not indicated great interest in increasing its provision nor increasing signage where it is currently available. In the current environment, and until severe parking shortages exist, parking operators and building managers are likely to perceive the maximization of sales of monthly tenant parking as more economically viable than pursuing public hourly or daily parkers.

2.8 Transit Plans, Policies, and Characteristics

The Comprehensive Plan Transportation Element presents Bellevue's overall transportation policy vision, including components for Transit (local), Regional Transit, and High-Capacity Transit. Also, more detailed guidance is found in the city's Transit Plan.

Comprehensive Plan Local Transit Component. This component stipulates that travel options should include a strong transit system that focuses on serving local residents, employees, and businesses. The focus is on a close working partnership between the city and the local and regional transit providers.

Bellevue Transit Plan. Bellevue adopted a Transit Plan in 2003 that put forth recommendations for future transit service, and identified necessary capital improvements to support this service. The Transit Plan calls for a hierarchy of transit services that is focused on three major levels – connections within Bellevue, connections between Bellevue and other Eastside communities, and connections between Bellevue and other communities in the region. The Transit Plan further calls for a network of transit hubs at key activity centers within Bellevue, which include downtown, Factoria, Eastgate/BCC, Crossroads, and Overlake. These hubs will provide opportunities to transfer between the various types of transit service.

Comprehensive Plan Regional Transit Policies. The Regional Transit component's goal is to provide regional transit service at levels that support the land use goals; provide high-performance transit connections with other urban centers in the region; and develop programs to encourage ridership on regional transit. This regional component is based on the 1996 voter-approved funding of a regional transit system including light rail, commuter rail, and regional express bus service. The package approved by the voters grew out of the regional *Vision 2020* plan and the Metropolitan Transportation Plan (subsequently updated as the "Destination 2030" Metropolitan Transportation Plan), and the Countywide Planning Policies for King County, which called for a high-capacity transit system linking urban centers. The Regional Transit component of the Comprehensive Plan incorporates regional transit via adoption of the Regional Transit Vision and states the intent to coordinate closely with transit providers to work toward achieving this vision.

Regional transportation service, including such facilities as freeway direct-access ramps and regional park-and-ride lots, are key to the viability of transit and ridesharing choices for downtown travelers. Bellevue's Comprehensive Plan policies include provisions to work with transit agencies to provide these important system improvements.

Comprehensive Plan High-Capacity Transit Component. This component describes Bellevue's coordinated planning with Sound Transit for light rail transit to serve the Eastside. Although implementation will occur beyond the GTEC horizon, planning is currently under way for this new service from Downtown Seattle to Downtown Bellevue, Overlake, and possibly Redmond. Implementation is dependent on the outcome of a public vote in November 2007.

Downtown Transit Capital Facilities. The city and King County Metro have been collaborating for two years to establish a downtown bus layover facility, and a downtown location has been identified. When in place, the new layover facility will help reduce travel time and increase convenience for downtown transit riders. It will also allow increased utilization of transit capital facilities such as the new NE 6th Street direct-access ramps from 112th Avenue NE to I-405, completed in 2004.

Viability of Transit as a Mode Choice for Downtown Bellevue. In order for transit to be a viable travel option for commuters, the commuter needs to be willing to use the service and the service needs to be convenient and reliable.

Bellevue's 2005 Mode Share Survey evaluates commute behavior for downtown Bellevue and organizes the region into six origin zones to better understand commuting patterns. The survey shows that individuals working in downtown Bellevue have an average commute distance of 14.5 miles and travel from all over the region: Seattle (21%); Kirkland and West Snohomish County (21%); Redmond, NE King County and SE Snohomish County (14%); Issaquah and East King County (8%); Renton, South King County and Pierce County (16%); and Bellevue (17%). See Appendix B for a map of the origin zones.

The residential location of employees did not differ significantly based on whether they work for a large company (100+ employees) or small company (less than 100 employees) located in downtown Bellevue.

Many employees use a mix of commute options during a single work week. The Mode Share Survey indicates that transit and carpool are the most commonly used non-single occupant vehicle (non-SOV) commute modes to downtown Bellevue, with 14 percent of trips by transit and 12 percent of trips by carpool reported in the previous week. The survey also showed that 30 percent of the respondents not commuting by bus were likely to try using the bus to commute to work. However, incentives may be necessary to encourage a shift to any non-SOV mode choice. Respondents identified the following five incentives as most desirable: financial incentive (41%); opportunity to work at home (38%); immediate ride home in case of an emergency (28%); more frequent bus service at the work site (20%); and employer-provided car for work purposes during work hours (18%).

In summary, the 2005 Mode Share Survey indicates that employees travel from all over the region to work in downtown Bellevue—riding the bus is currently a popular non-SOV mode choice. Furthermore, a large percent of those surveyed said they would likely try using the bus as a commute option but an incentive may be necessary to encourage this shift.

Existing Transit Service. In 2007 there are 24 Metro and Sound Transit routes and more than 1,000 weekday transit trips serving the Bellevue Transit Center. Nine of these routes have peak-only service, and the remaining routes have all-day service. The great majority of downtown routes go through the Bellevue Transit Center located at NE 6th Street between 108th and 110th Avenues NE; four routes pass along 106th Avenue NE, one block west of the transit center. There are approximately 1,000 weekday transit trips at the Bellevue Transit Center and the adjacent 106th Avenue NE. See Figures F and G for routing and frequencies for downtown routes, as well as other routes to which downtown service connects.

Figure F. Bellevue Transit Routes

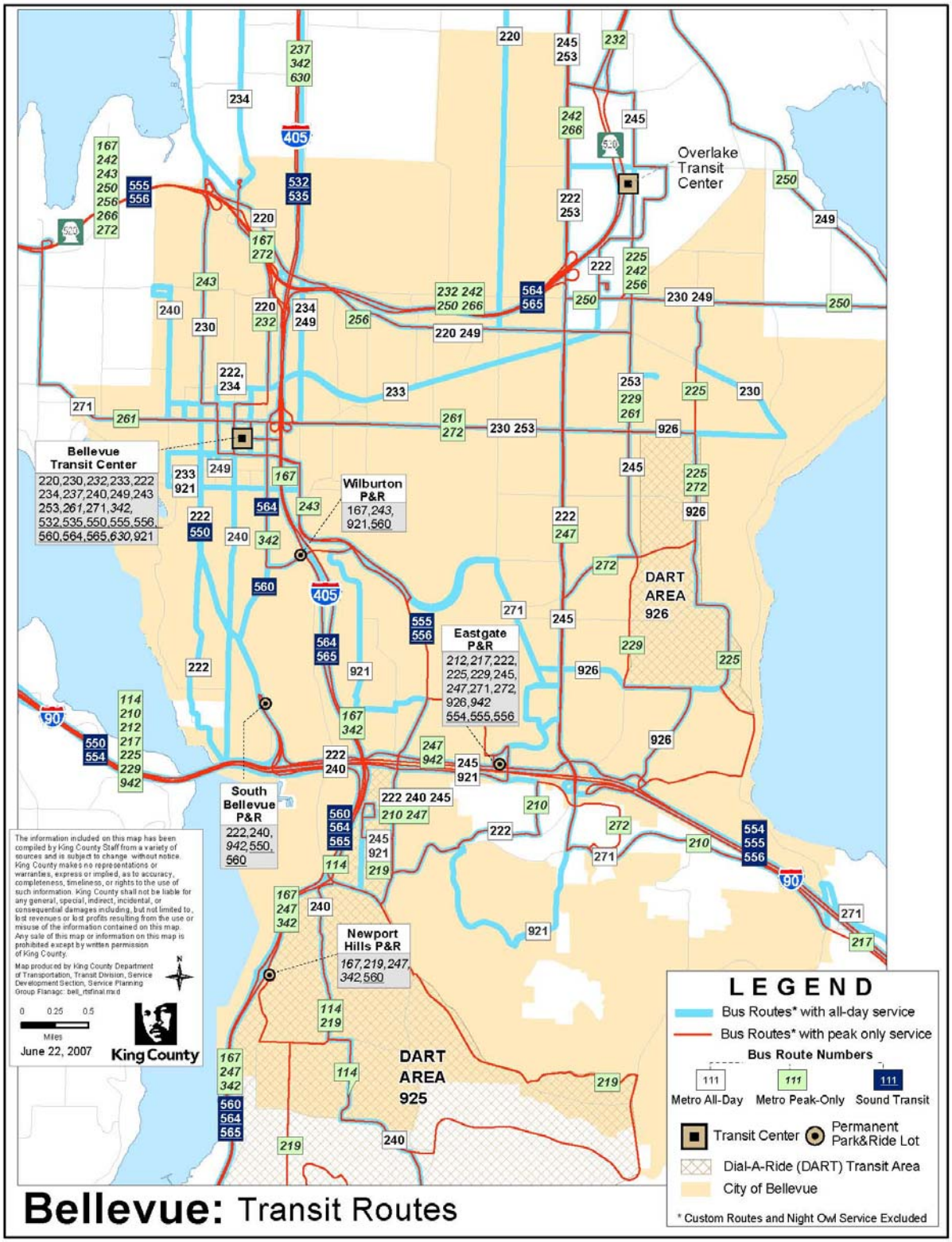
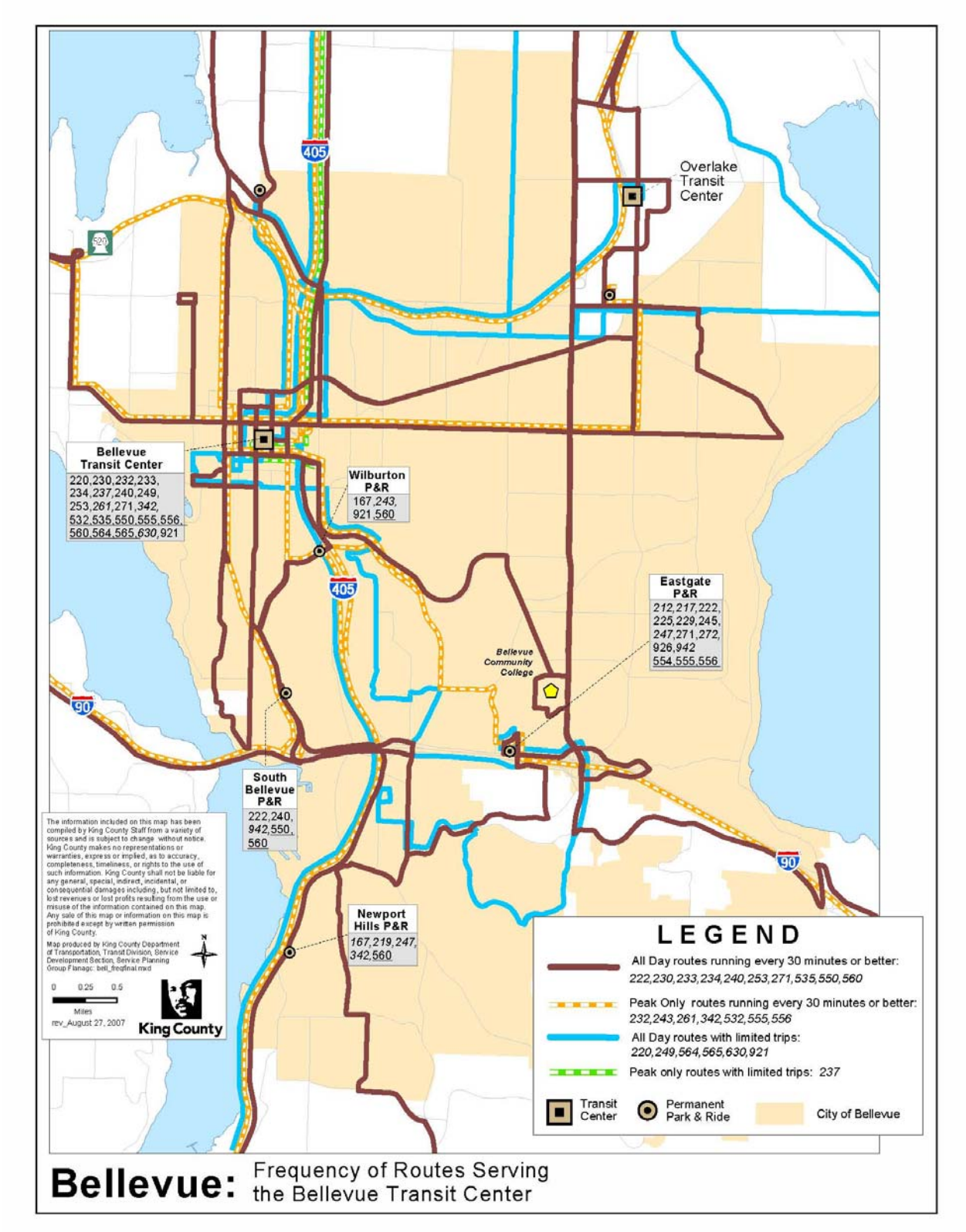


Figure G. Bellevue Transit Route Frequencies



Of the 24 routes serving downtown Bellevue, twelve routes are at high utilization (over 70 percent of capacity) during the a.m. peak period. Eleven of these routes are operating at more than 100 percent capacity during portions of the a.m. peak period, requiring some riders to stand for part or all of their trip. There have been reports of overcrowding, particularly on routes serving Downtown Bellevue from north and south origins (i.e., Sound Transit routes 532 and 535 from the north and 564 from the south).

In addition to being crowded, on-time performance during the a.m. peak period is low for many of the highly utilized routes. Of the twelve routes identified as high peak utilization, ten have on-time performance during the a.m. peak period below 80 percent. Metro defines "on time" as an operation measured within a range of one minute early to five minutes late, with a general on-time goal of 85 percent for weekday peak period routes. Sound Transit's *Service Standards and Performance Measures – 2006 Edition* specifies on-time guidelines as 90 percent of bus trips departing from the route terminus not more than three minutes late and arriving at the route terminus not more than seven minutes late. Table 2-2 below shows the performance indicators for each route serving downtown Bellevue by origin zone.

Table 2-2. Downtown Bellevue Summary Route Information

Performance Indicators Based on data for Trips Traveling to Bellevue

Based on Data Collected September 2006 - February 2007

					Inbound – AM Peak					
Areas Served	**Route**	**Part**	**Type**	**Peak Utiliza-tion**	**Runs over 100% Capa-city**	**Stand-ees**	**AM Pk % On-Time**	**Earliest Arrival**	**Latest Departure**	**Peak Head-way**
Bellevue Origin Zone										
Overlake – Downtown Bellevue	222		A	M			68.2	6:48 AM	9:56 PM	30
Somerset/Factoria – Downtown Bellevue	921		A	L			92.0	6:49 AM	5:47 PM	30
Clyde Hill – Downtown Bellevue	240	N	A	H	1	4	38.9	5:35 AM	12:18 AM	30
Overlake – Downtown Bellevue – Downtown Seattle	261	E	P	H	1	8	94.0	5:51 AM	6:26 PM	30
Seattle Origin Zone										
Jackson park – Downtown Bellevue – Wilburton P&R	243		P	H			51.7	7:13 AM	5:20 PM	30
U. District – Downtown Bellevue – Issaquah	271	W	A	M			83.2	6:00 AM	10:50 PM	15
Seattle-M. Island - South Bellevue – Downtown Bellevue	550		A	H	10	97	45.3	6:06 AM	11:50 PM	15
Northgate – Downtown Bellevue – Issaquah	555		P	M			67.2	6:07 AM	6:43 PM	30
Kirkland/W. Snohomish County Origin Zone										
Kingsgate – Downtown Bellevue - Redmond	230*	W	A	L			82.2	5:08 AM	12:14 AM	15
Kenmore – Juanita - Inglewood - Kirkland – Downtown Bellevue	234*		A	H	1	5	54.4	6:28 AM	7:05 PM	30
Woodinville – Downtown Bellevue	237*		P	L			66.7	6:49 AM	5:45 PM	45
(Shoreline -) Bothell – Kenmore – LF Park – Downtown Bellevue – Renton	342		P	H			75.7	5:19 AM	6:07 PM	30
Canyon Park, Everett – Downtown Bellevue	532*		P	H	5	26	80.2	5:43 AM	6:18 PM	22.5
Bothell, - Canyon Park - Lynnwood – Downtown Bellevue	535*		A	M			93.6	5:32 AM	11:22 PM	30
Kingsgate – North I-405 – Downtown Bellevue	630		P	L			89.7	5:29 AM	7:05 PM	30

*Key route park-and-ride is over 100 percent capacity.

Table 2-2. Downtown Bellevue Summary Route Information, cont.

Areas Served	Route	Part	Type	Peak Utiliza-tion	Inbound – AM Peak: Runs over 100% Capa-city	Inbound – AM Peak: Stand-ees	AM Pk % On-Time	Earliest Arrival	Latest Departure	Peak Head-way
Redmond/NE King Co./SE Snohomish Co. Zone										
Redmond – Downtown Bellevue	220		A	L			92.1	7:12 AM	6:06 PM	30
Redmond – Downtown Bellevue – Kingsgate	230	E	A	M	1	1	90.4	5:08 AM	12:14 AM	30
Duvall - Redmond – Downtown Bellevue	232*		P	M			70.5	6:12 AM	6:25 PM	30
Avondale – Downtown Bellevue	233*		A	L			54.6	6:46 AM	7:45 PM	30
Redmond – Downtown Bellevue	249		A	M	1	1	98.9	6:58 AM	6:50 PM	30
Bear Creek - Redmond – Crossroads – Downtown Bellevue	253		A	M			85.2	6:00 AM	12:20 AM	30
Overlake TC – Downtown Bellevue – Renton – Kent – Auburn – Sumner – South HIll	564	N	A	L			67.3	5:38 AM	7:22 PM	60
Overlake TC – Downtown Bellevue – Renton – Kent – Federal Way	565	N	A	L			95.2	6:08 AM	10:37 PM	60
Issaquah/East King County Origin Zone										
Issaquah – Downtown Bellevue – U. District	271	E	A	H	7	61	75.3	6:00 AM	10:20 PM	15
Issaquah – Downtown Bellevue – Northgate	556		P	H			26.7	5:45 AM	6:30 p.m.	30
Renton/South King Co./Pierce Co. Origin Zone										
Renton – Downtown Bellevue – Clyde Hill	240*	S	A	L			94.1	6:22 AM	11:05 PM	30
(West Seattle -) Burien – SeaTac - Renton – Downtown Bellevue	560		A	H	1	4	60.1	5:38 AM	10:23 PM	30
South HIll – Sumner – Auburn – Kent – Renton – Downtown Bellevue – Overlake TC	564*	S	A	H	6	63	28.8	6:07 AM	7:38 PM	15
Federal Way - Kent - Renton – Downtown Bellevue – Overlake TC	565*	S	A	H	6	66	36.6	5:52 AM	9:53 PM	30

*Key route park-and-ride is over 100 percent capacity.

Route Type: A = all day routes; P = peak only routes

Utilization: H = High (>70% full); M = Medium (50-70% full); L = Low (<50% full) over the length of the route

ST Express buses measured the same as above but looks at trips in the peak direction only (To Bellevue in the AM and from Bellevue in the PM). Midday on Route 535 considers both directions.

% On-Time: **Metro Routes:** Percent of trips observed no later than five minutes after scheduled time.

ST Express Routes: Percent of buses that depart Bellevue Transit Center not more than three minutes late and more than one minute early; and buses that arrive at Bellevue Transit Center not more than seven minutes late.

GTEC Support Gap: *Three origin zones, representing the residential location of over half of the employees commuting to Downtown Bellevue, have routes with significant capacity issues for service to Downtown Bellevue in the a.m. peak. These three origin zones contain the majority of the routes that are characterized by high peak utilization—a.m. peak runs operating over 100 percent capacity—and below standard on-time performance. In addition, each of these three origin zones have key park-and-ride lots that are over 100 percent capacity. They are:* ***Downtown Seattle****;* ***Kirkland/West Snohomish County****; and* ***Renton/South King County/Pierce County.***

Two additional trips are planned to be added in 2009 to Route 532 (an over-capacity route in the a.m. peak originating in the Kirkland/West Snohomish County zone), and Sound Transit is slated to receive some larger coaches in 2011.

GTEC Support Gap: *An analysis by the city has estimated that* ***2,300*** *peak-hour round trip transit seats will be available for new downtown commuters by 2011, assuming utilization at 85 percent capacity. Thus the transit system can accommodate only about half of the 5,000 commuters that are targeted to shift from driving alone under the GTEC. (See Chapter 3 for GTEC plan targets.)*

Future Baseline Transit Service (Service Improvements through 2011 – King County Metro). In November 2006, King County voters approved the Transit Now measure, which will provide a one-tenth of one percent sales tax increase to King County Metro Transit (the local transit provider for King County) for transit service improvements.

In addition, a February 2008 service change will affect the following routes serving Bellevue:

- Route 220: Weekday hourly headway service between Bellevue and Redmond will be discontinued.
- Route 232 will be revised north of Redmond. This route will still provide two-way peak-only connection between Bellevue Transit Center and downtown Redmond via I-405, SR-520, and Overlake. This route will continue to serve southbound 112th Avenue NE between SR-520 and NE 10th Street.
- Route 233 will be revised north of Bear Creek, and will be interlined with Route 222 (meaning the same vehicle continues as route 222) via the Bellevue Transit Center. No change in service level.
- Route 249 will be revised north of Bel-Red Road and NE Lake Sammamish Parkway to connect with Overlake Transit Center via NE 40th Street. Weekday peak-period frequency will improved to 30 minutes from hourly. Peak-period reverse-peak direction trips (eastbound in morning and westbound in afternoon) would be revised to serve South Kirkland Park-and-Ride via Northup Way. This connection will mitigate the deletion of Route 220 and the expected deletion of Route 256 in the future.
- Route 921 will be revised to serve Kamber Road instead of SE 36th Street. This route will be interlined with Route 249 (meaning the same vehicle continues as Route 249) via the Bellevue Transit Center. No change in service level.

Changes from 2009 through 2011 are not yet defined. In general, Transit Now directs improvements to the service levels of core routes including 253 and 271. However, the phasing of these improvements has not been determined.

Route 253 is targeted to become a RapidRide bus rapid transit (BRT) service in approximately 2011. There will be a two-stage public process on the RapidRide routes, and Metro is working with City of Bellevue staff on the first stage to determine the corridor. RapidRide is expected to connect downtown Redmond with Downtown Bellevue via Overlake, Crossroads, and NE 8th Street. As the core routes and the RapidRide services are improved, there may be changes to nearby or related routes. The RapidRide BRT program will use low-floor articulated buses that will be branded to identify them as special BRT buses. Current plans include special bus stops and shelters, and improved rider information.

Future Baseline Transit Service (Service Improvements through 2011 – Sound Transit). Service changes for Sound Transit, the regional transit authority, programmed to occur through 2011 on downtown routes consist of the following:

- In September 2007, the Downtown Seattle Transit Tunnel will reopen. Route 550 will return to the Downtown Seattle Transit Tunnel during the times that the tunnel is open (weekdays up to 7:00 p.m.). When the tunnel is closed, the eastside tunnel routes will shift to 2nd and 4th Avenues in Downtown Seattle.
- Routes 532 and 535 will use the Totem Lake direct-access ramps that will open in 2007. This will allow these Everett-Bellevue routes to take better advantage of the HOV lane.
- A new pedestrian overpass at Canyon Park will serve routes 532 and 535 when it opens in 2007. This will reduce travel time for southbound through riders by eliminating the need for buses to use local-access streets to serve the Canyon Park Park-and-Ride.
- Route 532 will add two additional trips in conjunction with the opening of the South Everett Park-and-Ride in 2009.
- Route 560 will be revised to make connections with the new Central Link light rail line (which will connect Downtown Seattle to SeaTac airport) when this new line opens in 2009.
- Sound Transit is slated to add some larger coaches in 2011.

Additional Sound Transit bus service may be added if voters approve the Sound Transit 2 package in November 2007. This package includes a service enhancement fund of 1 percent of the agency's previous year's bus service budget, and is directed toward improving service on existing routes. Routes to receive service improvements are not specified.

Downtown Transit Circulation. Downtown Bellevue's square shape creates challenges for internal transit circulation. All of the routes serving the downtown go through the Bellevue Transit Center (on NE 6th Street from 108th to 110th Avenues NE) or nearby 106th Avenue NE in the center of downtown. However, connections from one edge or corner of downtown to another edge or corner (e.g., Old Bellevue to the post office or library) are limited; when they do exist, the service is typically slow, owing to the pattern of passing through (and often waiting at) the Bellevue Transit Center. A few routes provide some useful intra-downtown connections:

- Route 550 connects to Old Bellevue by passing along 108th Avenue SE from NE 6th to NE 4th; along NE 4th Street from 108th Avenue SE to Bellevue Way; and south on Bellevue Way to Main Street and beyond.
- Route 271 connects to the Northwest Village (QFC) area by traveling on 108th Avenue NE to NE 8th Street; and on NE 8th Street to 100th Avenue NE and beyond.

Users must pay a fare, even for short, intra-downtown trips.

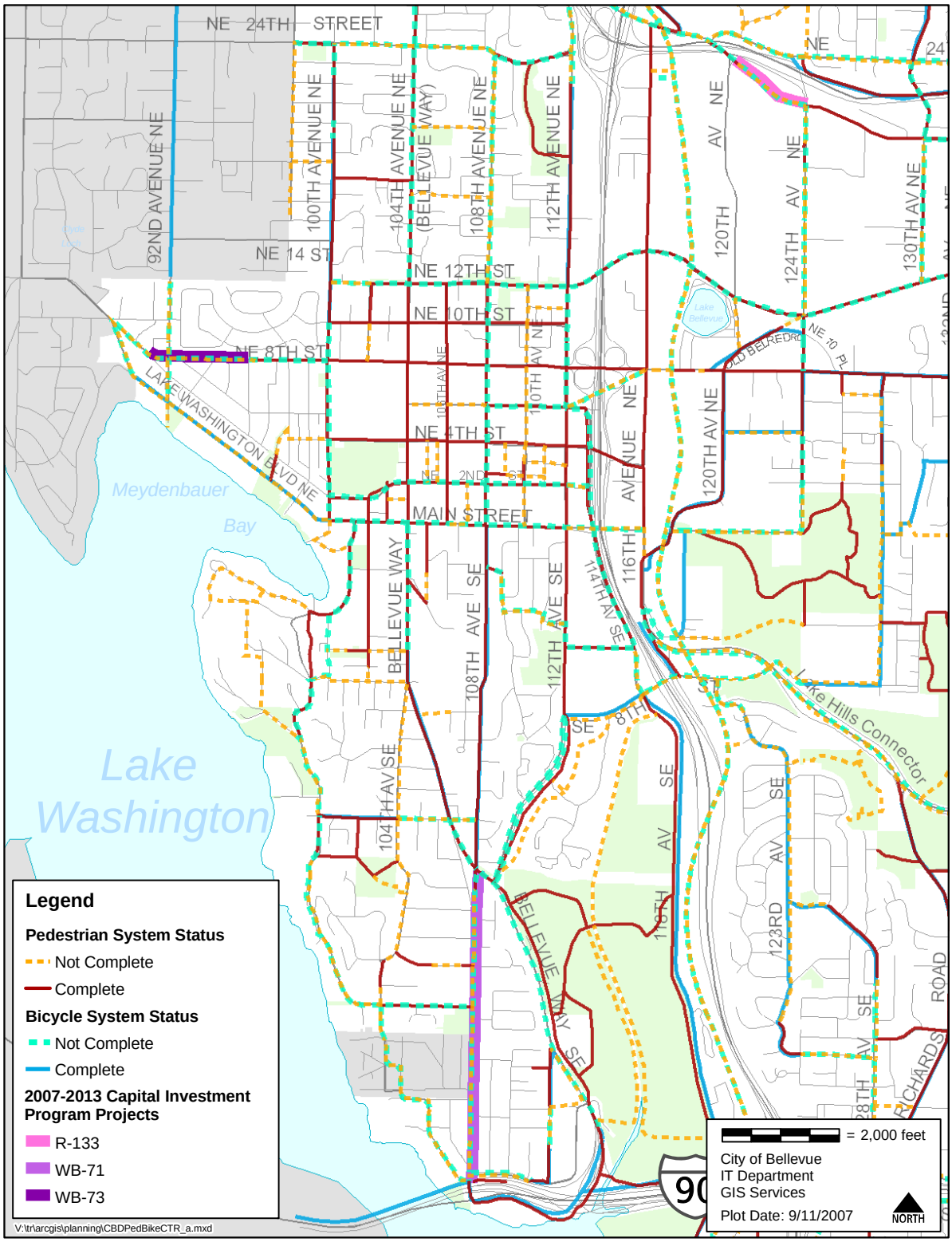
With its 600-feet superblocks, the downtown core is approximately two-thirds of a mile in each direction. This can lead to significant walking distances for many of downtown workers from the transit center.

The city has programmed $1 million in its Six-Year Capital Investment Program to identify ways to provide downtown transit circulation, and potentially fund a downtown circulator as a standalone service. A potential alternative, if a dedicated circulator fails to pencil out, would be changes to existing bus routes to provide more comprehensive transit circulation in the downtown. Pending a positive decision from Council, the city intends to apply for Service Partnership funding in fall 2007 under King County Metro's Transit Now measure, approved by voters in November 2006. The $1 million in city funds would provide a one-third local match for the Partnership funds.

2.9 Pedestrian and Bicycle Facilities

Existing Pedestrian and Bicycle Infrastructure. Figure H shows the existing pedestrian and bicycle system within and serving the downtown. Sidewalks are present for most of the downtown core, but are missing at a few locations (such as Main Street, north side between 106th and 107th Avenues; 102nd Avenue, east side north of NE 8th Street); sidewalks will be constructed at these locations as future development/redevelopment occurs. The prominent pedestrian feature is the designated pedestrian corridor on the NE 6th Street alignment from Bellevue Way through the Bellevue Transit Center to 110th Avenue NE. The city has designated east-west bicycle corridors on Main Street and NE 12th Street (bicycle lanes called for in Pedestrian and Bicycle Plan) and NE 2nd Street, and a north-south bicycle corridor on 108th Avenue NE (wide curb lanes called for in Pedestrian and Bicycle Plan).

Figure H. Downtown Pedestrian and Bicycle System



Many of downtown's existing sidewalks are narrow and directly adjacent to traffic lanes. As these locations are developed, owners will need to bring them up to current City Codes for width and landscaping (see *Code Requirements – Sidewalks* below). Sidewalks in the downtown are mostly located on private property, with an easement for public access. The roadways, often five lanes, use virtually all the available street right-of-way (typically 60 feet wide).

The downtown pedestrian environment is in transition. Most downtown pedestrian crossings are limited to major intersections occurring at 600-foot intervals. Most pedestrian signals are pedestrian-activated, which means that walk signs do not come on automatically (although they can be programmed to do so—some are at peak hours, especially the midday lunch time). Downtown pedestrians have commented on long wait times at intersections, short walk times, dangers from turning cars, difficulty navigating sidewalk closures due to construction, and a generally unfriendly environment for pedestrians walking and crossing streets in the Downtown. However, certain locations have already improved in terms of pedestrian scale and comfort, such as the pedestrian corridor and the all-way scatter crossing at the 108th/NE 6th Street linkage between the Bellevue Transit Center and the east end of the pedestrian corridor.

Existing Bicycle Amenities. The city has 75 existing bicycle racks in downtown in 2007. These have been installed at locations on sidewalks convenient to building entrances and at useful destinations for bicyclists. Additional racks will be installed as development occurs and additional building entrances are located adjacent to sidewalks. Showers are available at (at least) nine locations in the downtown. Fees range from $20 to $30 per month for the use of showers, although one building makes showers available to tenants free of charge. At two locations, the showers are for building tenants only.

Future Baseline Pedestrian and Bicycle Infrastructure (Improvements through 2011). The city's six-year funded 2007-2013 Capital Investment Program contains the following pedestrian and bicycle infrastructure projects serving the downtown that will be completed or under way during the GTEC time frame. These projects are also shown in Figure H.

- ***PW-R-133, Northup Way – 120th to 124th Avenues NE*** – Complete portions of curb/gutter/sidewalk where missing as part of roadway widening project. (Anticipated completion: 2011.)
- ***PW-W/B-71, 108th Avenue SE/Bellevue Way to I-90*** – Add five-foot bike lanes on both sides and curb, gutter and six-foot sidewalk on one side where missing. (Anticipated completion: 2012.)
- ***PW-W/B-73, NE 8th Street/Lake Washington Blvd to 96th Ave NE*** – Design and construct curb, gutter, five-foot sidewalk, and three-foot planter strip where missing on the north side, bus pads, and an updated signal system at NE 8th/92nd. (Anticipated completion: 2013.)

In addition, numerous development projects are under way or planned and will construct upgraded sidewalks along frontages in downtown.

Pedestrian and Bicycle Plans and Policies. The Comprehensive Plan supports a pedestrian and bicycle network to increase mobility choices, reduce reliance on motorized vehicles, and provide convenient access to activity centers and other destinations.

The Pedestrian and Bicycle Transportation Plan, most recently updated in 1999, provides a prioritized list of facility needs, reflecting the city's support of nonmotorized transportation as a

key component of the transportation system providing key north-south and east-west routes for bicycles through Bellevue and important connections between activity centers, from neighborhoods to activity centers, and to transit. This 30-year financially unconstrained plan provides a foundation for determining which projects should advance into the city's funded programs. Policies in this facility plan guide overall implementation of pedestrian and bicycle facilities throughout the city. An update of this plan is under way in 2007.

GTEC Support Gap: *The following downtown pedestrian improvements identified in the Pedestrian and Bicycle Plan have yet to be implemented:*

- *Upgraded sidewalks in Main Street (#902)*
- *Completion of missing sidewalk links on Main Street (#902), NE 2nd Street (#919, #972, #973), NE 2nd Place (#920), NE 11th Street (#922), and the NE 6th Street Pedestrian Corridor (#734)*
- *Completion of sidewalk links on the following north-south avenues: 105th (#924), 107th (#927), 110th (#926), and 111th (#929).*
- *Some sidewalks and pedestrian improvements are needed in Old Bellevue (#917).*

In addition, this plan calls for several downtown bicycle improvements that have yet to be implemented:

- *Main Street, 100th to 116th: Bike lanes 116th to Bellevue Way; no improvements necessary between 100th Ave and Bellevue Way; rechannelize as wider curb lane in interim (project #245)*
- *108th Avenue NE, Main Street to NE 12th Street: Wide curb lanes 14' (#338)*
- *NE 2nd Street, 100th to 114th Avenue NE: Wide curb lanes (#383)*
- *NE 6th Street, 108th to 114th Avenue NE: Wide curb lanes 14' (#341)*

This plan contains the following key bicycle facility connections to downtown that have yet to be implemented, and are not included in the city's current 2007-2013 Capital Investment Program:

- *Bellevue Way, I-90 to 112th SE (project #114): Partially complete*
- *Main Street, SE 1st to 124th Avenue SE (#322)*
- *124th, NE 16th to Main (#328): Partially complete*
- *124th, NE 16th to Northup Way (#384)*
- *108th, NE 24th to NE 12th (#222): Partially complete*
- *Northup Way, Bellevue Way to 120th Ave NE (#238): In Capital Investment Program as design study and high-priority spot improvements only (CIP R-146)*
- *NE 12th, 102nd to 124th (#237)*

Comprehensive Plan Urban Design Element – Pedestrian Components and Streetscape Design Standards. The Urban Design Element focuses largely on the pedestrian, in terms of not only circulation but aesthetics as well: its goal is "to develop a functional and aesthetically pleasing downtown which creates a livable and highly pedestrian-oriented urban environment that is compatible with adjacent neighborhoods." To this end, policies identify "signature streets" (Figure I) such as *Shopping Streets* (Bellevue Way, Main Street in Old Bellevue, and NE 6th Pedestrian Corridor), *Entertainment Avenue* (106th NE), and *Commerce Avenue* (108th NE) that help to organize the pedestrian experience. Further, this plan divides the downtown into nine districts, each of which should develop a distinct identity over time. Provision of mid-block crossings on auto-neutral and pedestrian-biased streets and gateway and wayfinding elements

help to complete the picture for a pedestrian-oriented downtown. Parks, recreation, and open space are recognized as key downtown features.

Figure I. Signature Streets

To help implement this vision, the city began a Great Streets Conceptual Design Plan in 2007. This plan will provide guidelines to maximize opportunities to create more aesthetically pleasing and pedestrian-friendly corridors, and promote consistency among incremental improvements constructed by private developers and the city. Designs will be developed for five key corridors in downtown: NE 4th Street, NE 8th Street, 106th Avenue NE, 108th Avenue NE, and Bellevue Way. The project will provide a palette of pre-approved options for hardscape and landscape materials and design features for use along other streets in downtown, and will update the street tree and landscape standards for downtown.

With the use of federal grant funding, a complementary effort to create an urban design guide for future development on NE 2nd Street is also under way.

Downtown Subarea Plan – Pedestrian and Bicycle Elements. For pedestrians and bicyclists, a challenge is circulation in the downtown's 600-foot superblocks. The policies in the Downtown Subarea Plan call for providing for needs of bicycles and pedestrians when new facilities are constructed. In addition, the importance of implementing planned capital projects in the downtown is highlighted. The city will aggressively work with other agencies such as the Washington State Department of Transportation, where they have jurisdiction.

Code Requirements – Sidewalks. Subsection 20.25A.060, of the City Code (Walkways and sidewalks) specifies the following requirements for sidewalks in downtown:

A. Twelve-foot sidewalk plus four-foot tree well area in the core area, between NE 8th and NE 4th Streets and between Bellevue Way and 112th Avenue (but not including 112th Avenue itself);
B. Twelve-foot sidewalk plus four-foot planter strip on three key arterials:

- Bellevue Way between Main Street and NE 12th Street
- NE 4th Street between 100th Avenue and 112th Avenue
- NE 8th Street between 100th Avenue and 112th Avenue;

C. Eight-foot sidewalk plus four-foot tree well area along all other frontages in downtown.

Also, mid-block walkways are required in each superblock in order to provide for increased pedestrian movement through superblocks in the Downtown. They must be in the form of an internal walkway or sidewalk, an arcade, or a pedestrian sky bridge; and they may meander. Where outside, they should provide for weather protection and use trees and landscaping to provide definition and enclosure.

These mid-block walkways are developer-constructed only. As of 2007, a map is in progress to improve awareness of these pedestrian connections. The new downtown wayfinding system has developed a standard sign to mark these connections. This sign has been installed at all recently constructed routes and will help address signage in the future, but not all routes are currently signed.

GTEC Support Gap: *Developer mid-block walkways are not comprehensively signed.*

Code Requirements – Downtown Core Design District. This subsection of the City Code (*20.25A.100*) applies to the downtown core, which is the area between 102nd Avenue NE, NE 9th Street, 112th Avenue NE, and NE 3rd Street. This core area contains the most intense requirements in the city for a human-scaled, pedestrian-oriented environment, and includes the Major Pedestrian Corridor on the NE 6th Street alignment from Bellevue Way to the Bellevue Transit Center at 110th Avenue NE, built by private developers as abutting private property has developed. The ultimate buildout will present a coordinated design through the use of uniform signing, landscaping, and lighting. Variety in design will also be allowed in order to provide visual interest and harmony with adjacent development.

Code states that the corridor must incorporate numerous pedestrian amenities such as seating areas, landscaping, art features, weather protection, and pedestrian-scale lighting, and it must be open to the public 24 hours a day.

The city allows bonus floor-area ratio for developers who provide construction of the major pedestrian corridor. The city has full rights of pedestrian access to and use of the corridor property for purposes of enforcing the rights of the public.

The Downtown Core Design District also contains provisions for major public open spaces that serve as focal points for pedestrian activity within this district, and that are design elements fully integrated with the major pedestrian corridor. Numerous pedestrian amenities must be included such as seating, lighting, special paving, planting, food and flower vendors, artwork and special recreational features.

Additional Code Requirements for Pedestrian and Bicycle Improvements. Worthy of mention in these subsections are developer requirements that can be significant contributors to the city's pedestrian and bicycle systems.

14.60.090 Dedication of Right-of-Way for Nonmotorized Improvements. The code states that "the city may require the dedication of right-of-way in order to incorporate transportation improvements which are reasonably necessary to mitigate the direct impacts of the

development," and that these improvements may include both motorized and nonmotorized transportation.

14.60.110 Nonmotorized Street Frontage Improvements. Street frontage improvements are normally required for new construction other than single-family homes on existing lots: "Complete street frontage improvements shall be installed along the entire street frontage of the property at sole cost of the permittee." These frontage improvements typically include curb, gutter, sidewalk, storm drainage, and street lighting, and bicycle lanes (if specified in the Pedestrian and Bicycle Facilities Plan), among other elements.

14.60.190 Internal Circulation Systems*.* In terms of nonmotorized transportation, the Nonmotorized Facilities subsection of the code states that developers must provide internal circulation systems "within and between existing, new, and redeveloping commercial, multifamily, and single-family developments; activity centers; and existing frontage pedestrian systems." These provisions can comprise significant contributions to pedestrian and bicycle circulation in the city.

GTEC Support Gap: *Gaps in the pedestrian and bicycle network can act as a barrier to non-drive-alone commuting. The presence of a high-quality pedestrian and bicycle network, including pedestrian-scale features and amenities to improve the perceived walking experience, figures strongly in a person's decision to not drive alone. This is important not only to those who commute by walking or biking but for all downtown commuters, since the ability to get around during midday can be paramount to determining whether they need their own car with them at their downtown workplace.*

2.10 State Highway Corridor Policies and HOV Improvements

The Comprehensive Plan, in support of the state Growth Management Act, states the critical need that the ability to move people and goods via the highway system keep pace with population growth and economic activity of urban centers such as Downtown Bellevue. The Comprehensive Plan emphasizes support of a multimodal solution to improve mobility on the congested state facilities that serve Bellevue: Interstate 405, Interstate 90, and State Route 520. The stated goal for this element is to "improve mobility on state highways through a mix of travel options." This element affirms Bellevue's support of a mix of general-purpose lanes, High-Capacity Transit, high-occupancy vehicle (HOV) lanes, transit, and nonmotorized travel along these corridors. The availability of multiple options will encourage the use of alternative modes to the single-occupant vehicle, which will improve mobility for all users.

State Highway Corridor Improvements. The following improvements on state corridors serving downtown are programmed to occur during the GTEC time frame:

I-405 112th Ave SE to SE 8th Street Widening: This Washington State Department of Transportation (WSDOT) project consists of widening I-405 between 112th Avenue SE and SE 8th Street to add one new southbound lane from SE 8th Street to I-90 and one new northbound lane from 112th Avenue to SE 8th Street. The project also includes a new ramp meter at 112th Avenue SE. The project will improve safety and increase travel speeds during peak commuter hours. Although this project does not add HOV capacity, it is significant to the GTEC because construction mitigation funds for this project will pay for transportation demand efforts in Bellevue, which are described in Chapter 4, Strategies.

I-90 - Two-Way Transit Lanes & HOV Operations: This joint WSDOT and Sound Transit project will provide high-occupancy lanes in both directions on I-90 from Bellevue to Seattle. Currently the only HOV facility is the reversible center roadway that is open to traffic heading toward Seattle during the morning peak and to Bellevue during the afternoon peak. Buses, carpools, and vanpools traveling in the opposite direction of the center roadway are forced to use general-purpose lanes, resulting in considerable delay and reducing the benefits to individuals of using transit or HOV modes, including for workers coming into downtown Bellevue during typical commute hours.

This is a multi-stage project. Stage 1 will complete the westbound outer-roadway HOV lane from Bellevue Way to 80th Avenue SE on Mercer Island, and is scheduled for construction in 2007-2009. Stage 2 will complete the eastbound outer-roadway HOV lane from 80th Avenue SE to Bellevue Way; design is scheduled for 2007-2008, and construction is scheduled to begin in 2017-2018. Stage 3, which would add outer HOV lanes to eastbound and westbound I-90 between Seattle and Mercer Island, is not yet funded.

2.11 Land Use and Demographics

Existing (2007) Land Use and Demographics. Downtown Bellevue is a concentrated center of office space, retail space, and housing. According to Planning and Community Development Department 2006 figures, there are 35,000 workers and 5,000 residents in the downtown. The office building square footage is 6,922,906 square feet, and the average daytime population—including residents, workers, shoppers, and other visitors at a given point in a typical day—is about 52,000. Existing retail square footage is 3,823,229.

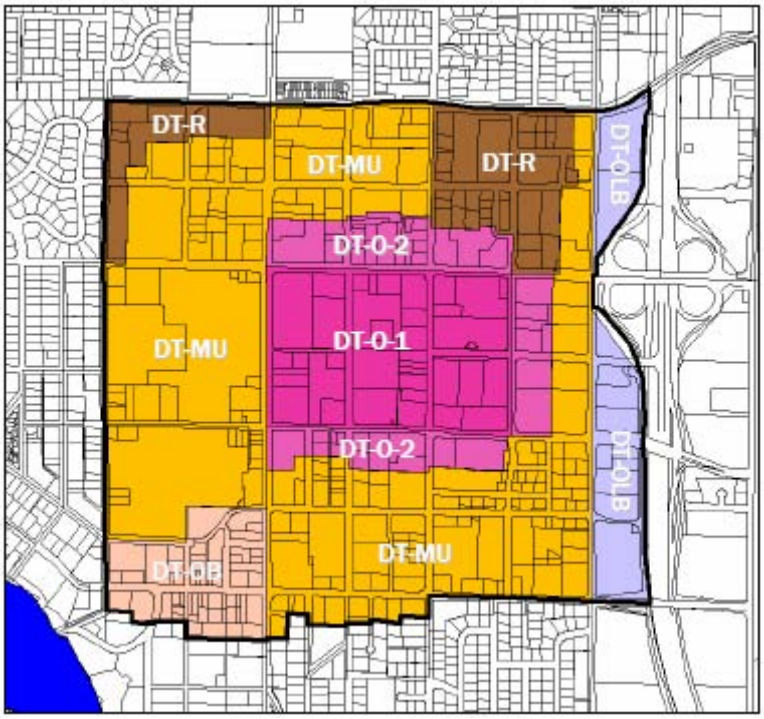
Projected land use in 2012 includes an additional 2,307,452 square feet of office space, an additional 420,385 square feet of retail space, and 2,209 additional housing units.

The estimated number of workers and residents in 2012 based on existing construction and permits are 44,000 and 8,500, respectively.

Long-term projections are for 63,000 workers and 14,000 residents in 2020. According to the Downtown Subarea Plan, downtown growth will constitute roughly three-quarters of the city's employment growth and a majority of the city's residential growth.

Figure J shows the existing zoning for the downtown that represents the long-standing vision for downtown land use and is the city's best representation of anticipated future land use during the GTEC time frame.

Figure J. Downtown Zoning/Land Use



Legend:
DT-MU = Downtown Mixed Use
DT-O-1 = Downtown Office 1
DT-O-2 = Downtown Office 2
DT-OB = Downtown Old Bellevue
DT-R = Downtown Residential
DT-OLB = Downtown Office Limited-Business

Land Use Plans and Policies. The Comprehensive Plan Land Use element contains GTEC-related statements. The goal for this element is a land use pattern that (among other things) supports the downtown Urban Center; supports and is supported by a variety of mobility options; and makes efficient use of urban land. This element recognizes Downtown Bellevue's emergence from a suburban to an urban center, and the influx of thousands of apartment and condominium units in the downtown that provide very urban densities of 100 or more units per acre, typically in mixed-use settings. This element further points out much of Bellevue's new development will occur through redevelopment and infill (as the city has little vacant land), and much of this will occur in the downtown.

In support of the GTEC vision, this element acknowledges the need to continue to concentrate a mix of employment and residential uses in the downtown, which will require enhancing the downtown's livability and attractiveness while striving to meet the transportation and infrastructure needs driven by growth. It states the requirement for better pedestrian linkages for new and existing developments and a density and mix of land uses that encourage walking and transit.

The Land Use Element lays out Bellevue's share of job and population targets, which represent an agreement to balance population and job growth on a sub-county basis as directed by the 1990 state Growth Management Act. Bellevue's city-wide targets for the 20-year planning period beginning in 2002 are 10,117 additional housing units and 40,000 additional jobs. Bellevue has established that it has the zoning capacity to meet these targets and will focus most growth in the downtown.

A key policy is to adopt and maintain policies, codes, and land use patterns that promote walking in order to improve public health.

In addition, the Transportation Element of the Comprehensive Plan, Transportation and Land Use component, has stated goals "to implement a fully multimodal transportation system that supports the land use vision of the Comprehensive Plan and the role of Downtown Bellevue as the Eastside urban center" and "to reduce the use of single-occupant vehicles, by creating a land use pattern that allows for shorter vehicular trips and the use of alternative travel options," such as mixed use and smaller scaled site design.

2.12 Economic Policies and Profile

Economic Policy. The City of Bellevue and the Bellevue Chamber of Commerce are participants in the Regional Economic Strategy launched by the Puget Sound Regional Council in 2004. Also in 2004, the Bellevue City Council adopted an interest statement with a series of guiding principles for Bellevue's engagement in the Regional Economic Strategy. These principles are consistent with regional growth and investment plans such as *Vision 2020* and Destination 2030, which encourage employment and residential growth in centers.

Downtown Employer Profile: Sectors. According to the Planning and Community Development Department, the largest percentage of the downtown's existing 35,000 jobs—66 percent—are in the FIRES sector (Finance, Insurance, Real Estate, and other Services), In addition, the 2005 Bellevue Economic Profile has predicted that FIRES jobs will account for 70 percent of job growth between 2000 and 2020 (p. 55). This Profile indicates that the high-tech jobs (mainly in the FIRES sector) have been and will continue to be an important part of job growth downtown (p. 55). Retail is the next largest sector at 26 percent, followed by hotel at four percent and institutional (city government) at three percent.

Downtown Employer Profile: Size. The employer size profile largely favors small employers. Estimated percentages (source: 2005 Info USA data supplied by ESRI) are as follows:

Employer Size	Percentage of Employers	Percentage of Employees
1-4 employees	52%	13%
5-19 employees	38%	27%
Subtotal: 1-19 employees	***90%***	***40%***
20-49 employees	6%	14%
50-99 employees	2%	14%
Subtotal: 1-99 employees	***98%***	***68%***
100+ employees	2%	32%

2.13 Environmental Policies

The Comprehensive Plan's Environmental Element notes the need for transportation options that are less polluting, and thus does support transportation demand management. A related policy in this element is to "reduce automobile dependency by implementing growth management strategies that fully integrate land use and transportation planning, and continue to develop Downtown Bellevue as an Urban Center in order to improve regional air quality."

2.14 Housing Policies

The Comprehensive Plan housing element highlights the state Growth Management Act's (GMA) housing goal to encourage availability of affordable housing to all economic segments, as well as the GMA's requirement for Bellevue to absorb 10,117 new housing units by 2022. The limited supply of undeveloped, buildable residential land in the city is a significant constraint on absorbing these units, so most of this new housing will be concentrated in the downtown and in residential mixed-use areas such as Bel-Red. The city expects to accommodate 80 percent of its housing goal in the downtown.

The city's housing goal also includes targets for housing affordability. Some affordability and increased housing choice will be added through more varied housing types such as mixed use residential and downtown efficiency units. Bellevue's city code offers affordable housing incentives, such as increased density or height, for multifamily projects that include affordable units. Also, Bellevue is a member of A Regional Coalition of Housing (ARCH), an intergovernmental agency to promote low- and moderate-income housing in the Eastside. ARCH helps develop affordable housing programs, and the ARCH Housing Trust Fund helps create and preserve housing that serves low income households, including seniors and those with special housing needs.

***GTEC Support Gap**: The "centers strategy" of the regional* Vision 2020 *plan encourages employment and residential growth in centers as a key to enabling residents to live near their jobs. Some key statistics indicate this scenario has yet to occur in downtown:*

- *Only 39 percent of Bellevue's city-wide work force lives in Bellevue.*
- *Only 4 percent of downtown Commute Trip Reduction-affected employees live in the 98004 zip code, which encompasses downtown and surrounding neighborhoods.*
- *In a 2006 survey of downtown residents, 36 percent of residents indicated that they work in the downtown; however, 20 percent of respondents also indicated that they work at home.*
- *According to the 2000 census, 0.9 percent of downtown workers lived in the downtown. However, this figure represents an increase from 1990, when the figure was 0.3 percent.*

In order to decrease commute travel distances and address the GTEC goal of reducing vehicle miles traveled, the issue of housing affordability in Bellevue should be addressed more aggressively.

2.15 Building Requirements – Transportation Management Programs

Subsection 14.60.070 of the City Code, Transportation Management Program, states owners of property upon which new structural development is proposed that meets certain thresholds shall establish a transportation management program (TMP) prior to occupancy. In the downtown, the owner of a building with 50,000 gross square feet or more of office space shall institute a

TMP with the following elements relating to reducing drive-alone trips, to continue for the life of the building:

- Post information
- Distribute information
- Provide transportation coordinator
- Provide preferential parking (for carpools and vanpools)
- Provide financial incentive (for non-drive-alone commuting)
- Provide guaranteed ride home (for non-drive-alone commuters)
- Provide commuting options information boards for each tenant with 50 or more employees
- Provide leases in which the tenants are required to participate in periodic employee surveys
- Identify parking costs as a separate line item in leases and a minimum rate for monthly long-term parking that is not less than the cost of a current Metro two-zone pass
- Provide a personalized ridematching service for building employees to encourage carpool and vanpool formation

In addition, downtown TMPs include a performance goal of a 35 percent reduction in single-occupant vehicle rate by the eleventh year after issuance of the certificate of occupancy (CO). Property owners are required to conduct a survey and provide an evaluation report stating the owner's compliance with requirements one year after issuance of the CO and every two years thereafter. If the property owner fails to meet the performance goals, "the property owner shall prepare, submit to the city and implement an action plan to meet the performance goals within one year."

TMP Implementation. TransManage, the downtown transportation management association, implements the TMPs at ten out of the fourteen TMP-conditioned buildings in the downtown. In 2007 and 2008, the city will undertake an effort to enforce TMP reporting as needed and revisit the TMP code, which has not been revised since 1995.

GTEC Support Gap: *Transportation Management Programs, collectively, have not been fully utilized to support the city's transportation demand management efforts.*

2.16 Transportation Concurrency Regulations and Impact Fees

Concurrency. *Chapter 14.10 Traffic Standards Code* of the City Code sets forth standards that provide for the city's compliance with the concurrency requirements of the 1990 state Growth Management Act (GMA), which requires adequate street capacity to be in place concurrent with increased traffic generated by growth and development. Specifically, the city must enforce an ordinance precluding approval of a proposed development if that development would cause the level of service of a transportation facility to fall below the city's adopted standard.

Bellevue's approach is to establish standards by areas, called mobility management areas. Standards are tailored by area based on the availability of transportation options and the city's goal to balance congestion management with land use objectives. The city uses an area-wide average of volume-to-capacity ratio over a two-hour peak period at key intersections (called "system intersections") to evaluate system adequacy. In addition to the area-wide volume-to-capacity ratio standard, each area has a "congestion limit" that limits how many system intersections can exceed the standard.

Development approval of a proposal (consisting of a development project plus mitigation, if any) is granted only if the traffic volume resulting from the proposal, plus background traffic, (1) would not cause an area to exceed the standard (or cause further degradation in an area that already exceeds the standard), and (2) would not cause the congestion limit to be exceeded in any area.

The Downtown mobility management area's borders matches the Downtown Subarea borders, and thus the GTEC borders. The Downtown's maximum acceptable average volume-to-capacity ratio for system intersections is 0.950. The Downtown (along with the Factoria and Overlake areas, which have the same standard) has a higher allowable volume-to-capacity ratio than other areas of the city. This is due to the availability of transit and other transportation options, as well as a willingness by the city to tolerate a higher level of congestion in order to provide for greater land use intensity.

Concurrency regulations have the potential to work against transportation demand management objectives. Mitigation is typically focused on roadway improvements that increase automobile capacity, thus encouraging increased automobile traffic. However, the city of Bellevue has addressed this by allowing mitigation to occur in the form of transportation demand management strategies at the discretion of the developer. Transportation demand management mitigation cannot be presumed to reduce the trips generated by more than 30 percent without an exception granted by the Transportation Director. (The transportation demand management mitigation option has yet to be exercised by a downtown developer.)

Impact Fees. *Chapter 22.16 Transportation Improvement Program,* of the City Code sets forth the city's program to charge transportation impact fees to developers to help pay for the portion of transportation improvement costs attributable to new development.

The impact fee schedule is developed by first calculating the percentage of projected p.m. peak-hour traffic attributable to development originating from or destined to each impact fee area, and then using the resulting percentage to allocate a proportionate share of the transportation cost attributable to development to each impact fee area. The sum of an area's fees is then divided by the number of p.m. peak-hour vehicle trips generated by development in the area to obtain an "average impact fee per trip." This average is adjusted for specific land use types to account for pass-by trips, average trip length, and expected levels of ridesharing and transit usage, and a schedule is thus developed for specific land uses within each area.

It is important to note that the estimate of trips generated by a downtown development (for concurrency regulations and impact fees) is factored downward as compared to the estimate of trips generated by the same land use in other parts of the city. This difference is built into the downtown trip generation factors. It reflects the greater availability of transit service and other non-drive-alone travel options in a downtown setting.

During Fall 2007, the city will be initiating a comprehensive evaluation of its impact fee system.

2.17 Employer Requirements

Chapter 14.40 Commute Trip Reduction of the City Code contains the city's regulations for implementing the state Commute Trip Reduction (CTR) law, passed in 1991 and updated in 1997 and in 2006. This law affects employers with 100 or more full-time employees scheduled

to arrive at work between 6:00 a.m. and 9:00 a.m. on two or more days per week. Since introduction of the law in 1991, single-occupant vehicle commute rates have declined from 77 percent in 1991 to 69 percent in 2001 at CTR-affected worksites citywide.

The city has approximately 60 CTR-affected sites as of 2007, 21 of which are located in the downtown. Approximately 19 percent of downtown employees work at CTR-affected worksites.

This chapter sets forth requirements for affected employers, which include designating a transportation coordinator, posting information, developing a program to meet certain trip reduction targets, conducting surveys, and reporting annually on progress. Employers must make “good-faith efforts” to meet the targets; this includes modifying their program if targets are not being met.

The city’s existing CTR Plan, which is closely related to this chapter, is currently being updated as directed by the 2006 update of the state CTR law called the CTR Efficiency Act. This revised law does not call for significant changes on the part of the employer beyond the establishment of new targets. However, the new law establishes a local-regional-state planning framework, including local CTR plans in regional transportation plans. The new law also creates increased jurisdiction accountability by setting area-wide targets that jurisdictions will be required to work toward in good faith.

3. Goals, Targets, and Performance Measures

3.1 Introduction

During GTEC Plan development, the City of Bellevue established a goal for reduction of the single-occupant vehicle (SOV) rate for downtown commuters. The goal established for this GTEC plan is to reduce the SOV rate for downtown commuters by 10 percent by 2011.

As required by state law, the goal is more aggressive than the goal mandated by the state Commute Trip Reduction (CTR) law for CTR-affected Bellevue employers. Ten percent is the same percent reduction that is required by the city's base CTR program, but for the Downtown Bellevue GTEC this percentage is applied to the entire downtown worker population, not just CTR employees. (A ten percent reduction in SOV trips for just the CTR-affected employees would result in approximately 1,000 trips reduced, in comparison with 5,000 trips reduced with a ten percent SOV reduction for all downtown employees.) The primary goal and measurement will be based on downtown workers, but downtown resident trip reduction may be assessed in some way as well.

3.2 Baseline Target Measurement

The city established the 2005 City of Bellevue Mode Share Survey as the source of baseline data for the GTEC. This survey involved collecting sample data in fall 2005 from employees at worksites with less than 100 employees and combining it with the most recent commute survey data from large worksites through the state Commute Trip Reduction program. The Mode Share Survey is conducted every two to three years in five major employment centers in the city, including the downtown. Downtown results in 2005 were as follows:

Drove Alone:	71%
Bus:	14%
Carpool:	10%
Walk:	2%
Telework:	2%
Vanpool:	1%
Bike:	1%
Compressed Schedule:	<1%
Other:	1%

Thus the baseline SOV rate for the Downtown Bellevue GTEC is established at 71 percent. This 2005 figure is the best available and most current baseline mode share figure, given the timing of GTEC plan development in 2007 and implementation beginning in 2008.

3.3 Target Development and Final Target

According to the city's Planning and Community Development Department, the number of downtown workers in 2007 (the year this GTEC plan was developed) is estimated at 35,000, and the number of downtown workers for 2012 is projected to be 44,000. This constitutes 1,800 additional workers on average per year, which equates to 42,200 total workers in 2011.

In assigning a baseline 71 percent single-occupant vehicle (SOV) rate to 2007, and applying SOV percentages to each year's employment number, the following percentages and absolute target numbers are calculated. **Only the final 2011 number is considered the official target; intervening years are provided for purposes of tracking.** Using 2007 as the beginning year presumes that some trip reduction will occur from 2007 to 2008, based on the city's existing transportation demand management (TDM) programs and activities in gearing up for the GTEC, including a new city TDM brand and website launch.

Year	Measure-ment Type	Number of Workers*	SOV Percentage (Based on 10% Reduction by 2011)	SOV Number (Based on SOV Percentage)	Non-SOV Number (Remainder)	Additional Non-SOV Commuters (Difference from Following Year)
2007	Baseline	35,000	71.00%	24,850	10,150	1,175
2008	Tracking	36,800	69.23%	25,475	11,325	1,239
2009	Tracking	38,600	67.45%	26,036	12,564	1,303
2010	Tracking	40,400	65.68%	26,533	13,867	1,367
2011	**Target**	**42,200**	**63.90%**	**26,966**	**15,234**	**Total: 5,084**

*The first figure is a 2007 estimate; the remaining figures are even gradations from 2007 to the 2012 forecast of 44,000.

3.4 Relationship of GTEC Goal to Other City Mode Share Goals and Assumptions

In developing the GTEC goal, city staff looked at other mode share measurements that have been adopted or used as assumptions for adopted plans.

The Comprehensive Plan has a goal of a non-single-occupant vehicle (non-SOV) rate of 40 percent by 2005. If SOV reduction were to occur at the same rate as established by this GTEC target—10 percent every four years—the Comprehensive Plan goal would be reached by 2014. The downtown Comprehensive Plan mode share goal was originally established in the early 1990s and will be revisited in the future.

The city's Downtown Implementation Plan update, adopted in 2003, utilized a non-SOV mode share *assumption* of 49 percent in 2020 for the traffic modeling analysis; the final adopted roadway network for this 2003 plan was based on this mode share assumption. The GTEC target methodology, when extended to 2020 at the same rate of reduction, results in a very similar mode share number of 50.47 percent by 2020.

4. Strategies

Strategies for the GTEC plan encompass the full range of aspects that can affect trip reduction: marketing and outreach; plans and policies; and transportation services and infrastructure.

4.1 Marketing, Incentives, and Commute Services to Support Non-Drive-Alone Commuting

Background for GTEC: Recent Downtown TDM Programs and Activities

The city has applied its resources to TDM efforts since the early 1990s. Over the last several years in particular, TDM initiatives undertaken by the city and its partners have set the stage for the downtown GTEC plan.

TMA Opportunities Study. An underlying need was identified to develop a stronger downtown Transportation Management Association (TMA) to serve as a private sector transportation advocate and resource. In 2005 the city of Bellevue and the Bellevue Downtown Association commissioned a Bellevue TMA Opportunities Study. The purpose was to strengthen and develop a strategic plan for the existing TMA, "TransManage," which is an arm of the Bellevue Downtown Association. In 2005, the TMA consisted of one staff person administering downtown building Transportation Management Programs. Subsequent to this study, two TransManage staff persons were hired and a three-way "TMA Partnership" created—Bellevue Downtown Association TransManage, the city of Bellevue, and King County Metro Market Development.

Downtown Market Development Project. The Partnership soon embarked on a Downtown Transportation Demand Management Market Development Project. The first step was to better understand the downtown TDM market. A downtown TDM Market Analysis, completed in 2006, helped identify the target audience and where to focus TDM efforts. It found a relatively low awareness of transportation demand management options among smaller employers.

Two additional Market Development Project initiatives were defined to reach this audience and round out the downtown TDM program, and are anticipated to continue into the GTEC time frame:

- A Building Trip Reduction Program, which takes a building-centered approach to reaching small employers, is being scoped and marketed to property managers; and
- *In Motion*, a residential-based trip reduction program, which commenced in fall 2006, is continuing with ongoing incentives and recruiting of residential building "champions."

Other TMA Partnership Projects. The TMA Partnership also identified the need for a City of Bellevue TDM brand identity and website update (under way by the city in 2007) and a Transit Route Promotion (to be undertaken by King County Metro in 2008). Other work by the city and TransManage will include strengthening reporting of building Transportation Management Program requirements. These activities span the city but also constitute major components of the city's downtown TDM strategy.

GTEC Target Populations

The Downtown Bellevue GTEC, while addressing the entire downtown, will focus largely on the following populations:

- Employees who commute primarily during peak hours, especially those who work for smaller employers (<100 employees)
- Employers, to assist with setting up and providing commute benefits and as a way to reach employees, especially smaller employers (<100 employees)
- Property Managers, as a conduit for reaching smaller employers and their employees

Smaller employers are prevalent in the downtown—98 percent of downtown employers have fewer than 100 employees, and 90 percent have fewer than 20 employees. The downtown TDM Market Analysis found that smaller employers lack awareness of non-drive-alone transportation options. Employers with fewer than 100 employees are not affected by the state Commute Trip Reduction program, and although some are provided services through their building's Transportation Management Programs, many are not well served or reached by current trip reduction efforts.

Secondary target populations are retail and hospitality employees and residents. The retail and hospitality sectors comprise a significant percentage of downtown employers (30 percent). The GTEC does provide resources for these employees, but fewer than for the primary population audience, since less of their travel occurs at peak hours. Focusing trip reduction efforts on peak-hour trips will achieve more benefit to the transportation system, because this is when travel delay is the greatest. The residential population, while significant and growing, is smaller than the worker population and is thus less of a focus.

GTEC Approach

The GTEC approach has been carefully tailored to the Downtown Bellevue market in order to bring about a successful plan. GTEC Project Team and TMA Partnership members worked to develop a strategy approach that will focus on the target audience and reach secondary audiences as well. For these audiences, members brainstormed and researched ideal ways to (1) provide valuable products and programs; (2) make known available travel options, products and programs; (3) provide incentives to try new products or approaches; and (4) be available for assistance. It was decided to promote these activities to small employers under a portfolio of options with a brand name. The resulting menu of strategies is shown in Tables 4-1 through 4-5.

The existing three-way TMA Partnership framework will continue to operate, since the various partners comprise a beneficial mix of resources. The City of Bellevue commits resources and staff time to trip reduction efforts; TransManage, as a non-government agency, serves as a private sector provider and conduit to promote the benefits of trip reduction; and King County Market Development provides funding (from federal grants) and expertise in products and optimal marketing approaches.

The Partnership's approach continues to be to research and understand the market prior to implementing a strategy or product, and evaluate the effectiveness of strategies and products, so that lessons learned can be applied to new efforts. Therefore, strategies also include research efforts such as focus groups. This approach also means that specific strategies will be selected from the menu of GTEC items and programmed in short-term increments such as six months to one year.

In addition, the downtown-related construction mitigation program for the Washington State Department of Transportation project to widen I-405 from 112th Avenue SE to SE 8th Street (currently under construction) is a GTEC plan element. These construction mitigation funds are programmed to support the development of GTEC-identified audiences. Mitigation activities in the downtown, implemented by the TMA Partnership, will entail a downtown FlexPass/employer outreach campaign and downtown hospitality employer/employee outreach. The FlexPass/employer outreach campaign focuses efforts on the smaller employers, the major target audience for the GTEC. The hospitality campaign addresses a large population of downtown employers and employees, which is also a target audience for the GTEC. Integrating the I-405 construction mitigation activities into the GTEC plan leverages the I-405 funds to create a viable foundation for the implementation of the full GTEC program.

Marketing, Incentive, and Commute Service Strategies

A comprehensive package of marketing, incentive, and commute service strategies has been assembled for the downtown audience in order to provide services, raise awareness, and make it more economical, more enticing, or easier to try a new mode.

Three key points of emphasis define these strategies. The first is an emphasis on reaching small employers, as justified by the 2006 Downtown Market Analysis. Second, the FlexPass (or comparable future product), described below under *Product Subsidies and Discounts*, is seen as a key product with remaining market potential, especially for small employers. Third, carpooling (and secondarily, vanpooling) will be emphasized as a potentially untapped mode with room for expansion, especially given the possible constraints of transit's ability to absorb a substantial portion of the shift to non-drive-alone modes sought under the GTEC target.

System-wide, the number of peak-hour round trip transit seats available for new commuters to Downtown Bellevue in 2011 has been estimated at approximately 2,300. The GTEC targets reducing approximately 5,000 SOV commuters. Since the current transit system can only accommodate about half of these commuters, many commuters will need to choose a mode other than transit in order for the GTEC goal to be met.

Specific marketing, incentive, and commute service strategies, as well as partner roles and responsibilities, are shown in Tables 4-1 through 4-5. These strategies are categorized into five groups: Product Subsidies and Discounts; Services and Education; Incentives and Awards; Marketing and Promotions; and Market Research. To show that much of this program of strategies has been designed with small employers in mind, strategies that will be promoted heavily to small employers/employees are shaded (note that strategies will be available to all employers and employees regardless of employer size).

Product Subsidies and Discounts. This category contains basic products that support trip reduction efforts to be made available with discounts subsidized by the GTEC. The FlexPass product, in particular, is a key element of the GTEC. The FlexPass is a product available to employers for their employees that provides unlimited rides on Metro bus and Sound Transit. Employers pay based on estimated number of rides taken by their employees. The FlexPass has been shown to increase transit ridership and is offered through the GTEC to employers at a discount level as a cornerstone tool for reducing employees' drive-alone trips. The Home Free Guarantee product is also important for providing assurance to employees that they have a way to travel in case of emergency.

Table 4-1. Product Subsidies and Discounts

Strategy	*Roles/Stakeholders*
***FlexPass Discount Incentive (for employers)**: Offer a special price on a FlexPass with a greater-than-normal discount for new or all Area FlexPass customers. Provide a discount in both the first and second years. This will result in a more gradual increase in the cost to the employer over the first three years. *Note: The FlexPass may be replaced with a comparable product following implementation of the Smart Card fare payment system.*	Source of funds: Initially, WSDOT mitigation funds; once this funding stream ends, the cost would be backfilled with GTEC funds. County and TransManage: Administer
Home Free Guarantee: Provide free taxi ride in case of emergency for downtown employees through King County Metro's existing program (pooling the risk). Perhaps have employers contribute a match; assumption is 25%.	County to administer through existing program

*Note: Shaded strategies will be heavily promoted to small employers and/or their employees as a portfolio of options under a brand name.

Services and Education. This category comprises activities the city and its partners will offer in order to assist employers, employees, and property managers navigate the world of non-drive-alone commuting. The 2006 Market Analysis showed that small employer awareness of products, and even of commuting habits of their own employees, was fairly low. Therefore, these strategies are key to raising awareness and assisting the various audiences with services in setting up their programs. In particular, carpool ridematching services (and, secondarily, vanpool) are a cornerstone of the GTEC strategy, which is to promote these modes based on their advantages and room to grow in this market and the limits to how many new riders the transit system can absorb.

Table 4-2. Services and Education

Strategy	*Roles/Stakeholders*
***Rideshare Programs and Services:** Focus on implementing RideshareOnline.com ridematching tool for carpool, commuter van, and custom bus services as a daily mode and as a complement to other modes. In addition, for carpools, create a Carpool Management Program to register carpoolers, track participation, and interact with users.	County: Design and manage Carpool Management Program. Staff for outreach events, program material inventory, signage, and reporting City: Partner advocate TransManage: Local leadership and liaison into employment sites (existing and in development)
***Employer Commute Consulting Services:** Provide free commute consulting services for downtown employers with 99 or fewer employees. Tie in with branded portfolio of small employer programs in how the offer is presented. Steps include mailing a letter/ brochure, following up with phone calls, offering to meet, and helping to develop program.	City: Program design, with TransManage input; mailing TransManage: Remainder
***TransManage Storefront/Individualized Commute Planning Services:** Set up a storefront at a downtown location near the Transit Center, such as the Rider Services Building. Activities would include pass sales and free personal assistance in commute planning, covering all non-SOV modes, geared toward individual needs.	Promotion and implementation to be done by TransManage.
***Employer/Employee Newsletter:** Create and distribute a periodic (such as quarterly) newsletter, electronically and in hard copy, with stories to personalize commute experiences, interviews, promotion information, ridesharing/Flexcar partners sought, etc. Distribute to small employers and their employees downtown.	TransManage to produce; other agencies give input as appropriate.
***Workshops – How to start a commute benefit program:** Offer annual free workshop for employers on how to start an employee commute benefit program, timed with annual Employer Commute Consulting Services outreach (described above).	City: Mailing/web/email notices Trans-Manage to conduct workshop
***Workshops – How to get more out of your existing FlexPass:** Offer free annual workshop for employers on how to get more out of your existing FlexPass, and what to expect for your renewal.	City: Mailing/web/email notices Trans-Manage to conduct workshop

Table 4-2. Services and Education (cont.)

Strategy	*Roles/Stakeholders*
***Zip Code Workshops/Events:** Conduct zip code workshops/events on a quarterly basis, inviting residents of several different zip codes per month. Events would be open to all downtown employees and promoted especially to employees of small employers. Staff will present and explain the various travel options, and individuals can meet others in their zip code in order to find carpooling and vanpooling partners. Could be tied into the small employer portfolio brand.	TransManage to design workshops, with input from County and City. TransManage to conduct workshops.
***Enhanced Flexcar Services:** Set up a special "employer matchmaking" program so that employers can get together and pool their resources to pay up-front guarantee required to initiate a Flexcar, thus lowering the cost for each participating employer. Include production of a map showing where within Bellevue Flexcars are located; assess Flexcar locations and work with Flexcar to locate optimally.	Promotion: Ongoing, all agencies, embedded in other promotions List development and maintenance: TransManage Matching Services: Trans-Manage
***Voluntary CTR Site Designation:** Allow certain worksites to become voluntary CTR sites. Voluntary CTR employers would become listed with the State as part of the city's CTR site count. They would take part in surveys, submit program reports and have them reviewed, and be eligible to receive assistance and feedback with planning their commute programs.	Funding: State CTR funds allocated for voluntary sites, backfilled with state GTEC implementation funds as needed. Provide Services: County or TransManage
***Transportation Management Program (TMP) Education:** Work with property managers of TMP buildings on an ongoing basis to make them more aware of their TMP activities and the services that the BDA is providing. Communications should include activities they are currently doing, what is required, and what they need to do that they are not doing. The existence of a legal obligation to perform certain activities can help to make them happen, once they are informed. The strategy to update the TMP code will require further interaction to ensure they are meeting their obligations.	TransManage to do hands-on ongoing communication; paid for building with TMP revenues. City to conduct update of TMP code and perform associated communications with property managers.
Telework Assistance: Use recognition as a Bellevue Leaders Telework category to encourage promotion of this option. Webinar orientation and toolkit development.	City: Integrate into brand/ web efforts. County: Mail letters and CTR employer follow-up. TransManage: Non-CTR employer follow-up.
Welcome Activities: Educate residents, employees, and employers about travel options as they move into Bellevue through toolkits and events and materials such as a walking map.	County: Staffing for events, transit and ridesharing collateral, funding City: Contribute collateral, map development, funding TransManage/Bell. Econ. Partnership: Organize and staff events, contribute TransManage event collateral, delivery of packets, fare media sales

*Note: Shaded strategies will be heavily promoted to small employers and/or their employees as a portfolio of options under a brand name.

Incentives and Rewards. Financial incentives and other rewards are key to making it both economical and enticing for employers and individuals to try something new. There is some overlap with the FlexPass product listed in Table 4-1.

Table 4-3. Incentives and Rewards

Strategy	*Roles/Stakeholders*
***FlexPass Discount Incentive**: See Table 4-1.	
***Carpool Incentives**: Using the new Carpool Management System tool (described in Table 4-2 under Rideshare Programs and Services), and as part of I-405 mitigation program, offer a financial incentive to participle in a demonstration project and help achieve planned trip reductions on I-405. Additional carpool incentives or encouragement of employers to provide carpool subsidies to continue following I-405 program.	County lead and funding contribution. State - initial funding via I-405 mitigation program. City – Input on program design for continuation following I-405 program.
***Commute Club:** Create an online commuter club open to all Downtown residents and employees who state that they currently drive alone. Members log non-SOV commute trips, and when they reach a certain threshold they are eligible to receive a modest prize such as a $50 gift card. Consider annual re-eligibility.	Promotion & signups: TransManage and City Monitoring of calendars & award distribution: City or County, depending on which agency hosts the commute calendar.
***Individual Parking Cash-Out:** Offer parking cash-out to individuals. This strategy would be feasible where tenants pay only for the actual parking spaces they use each month. Employers would be required to enroll in the program prior to their employees being eligible. The program would subsidize a three-month trial period during which an individual would give up their space in return for a transit subsidy and additional cash or gift card incentive. Following the three-month trial period, the employee could choose to permanently give up their parking space in return for a transit pass provided by the employer.	TransManage to promote and sign up individuals. City to handle financial administration.
***Recognition:** Provide employer recognition for outstanding trip reduction efforts; potential venue would be to regularly designate an "Employer of the Quarter" in the employer newsletter. Include a small article that tells the employer's story – what they do, how, and why.	Setup of evaluation criteria: All agencies Implementation: TransManage
In Motion, Phase II: Resident-based trip reduction program offering travel option information and incentives. For Phase II, target new residential units coming on board in 2008-09 and "near-in" residents to downtown	County lead & funding contribution City funding contribution

*Note: Shaded strategies will be heavily promoted to small employers and/or their employees as a portfolio of options under a brand name.

Marketing and Promotions. In order to raise awareness as called for by the Market Analysis, as well as to increase utilization of products and services offered, the following marketing and promotional activities are included in the GTEC.

Table 4-4. Marketing and Promotions

Strategy	*Roles/Stakeholders*
Building-Centered Options: Engage property managers in outreach efforts designed to improve non-drive-alone mode share in their buildings by going above and beyond Transportation Management Program requirements. Tailor incentives according to unique needs of building. Develop relationships with property managers that allow information to be distributed, both electronically and in hard copy, and that allow access/presence in buildings—this program utilizes the property manager as a conduit for communicating with individual tenants and employees in a building.	City-County funding agreement to share costs (30% city, 70% county pass-through federal grant). City agreement with Trans-Manage for labor. TransManage to develop relationships with property managers, communicate with tenants and employees, and enter buildings to perform in-person outreach on an ongoing basis.
FlexPass Mailing/Promotion: Promote Area FlexPass program in Downtown and Greater Bellevue to increase sales and transit/HOV ridership through quarterly mailings, promotion at existing events, and city web integration. (See crossover opportunities with I-405 mitigation incentive programs and small employer workshops.)	City: Contracts County: Staff at events, materials TransManage: Lead for outreach (labor)

Table 4-4. Marketing and Promotions, cont.

Strategy	Roles/Stakeholders
Transit Promotion: Increase transit ridership on particular routes using a variety of strategies such as: • Identifying routes with good ridership potential • Mailing materials to surrounding ridership sheds • Providing incentives such as free ride tickets • Promoting service through employers and other networks • Improving signage along a corridor • Developing maps and/or interactive online tools showing route destinations	City lead County and TransManage: Program development support
Communications: Ongoing communication of city's new transportation demand management brand identity and website, developed in 2007. This is a city-wide activity being leveraged as a GTEC tool.	TransManage to perform work under contract with city.
Social Marketing: Use social marketing as a methodology in all efforts and develop distinct campaigns as strategies to target audience segments. This is an ongoing concept that is incorporated into other strategies such as the In Motion residential trip reduction program. In addition, this strategy includes the Partners in Transit program, which is a partnership with a member-based organization to launch a member-based drive-less campaign.	City: Integrate into brand/ web efforts County: Lead for Partners in Transit
I-405 Mitigation: Promotion of TDM programs to mitigate impact of I-405 construction through Bellevue. Specific activities are **Downtown Area FlexPass campaign** (listed above as separate GTEC strategy) and **outreach to workers in the hospitality industry**. Other activities: **vanpool relocation** and **neighborhood In Motion** (residential trip reduction program).	County lead

Market Research. Market research is included in the GTEC in order to ensure that products are suited to the audiences and that strategies continue to reach the appropriate market in an effective way.

Table 4-5. Market Research

Strategy	Roles/Stakeholders
Expansion of Mode Share Survey: Expand the Mode Share Survey to collect more information from employees of small employers. The online version of the state survey instrument can now be customized. Expand questions in order to better identify levels of awareness, deterrents to non-drive-alone travel, and what would motivate employees of small employers to switch from driving alone.	City-hired consultant to conduct survey
Small Employer Focus Groups: Use employer focus groups to test potential product adjustments and messages; monitor success of small employer program.	City lead, consultant City and County assist in design TransManage: advisory, outreach to participants

4.2 Plans Policies, and Regulations

Gaps in Existing Plans and Policies

Existing city and regional plans provide broad support for transportation demand management in general and the Downtown Bellevue GTEC Plan in particular. For the City of Bellevue, the GTEC is primarily a coordinating tool for activities already supported by the Comprehensive Plan.

The GTEC gap analysis identified a Comprehensive Plan policy gap in Chapter 2, which is repeated below:

The Transportation Demand Management component of the Comprehensive Plan does not include environmental considerations as one of the purposes of reducing the use of single-occupant vehicles. The Comprehensive Plan does connect transportation demand management with the environment in the Environmental Element, which has a policy for working with the private sector to reduce growth in vehicle trips (Policy EN-79). Therefore, this not a fundamental policy gap but rather a gap in where policy language is placed.

This GTEC plan recommends that the city align this language during future comprehensive plan updates.

Related Strategies

This GTEC Plan does include the following strategies that may result in changes or additions to the city's plans, policies, and regulations during the GTEC time frame. These strategies are slated to occur during 2008 (TMP update) and 2009-2010 (parking issues inventory), after which time the city may follow up with consideration of plan, policy, or regulatory changes as appropriate.

Table 4-6. Plan, Policy, and Regulation Strategies

Strategy	*Roles/Stakeholders*
Parking Issues Inventory: Catalog issues and barriers related to parking for non-drive-alone commuters.	City lead, consultant
Transportation Management Program (TMP) Update: Improve collection of required building TMP reports; revisit the city's TMP code. This revision will likely consider the provision of bicycle amenities.	City lead; BDA support, outreach

4.3 Services and Facilities

Transportation Infrastructure Improvements

The city's six-year funded 2007-2013 Capital Investment Program contains the following pedestrian and bicycle infrastructure projects serving the downtown that will be completed or under way during the GTEC time frame.

- ***PW-R-133, Northup Way – 120th to 124th Avenues NE*** – Complete portions of curb/gutter/sidewalk where missing as part of roadway widening project. (Anticipated completion: 2011.)
- ***PW-W/B-71, 108th Avenue SE/Bellevue Way to I-90*** – Add five-foot bike lanes on both sides and curb, gutter and six-foot sidewalk on one side where missing. (Anticipated completion: 2012.)
- ***PW-W/B-73, NE 8th Street/Lake Washington Blvd to 96th Ave NE*** – Design and construct curb, gutter, five-foot sidewalk, and three-foot planter strip where missing on the north side, bus pads, and an updated signal system at NE 8th/92nd. (Anticipated completion: 2013.)

To address needed pedestrian and bicycle facilities, loading/unloading facilities (to support carpooling and vanpooling), and issues regarding pedestrian wait times at signals, staff will work

within city Transportation or Planning and Community Development Departments; work through the city's Capital Investment Program; or seek outside funding as appropriate.

In addition, the city will continue to provide pedestrian and bicycle improvements via roadway and developer construction projects. For example, the roadway project on NE 8th Street from 106th to 108th Avenues NE, currently under design, will include sidewalk improvements when completed. The full pedestrian facility meeting arterial standards will be completed when the block is developed, likely to be after the GTEC time frame. The NE 2nd Street project from Bellevue Way to 112th Avenue NE, currently under pre-design, will include pedestrian enhancements. The Great Streets conceptual design plan under way will reinforce desired identities of particular streets, leading to more aesthetically pleasing and pedestrian-friendly corridors. Public art and wayfinding efforts are currently under way in the downtown to help add interest and legibility to walkways, and unbuilt sidewalks will be completed as developer or roadway improvements are done.

Transit Service and Infrastructure Improvements

- An estimated 2,300 peak-hour round trip seats are available for new downtown riders through 2011, based on analysis performed by the city for the Downtown Bellevue GTEC. This is only about half of the 5,000 commuters that are targeted to shift from driving alone in this GTEC plan (see Chapter 3). As an ongoing staff activity, the city will continue to work in close coordination with transit providers to monitor and evaluate service adequacy; identify new routes or route modifications needed; and generally advocate for sufficient transit service to meet the needs of the downtown GTEC. The city will also work with the Washington State Department of Transportation to advocate for HOV facilities on the state system.
- The city has programmed $1 million in its Six-Year Capital Investment Program to identify ways to provide downtown transit circulation, and fund a downtown circulator as a standalone service. A potential alternative, if a dedicated circulator fails to pencil out, would be changes to existing bus routes to provide more comprehensive transit circulation in the downtown. Pending a positive decision from Council, the city intends to apply for Service Partnership funding in fall 2007 under King County Metro's Transit Now measure, approved by voters in November 2006. The $1 million in city funds would provide a one-third local match for the Partnership funds.

4.4 Timing Plan for Strategies

Table 4-7 shows a plan for when the Downtown Bellevue GTEC strategies would occur.

Table 4-7. Timing Plan for Strategies

Strategy Category	*2008*	*2009*	*2010*	*2011*
Product Subsidies and Discounts	FlexPass Discount Incentive Home-Free Guarantee	FlexPass Discount Incentive Home-Free Guarantee	FlexPass Discount Incentive Home-Free Guarantee	FlexPass Discount Incentive Home-Free Guarantee

Table 4-7. Timing Plan for Strategies, cont.

Strategy Category	2008	2009	2010	2011
Services and Education	Rideshare Programs Commute Consulting Services Storefront Newsletter (est. Quarterly) Workshops (est. Annually) Zip Code Events Enhanced Flexcar Services Welcome Activities Voluntary CTR Site Designation TMP Education	Rideshare Programs Commute Consulting Services Storefront Newsletter (est. Quarterly) Workshops (est. Annually) Zip Code Events Enhanced Flexcar Services Telework Welcome Activities Voluntary CTR Site Designation TMP Education	Rideshare Programs Commute Consulting Services Storefront Newsletter (est. Quarterly) Workshops (est. Annually) Zip Code Events Enhanced Flexcar Services Telework Welcome Activities Voluntary CTR Site Designation TMP Education	Rideshare Programs Commute Consulting Services Storefront Newsletter (est. Quarterly) Workshops (est. Annually) Zip Code Events Enhanced Flexcar Services Telework Welcome Activities Voluntary CTR Site Designation TMP Education
Incentives and Rewards	FlexPass Discount Incentive Carpool Incentives Recognition (Newsletter) In Motion Residential Trip Reduction Program	FlexPass Discount Incentive Carpool Incentives Commute Club Individual Parking Cash-Out Recognition (Newsletter) In Motion Residential Trip Reduction Program	FlexPass Discount Incentive Carpool Incentives Commute Club Individual Parking Cash-Out Recognition (Newsletter)	FlexPass Discount Incentive Carpool Incentives Commute Club Individual Parking Cash-Out Recognition (Newsletter)

Table 4-7. Timing Plan for Strategies, cont.

Strategy Category	*2008*	*2009*	*2010*	*2011*
Marketing and Promotions	Building-Centered Options FlexPass Mailing/ Promotion (est. Quarterly) Transit Promotion Communications - Launch of new city brand/website for transportation demand management I-405 Mitigation	Building-Centered Options FlexPass Mailing/ Promotion (est. Quarterly)	Building-Centered Options FlexPass Mailing/ Promotion (est. Quarterly) Social Marketing – Partners in Transit	Building-Centered Options FlexPass Mailing/ Promotion (est. Quarterly) Social Marketing – Partners in Transit
Market Research	Expansion of Mode Share Survey	Small Employer Focus Groups		Expansion of Mode Share Survey Small Employer Focus Groups
Plan, Policy and Regulation Strategies	TMP Update	Parking Issues Inventory	Parking Issues Inventory	

5. Financial Plan

5.1 Revenue Sources

The City of Bellevue prepared a financial analysis to identify revenues and expenses that are associated with the Downtown Bellevue GTEC Plan. The following is a description of the funding sources that are anticipated to be available for the GTEC from the beginning of 2008 through the end of 2011. The totals below are not committed funds but rather planned revenue sources over the course of the GTEC.

The construction mitigation program for the Washington State Department of Transportation widening project on I-405 from 112th Avenue SE to SE 8th Street is a GTEC plan element. The funds indicated as GTEC revenue have been programmed specifically for GTEC-identified activities: a downtown FlexPass/employer outreach campaign and downtown hospitality employer/employee outreach.

Table 5-1. GTEC Revenue Sources, 2008-2011

Source of Funding	*Responsible Agency*	*Estimated Amount*
GTEC Grants	WSDOT	$600,000
Anticipated Federal Congestion Mitigation and Air Quality Funds	Puget Sound Regional Council, via King County Metro	$320,000
Local Capital Investment Program (PW-R-87, Transportation Demand Management)	City of Bellevue	$197,000
Local Capital Investment Program (PW-R-157, Transit Now/Downtown Circulator)	City of Bellevue	$1,000,000
Transit Now – Partnership Funds for Downtown Circulator	King County Metro	$2,000,000
I-405 Construction Mitigation Funds	WSDOT	$265,000
TOTAL		**$4,382,000**

5.2 Program Funding Plan

The following table presents the Downtown Bellevue GTEC sustainable financial plan for funding of GTEC strategies in balance with available revenue shown in Table 5-1. This is a funding plan, not a budget, and is based on anticipated expenditures, not exact costs. Budgets are subject to change, and funds may be shifted among strategies during implementation once actual costs are known. Strategies may be tailored to available budgets or delayed as necessary to fit within the budget, in order to sustain GTEC implementation. If revenues were to be lower than expected, the city would consider seeking outside funding such as Trip Reduction Performance Program funds or other grants.

Administrative costs attributable to the GTEC are anticipated to be relatively low. State GTEC funds will represent a 35 percent budget increase to the city's transportation demand management program, which is staffed by 1.7 full-time equivalent planners. The primary

administrative function is managing service contracts with project partners to develop, deliver, and evaluate programs.

Table 5-2. GTEC Program Funding Plan, 2008-2011

Strategy	*Anticipated Timing*	*Anticipated GTEC Budget 2008-2011*
PRODUCT SUBSIDIES AND DISCOUNTS		
FlexPass Discount Incentive	Ongoing	$200,000
Home Free Guarantee	Ongoing	$9,000
		$209,000
SERVICES AND EDUCATION		
Rideshare Program Support	Ongoing	$20,000
Employer Commute Consulting Services	Annual	$20,000
TransManage Storefront/Individualized Commute Planning Services	Late 2008-2011	$40,000
Employer/Employee Newsletter	Quarterly	$60,000
Annual Workshops: How to start a commute benefit program	Annual	$3,000
Annual Workshops: How to get more from your existing FlexPass	Annual	$3,000
Zip Code Workshops/Events	Quarterly	$30,000
Flexcar Employer Matchmaking Service	Ongoing	$10,000
Welcome Activities	Ongoing	$40,000
TMP Education (incorporate into existing activities)	Ongoing	$0
Voluntary CTR Site Designation	Ongoing	$5,000
Telework	2009-2011	$50,000
		$281,000
INCENTIVES AND REWARDS		
FlexPass Discount Incentive (shown above under Product Subsidies and Discounts)	Ongoing	See above
Carpool Incentives	Ongoing	$75,000
Commute Club	2009-2011	$70,000

Table 5-2. GTEC Program Funding Plan, 2008-2011 cont.

Strategy	*Anticipated Timing*	*Anticipated GTEC Budget 2008-2011*
Individual Parking Cash-Out	2009-2011	$20,000
Recognition Geared Toward Small Employers (incorporate into newsletter)	Annual	$0
In Motion II (Preparation and Implementation)	Ongoing	$44,000
		$209,000
MARKETING AND PROMOTIONS		
Building-Centered Options	Ongoing	$180,000
Area FlexPass Mailing/Promotion	Quarterly	$150,000
Transit Promotion	2008	$70,000
Social Marketing (Partners in Transit)	2010	$25,000
I-405 Mitigation - Hospitality Outreach	2008	$50,000
		$475,000
MARKET RESEARCH		
Expansion of Mode Share Survey	2008 & 2011	$5,000
Small Employer Focus Groups	2009 & 2011	$20,000
		$25,000
PLAN, POLICY, AND REGULATION STRATEGIES		
TMP Update	2008	$98,000
Parking Issues Inventory	2009-2010	$50,000
		$148,000
TRANSIT ENHANCEMENT		
Downtown Transit Circulator		$3,000,000
		$3,000,000

Table 5-2. GTEC Program Funding Plan, 2008-2011 cont.

Strategy	*Anticipated Timing*	*Anticipated GTEC Budget 2008-2011*
PROGRAM ADMINISTRATION		
Contract management, program measurement, annual reporting, coordination meetings	Ongoing	$15,000
		$15,000
OTHER		
Other activities as identified	TBD	$20,000
		$20,000
GRAND TOTAL		**$4,382,000**

6. Organizational Structure for Implementing the Plan

To implement and administer the GTEC Plan, the city of Bellevue will work with its primary partners in transportation demand management, King County Metro and TransManage. This will continue a partnership that has been ongoing since 2005; the history of the partnership is described in Chapter 4, Strategies.

6.1 Partner Roles in Downtown Bellevue

The **City of Bellevue** implements transportation demand management measures in order to invest efficiently in its transportation system. As part of the Capital Investment Program, the city funds transportation demand management (TDM) activities in downtown and other parts of the city. This promotes efficient use of city resources by reducing the amount of roadway construction that is necessary, and allows for greater mobility as the downtown population increases. The city also coordinates activities with its TDM partners, TransManage and King County Metro.

TransManage is the transportation management association for Downtown Bellevue and is part of the Bellevue Downtown Association. TransManage works to develop and implement trip reduction programs, administers building transportation management programs (TMPs), and serves as a public and private sector liaison for the Bellevue community. In 2006, TransManage added staff to implement downtown “TMA Partnership Programs” with funds provided by the city and King County Metro (which passed through federal funds to the partnership). These partnership programs will continue under the GTEC plan.

TransManage operates in a unique role from the agency partners by working in close contact with downtown property managers, employers, employees, and residents. As a non-profit entity whose purpose is to assist the private sector as well as benefit the community as a whole, TransManage is in a good position to provide a public-private liaison to implement the downtown partnership programs. TransManage staff members have developed an understanding of the needs and concerns of their downtown clientele that can only be gained from daily face-to-face contact, and they contribute these insights to the partners, increasing the relevance of TDM activities for Bellevue.

In addition to providing transit service, **King County Metro** works to develop markets for transit, ridesharing, and other trip reduction programs in King County. As mentioned above, the King County Metro Market Development group provides federal funds to the partnership programs and technical expertise to the partners on how to reduce trips and increase the market share for non-drive-alone trips. King County Metro also implements ridesharing programs and services for implementing the state Commute Trip Reduction law.

6.2 Partner Roles and Timing for GTEC Implementation

In Chapter 4, Strategies, partner roles are identified for each of the proposed plan strategies. In general, the city of Bellevue coordinates the work of the partners and funnels city and other funds, typically federal grant funds (via King County Metro) to TransManage for labor. Thus TransManage provides direct interface with property managers, employers, employees, and

residents to implement downtown TDM programs. The three partners meet regularly to design, program, monitor, and fine-tune these activities.

As the GTEC Plan moves forward, the same partnership framework will generally apply. Certain activities will have begun prior to the start of the GTEC and will continue into the early part of the GTEC, such as the city's transportation demand management brand identity initiative and website update and associated campaign to launch it; the In Motion residential trip reduction program; and building options programs. Other activities have been identified that will begin during the GTEC years that are further customized to the downtown and reaching the small employer market in particular; these include newsletters, FlexPass promotions heavily marketed toward employers that don't currently have FlexPass, workshops, free commute program consulting services, and other activities to raise awareness and provide incentives. The majority of the strategies listed in Chapter 4 are anticipated to continue throughout the life of the GTEC under this partnership framework, with exceptions as noted in that chapter.

Note: The Public Outreach description is included in Chapter 1, Executive Summary, under the heading "Growth and Transportation Efficiency Center (GTEC) Planning Process."

7. Relationship of the GTEC Plan to the CTR Plan

The GTEC Plan is a customized trip reduction plan for the Downtown Bellevue employee and resident population. The City of Bellevue is also updating its Commute Trip Reduction (CTR) plan under state direction. The state's base CTR program directs trip reduction efforts specifically to CTR-affected worksites, generally those with 100 or more full-time employees scheduled to begin work between 6 and 9 a.m. on two or more workdays per week. (Almost 19 percent of downtown employees are CTR-affected.) The GTEC provides an opportunity to reach a broader population—employee and residential—than the base CTR program. Whereas the base CTR program has a prescribed framework of state-directed activities, the GTEC is—as intended—a customized program plan for Downtown Bellevue, with a set of strategies designed specifically to reach the remaining population not currently well served by trip reduction efforts, especially smaller employers and their employees, as well as residents.

There is some overlap in the GTEC and base CTR programs. Employer and employee offerings will be open to employers of all sizes and their employees, so CTR-affected employers and employees will be likely to participate in GTEC activities. Similarly, strategies that focus on transportation infrastructure and services help all those who travel to and within the downtown. The purpose of the GTEC is to focus resources beyond where they have been focused in the past. However, GTEC efforts will "raise the tide" for the whole downtown by adding commute services and travel options for the entire downtown community. This will help to improve mobility, access, and livability for the downtown, and to support greater efficiency of the street system and state-owned highways serving Bellevue and the region.

Appendix A:
GTEC-Supportive Comprehensive Plan Policies

Transportation Element – Transportation and Land Use Component	
TR-1	Integrate land use and transportation decisions to ensure that the transportation system supports the Comprehensive Plan Land Use vision.
TR-3	Support the Urban Centers growth strategy of the Countywide Planning Policies by directing growth to Urban Centers and the areas with existing infrastructure capacity.
TR-4	Ensure that downtown Bellevue, the major Urban Center of the Eastside, includes the following: 1. Intensity/density of land uses sufficient to support high-capacity transit; 2. Mixed uses for both day and night activities; 3. Pedestrian emphasis; and 4. Alternatives to single-occupant vehicles.
TR-5	Work with other jurisdictions to achieve a jobs/housing balance that makes it possible for people to live closer to where they work.
TR-6	Establish arterial level of service standards and other mobility targets in each area of the city in light of area-by-area development patterns and growth management objectives.
TR-7	Locate new community facilities near major transit routes and in areas convenient to pedestrians and bicyclists.
TR-8	Incorporate transit-supportive and pedestrian-friendly design features in new development through the development review process. Examples include: 1. Orient the major building entries to the street and closer to transit stops; 2. Avoid constructing large surface parking areas between the building frontage and the street; 3. Provide pedestrian pathways that minimize walking distances to activities and to transit stops; 4. Cluster major buildings within developments to improve pedestrian and transit access; 5. Provide weather protection such as covered walkways or arcades connecting buildings in major developments, and covered waiting areas for transit and ridesharing; 6. Design for pedestrian safety, including providing adequate lighting and paved, hazard-free surfaces; 7. Provide bicycle connections and secure bicycle parking and storage convenient to major transit facilities; 8. Use design features to create an attractive, interesting pedestrian environment that will stimulate pedestrian use; 9. Design transit access into large developments, considering bus lanes, stops, and shelters as part of project design; and 10. Encourage the availability of restrooms for public use.
Transportation Element – Transportation Demand Management Component	
TR-9	Coordinate with other Eastside jurisdictions, the private sector, and the transit providers to develop and implement uniform or compatible transportation demand management regulations and strategies that are consistent with and implement the state Commute Trip Reduction Act and address the following factors: 1. Parking; 2. Services to increase high-occupancy vehicle use; 3. Demand management program elements, including incentives; and 4. Reporting, monitoring, and performance evaluation standards.
TR-10	Require large employers to implement a commute trip reduction program for employees, as mandated by the Commute Trip Reduction Act. Evaluate program effectiveness every two years and, in coordination with other Eastside jurisdictions, lower the employer threshold if needed to achieve the city's goals of reducing use of single-occupant vehicles.
TR-11	Work with other jurisdictions in King County to establish and implement compatible programs to limit the supply of commuter parking for single-occupant vehicles. Consistent with the Countywide Planning Policies, introduce parking pricing techniques to discourage the use of single-occupant vehicles, such as: 1. Establish methods to charge for parking single-occupant vehicles; 2. Impose a parking tax, through state enabling legislation; and 3. Provide tax incentives and other credits to employers that eliminate employee parking subsidies.
TR-12	Encourage employers to help reduce peak-hour commute trips by facilitating employees' use of telecommuting, flexible work hours, compressed work week schedules, and other scheduling options.
TR-13	Continue to ensure that the city as an employer sets a positive example by maintaining a strong transportation demand management program for its employees.
TR-14	Require new development to incorporate physical features designed to promote use of alternatives to single-occupant vehicles, such as: 1. Preferential parking for carpools and vanpools; 2. Special loading and unloading facilities for carpools and vanpools; 3. Transit facilities, including comfortable bus stops and waiting areas, adequate turning room, and where appropriate, signal preemption and queue-jump lanes; and 4. Bicycle parking and related facilities.
TR-15	Encourage major employers and the developers of major employment facilities to provide child care opportunities onsite or nearby.
TR-16	Encourage private developers of adjacent or nearby properties to execute agreements to provide joint use and funding of shared parking facilities, with provision for pedestrian linkages.

TR-17	Promote increased citizen awareness of travel alternatives available for midday as well as commute trips.
TR-18	Evaluate and promote a car-sharing program in Downtown Bellevue.
TR-19	Support establishment of federal and state gasoline taxes to provide adequate funding for transportation improvements that keep pace with regional and community growth.
TR-20	Support federal tax policies that promote transit and ridesharing.
Transportation Element – Mobility Management Component	
TR-21	Manage the transportation system through the Mobility Management Areas shown in Figure TR.1, the boundaries of which reflect street patterns, transit serviceability, topography, development patterns, and land use objectives.
TR-22	Implement the level of service standards and other mobility targets for major transportation modes within each Mobility management Area, as shown in Table TR.1, recognizing each area's needs as well as its relationship with other areas. Monitor the adopted mobility targets and adjust programs and resources as necessary to achieve scheduled progress on all modes.
TR-23	Coordinate improvements and operations among travel modes, providing connections between modes.
TR-24	Incorporate pedestrian and bicycle facility improvements into roadway projects, and incorporate transit/high-occupancy vehicle improvements where feasible.
TR-25	Provide for adequate roadway, pedestrian, and bicycling connections in newly developing areas of the city, promoting both internal access and linkages with the rest of the city.
TR-26	Address the special needs of citizens with various degrees of mobility in planning, designing, implementing, and maintaining transportation improvements and other transportation facilities and in delivering transportation services and programs.
TR-29	Develop the transportation system in a manner that supports the regional land use and transportation vision presented in Vision 2020, Destination 2030 and the Countywide Planning policies for King County.
TR-31	Inform, consult with, and otherwise involve other affected jurisdictions in the city's transportation planning efforts.
TR-32	Develop and implement strong interjurisdictional agreements for cooperative solutions to land use and transportation problems that cross the city border.
Transportation Element – Roadway Network Component	
TR-36	Observe the following guidelines in adopting and revising arterial level of service standards by Mobility Management Area: 1. Reflect the availability of alternative travel options and community goals that may be as important as managing congestion, such as goals for land use, neighborhood protection from wider streets, or economic vitality. For example, allow more congestion in some areas of the city under the following conditions: a. In return for stronger emphasis on transit, walking, and other alternatives to the single-occupant vehicle, and b. Where the impacts of wider streets are judged to be worse than the congestion they are designed to solve. 2. Establish roadway levels of service adequate to prevent system failure and to protect residential neighborhoods from cut-through traffic.
TR-37	Review proposed developments and require mitigation of traffic impacts where necessary. Prohibit development approval if the development will cause the area level of service in one or more Mobility Management Areas to fall below the adopted standard, unless demand management or other system improvements are provided to mitigate the transportation impacts.
TR-43	Provide arterial right-of-way with sufficient width to limit air and noise pollution on adjoining properties, to permit landscaping, and to accommodate non-vehicular circulation.
Transportation Element – Transit Component	
TR-50	Work with transit providers to implement the Bellevue Transit Plan as an attractive travel option for local residents, employees, students, visitors, businesses and other users of regional facilities.
TR-51	Work with transit providers to establish a hierarchy of transit services focused on three major elements: 1. Bellevue-Bellevue Connections 2. Bellevue-Eastside Connections 3. Bellevue-Regional Connections
TR-52	Work with transit providers to establish transit hubs at activity areas in the city. Strategic locations for transit hubs include Downtown Bellevue, Crossroads, Eastgate (including Bellevue Community College), and Factoria. Direct the most intensive levels of transit service to the designated transit hubs which have been strategically located in the designated Urban Center and Activity Centers of Bellevue.
TR-53	Work with transit providers to maintain and improve public transportation services to meet employer and employee needs. Develop and implement attractive transit commuter options, such as park and ride facilities and local shuttle systems with sufficient frequencies to increase use of transit for commuting and reduce reliance on private automobiles.
TR-54	Work with transit providers to create, maintain, and enhance a system of supportive facilities and systems such as: 1. Transit center; 2. Passenger shelters; 3. Park and ride lots; 4. Dedicated bus lanes, bus layovers, bus queue by-pass lanes, bus signal priorities; 5. Pedestrian and bicycle facilities; 6. Pricing; 7. Kiosks and on-line information; and 8. Incentive programs.

TR-55	Work with private developers and transit providers to integrate transit facilities and pedestrian and bicycle connections into residential, retail, manufacturing, commercial, office, and other types of development.
TR-56	Develop partnerships with transit providers to implement projects providing neighborhood–to–transit links that improve pedestrian and bicycle access to transit services and facilities.
TR-57	Coordinate with transit providers to enhance transit service information and provide incentives to encourage and facilitate transit use.
Transportation Element – Regional Transit Component	
TR-58	Participate actively in Sound Transit Phase 1 efforts to expand the regional transit system. Work to ensure that Eastside services and facilities are high priorities for system improvements, including direct HOV access to Downtown Bellevue and the Eastgate Park and Ride lot, and expansion of the Bellevue Transit Center.
TR-59	Provide regional leadership for Sound Transit Phase 2 planning efforts.
TR-60	Secure a share of regional transit system facilities and service priorities for Bellevue residents proportional to the city's contributed share of regional transit revenues.
TR-61	Work with transit providers to maintain and expand direct and frequent regional bus routes to support the city's land use and mode split goals.
TR-62	Work to ensure that the regional transit system includes park and ride lots to serve activity centers in the region and on the Eastside to: 1. Intercept trips by single occupant vehicles closer to the trip origins; 2. Reduce traffic congestion; and 3. Reduce total vehicle miles traveled.
TR-64	Encourage transit providers and the state to provide new and expanded park and ride lots to adequately serve city residents and to develop additional capacity outside Bellevue at other strategic Eastside locations to serve outlying residents.
TR-65	Work with transit providers and local property owners to develop new leased park and ride lots.
TR-66	Work with the regional transit provider to ensure that transit system development occurs in accordance with the adopted Sound Transit Phase 1 system map and plan.
TR-69	Work in partnership with transit providers to market and promote regional transit services to commuters, residents, and employers.
TR-70	Promote transit use and achieve land use objectives through transit system planning that includes consideration of: 1. Land uses that support transit, including mixed use and night-time activities; 2. Transit-oriented development opportunities with the private and public sectors; 3. A safe and accessible pedestrian environment, with restrictions on auto access; 4. Integrating multiple access modes, including buses, carpools and vanpools, bicycles and pedestrians; 5. Urban design and community character that support and facilitate transit use; and 6. Protecting nearby neighborhoods from undesirable impacts.
TR-71	Improve transit connections between downtown Bellevue and other designated urban centers.
Transportation Element – High-Capacity Transit Component	
TR-72	Provide regional leadership to implement a successful high capacity transit system to serve Bellevue and the Eastside.
TR-73	Work with Sound Transit to ensure that any HCT service to and within the Eastside serves Downtown Bellevue as the major hub of the Eastside.
TR-74	Work with Sound Transit to ensure that HCT services to Downtown Bellevue are provided at levels commensurate with services provided to other urban centers.
TR-75	Strengthen Bellevue's role as the Eastside urban center through provision of high levels of HCT service.
Transportation Element – Pedestrian and Bicycle Transportation System Component	
TR-76	Promote and facilitate the effective use of non-motorized transportation.
TR-77	Consider pedestrians and bicycles along with other travel modes in all aspects of developing the transportation system.
TR-78	Implement the Pedestrian and Bicycle Transportation Plan by designing and constructing a safe and connective non-motorized transportation system.
TR-79	Assign high priority to pedestrian and bicycle projects that: 1. Address safety issues; 2. Provide access to activity centers such as schools, parks, and commercial areas; 3. Provide accessible linkages to the transit and school bus systems; 4. Complete planned pedestrian or bicycle facilities or trails; 5. Provide system connectivity or provide connections to the existing portions of the system to develop primary north-south or east-west routes; and 6. Recognize and develop minimal energy paths, defined as the route between two given points requiring the least amount of energy for a bicyclist or pedestrian to traverse.
TR-80	Encourage transit use by improving pedestrian and bicycle linkages to the existing and future transit and school bus systems, and by improving the security and utility of park-and-ride lots and bus stops.
TR-81	Provide adequate and predictable funding to construct and maintain pedestrian and bicycle capital projects as identified in the Pedestrian and Bicycle Transportation Plan.
TR-82	Minimize hazards and obstructions on the pedestrian and bicycle system by ensuring that the system is properly maintained. Allow different levels of maintenance for certain key linkages based on amount and type of use or exposure to risk.
TR-83	Continue programs to construct, maintain and repair sidewalks. Periodically review standards for maintenance and repair and revise as appropriate.
TR-84	Secure sidewalk and trail improvements and easements, and on-site bicycle parking and storage consistent with the Pedestrian and Bicycle Transportation Plan through the development review process.

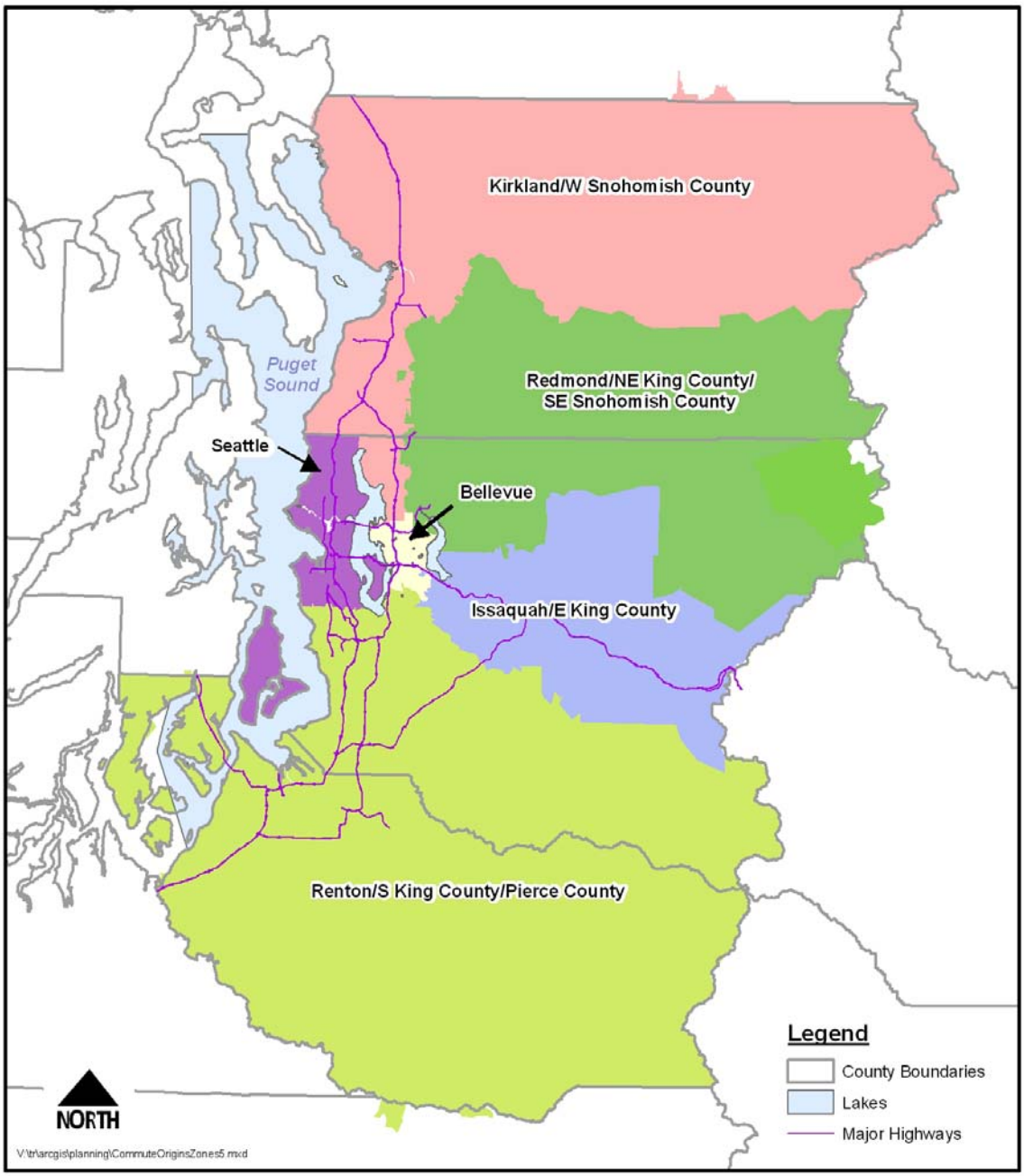
TR-85	Coordinate the design and construction of pedestrian and bicycle facilities with other agencies where City of Bellevue corridors continue into neighboring jurisdictions.
TR-86	Ensure that a safe, permanent, and convenient alternative facility is present prior to the permanent vacation of an off-street walkway or bikeway.
TR-87	Develop an effective "share the road/share the trail" concept for pedestrian and bicycle education programs for the motorized and non-motorized public.
TR-88	Recognize the importance of walking, jogging, bicycling, and equestrian activities as recreational pursuits, and provide adequate opportunities for such activities.
Downtown Subarea Plan	
S-DT-1	Emphasis shall be placed on Downtown livability, with provisions made for the needs, activities, and interests of Downtown residents, employees, shoppers, and visitors.
S-DT-2	Encourage a variety of land uses to occur in mixed-use buildings or complexes where appropriate.
S-DT-3	Develop Downtown as an aesthetically attractive area.
S-DT-5	Organize Downtown to provide complementary functional relationships between various land uses.
S-DT-6	Develop Downtown as the Eastside's most concentrated and diverse regional retail district.
S-DT-8	Locate major office development in the downtown core in order to complement retail activities and facilitate public transportation.
S-DT-16	Restrict the location of drive-in and drive-through activities within the Downtown Subarea.
S-DT-17	Promote economic development strategies that further Downtown Bellevue as an Urban Center, consistent with regional plans.
S-DT-18	Strengthen Downtown's role as the Eastside's major business and commercial center and as an important revenue source for the City of Bellevue.
S-DT-24	Provide density incentives to encourage urban residential development throughout Downtown.
S-DT-26	Encourage residential uses to occur in mixed-use structures or complexes.
S-DT-27	Explore the use of tax incentives to encourage additional work-force housing within the Downtown Subarea.
S-DT-28	Work with regional housing organizations such as A Regional Coalition of Housing (ARCH) and the Downtown Action to Save Housing (DASH) to develop additional Downtown residential projects.
S-DT-33	Minimize potential impacts to pedestrians caused by utility equipment, such as cabinets, within the sidewalk where possible.
S-DT-34	Utility installations visible in the public right-of-way should be consistent with Downtown design guidelines.
S-DT-35	Create a pedestrian environment with a sense of activity, enclosure, and protection.
S-DT-36	Utilize development standards for building bulk, heights, setbacks, landscaping requirements, stepbacks, floor area ratios, open space requirements, and development incentives.
S-DT-37	Link building intensity to design guidelines relating to building appearance, amenities, pedestrian orientation and connections, impact on adjacent properties, and maintenance of view corridors. These guidelines will seek to enhance the appearance, image, and design character of the Downtown.
S-DT-39	Utilize a hierarchy of streets to guide right-of-way use in a manner that will promote a safe, attractive environment for both motorized and non-motorized uses.
S-DT-40	Enhance the appearance of all types of streets and adjoining sidewalks with street trees, landscaping, water features, pedestrian-scaled lighting, street furniture, paving treatments, medians, or other softening treatments as appropriate.
S-DT-42	Reinforce the emerging identity of 108th Avenue NE as the Eastside's business address. Provide incentives for private development and utilize public funds to create a dense office environment with supporting transit service and retail uses.
S-DT-43	Encourage new development on Main Street in Old Bellevue to embrace the character of the small-scale, pedestrian-friendly street frontage that has developed over time.
S-DT-44	Provide incentives for 106th Avenue NE to develop as Downtown's *Entertainment Avenue*. This area will include a concentration of shops, cafes, restaurants, and clubs that provide for an active pedestrian environment during the day and after-hours venues for residents and workers by night.
S-DT-45	Continue to encourage the NE 6th Street Pedestrian Corridor as a major unifying feature for Downtown Bellevue.
S-DT-46	Provide incentives for Bellevue Way to realize its vision as a *Grand Shopping Street*, with an exciting mix of retail shops, restaurants, hotels, offices and residential units.
S-DT-47	Reinforce the importance of the pedestrian in Downtown Bellevue with the use of a series of signalized mid-block crossings. Consideration should be given to the design of adjacent superblocks, consideration of traffic flow, and the quality of the pedestrian environment when implementing mid-block crossings.
S-DT-50	Develop a comprehensive wayfinding system geared for a range of users (i.e. pedestrians, bicyclists, and automobiles). The system should be built around a set of common design elements, but also includes unique components that vary by Downtown neighborhood as appropriate.
S-DT-99	Emphasize the street environment as a key component of the Downtown open space network.
S-DT-101	Provide appropriately scaled parks and open spaces throughout Downtown.
S-DT-103	Encourage developers to provide open space amenities accessible to the public such as mini-parks, plazas, rooftop gardens, and courtyards in private developments. Such amenities must be clearly identified and maintained for public use.
S-DT-104	Require developer contributions for a coordinated system of major and minor public open spaces along the pedestrian corridor and at designated intersections. These could include areas for seating, fountains, courtyards, gardens, places to eat, and public art.

S-DT-107	Create connections along public sidewalks and mid-block connections that link key parks and open spaces and include dispersed recreation opportunities and urban plazas where appropriate.
S-DT-114	Strengthen pedestrian connections between Downtown Park and other Downtown features, such as Bellevue Square, the NE 6th Street pedestrian corridor, Bellevue Way, Main Street, and Meydenbauer Bay. This will enhance the role of the Park as a major pedestrian destination and as a pedestrian linkage with other areas of Downtown.
S-DT-126	Aggressively pursue local, state, and federal action to implement improved automobile and high occupancy vehicle (HOV) access to and from the Downtown Subarea from I-405 at NE 6th Street.
S-DT-127	Actively participate in the SR-520 bridge replacement and HOV project. Evaluate access needs in the SR-520 corridor including the recommended new on-ramp at Bellevue Way NE.
S-DT-130	Encourage transit service providers to improve transit connections between Downtown and the city's neighborhoods.
S-DT-131	Work with transit providers to significantly expand transit service, including express bus transit, to Downtown Bellevue to accommodate anticipated increases in ridership.
S-DT-132	Explore ways of providing the most effective transportation services and marketing programs for trips between major retail, office, and transit facilities Downtown, as well as activity areas on the edge of Downtown such as Overlake Hospital.
S-DT-133	Encourage transit service providers to improve transit connections between Downtown Bellevue and other designated urban centers.
S-DT-134	Support transit ridership to Downtown Bellevue by encouraging the regional transit providers to expand Park-and-Ride capacity outside of Bellevue.
S-DT-136	Encourage convenient and frequent transit services and provide incentives for attractive waiting areas in Downtown in recognition that transit extends the range of the pedestrian.
S-DT-137	Coordinate with transit providers to enhance information and incentives available to transit riders and potential transit riders to encourage and facilitate transit use.
S-DT-138	Work with Sound Transit and other regional partners to develop a High Capacity Transit system that connects Downtown Bellevue to other key activity centers.
S-DT-139	Retain the existing odd-numbered streets for vehicular and pedestrian circulation in Downtown. Consider vacating those streets only if such vacation would improve overall circulation in Downtown.
S-DT-145	Promote provision of high occupancy vehicle (HOV) transportation services including transit, carpools, and vanpools to, from, and within the Downtown Subarea.
S-DT-146	Support the Bellevue Downtown Transportation Management Association.
S-DT-147	Support the Downtown Transportation Management Program.
S-DT-148	Minimize Downtown SOV commute trips by coordinating with the Bellevue TMA and transit agencies to provide transit and rideshare incentives, subsidies, and promotional materials to Downtown employers and employees.
S-DT-149	Establish parking requirements specific to the range of uses intended for the Downtown Subarea.
S-DT-150	Develop Downtown parking facilities and systems that are coordinated with a public transportation system and an improved vehicular circulation system.
S-DT-151	Encourage the joint use of parking and permit the limitation of parking supply.
S-DT-152	Evaluate the parking requirements in the Land Use Code and regularly monitor the transportation management program, employee population, parking utilization, parking costs paid by commuters and the percentage of those who directly pay for parking. If monitoring indicates that the use of transit and carpool is not approaching the forecast level assumed for this Plan, revise existing parking and transportation management requirements as needed to achieve forecast mode split targets found in the Transportation Element of the Comprehensive Plan.
S-DT-153	Permit short-term on-street parking on Downtown streets if such action does not create significant traffic problems.
S-DT-154	Initiate a public/private comprehensive examination of short-term parking problems Downtown, and develop a work plan to implement solutions.
S-DT-155	Utilize quantitative measures to analyze the short-term parking supply for neighborhood-scale retail and services, and implement parking management strategies or increase the parking supply as appropriate, and as resources allow.
S-DT-156	Investigate allowing Downtown developers to pay a fee into a "pool" in lieu of providing parking on-site. Pooled funds would be used to provide short-term public parking where it is in shortest supply. Land Use Code amendments would be required to provide for the collection and administration of a fee in lieu of parking program.
S-DT-157	Explore opportunities to implement a parking guidance system to more efficiently utilize the Downtown parking supply.
S-DT-158	Provide for the needs of bicycles and pedestrians in the design and construction of new facilities in Downtown, especially in the vicinity of the Transit Center, along the NE 6th Street pedestrian corridor, and on 106th Avenue NE where on-street parking and/or wider sidewalks may be appropriate.
S-DT-159	Enhance the mobility of pedestrians and bicyclists Downtown by improving signals and crosswalks at intersections and mid-block locations.
S-DT-160	Improve the pedestrian experience by providing street trees and other landscaping in sidewalk construction, especially along the edges of Downtown.
S-DT-161	Provide safe and convenient pedestrian linkages to adjacent neighborhoods to the north, south and west of Downtown, as well as across I-405 to the east.
S-DT-162	Provide pedestrian linkages through superblocks that help create a finer-grained pedestrian network.

S-DT-163	Designate and enhance bicycle routes through Downtown to create a more pleasant and safe environment for bicycling.
S-DT-164	Encourage developers and owners of Downtown buildings to provide long-term bicycle parking and storage for employees and short-term bicycle parking for visitors.
S-DT-165	Implement the transportation facility improvements listed in Table 1 and shown on Figures B and C. *(See City of Bellevue Comprehensive Plan for table and figures.)*
S-DT-166	Aggressively work with King County-Metro, Sound Transit, and the Washington State Department of Transportation, and the Federal Highway Administration to implement the adopted capital facility component in this Plan
S-DT-167	Annually review the progress of improvement projects and phasing.
S-DT-168	Support programs to meet air quality standards including the continuation and expansion of the state vehicle emission inspection and maintenance program.
S-DT-169	Consider physical design treatments to reduce noise in residential neighborhoods before a major street construction program is implemented.
Economic Development Element	
ED-15	Cooperate and coordinate with local and regional government and economic agencies to implement the countywide economic development policies.
ED-17	Recognize the economic development benefits of city and private sector investments in urban amenities like arts and culture, open space and recreational facilities, and high quality urban design. Strengthen the city's assets in these areas as an explicit component of the city's economic development strategy.
ED-19	Maintain and update integrated land use and transportation plans to guide the future of the city's major commercial areas and help them respond to change.
ED-20	Encourage economic development in designated locations through a mix of incentives, regulations, and strategic investments that support the city's adopted plans.
ED-21	Continue to identify, construct and maintain infrastructure systems and facilities required to promote and sustain a positive economic climate. Anticipate needs and coordinate city infrastructure investments with economic development opportunities.
Land Use Element	
LU-2	Support the state Growth Management Act by developing and implementing a land use vision that is consistent with the GMA goals, the regional Vision 2020, and the King county Countywide Planning Policies.
LU-3	Accommodate growth targets of 10,117 additional households and 40,000 additional jobs for the 2001 - 2022 period. These targets represent the city's commitment to develop the zoning and infrastructure to accommodate this level of growth; they are not a commitment that the market will deliver these numbers.
LU-5	Ensure enough properly zoned land to provide for Bellevue's share of the regionally adopted demand forecasts for residential, commercial, and industrial uses for the next 20 years.
LU-7	Support inclusion of residential uses in commercial districts where compatibility can be demonstrated.
LU-8	Adopt and maintain policies, codes, and land use patterns that promote walking in order to increase public health.
LU-28	Support Downtown's development as an Urban Center, maintaining it as the financial, retail, and business hub of the Eastside.
LU-29	Strengthen Downtown as the primary commercial area to provide local goods and services to the surrounding neighborhoods and to the residents and employees within the district.
LU-30	Encourage the development of housing within the Downtown including units targeted to workers who are expected to fill jobs to be created in the Downtown over the next decade.
Housing Element	
HO-14	Encourage housing development Downtown including innovative, affordable housing.
HO-29	Encourage the building of affordable housing Downtown.
Environmental Element	
EN-9	Promote and lead education and involvement programs to raise the public awareness about environmental issues, advocate respect for the environment, and demonstrate how individual actions and the cumulative effects of a community's actions can create significant improvements to the environment.
EN-17	Establish land use regulations that limit the amount of impervious surface area in new development and redevelopment city-wide.
EN-18	Implement land use incentives to minimize the amount of impervious surface area below that allowed through prescriptive standards, in new development, redevelopment, and existing development city-wide.
EN-79	Work with the private sector to reduce growth in vehicle trips as a key strategy for reducing automobile-related air pollution.
EN-80	Implement transportation projects that provide significant air quality improvements to areas with existing air quality problems, even where the project does not bring all locations up to adopted standards, provided that the project is the best feasible solution and it significantly improves the air quality at each substandard location.
Urban Design Element	
UD-4	Ensure that development relates, connects, and continues design quality and site functions from site to site.
UD-5	Include accessible and attractive places for the general public, employees and visitors to wait, to be outdoors, or to socialize in more intensive commercial development. Less intensive commercial development should include such places for employees and visitors.
UD-6	Design buildings located on the edge of public places using materials, forms, details and other architectural elements that will enrich the appearance of the places and encourage people to use them.

UD-11	Encourage architectural elements that provide for both rain cover and access to sunlight in pedestrian areas.
UD-28	Develop a public signage and wayfinding system throughout the city that reinforces the identity of Bellevue and its distinct neighborhoods.
UD-29	Provide a system of public places of various sizes and types throughout the community.
UD-30	Ensure public places give access to sunlight, a sense of security, seating, landscaping, accessibility, and connections to surrounding uses and activities.
UD-38	Ensure continuous and ample sidewalks along principal, minor, and collector arterials which are integrated with abutting land uses.
UD-39	Include clear and ample walkways from street sidewalks and parking areas to building entrances and within and between developments as a part of site design.
UD-40	Ensure that sidewalks, walkways, and trails are furnished, where needed and appropriate, with lighting, seating, landscaping, street trees, trash receptacles, public art, bike racks, railings, handicap access, newspaper boxes, etc. without interfering with pedestrian circulation.
UD-41	Design vehicular and pedestrian routes to be visually appealing connections between different parts of Bellevue.
UD-43	Provide clear and identifiable circulation systems into and through Bellevue's large commercial blocks to improve pedestrian activity.
UD-47	Work closely and cooperatively with the regional transit provider in the planning and design of any transit facility to ensure that the design of the facilities reflect the general character of Bellevue and the surrounding neighborhoods.
UD-48	Encourage site and building designs that support and connect with existing or planned transit facilities in the vicinity.
UD-54	Give identity and continuity to street corridors by using a comprehensive street tree plan and other landscaping to enhance circulation routes, soften the appearance of pavement and separate pedestrians from traffic.
UD-57	Allow buildings to be sited at or near the public sidewalk as long as the full sidewalk potential is not diminished.
UD-67	Enhance the appearance, image, and design character of the Downtown to be an inspiring place to live, shop, play, and work.
UD-69	Develop a functional and attractive Downtown which is harmonious with adjacent neighborhoods by considering the impacts of through-traffic, views, building scale, and land use.
UD-71	Permit high intensity residential development subject to design criteria which assures a livable urban environment.
UD-72	Link the increased intensity of development with the increased pedestrian amenities, pedestrian-oriented building design, midblock connections, public spaces, activities, openness, sunlight, and view preservation.
UD-73	Create a pedestrian environment with a sense of activity and protection.
UD-75	Use urban design features to soften the public right-of-way and sidewalk environment as appropriate. These features include, but are not limited to, street trees, landscaping, water features, raised planter boxes, potted plantings, pedestrian-scaled lighting, street furniture, paving treatments, medians, and the separation of pedestrians from traffic.
Pedestrian and Bicycle Transportation Facilities Plan	
PB-12	Increase the accessibility to transit by pedestrians.
PB-13	Facilitate the use of transit by bicyclists.
PB-15	Construct sidewalks on both sides of arterials or streets that serve transit, or are built in conjunction with new development. An alternative may be appropriate if terrain, lack of right-of-way or local conditions makes it prohibitive or undesirable. The type of pedestrian facilities on all other streets should be considered on a case by case basis.
PB-18	Internal pedestrian circulation systems shall be provided within and between existing, new or redeveloping commercial, multi-family or single family developments, and other appropriate activity centers, and shall conveniently connect to frontage pedestrian systems and transit facilities.
PB-19	Require new or redeveloping properties to provide bicycle parking and other facilities to encourage the use of bicycles.
PB-30	Periodically review and update the Mobility Management Matrix included in the Comprehensive Plan to ensure appropriate and achievable pedestrian and bicycle mobility targets.

Appendix B:
Mode Share Survey Origin Zones



Appendix H

King County Metro Transit Comment Letter

King County
Department of Transportation
Metro Transit Division

Service Planning

MEMO

Date: 5/26/2009

To: Robin Mayhew

Cc: Victor Obeso

From: Metro Service Planning

Subject: Multimodal Concurrency Bellevue Pilot Project

Background on Multimodal Concurrency: Multimodal concurrency is the process of ensuring that the mobility needs generated by approved development does not overwhelm existing transportation infrastructure and transit services. Multimodal concurrency requires action when any gap between projected mobility needs and existing service/infrastructure is identified. PSRC has asked transit agencies to provide input on the institutional and procedural concerns of multimodal concurrency. Below is an overview of the issues with multimodal concurrency and some suggestions for how to overcome them.

- **Issue 1: Gap Identification.** It is important that identifying the gap enables strategic investments to be made that will enhance transit's role in the mobility of people to and within a given community. Capacity and frequency are measures that have been suggested as ways to quantify multimodal concurrency. Though each measure is helpful, there are also the following limitations:

  Capacity: A focus on capacity is only concerned with relieving overcrowded transit service at specific times of the day, particularly during the peak period. This may not facilitate the ultimate goal of providing maximum transit mobility to and within a community.

  Frequency: additions to an already congested network will only marginally improve the competitiveness of transit.

  Suggestion: Speed and Reliability. Because multimodal concurrency is meant to provide additional mobility as the roadway becomes too congested to accommodate an acceptable vehicular level of service, a measure that identifies a transit speed or reliability deficiency will guide municipalities toward transit priority treatments that they can control, that are within the institutional framework of vehicular concurrency, and that will add significantly to the relative competitiveness of transit.

- **Issue 2: Focus on Service Investment.** A multimodal concurrency process that focuses on service investments could result in transit plans that are not well integrated with the region at large and create unnecessary tension between transit pr local jurisdictions.

Suggestion: Capital/Infrastructure Focus. Impact fees and local control of municipal roadways are better tools for managing right of way then mandating additional transit service. If, as with vehicular concurrency, multimodal concurrency began with assessing the infrastructure needs of a specific community for transit, this would encourage the development of specific transit pathways through that community. It would do so by elevating, at the municipal level, the discussion of;

1. Transit signal priority treatments
2. Stop placement
3. Bus bulbs
4. Passenger amenities
5. Repurposing of existing right of way
6. Transit lanes
7. On-street parking
8. Transit speed
9. Improvement of vehicular and transit conflicts

- **Issue 3: Peak Only Multimodal Concurrency.** The current concept of multimodal concurrency is to limit the multimodal measures to the peak period.

  Suggestion: All-Day Multimodal Concurrency. A multimodal concurrency approach that does not consider midday concurrency is inconsistent with the policy direction of Metro and will undervalue the transit benefits within a given community. Many of the types of medium or high capacity transit services that would be envisioned for filling the necessary peak period mobility needs, i.e. light rail or bus rapid transit, are intended to be all day transit services. These transportation assets should receive credit for the mobility they provide regardless of when they provide it.

  Transit will not become the mobility resource that could be if it is limited to peak period service. Metro's experience has shown that the productivity of midday services can be competitive with peak period services. To the extent that there is any need for midday concurrency, it should include a multimodal component.

Appendix I

Seattle Department of Transportation
Comment Letter

SDOT
Seattle Department of Transportation

Gregory J. Nickels, Mayor
Grace Crunican, Director

MEMORADUM

TO: Robin Mayhew, Puget Sound Regional Council

FROM: Barbara Gray, Transportation Systems Design and Planning Manager
Lawrence Eichhorn, Mobility Programs Manager

VIA: Tracy Krawczyk, Policy & Planning Director

RE: PSRC/City of Bellevue/ King County Metro Multimodal Concurrency Project

DATE: May 27, 2009

Thank you for the opportunity to comment on the Pilot Multimodal Concurrency Project . The City of Seattle supports moving the regional discussion related to multimodal concurrency forward and looks forward to reviewing the results of your work.

Because multimodal concurrency involves more than just transit measures, it would be appropriate for PSRC to involve a broader audience than the Transit Operators Committee in review of this pilot project. For example, members of the Regional Staff Committee and the Bicycle/Pedestrian Advisory Committee are likely to be very interested in this work.

In terms of institutional concerns, we concur with the City of Bellevue and King County Metro summary of concerns and offer the following for your consideration:

- **Nexus:** While the Growth Management Act does allow for "alternative" transportation mitigation measures to satisfy concurrency level-of-service (LOS) standards, jurisdictions have been reluctant to impose them for fear of being unable to demonstrate the nexus between a developments' impact and say a new sidewalk constructed elsewhere in the subarea. Multimodal concurrency measures will need to overcome this hurdle as well. As analytical tools are lacking, a legislative approach (declaring the validity of non-motorized and transit infrastructure, as well as transportation demand management strategies, to mitigate development) might be worth consideration.

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Tel: (206) 684-ROAD (684-7623), TTY/TDD (206) 684-4009, FAX: (206) 684-5180
Internet address: http://www.seattle.gov/transportation

- **Transit Investments:** Because local jurisdictions do not control transit service provision, multimodal concurrency should consider transit elements local jurisdictions can control as a means of satisfying concurrency transit levels of service, Examples include provision of capital improvements in the right of way (curb bulbs, queue jumps, business access and transit (BAT) lanes, etc.) and operational improvements (e.g., signal timing) to satisfy concurrency level-of-service requirements.

  It is our understanding that San Francisco has a transit impact fee approach that considers not only new transit trip generation by development, but also considers impacts on transit speed and reliability caused by new auto trip congestion. Impact fees collected may be used for additional transit service or transit-supportive capital investments. Similarly, a multimodal concurrency approach could allow speed and reliability or passenger amenity (shelter, real time information, etc.) investments by local jurisdictions/developers to mitigate impacts necessary to meet transit concurrency LOS.

- **Transit Service Measurement:** Seattle's transit plan has an ongoing monitoring component for several transit service performance measures. While we would be reluctant to have these included in concurrency measures (lack of local control), these measures will continue to play a role in identifying where we want service investments to occur.

- **Intersection LOS:** Seattle does not use intersection volume-to-capacity ratios for road concurrency and is unlikely to support a multimodal concurrency measure that does so. The rationale for this is that regional growth centers are intended to accept growth, which naturally will result in congestion. Seattle is a mature city with very limited ROW in which to make intersection operational improvements. We don't want to continue actions that favor automobiles over pedestrians or bicyclists in most locations, as these modes contribute to sustainable mobility.

- **Role of Parking:** Availability and costs for convenient parking are key determinants in travel mode choice. Rather than measuring intersection LOS for autos, a multimodal concurrency approach for an individual project could factor in parking provisions (amount of spaces and fees) that are at levels compatible with sustainable transportation system development.

- **Auto Trips Generated Measurement:** Currently, San Francisco is investigating an auto trips generated (ATG) measure. It assumes all auto trips have negative

impacts (congestion, emissions, safety, etc.). Because impact fees would be collected on every vehicle trip, developers would be motivated to build types of development that minimize auto trips, by proximity to transit and/or by investing in other modal infrastructure and TDM. Efforts are underway to establish a nexus between development and these types of investments and strategies, as well as to evaluate how impact fee charges might be established. The Puget Sound region should follow San Francisco's activities, as an ATG approach could obviate the need for multimodal concurrency.

- **Assessing Total Person Delay:** Developing a reliable tool to measure person delay would be an excellent outcome of this work. We also recommend sharing the findings of this pilot with the Institute of Transportation Engineers for consideration when they next update their trip generation tables.

- **Multimodal LOS:** Other multimodal assessment tools we have reviewed (including the soon to be released Multimodal Level of Service tool in the 2009 Highway Capacity Manual) also have limitations related to Complete Streets. The new HCM method does a much better job of addressing the user experience when assigning an LOS standard, but the method does not balance the issues across modes very effectively. The data needed to support these methods can also be difficult and expensive to collect. The City of Seattle has used a number of other tools and approaches, including implementing a Complete Streets ordinance and developing a voluntary mitigation payment system for development based on subarea plans.

Thank you again for the opportunity to comment on this important work. If you need further clarification about the comments above, please contact Barbara Gray at (206) 615-0872 or barbara.gray@seattle.gov.

Cc: Kim Becklund, City of Bellevue Transportation Department

Kevin O'Neill, City of Bellevue Transportation Department

Appendix J

City of Redmond – 2008 Transportation Concurrency System Update

Transportation Concurrency System Update

Prepared for:

City of Redmond

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Prepared by:

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Fehr & Peers Transportation Consultants

Walnut Creek, California

January 2008

Executive Summary

OVERVIEW

The City of Redmond's new, Plan-Based Transportation Concurrency System is a tool to manage the pace of development while providing transportation improvements for all users, including bicyclists, pedestrians, drivers, and transit riders. This new concurrency system was developed through a multi-year planning process to update the Redmond Comprehensive Plan approved by the Redmond City Council in 2004. The Comprehensive Plan articulates the City's future vision and has development policy statements to guide Redmond's growth through the planning horizon year of 2022. The Comprehensive Plan contains plan-based concurrency policies that serve as the basis for the proposed concurrency regulations developed through the technical analysis provided by this report.

The following key characteristics and principles are at the core of the revised Plan-Based Transportation Concurrency System

Key Quality Characteristics of Concurrency

- Concurrency meets State Growth Management Act requirements
- Concurrency results in a multi-modal transportation system
- Concurrency simplifies development review

Concurrency Principles

- Concurrency results in the implementation of the Transportation Facilities Plan (TFP), as envisioned by the long-range Transportation Master Plan (TMP)
- Concurrency supports the "right" pace of development
- Concurrency tracks and regulates land use and implementation of the TFP to assure that they are roughly proportionate
- Concurrency is simple and predictable
- And, finally, the program asks the question "Can I explain concurrency to my neighbor?"

Transportation Master Plan

The first step in moving to plan-based rather than arterial/intersection based concurrency was to develop a plan. The Transportation Master Plan (TMP) adopted in 2004, includes a Transportation Facilities Plan (TFP) based on

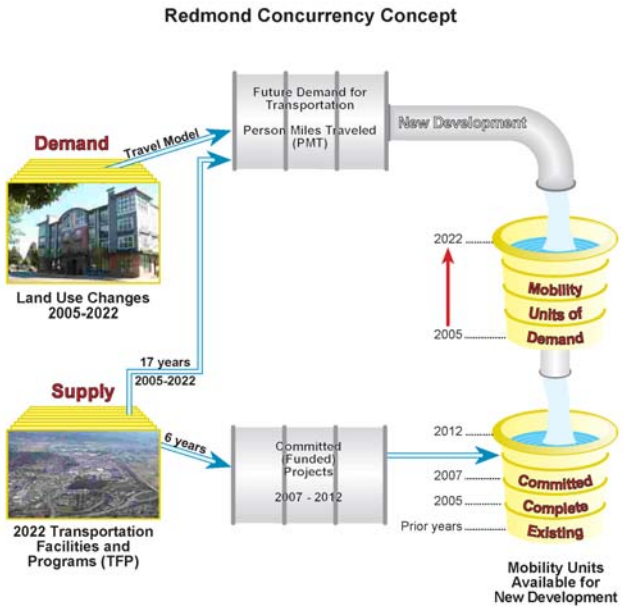
Redmond's 2022 vision for land use/transportation balance. The TMP features a financial plan to fund improvements in the TFP and a system for performance monitoring and reporting. The TMP is updated every five years.

FEATURES OF THE CONCURRENCY PROGRAM

The Concept

The overall concept for the new plan-based concurrency system in Redmond stems from the TMP analysis of 2022 land uses (as contained in the Comprehensive Plan) and the 2022 TFP. The TMP concluded that in 2022, in the PM peak hour, the transportation system will be near capacity. Therefore, if growth in travel demand and implementation of the TFP occur as planned, the City will meet its TMP-stated targets and will be concurrent. To maintain concurrency, however, it will be necessary to appropriately pace land development with multi-modal transportation system improvements and strategies.

The overall concept for maintaining this critical balance of transportation concurrency in Redmond is shown in the figure below. The committed, complete and existing "bucket" in the bottom right illustrates the short-term capacity that will be available to new development based on progress made by the City in implementing transportation improvements and strategies.



The Measures

The key measure for concurrency is to show that growth in travel demand and transportation system completion are occurring at the same rates.

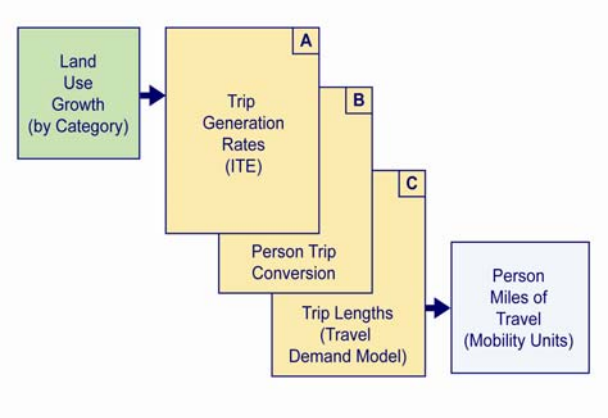
Demand

Measuring concurrency requires the creation of an apples-to-apples comparison between demand for and supply of transportation infrastructure. The starting point for this comparison is the development of a land use summary table. This table summarizes the total amount of new development, measured in the number of residential dwelling units and square feet of non-residential space in 2005 and the 2022 land uses forecasted by district. The growth in development is calculated as the difference in the 2022 and 2005 land uses.

Conventional planning practice determines transportation impacts by calculating the number of automobile trips that will be generated by forecasted land uses. Using a multi-modal approach, the new Plan-Based concurrency system relies on a mode-neutral measure known as the "mobility unit" (measured in terms of person miles traveled rather than vehicle miles traveled or automobile delay).

The calculation of mobility units used a combination of the City's travel demand model and spreadsheet tools. The basic process is shown in the diagram to the right.

Person Mile Calculator



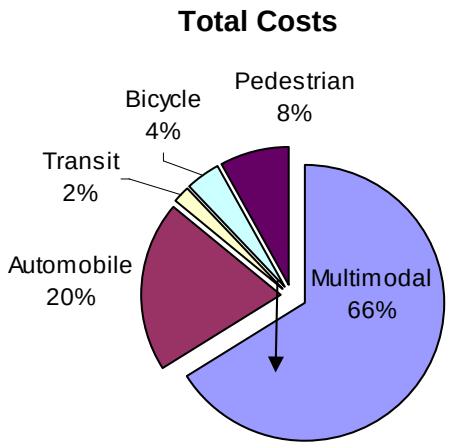
Supply

Based on the City's adopted plans and policies, the list of transportation improvements and strategies to be implemented by 2022 is expected to be sufficient to meet the travel demand generated by new development. A key element of the plan-based concurrency system is disclosure of how much of the 2022 TFP is implemented within the six-year concurrency window.

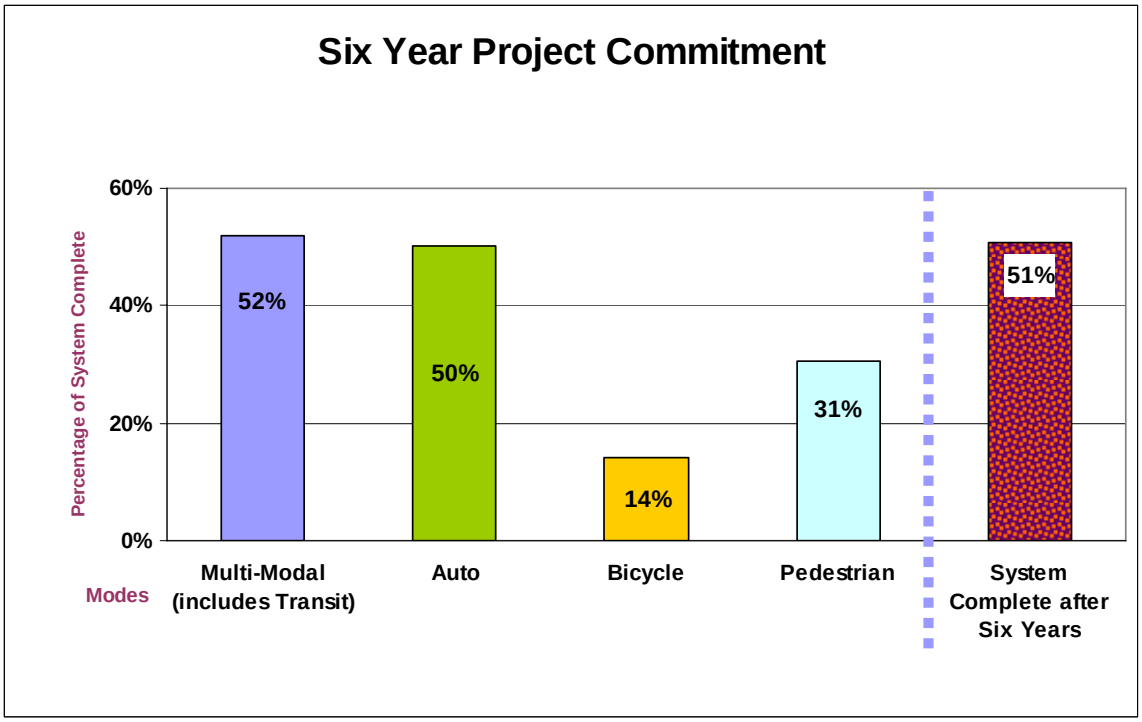
In order to measure the amount of capacity available for each travel mode (e.g. bicyclists, motorists, pedestrians, and transit users), the City developed a measure called "system completion."

The analysis began with the full list of transportation improvements and strategies from the 2022 TFP with cost estimates for each.

The total cost of the transportation improvements and strategies in the 2022 TFP is approximately $320 million. As shown in the pie chart to the right, roughly two-thirds of the projects fall into the multi-modal category benefiting multiple users.



Next the analysis evaluated their status by determining how many are fully or partially funded in the City's 6-Year Program (6-Year Transportation Improvement Program/Capital Investment Program). This analysis identified the percent of the TFP that is committed. The draft results of this analysis are shown below and will be finalized in 2008.



Determining How Much Room is Left in the Six-Year Bucket

Using the calculations described in the previous section, concurrency is determined by comparing the available transportation mobility units against the demand for mobility units generated by new development. To manage the pace of development in the short-term, the concurrency test will focus on "how much room is left in the 6-Year Bucket?" This test entails a comparison of the available mobility units based on projects funded or constructed in the Six-Year Program time horizon, as required under the GMA. One important step in this process is to account for the mobility units that have been allocated for 'pipeline' development projects that have been approved by the City but not yet occupied.

Available Mobility Units- Comparing Supply to Demand

The available mobility units are calculated by comparing the available supply to the demand. As shown below, the supply of mobility units represents the proportion of the TFP that is committed to be built during the next six years. The current demand for mobility units is represented by the amount of pipeline development approved within the city. The result of this analysis will be finalized in 2008.

DEVELOPMENT REVIEW

Under the proposed plan-based concurrency system, concurrency approval of a proposed development is based on the availability of mobility units within the mandated six-year timeframe. To manage the pace of development in the short-term, the concurrency test will focus on "how much room is left in the six-year bucket?" This test will entail a comparison of the available mobility units based on projects funded or completed in the six-year program time horizon, as required under the GMA.

As part of the concurrency review process, each development proposal would be analyzed to determine the number of mobility units expected to be generated by the development. This demand for mobility units would then be compared to the available mobility units within the City's six-year program. If sufficient mobility units are available, then the development is considered to be concurrent.

If the development is deemed to be not concurrent, then the applicant would need to wait until additional mobility units become available or pay for additional mobility units to offset the impacts of the development. Mobility units become available as additional projects are funded and committed by the City within its Six-Year Program (e.g. Transportation Improvement Program and Capital Investment Program). Alternatively, an applicant could agree to accelerate the implementation of key infrastructure projects in order to provide sufficient transportation system

capacity. This process would be similar to the supplemental mitigation procedures currently used under the City's existing concurrency regulations.

Once concurrency is achieved, the proposed development would need to comply with SEPA requirements, applicable City zoning and building codes, and pay transportation impact fees.

CONCURRENCY RELATED RECOMMENDATIONS

Mobility Report Card "Plus"

The City produces an Annual Mobility Report Card which assesses the progress towards completing its transportation systems. The system completion calculations conducted as part of concurrency should be incorporated into the Report Card providing a simple metric of progress (for example: percent of the auto system complete).

Impact Fees

One of the major goals in developing a plan-based concurrency plan was the desire to influence development. That is, the desire to create incentives for the "right" type of development. Ultimately the City and consultant staff determined that concurrency's role is to control the pace of development, not the quality or desirability of development. Impact fees, however, can be formulated to create incentives for development in the right places, by having lower fees within areas where the City would like to see development (Downtown and Overlake); and incentives for the right form of development, by having lower fees for developments that would generate fewer auto trips as a result of their density, land use mix, and design. Following adoption of plan-based concurrency, the City should consider updating its impact fees to reflect these incentives.

Travel Demand Forecasting

In order to create the types of incentives for development in the right place and the right form of development (as described in the prior section), the City will need a travel demand model that quantifies the reduced auto trip making characteristics of these types of development.

Incorporating these sensitivities into travel models involves integrating a "4D's component". The 4D's – Density, Diversity (land use mix), Design and Destination (location within the city – infill versus edge) are generally incorporated into models via a process of modifying trip tables (projections of the number of trips between zone pairs) prior to assignment. The process is fairly simple provided that the information needed to compute the 4D's is available in a GIS format.

Other Development Review Recommendations

Non-motorized Requirements

PEDESTRIAN CONNECTIONS

As part of the development review process, the City of Redmond requires that developers consider the locations of nearby schools and evaluate the pedestrian connections to those schools. This is a progressive practice and is justified on the basis that school-age children from the new neighborhoods will likely walk to the nearby schools and it is the City's responsibility to assure that they have a safe and convenient means to do so. The same logic that allows the City to evaluate walking routes to schools can be applied to walking routes to transit. Transit stops within one-quarter mile of new developments could be mapped and walking connections to these stops inventoried as part of the environmental review process. To the extent that facilities are found to be deficient, developers could be required to improve them. Some of these improvements may aid the City in improving Pedestrian Intolerant areas to Pedestrian Tolerant (language from the TMP) and in these cases, it may be appropriate that the improvements should be in lieu of impact fees.

BICYCLE PARKING ORDINANCE

Many cities now have bicycle parking ordinances. These are similar to auto parking ordinances requiring that a development provide space for users commensurate with projected demand. For larger non-residential projects (typically more than 100,000 square feet), many cities also require shower and locker facilities to further facilitate human-powered travel. A model ordinance is attached in Appendix B for reference.

DEVELOPER-FUNDED TRANSIT SERVICE

The City of Redmond's TMP establishes goals for increasing pedestrian, bicycle and transit mode shares. Access to transit is a key component of providing a range of travel choices. As part of the development review process, the City could require developers to identify the nearby transit routes and stops and destinations served by those routes. To the extent that the routes are not served by transit routes (there are no transit stops within a quarter-mile of the site), the City could require developers to provide a transit subsidy (an on-going fee that would likely be financed in a fashion similar to an Irrigation and Lighting District) that would be passed on to the transit district in exchange for new service. It may be appropriate to limit this type of requirements to developments of a certain scale (such as those that generate 100 or more PM peak hour auto trips) and a step in the process should also be to coordinate with the transit district to assure that they would provide the service.

CONCLUSIONS

Although the approach to concurrency described in this report is a departure from the typical concurrency system currently in place in Washington State, the proposed system meets the intent of concurrency as laid out in the Growth Management Act. This report recommends implementing a Plan-Based Transportation Concurrency Program using "mobility units" to track the system completion of the 2022 Transportation Facility Plan and approval of development consistent with 2022 Growth Targets. Once this system is in place it will be much more straight-forward to track concurrency in Redmond and make adjustments to ensure that the City meets its concurrency standards now and in the future.