C-TRAN 2030

CHARTING TOMORROW'S C-TRAN

C-TRAN 20 Year Transit Development Plan

A Comprehensive Strategy To
Meet Public Transportation Needs
For Clark County Residents

Adopted June 8, 2010

C-TRAN 2030
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Chapter I

Introduction

C-TRAN 2030
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Introduction

The 20-Year Plan – C-TRAN 2030 – is a comprehensive strategy for enhancing public transportation for Clark County residents over the next 20 years. Guided by the Board of Director's 50-Year Vision, C-TRAN 2030 is designed to respond to growing transportation needs and the need to provide expanded, reliable, and safe service. Maintaining and expanding transit service is vital for ensuring the economic vitality and quality of life of the region.

C-TRAN is the primary provider of public transit services in Clark County. The agency was formed by a public vote in 1980 and currently serves the municipalities of Vancouver, Camas, Washougal, Battle Ground, and Ridgefield, La Center, the town of Yacolt and areas of unincorporated Vancouver. C-TRAN is governed by a nine member board of directors that includes three Clark County Commissioners, three Council members from the City of Vancouver, and one member each from Camas/Washougal, Ridgefield/La Center and Battle Ground/Yacolt.

C-TRAN provides fixed route service on 18 local, 7 commuter and 4 limited routes in addition to dial-a-ride based service known as the Connector, in Camas, Ridgefield and La Center. C-TRAN also operates C-VAN to provide ADA complementary paratransit service for persons who are unable to use regular C-TRAN buses. The C-TRAN fleet currently has 171 vehicles to carry out these services.

C-TRAN operates seven days a week and on holidays serving the greater Vancouver area.
C-TRAN also provides commuter service into TriMet's downtown Portland transit mall and connecting service to the MAX light rail system at the Parkrose/Sumner Transit Center and the Delta Park/Vanport Light Rail Station. These access points allow C-TRAN passengers to reach destinations in the Portland metropolitan area, including Portland International Airport. Over 6.9 million fixed route passenger trips were provided in 2008, with passengers traveling nearly 37 million miles. All C-TRAN routes meet Americans with Disabilities Act (ADA) accessibility requirements.

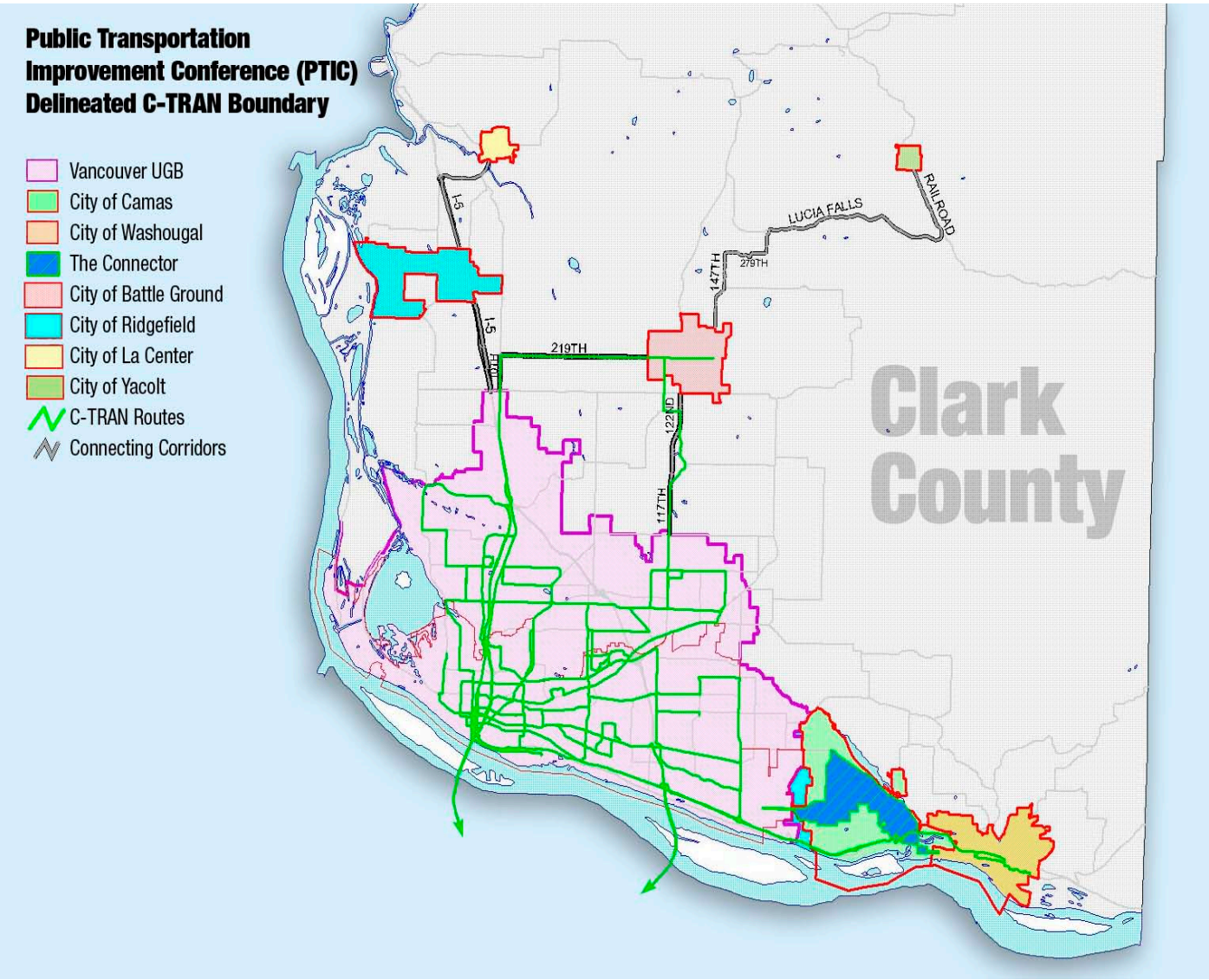
C-TRAN also operates three transit centers located at:

- 99th Street Transit Center at Stockford Village
- Fisher's Landing Transit Center
- Vancouver Mall Transit Center

In addition, C-TRAN manages seven park-and-ride lots providing over 1,600 parking spaces with direct access to express commuter services and local routes.

C-TRAN's existing level of transit services are funded through a 0.5 percent local sales tax, federal and state assistance, and farebox receipts. The last ballot measure for C-TRAN was in 2005, which increased the local sales tax by 0.2 percent to its current 0.5. Exhibit 1 shows the boundaries of the existing C-TRAN Public Transit Benefit Area (PTBA).

Exhibit 1
C-TRAN PTBA



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Goals of the 20-Year Plan

In 2006, the C-TRAN Board of Directors created a 50-Year Vision that outlined a multi-modal future for transit in Clark County. The vision, updated in August 2009, is as follows:

50-Year Vision Statement

August 11, 2009

By 2060:

- C-TRAN is recognized as one of the leading transit agencies in the country because we provide cost-effective, safe, accessible, convenient, innovative, reliable public transportation moving people within Clark County and throughout the southwest Washington/Portland region.
- C-TRAN empowers citizens by providing mobility options that connects them with places of employment, education, health care, shopping, and entertainment, and recreation, social and religious functions.
- C-TRAN is more than a bus system. As appropriate, C-TRAN is willing to provide traditional fixed route and bus rapid transit, trolley, streetcar, shuttles, paratransit, connectors, light and heavy rail, vanpool and ridesharing services.
- C-TRAN services contribute positively to the region's sustainability, livability and economic vitality by helping manage traffic congestion, reduce dependence on foreign oil, lower carbon emissions, contain transportation costs for employers and employees, enable denser land use and development of urban areas, and provide essential transport to persons with no other means of travel.
- C-TRAN remains flexible and accountable as it grows and changes.
- C-TRAN is cost effective and is a trusted steward of the public's resources.
- C-TRAN's public transit network connects with transit systems throughout the region.
- C-TRAN is the preferred form of transportation because, in addition to its efficiency, riders experience a pleasant, affordable, safe and secure trip.

The 20-Year Plan is key to achieving this vision, and provides the framework for the incremental steps necessary to move toward the ultimate goal.

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Chapter II

Demographics and Planning Background

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Demographics and Planning Background

This chapter describes the existing and future growth patterns within Clark County. It is designed to provide a picture of where future service growth is necessary.

Clark County 2003-2023 Comprehensive Plan

Clark County has grown dramatically over the past 20 years, and it is expected to grow by another 150,000 residents by 2023. The largest areas of growth were in unincorporated urban areas, and in Vancouver itself. Some of the municipalities, such as Battle Ground, La Center, Ridgefield, Camas and Washougal are expected to double in population. The additional population in these cities will make them more attractive for C-TRAN services. Between 2003 and 2023, employment is projected to grow by approximately 30,000 jobs in the City of Vancouver, and by an additional 30,000 jobs in the unincorporated Vancouver Urban Growth Area.

Exhibit 2
Clark County Growth Forecast

	2000	2007	2030 Forecast	% Change (2007 to 2030)
Population	345,238	415,000	639,337	54%
Households	127,203	146,000	246,848	70%
Employment	118,310	131,000	283,875	117%

Source: Southwest Washington Regional Transportation Council; Metropolitan Transportation Plan for Clark County, Chapter 2, amended July 2008

While the majority of growth is slated to happen in the C-TRAN PTBA, a significant portion of the population and employment growth is projected to occur in unincorporated Clark County – areas that are not served by C-TRAN. Exhibits 3 and 4 show areas where the employment and population growth are expected to be highest.

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Exhibit 3

Projected Employment Growth

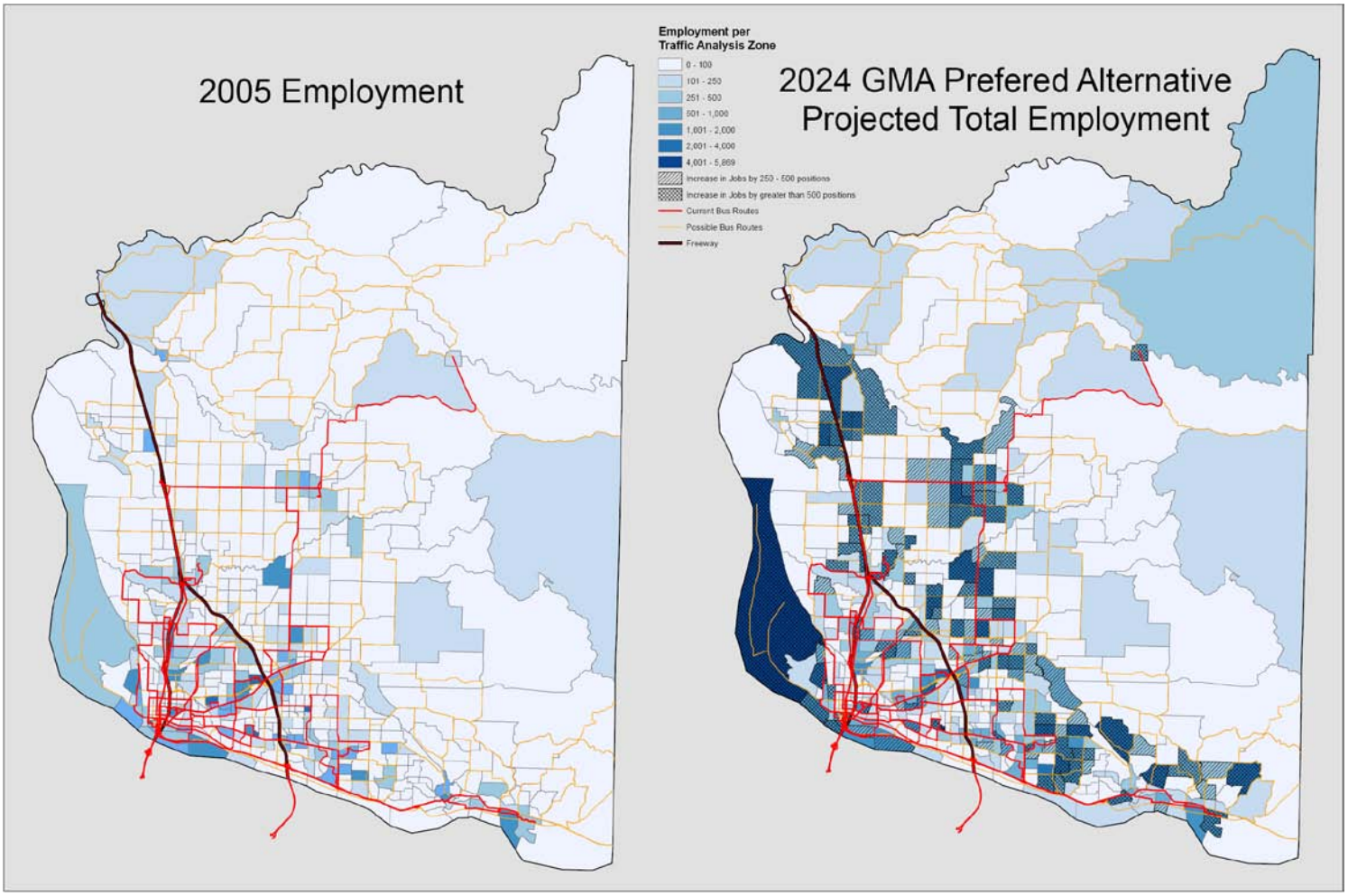

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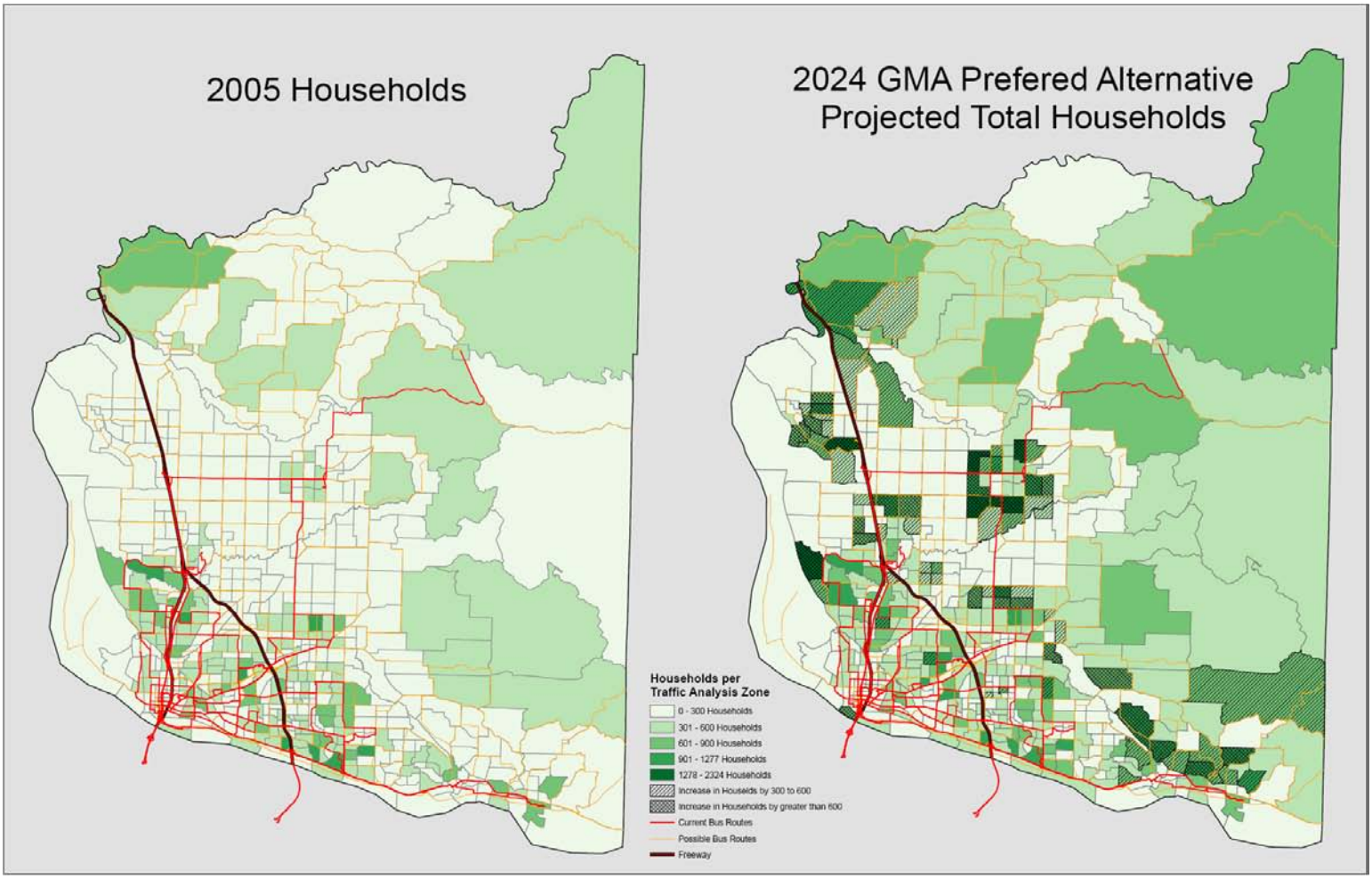
Exhibit 4

Projected Household Growth

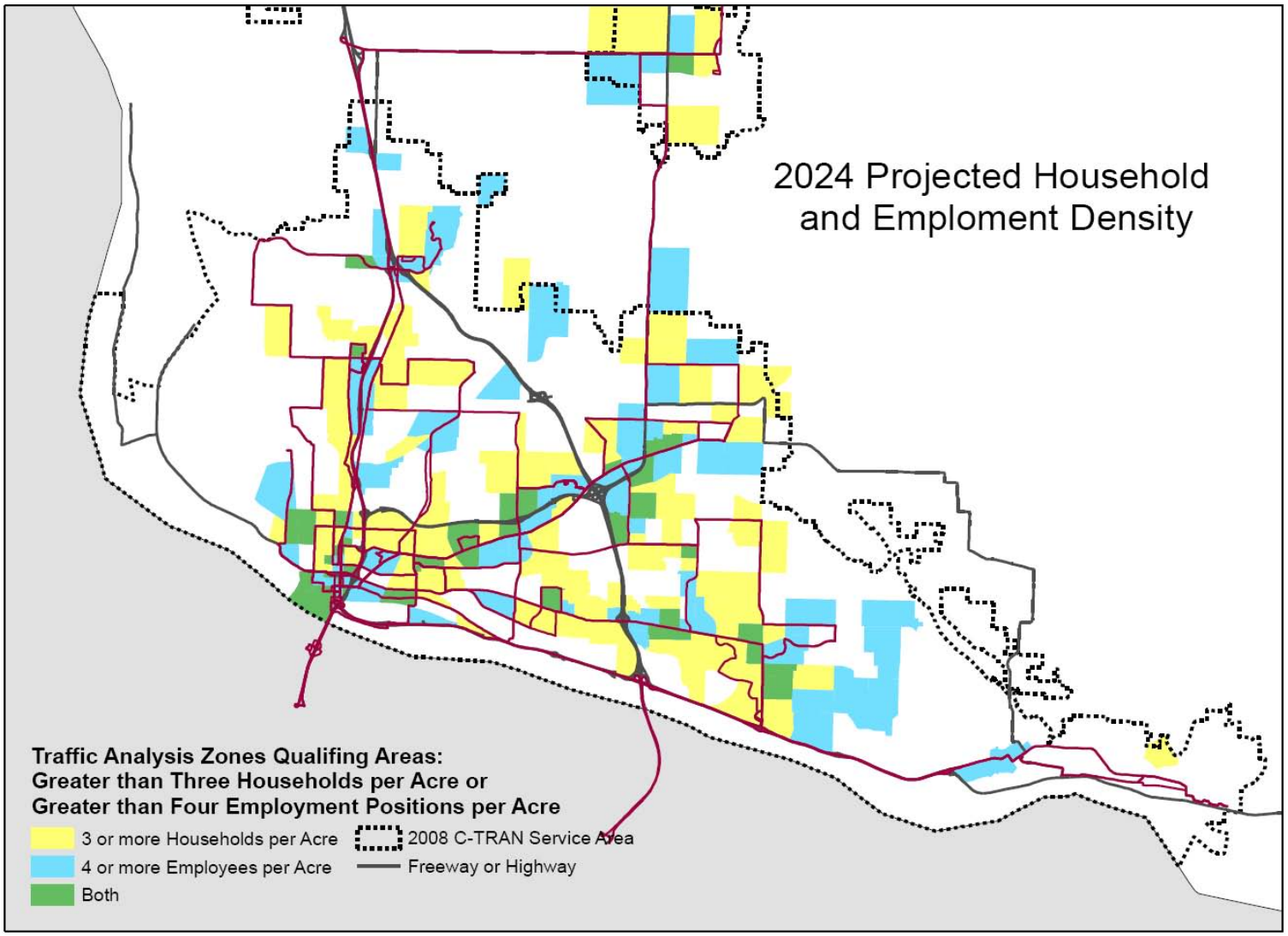


From a transit service provision perspective, continued employment and residential growth represents an opportunity to expand service. Conversely, transit service should only be programmed in areas where it has an opportunity to be successful. Thus, in addition to examining where growth will occur, we also examined the projected population and employment densities. According to the Transit Research Board's Transit Quality of Service Manual, an employment density of 4 or more employees per acre and/or 3 households per acre are necessary to support fixed-route transit service.

The projected 2024 population and employment density assumptions for Clark County are shown in Exhibit 5. In general, higher density areas are served by existing routes. Eastern Clark County and select pockets of employment and population densities are areas that need future service.

Exhibit 5

2024 Projected Household and Employment Density

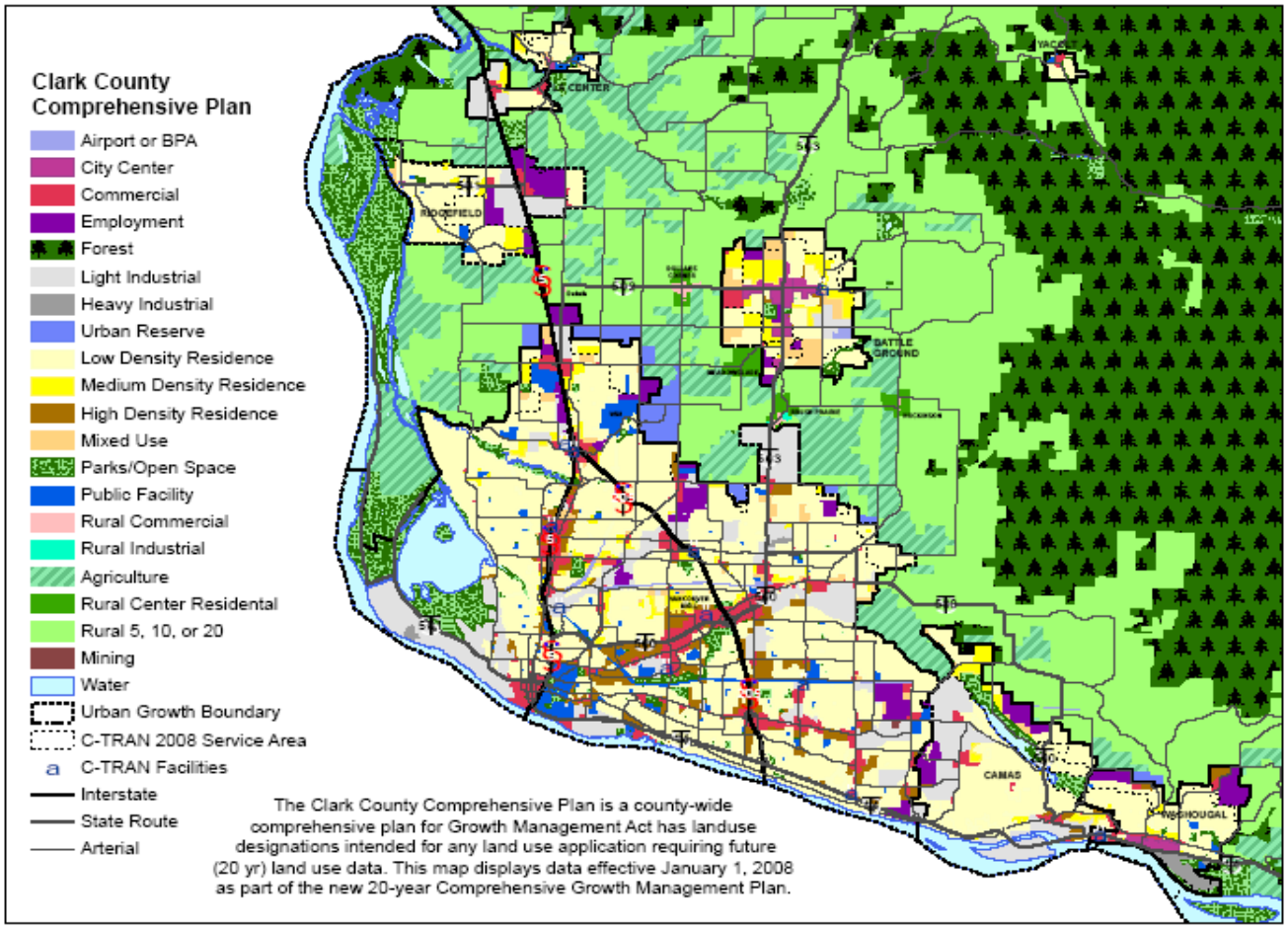


Clark County Land Use

Growth within the majority of the PTBA is projected to be along existing corridors. Commercial development will be concentrated in the I-5, Fourth Plain, Mill Plain, and Northeast 162nd & 164th Avenue corridors. Employment and housing growth at the fringes of the service area is expected to continue. Significant additions of new roads (excluding widening) within Vancouver are not expecteb.

Exhibit 6

Clark County Comprehensive Plan



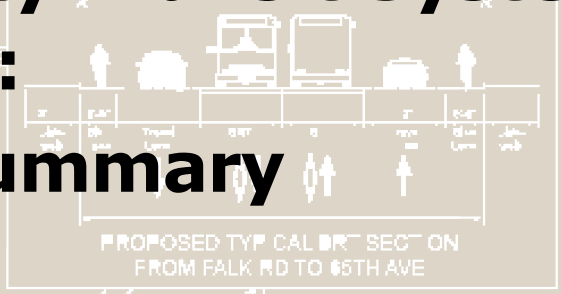
Projected Service Needs

Based on the demographic and land use analysis, several conclusions may be drawn. First, the corridors that have been identified for High Capacity Transit by the Regional Transportation Council (RTC) – Fourth Plain, Mill Plain, Highway 99 and I-205 – all show that they traverse areas of mixed employment and population densities.

There are several areas that are growing and have sufficient densities to support fixed-route transit. Additional service needs are projected in East Clark County, Battle Ground, and areas in the existing urban core.

The amount of residential growth in low density areas in Clark County clearly points to the need for additional park-and-ride space. Park-and-rides are one way to create density that will support transit service when the actual land uses do not.

Clark County
High Capacity Transit System Study
Final Report:
Executive Summary



Moving People -
Connecting Our Community

December 2008

Southwest Washington Regional Transportation Council

Clark County High Capacity Transit System Study

Executive Summary

Introduction

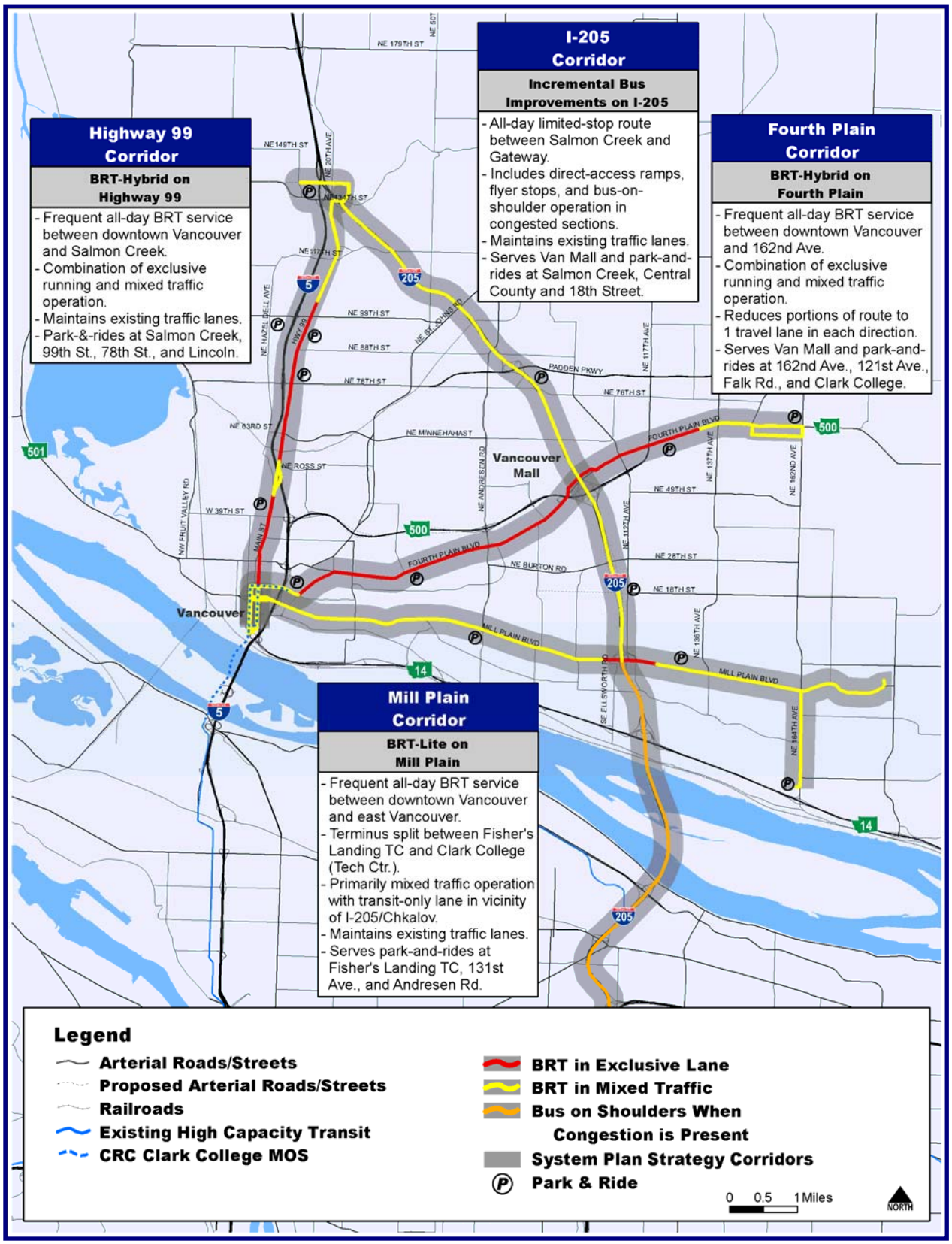
The Southwest Washington Regional Transportation Council (RTC) along with its partner agencies has completed a two-year planning effort to develop a high-capacity transit (HCT) system. The High Capacity Transit System Plan includes bus rapid transit (BRT) improvements in the Highway 99, Fourth Plain, and Mill Plain corridors and significant bus improvements in the I-205 corridor.

This plan provides a blueprint for C-TRAN and the Clark County region as they move forward to implement transportation improvements in the planned HCT corridors. Local jurisdictions and transportation agencies will be asked to consider the ultimate build-out of this plan as they prepare capital improvement programs and work plans.

There are costs associated with implementing this plan. Capital costs will be required to provide substantial segments of exclusive guideway operation where BRT buses can operate separated from adjacent traffic congestion. Preliminary estimates show that future-year transit operating costs could increase with the full implementation of the HCT plan, but will be offset through reliability, travel time savings, and ridership improvements.

Most of the HCT routes identified in this plan represent operational improvements on existing, productive C-TRAN bus routes. As refinement plans/alternatives analyses are prepared in each corridor, they will determine the final mode and alignment issues and include an implementation strategy that could be tied to competing for federal New Starts transit capital grants. The recommended plan is shown in Figure ES-1.

Figure ES-1
Clark County HCT System Plan



Background

The Clark County High Capacity Transit System Study was initiated in late 2006 to develop a plan for HCT to serve Clark County. HCT is service that can improve reliability and carry more people at higher speeds than a standard bus line. Transit passenger capacity can be expanded through increasing the number of vehicles, vehicle size, frequency, travel speed or a combination of these elements.

High-Capacity Transit

HCT is service that can improve reliability and carry more people at higher speeds than a standard bus line.

The potential to extend a high-capacity transit system from Portland into Clark County has been evaluated several times over the last 15 years. The reason for initiating this HCT system planning process was to examine the potential for HCT within and across all of Clark County. The study was also timely in determining how a Clark County HCT system could connect to the Columbia River Crossing Project. The Columbia River Crossing Project's Locally Preferred Alternative identified light rail to Clark College as the preferred method to connect downtown Vancouver to the Portland MAX system. The Clark County HCT System Study builds from this bi-state connection and addresses HCT connections to the Columbia River Crossing Project, within Clark County and the bi-state connection in the I-205 corridor.

Study Process

The Clark County HCT planning process moved methodically from evaluating a wide range of potential HCT modes and corridors to identifying the most promising modes and corridors and then to providing a detailed assessment of the modes and corridors. The study processes included the following steps:

- Adopt Study Purpose Statement and Goals and Objectives
- Identify Promising HCT Modes
- Identify Promising HCT Corridors
- Corridor Analysis
- Corridor Evaluation
- System Plan Scenarios
- Policies and Recommendations

Bus rapid transit vehicle, Springfield, Oregon

Several committees were established to guide and oversee the progress of the HCT study. These included the following:

Steering Committee – Comprised of elected officials and agency directors to provide policy direction for the study and provide recommendations to the RTC Board.

Task Force – Citizen based committee appointed to represent key stakeholders and constituencies in the county.

Sounding Board – At key milestones, active citizens were invited along with the public to hear project updates and provide input.

Purpose, Goals and Objectives

The Clark County High Capacity Transit System Study has employed an extensive public involvement process. The public has been invited to Sounding Board meetings, Task Force meetings and Steering Committee meetings. Public involvement activities also consisted of open house type public events, presentations to neighborhood groups, a traveling display board, Website, e-mail updates, and on-line surveys. In addition, numerous articles about the study have appeared in local newspapers.

The Task Force developed, and the Steering Committee adopted, a study purpose statement that called for the study to "…identify a high-capacity transit system that provides efficient and high-quality transit service connecting county residents with where they want to go."

Locomotive-hauled commuter rail train, Tacoma, Washington

The committees also developed goals and objectives for the study in three major categories:

Transportation – Focused on optimizing travel time, access, ridership and regional connections.

Community – Focused on supporting economic development, livable and sustainable communities and providing a healthy environment.

Feasibility – Focused on developing an affordable and implementable plan and providing for the long-term viability of HCT improvements in the county.

Modes

The study team identified nine potential HCT modes to be considered. The modes were evaluated based on how well they met the study purpose and goals, whether they were proven technologies, their economic development potential, their cost and their land use compatibility. Based on the initial assessment, four modes – heavy rail, monorail, personal rapid transit and water (river) transit – were eliminated as not being viable to consider for Clark County. The remaining five potentially viable HCT modes included:

- BRT-Lite (bus rapid transit in mixed traffic)
- BRT-Full (bus rapid transit in exclusive guideway)
- Streetcar
- Light Rail
- Commuter Rail

An additional HCT mode option, BRT-hybrid, was developed later in the study. BRT-hybrid was developed to identify capital improvement strategies that had a lower capital cost than the BRT-full concepts, but could maintain the ability to save significant bus travel time by utilizing cost-effective portions of exclusive guideway.

Corridors

Fifteen travel corridors in Clark County were identified and an initial assessment was prepared measuring their suitability to function as HCT corridors. Based on this initial assessment, five corridors were selected by the Steering Committee as promising HCT corridors that merited more detailed analysis. The five corridors included:

- I-5/Highway 99
- SR-500/Fourth Plain
- I-205
- SR-14/Mill Plain
- Chelatchie Prairie

Representative HCT Concepts

The study prepared representative HCT concepts in order to evaluate the HCT potential in the five study corridors. The HCT concepts included a range of alignment and mode options in each corridor (except in the Chelatchie Prairie corridor which evaluated only commuter rail). The development of the concepts relied on proven engineering principles to identify right-of-way width, structures, signal requirements and other design elements. The concepts provided enough detail to prepare order-of-magnitude capital cost estimates, prepare a planning-level evaluation of impacts and to prepare an operating plan sufficient to analyze the transportation impacts and ridership potential.

Light rail transit with exclusive right-of-way, Portland, Oregon

The concepts were mapped showing the general alignments, stations, park-and-rides and connections to other parts of the transit system. It is important to note that these concepts were intended to provide a representation of how HCT could be developed in the corridors and to provide a reasonable method by which to compare alignments and modes within a corridor and to compare among the corridors.

Corridor Analysis

Transit Ridership – Transit ridership was analyzed using RTC's regional travel demand model for 2030 for each of the concepts.

Land Use – The study examined existing and the future adopted GMA land use characteristics in each corridor using Clark County geographic information system (GIS) data. Residential and employment densities were calculated for an area within a half-mile of each of the alignment concepts.

Environmental Issues – A reconnaissance-level environmental analysis was prepared for each corridor. Because the alignments are only conceptual at this level of analysis, the reconnaissance provided very general findings about the potential for environmental issues and impacts in the corridors.

Cost – The study prepared order-of-magnitude capital cost estimates for each design concept. These cost estimates were based on unit costs from recently completed HCT projects and were intended to provide a general level of comparison among design concepts in a corridor and among concepts in different corridors.

Corridor Evaluation

Modern streetcar vehicle, Tacoma, Washington

The corridor evaluation included comparisons of modes and alignments within each corridor and comparisons among the different corridors.

Based on this evaluation, the Steering Committee approved the draft system plan strategy which identified corridor elements to be considered for inclusion in the final HCT System Plan. The draft system plan strategy included HCT elements on the following corridors:

- I-5/Highway 99
- Fourth Plain
- I-205
- Mill Plain

System Plan Scenarios

A series of five system plan scenarios was developed to test how the HCT treatments in the four corridors would perform as a complete system. The five scenarios are described below:

Scenario 1 – Developed to test an HCT system with limited capital investment focusing on a small set of corridors.

Scenario 2 – Developed to test an HCT system that assumes an aggressive level of capital investment with the goal to maximize transit ridership.

Scenario 3 – Developed to test an HCT system that includes streetcars as a key element serving major travel corridors.

Scenario 4 – Developed to test an HCT system that focuses major capital improvements on the bi-state corridors (I-5 and I-205).

Scenario 5 – Developed to test an HCT system that includes BRT capital improvements in each of the four major corridors.

Based on this evaluation, a recommended system plan was developed that maintained a strong level of transit ridership while minimizing the total operating and capital cost.

HCT System Plan and Policy Context

One of the study's underlying findings is that while the design of a good HCT system is critical, it is not enough to ensure successful HCT project implementation. A well designed set of HCT facilities needs to be complimented by the following:

- Transit-supportive land use strategies
- Collaboration among public agencies
- Commitment to the project at both political and staff levels
- Continued public engagement and support
- Actions by public agencies to amend and implement HCT policies

HCT System Plan Recommendations

The Clark County High Capacity Transit System Plan recommendations are shown as Figure ES-1 on Page ES-2. The following describes these recommendations by corridor:

Highway 99 Corridor – HCT in this corridor needs to serve both intra-Clark County trips and bi-state trips. Recommendations in this corridor include the following:

- Frequent all-day BRT service on Highway 99 between downtown Vancouver and Salmon Creek
- Combination of exclusive and mixed traffic operation
- Maintain existing traffic lanes
- Park-and-rides at Salmon Creek, 99th Street, 78th Street and Lincoln

Fourth Plain Corridor – HCT in this corridor should focus on serving intra-Clark County trips with the ability to accommodate some bi-state trips. Recommendations in this corridor include the following:

- Frequent all-day BRT service between downtown Vancouver and 162nd Avenue
- Combination of exclusive and mixed traffic operation
- Reduce portions of route to one travel lane in each direction
- Serve Van Mall and park-and-rides at 162nd Avenue, 121st Avenue, Falk Road and Clark College

Bus rapid transit with exclusive right-of-way/lanes (BRT-full), Bogotá, Colombia

I-205 Corridor – HCT in this corridor needs to serve both intra-Clark County trips and bi-state trips. Recommendations in this corridor include the following:

- All-day limited-stop route between Salmon Creek and Gateway
- Includes direct-access ramps, flyer stops, and bus-on-shoulder operations
- Maintain existing traffic lanes
- Serves Van Mall and park-and-rides at Salmon Creek, Central County and 18th Street

Bus rapid transit with exclusive right-of-way/lanes (BRT-full), Los Angeles, California

Mill Plain Corridor – HCT in this corridor should focus on serving intra-Clark County trips with the ability to accommodate some bi-state trips. Recommendations in this corridor include the following:

- Frequent all-day BRT service between downtown Vancouver and east Vancouver
- Terminus split between Fisher's Landing Transit Center and Clark College (Tech Center)
- Primarily mixed traffic operation with transit-only lane in vicinity of I-205/Chkalov
- Maintain existing traffic lanes
- Serves park-and-rides at Fisher's Landing Transit Center, 131st Avenue and Andresen Road

Table ES-1 summarizes the daily HCT ridership and order-of-magnitude capital cost for the recommended System.

Table ES-1
HCT Corridors Summary

HCT Corridor	Daily Ridership	Capital Cost
Highway 99	9,120	$115 million
Fourth Plain	9,480	$152 million
I-205	6,109	$80 million
Mill Plain	8,260	$60 million

HCT System Policy Recommendations

Listed below are the central HCT policies that apply across the system and to individual projects.

Overall HCT Policies

- HCT needs to maximize ridership by serving both intra-county and bi-state transit trips
- HCT system needs to move transit vehicles through corridors faster than conventional bus
- Maximize access to the HCT system by locating stations within walking distance of major activity centers and park and rides
- Balance the trade-offs between ridership and cost

HCT Land Use Policies

- Transit-supportive densities
- A mix of land use
- Transit-oriented pedestrian environment
- Parking management strategies
- Transit-oriented urban design

Next Steps

- Selection of a Priority Corridor
- Prepare a New Starts/Small Starts Strategy for HCT Corridors in Clark County
- Alternatives Analysis for Priority Corridor
- Prepare an HCT Funding Strategy

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Vancouver, WA 98666-13666
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STAFF REPORT/RESOLUTION

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Dean Lookingbill, Transportation Director
DATE: November 25, 2008
SUBJECT: **Clark County High Capacity Transit System Plan Recommendations, Resolution 12-08-18**

BACKGROUND

In November, the RTC Board reviewed the draft report, including the draft System Plan policies and recommendations. At the December RTC Board meeting, the final draft Clark County High Capacity Transit System Plan will be reviewed, and RTC Board will be asked to recommend approval of the HCT System Plan.

CLARK COUNTY HIGH CAPACITY TRANSIT SYSTEM PLAN

The attached Clark County High Capacity Transit System Plan Executive Summary provides an overview of the HCT study process, technical analysis, key milestone decisions, and the HCT system and policy recommendations. A copy of the Draft Final Clark County High Capacity Transit System Plan will be available at the December RTC Board meeting.

In addition to the report, there are a set of appendices that provide detailed information and data to support the plan and recommendations. The final report, executive summary, appendices, along with other study information, will be available on RTC's website following RTC Board action on December 2, 2008.

HCT SYSTEM PLAN RECOMMENDATIONS

The Clark County High Capacity Transit System Plan recommendations are shown in the HCT Executive Summary as Figure ES-1 on Page ES-2 and the policy recommendations are listed on page ES-8. The following sections describe the HCT transportation corridor and policy recommendations.

Transportation Corridor Recommendations

Highway 99 Corridor - HCT in this corridor needs to serve both intra-Clark County trips and bi-state trips. Recommendations in this corridor include the following:

- Frequent all-day BRT service between downtown Vancouver and Salmon Creek
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- Serves Van Mall and park-and-rides at Salmon Creek, Central County, and 18th Street

Mill Plain Corridor - HCT in this corridor should focus on serving intra-Clark County trips with the ability to accommodate some bi-state trips. Recommendations in this corridor include the following:

- Frequent all-day BRT service between downtown Vancouver and east Vancouver
- Terminus split between Fisher's Landing Transit Center and Clark College (Tech Center)
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- Maintain existing traffic lanes
- Serves park-and-rides at Fisher Landing Transit Center, 131st Avenue, and Andresen Road

Policy Recommendations

One of the study's underlying findings is that while the design of a good HCT system is critical, it is not enough to ensure successful HCT project implementation. A well designed set of HCT facilities needs to be complimented by: 1) transit supportive land use strategies, 2) collaboration among public agencies, 3) commitment to the project at both political and staff levels, 4) continued public engagement and support, and 5) actions by public agencies to amend and implement HCT policies.

Listed below are the overall HCT policies that apply across the system.

Overall HCT Policies

- HCT needs to maximize ridership by serving both intra-county and bi-state transit trips
- HCT system needs to move transit vehicles through corridors faster than conventional bus
- Maximize access to the HCT system by locating stations within walking distance of major activity centers and park and rides
- Balance the trade-offs between ridership and cost

HCT Land Use Policies

- Transit supportive densities
- A mix of land use
- Transit-oriented pedestrian environment
- Parking management strategies
- Transit-oriented urban design

HCT SYSTEM STUDY DECISION MAKING PROCESS

The HCT system recommendations have been endorsed by the HCT Task Force, HCT Steering Committee, and the Regional Transportation Advisory Committee (RTAC). In addition, staff has been presenting the draft recommendations to a number of partner agencies in order to get their feedback (Vancouver, Camas, Washougal, Battle Ground, Ridgefield, and all three Ports). Following the December RTC action, the HCT system recommendation would be presented to the C-TRAN Board for their incorporation into their Transit Development Plan along with a decision on an HCT priority corridor.

The next phase (spring/summer 2009) of the HCT system process would include actions to identify the priority HCT corridor and to amend RTC's Metropolitan Transportation Plan (MTP). The overall MTP amendment would include the HCT system, C-TRAN's TDP and the HCT priority corridor.

POLICY IMPLICATION

The HCT system plan provides a framework for C-TRAN and the Clark County region as they move forward to implement transportation improvements in the planned HCT Corridors. However, final mode and alignment issues will be determined through the defined Federal Transit Administration's New Start process.

BUDGET IMPLICATION

As the region continues to pursue the development of the HCT system, there will be significant costs associated with implementation of the Clark County High Capacity Transit System Plan. However, at this point in time, the next set of costs would only include the planning and engineering costs needed to complete FTA's Alternative Analysis and environmental process.

ACTION REQUESTED

Adoption of Resolution 12-08-18, "Clark County High Capacity Transit System Plan Recommendations".

ADOPTED this 2nd day of December 2008,
by the Southwest Washington Regional Transportation Council.

SOUTHWEST WASHINGTON
REGIONAL TRANSPORTATION COUNCIL

Royce E. Pollard
Chair of the Board

ATTEST:

Dean Lookingbill
Transportation Director

Attachment

20081202RTCB_Resol120818_HCTPlan.doc

Columbia River Crossing Project

Overview

The Columbia River Crossing (CRC) is a bridge, transit and highway improvement project for five miles of I-5 from State Route 500 in Vancouver, Washington, to approximately Columbia Boulevard in Portland, Oregon. CRC is studying a replacement I-5 bridge over the Columbia River with light rail extending from the Expo Center in Portland to Clark College in Vancouver. In July 2008, this alternative was selected by local project partners as providing the best opportunities to relieve congestion improve safety and freight mobility and increase travel options on I-5 while meeting community needs.

Purpose and Need

To address the transportation problems on I-5, a combination of bridge, public transit and highway solutions are needed. If we do not move forward with a comprehensive long-term solution now, the problems will only get worse. This project will address:

- Growing travel demand and congestion.
- Impaired freight movement.
- Limited public transportation operation, connectivity and reliability.
- Safety and vulnerability to collisions.
- Substandard pedestrian and bicycle facilities.
- Seismic vulnerability.

C-TRAN

BOARD RESOLUTION BR-08-019

A RESOLUTION OF THE CLARK COUNTY PUBLIC TRANSPORTATION BENEFIT AREA AUTHORITY (C-TRAN) BOARD OF DIRECTORS ENDORSING A LOCALLY PREFERRED ALTERNATIVE (LPA) FOR THE PROPOSED COLUMBIA RIVER CROSSING (CRC) PROJECT, ESTABLISHING POLICY FOR FUTURE CRC PROJECT DECISIONS, AND PROVIDING DIRECTION TO C-TRAN'S REPRESENTATIVE ON THE SOUTHWEST WASHINGTON REGIONAL TRANSPORTATION COUNCIL (RTC) BOARD OF DIRECTORS REGARDING THE CRC LPA.

RECITALS

WHEREAS, the Clark County Public Transportation Benefit Area Authority (dba C-TRAN), as a municipal corporation organized under Ch. 36.57A RCW, is empowered to provide public transportation services; and

WHEREAS, C-TRAN is authorized under Ch. 81.104 RCW, to plan, develop, and implement High Capacity Transit (HCT) services; and

WHEREAS, the I-5 Interstate Bridge is one of only two Columbia River crossings between Vancouver, WA and Portland, OR and approximately 150,000 people rely on crossing the I-5 Bridge daily by car, transit, bicycle and on foot; and

WHEREAS, the existing structures are aging and in need of seismic upgrade, and the closely-spaced interchanges are in need of safety improvements; and

WHEREAS, HCT does not currently connect Vancouver and Portland, and the bicycle and pedestrian paths do not meet current standards; and

WHEREAS, the I-5 Transportation and Trade Partnership Final Strategic Plan recommended congestion and mobility improvements within the I-5 Bridge Influence Area in 2002; and

WHEREAS, The CRC Task Force was established in February 2005 to advise the Oregon Department of Transportation and Washington State Department of Transportation on project related issues and concerns; and

WHEREAS, the CRC Task Force advised development of the project's Purpose and Need Statement, alternatives development, and narrowing of the alternatives to five that would be studied in a Draft Environmental Impact Statement (DEIS); and

WHEREAS, the CRC project published a Draft DEIS on May 2, 2008 disclosing the environmental and community impacts and potential mitigation of the five alternatives; and

WHEREAS, the CRC project held two open houses and two public hearings during the DEIS comment period, and received over 700 comments within the DEIS comment period ending July 1, 2008; and

WHEREAS, the Oregon State Department of Transportation, Washington State Department of Transportation, Metro Council, Southwest Washington Regional Transportation Council, TriMet and C-TRAN, as sponsor agencies, are co-lead agencies in the issuance of the Draft Final Environmental Impact Statement ; and

WHEREAS, on June 24, 2008 the CRC Task Force adopted a resolution recommending a replacement bridge with three through lanes northbound and three through lanes southbound; light rail transit; and a high capacity transit alignment and terminus that is agreed to by the City of Vancouver and C-TRAN and meets technical and federal funding requirements; and

WHEREAS, the CRC project is committed to implementing the principles of sustainability into project planning, design and construction in order to improve the natural environmental and the regional economy whenever possible; and to minimize effects related to climate change; and

WHEREAS, endorsement of an LPA is one "narrowing" step in a multi-step process and an important opportunity for the C-TRAN Board of Directors to articulate both support for the project and concerns and consideration for future decision making, which will be weighed at this and subsequent steps; and

WHEREAS, the C-TRAN Board of Directors will vote directly on several subsequent steps in this multi-step process as the project proposal evolves.

NOW, THEREFORE, BE IT RESOLVED that the C-TRAN Board of Directors, incorporating by reference herein the above Recitals:

1. Endorses an LPA for the CRC Project as follows:

   A. RIVER CROSSING: A replacement bridge on two structures of three through lanes in each direction with a minimum number of auxiliary lanes needed for functionality.

   B. HIGH CAPACITY TRANSIT (HCT) MODE: Light rail transit between the Oregon side of the river and the northern HCT terminus in Clark County.

   C. HCT TERMINUS: Clark College in Clark County without use of satellite park-and-ride lots.

D. HCT ALIGNMENT:

1. The CRC HCT terminus, station placement, alignment and design must be flexible and allow for future HCT extensions and connections in Clark County.

2. The HCT alignment must permit local bus route access along the HCT alignment in downtown Vancouver.

E. HCT FINANCING:

1. Capital financing of the HCT component of the CRC Project shall be structured in such a way that C-TRAN is not required to ask voters for capital construction funding.

2. Any means chosen to finance operations of the HCT component of the CRC project shall be submitted to impacted C-TRAN voters for approval.

3. Initiation of HCT service in Clark County should provide a net service benefit to existing C-TRAN patrons, without diverting existing revenues from C-TRAN's current operating and capital costs.

4. CRC Project construction, operation and maintenance costs should be divided between Washington and Oregon according to the proportion of the project within each state. For HCT capital, operation and maintenance costs the proportions shall be calculated by dividing the length of the HCT corridor in Washington and the length of the HCT corridor in Oregon, as determined by the State DOT's acknowledged state line in the Columbia River, by the total length of the HCT corridor from the Expo Center Station to the terminus in Clark County.

F. SUSTAINABILITY: Highway, bridge and HCT design and construction should reflect principles of sustainability, cost efficiency, context sensitivity, and avoid and minimize adverse impacts.

2. We support creation of a formal oversight committee that strives for consensus and provides for a public process of review, deliberation and decision-making for outstanding major project issues and decisions; which committee shall be composed of one top level elected or appointed representative from the Washington State Department of Transportation, Oregon Department of Transportation, cities of Portland and Vancouver, Metro, Southwest Washington Regional Transportation Council, TriMet, C-TRAN, and two representatives of the public.

3. Directs its representative serving on the Southwest Washington Regional Transportation Council Advisory Board to support and advocate for the CRC LPA consistent with this resolution.

ADOPTED at the regular session of the Board of the Clark County Public Transportation Benefit Area Authority, this 8th day July of 2008.

AYES: Marc Boldt, Linda Dietzman, Bill Ganley, Jim Irish, Betty Sue Morris Jeanne Stewart, Steve Stuart, Chair Tim Leavitt

NAYS: Jeanne Harris

ABSENT:

Tim Leavitt, Chair

Attest:

Debbie Jermann, Clerk of the Board

7/1/2008 dj
Board:BR CRC Endorcement.doc

C-TRAN 2030

CHARTING TOMORROW'S C-TRAN

Chapter III

Public Involvement

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Public Involvement Plan

Outreach Foundation

C-TRAN's 20-Year Transit Development Plan (TDP) looked into the future to determine the levels, placement and modes of transit services needed to meet the transportation demands of a growing community. Once adopted, this long-range plan will guide C-TRAN through capital facility and service design options over two decades. It was therefore, imperative that the public weighed in to provide meaningful input as the plan was developed.

The outreach plan included the following themes:

1. *Open Discussion*: In an effort to build community support and encourage constituent decision making, C-TRAN committed to providing citizens with opportunities to review and discuss the major issues associated with various service concepts. Discussion, as a part of on-going outreach, fed into every aspect of the plan's development.

2. *Reaching All Constituents*: C-TRAN employed an array of public outreach methods that targeted different groups and individuals in a variety of ways. The public process elicited participation from as many people as possible and significant effort was directed toward existing C-TRAN riders and employees.

3. *Meaningful Participation*: C-TRAN offered opportunities for active participation that incorporated real public dialogue and concluded with actionable results. Agency staff responded to ideas from the public and integrated feedback into final decisions.

Purpose

The purpose of the public involvement program was to seek as much public input as possible for the development of C-TRAN's 20-Year Transit Development Plan.

Goals

The goals of the public engagement process were to:

- Learn citizen expectations for C-TRAN's role in Clark County's growth and development;
- Identify citizen expectations for transit services and facilities;

- Inform citizens about C-TRAN's service alternatives and provide an overview of the agency's finances;
- Learn what citizens thought about how to pay for expanded C-TRAN services and facilities;
- Determine the level of public support for the various alternatives; and
- Define C-TRAN's role in Clark County and the Portland metropolitan region.

The Plan

With the above guidelines and goals in place, C-TRAN implemented the following public involvement process as the basis for developing C-TRAN's 20-Year TDP. The process had three distinct action phases and solicited input from a number of different audiences. The initial public involvement process began July 2008.

Phase I – Kick Off

Meeting with jurisdictions: C-TRAN staff briefed officials from local jurisdictions on the status of C-TRAN's 20-Year TDP process and informed them of the agency's intent to begin significant public involvement in Fall 2008.

Phase II – Involvement

1. Staff utilized a variety of methods to present the 20-Year TDP information to numerous groups and individuals.

2. Staff identified and communicated with specific groups for targeted outreach including but not limited to the following:
    - Chambers of Commerce
    - Civic groups (Kiwanas, Lions, etc.)
    - Environmental Organizations
    - Identity Clark County
    - Public School Districts, Clark College, WSU Vancouver
    - Major Businesses
    - Key Community Leaders

3. Held public open houses in several jurisdictions within the C-TRAN service area.

4. Provided information to C-TRAN riders through the rider newsletter *Transitions*, on-board advertisements, survey instruments and the C-TRAN web site.

5. In addition to public meetings, information and invitations to comment were included in the rider newsletter, on the C-TRAN web site, at Passenger Service Offices, and aboard buses for both the preliminary alternatives and the preferred alternative.

Phase III: Public Comment Review

1. Public comments received were collected and summarized to clarify input.

2. The C-TRAN Board of Directors was briefed on the feedback received and was encouraged to discuss possible changes to the alternatives.

What We Heard

The public involvement process was initiated in July 2008 through a series of meetings with officials throughout the C-TRAN service area. The meetings were aimed at informing local jurisdictions of the 20 year planning process and the agency's intent to begin significant public outreach which would include open houses and other efforts to encourage citizen involvement.

From there, C-TRAN staff spent several months presenting 20 Year TDP information and answering the questions and comments of over 450 citizens who telephoned, emailed, or attended a neighborhood association, service club or open house meeting held throughout the community.

Over this period of time, the feedback received on the three service concepts – 1 Coverage Based Growth, 2 Productivity Based Growth, and 3 High Capacity Transit – was that the responders were divided over whether to provide more productive, frequent service on main corridors, or to add coverage service in areas of growth. As a result, C-TRAN conducted additional outreach.

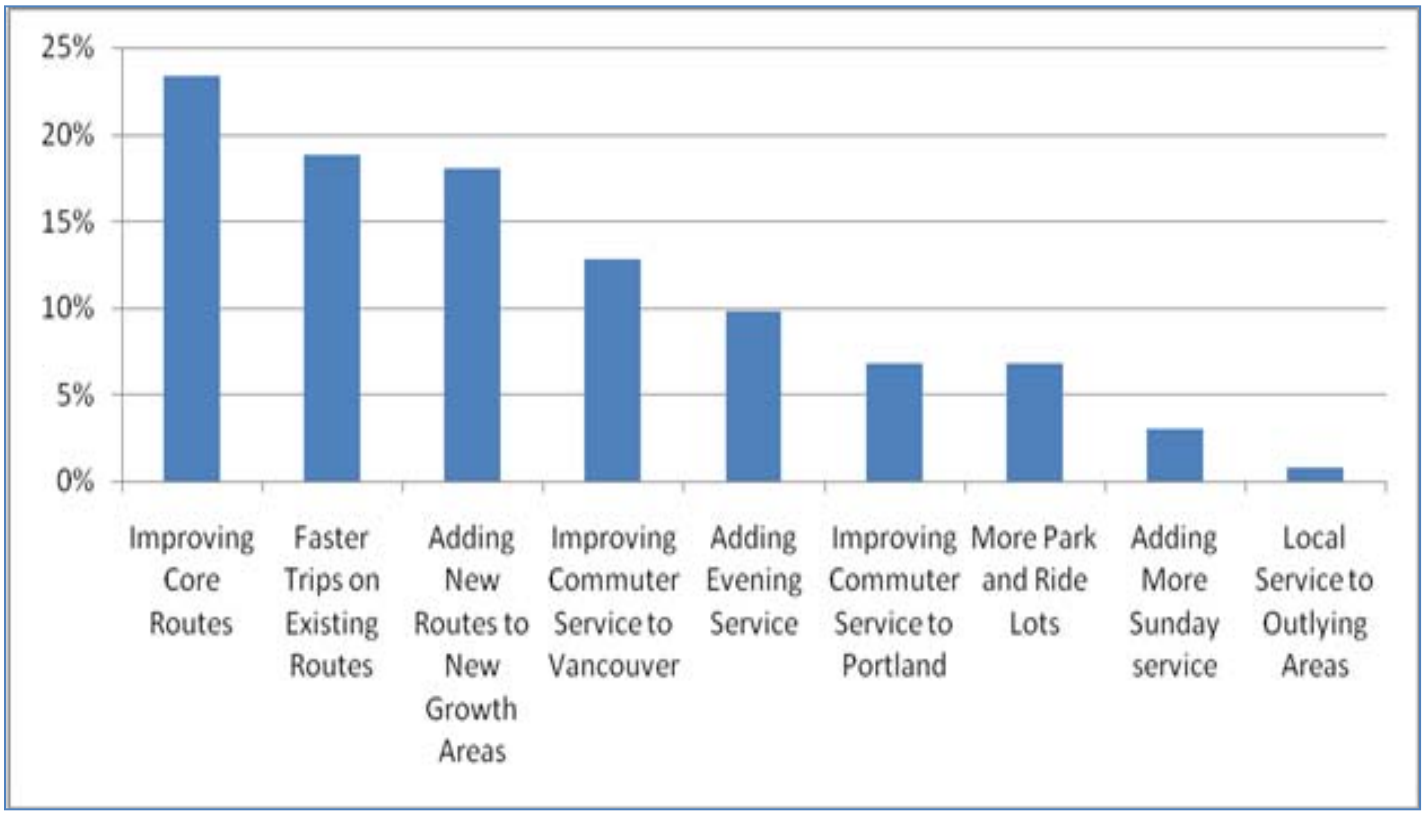
In February 2009, C-TRAN staff hosted two facilitated stakeholder workshops aimed at prioritizing service improvements. There were 20 participants between the two meetings. Among them were representatives from the City's of Vancouver, Camas and La Center; the Human Services Council; Identity Clark County; Southwest Washington Medical Center; Ft. Vancouver Regional Library; Clark County Public Health; Columbia River Mental Health; neighborhood associations and the Regional Transportation Council.

After presenting 20 year plan background information and service concepts, participants were given the task of deciding where to spend additional resources if they were available. Service concepts or tradeoffs were presented on a game board and teams were formed to "spend" their future resources on the types of services they thought would be most beneficial to the community.

The feedback, represented in the graph below, clearly supported an increase in productivity and efficiency on existing higher ridership routes, followed by adding service in areas of new growth.

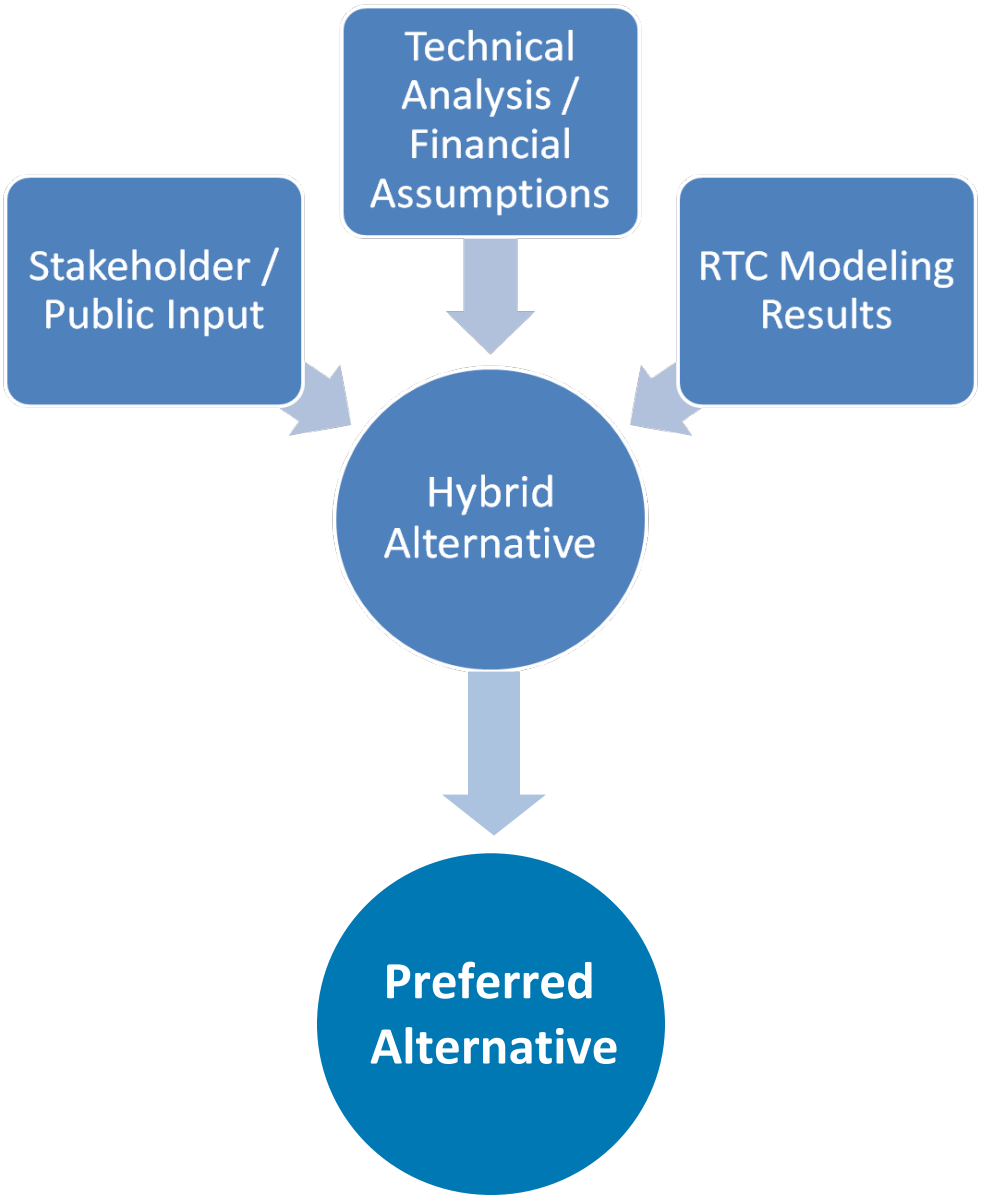
Exhibit 7

Stakeholder Focus Group Activity



Preliminary Conclusion

The public involvement process provided invaluable feedback for the development of an additional service alternative based on citizen and stakeholder feedback. When factoring additional technical analysis, financial assumptions and the results of ridership projections, all pointed to a hybrid alternative that would incorporate constituent feedback and combine the best attributes of the three alternatives.



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Identifying a Preferred Alternative

The development of an additional service alternative based on citizen and stakeholder feedback lead to staff recommending a preferred alternative that would add new service to areas of growth, more service in core areas, C-TRAN's first bus rapid transit corridor and provisions for light rail in downtown Vancouver. At their July 2009 meeting, the C-TRAN Board of Directors authorized staff to take the preferred alternative – C-TRAN 2030 – out for a second round of public involvement.

From October 2009 through May 2010, C-TRAN Speaker's Bureau presented C-TRAN 2030 to over 1,200 participants attending one of 55 public meetings with local associations, service clubs and chambers. An additional 19 events welcomed over 300 visitors who received information on the preferred alternative, asked questions and made comments. Feedback on the plan was also collected by phone, email and through the C-TRAN web site.

In February 2010, C-TRAN's Report to the Community featuring C-TRAN 2030, was delivered to nearly 128,000 residences as an insert in the Columbian, the Battle Ground Reflector and the Camas/Washougal Post Record. Staff also hosted three facilitated stakeholder group meetings aimed at confirming or redirecting C-TRAN 2030's proposed service improvements. There were 20 participants between the three meetings including representatives from Clark County, City of Vancouver, Human Services Council, Identity Clark County, Ft. Vancouver Regional Library, NAACP, Columbia River Mental Health, Evergreen School District, Sharp USA and neighborhood and business associations.

Feedback Themes

Feedback received through this phase of considerable public outreach, confirmed an overall support for C-TRAN 2030. Participants acknowledged the potential growth of our region and the need to expand services over the next 20 years especially for the aging population. Most were concerned about funding and maintaining core bus service and how the Columbia River Crossing Project may or may not impact the plan. The public involvement process provided a meaningful dialogue about the regional benefits of transit – the environment, economic development, jobs & mobility.

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Chapter IV

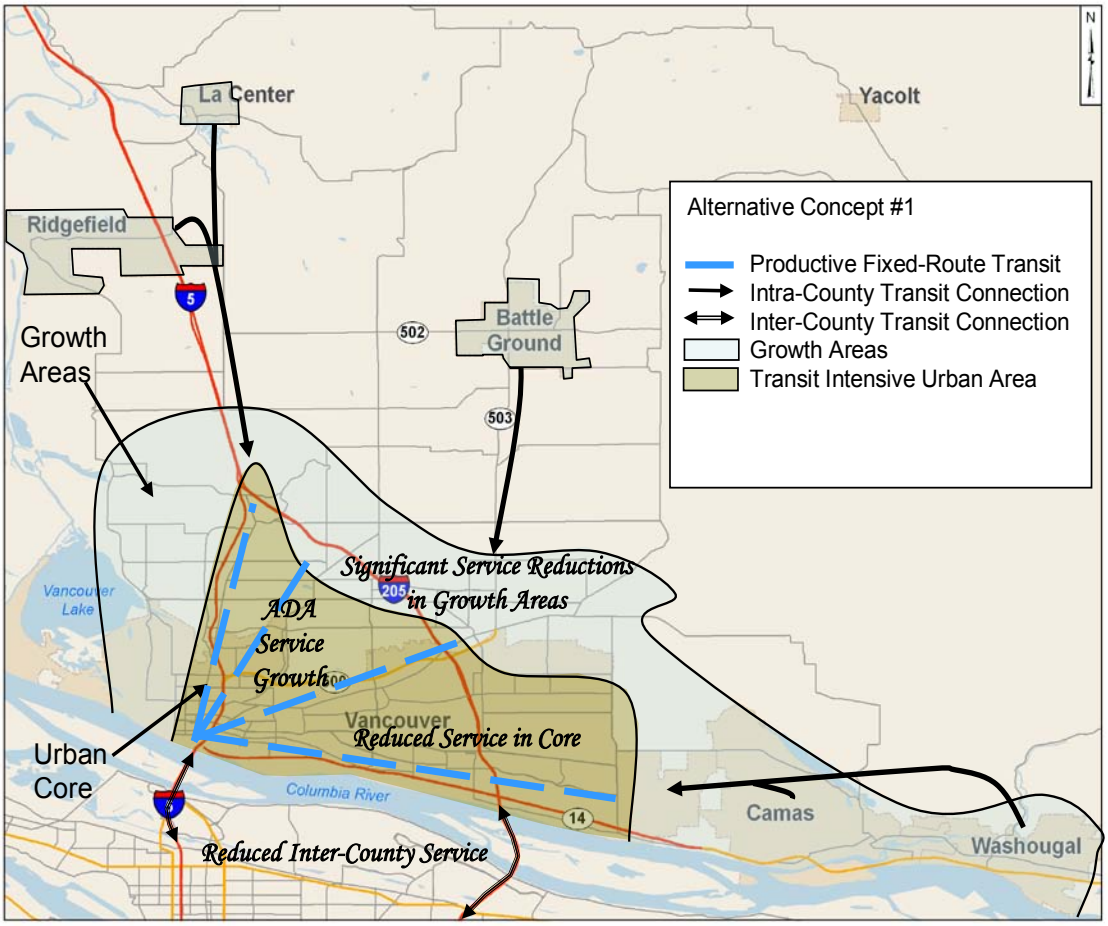
Service Alternatives

Underlying All Alternatives

Service and Taxing Boundary: All alternatives were based on C-TRAN's current service and taxing boundary including the City of Vancouver and its urban growth boundary and the city limits only of Battle Ground, Camas, La Center, Ridgefield, Washougal, and the Town of Yacolt.

Americans with Disabilities Act (ADA) Paratransit Service: In all alternatives, it was assumed that ADA paratransit service would grow and require a greater proportion of C-TRAN resources. This growth in ADA demand is due in part to population growth in the county and an aging population. ADA complementary service was constrained to a growth rate of 4-5 percent annually.

Alternative 1



Reduced Service Plan: No Sales Tax Increase

Concept: Service reduced to most productive and revenue generating routes, no coverage service levels, no opportunity to serve new growth areas.

Comparison with Current Service:

- Bus service likely limited to most productive fixed routes with selected reductions in service span and frequency.
- Reduction in fixed route hours by 2030 includes 116,000 from growth in ADA service, and 36,000 hours lost to operating in more congested conditions.
- Inter-county commuter express service could be reduced based on application of new service standards. Fares would be set to recover cost of service.
- Weekday and Evening service would need to be reduced.
- Weekend service probably eliminated.

Alternative 1 continued…

- C-VAN service increases with age of population, but service is reduced consistent with fixed route service reductions.
- Connector service eliminated unless funded through other sources.
- Vanpool service continues as option to reductions in commuter service.

Commuter Service connects to MAX stations at Delta Park and Parkrose. Service to downtown Portland likely eliminated.

New Facilities limited to capital replacements and maintenance as required to preserve assets. C-VAN fleet may need to expand to meet growing demand.

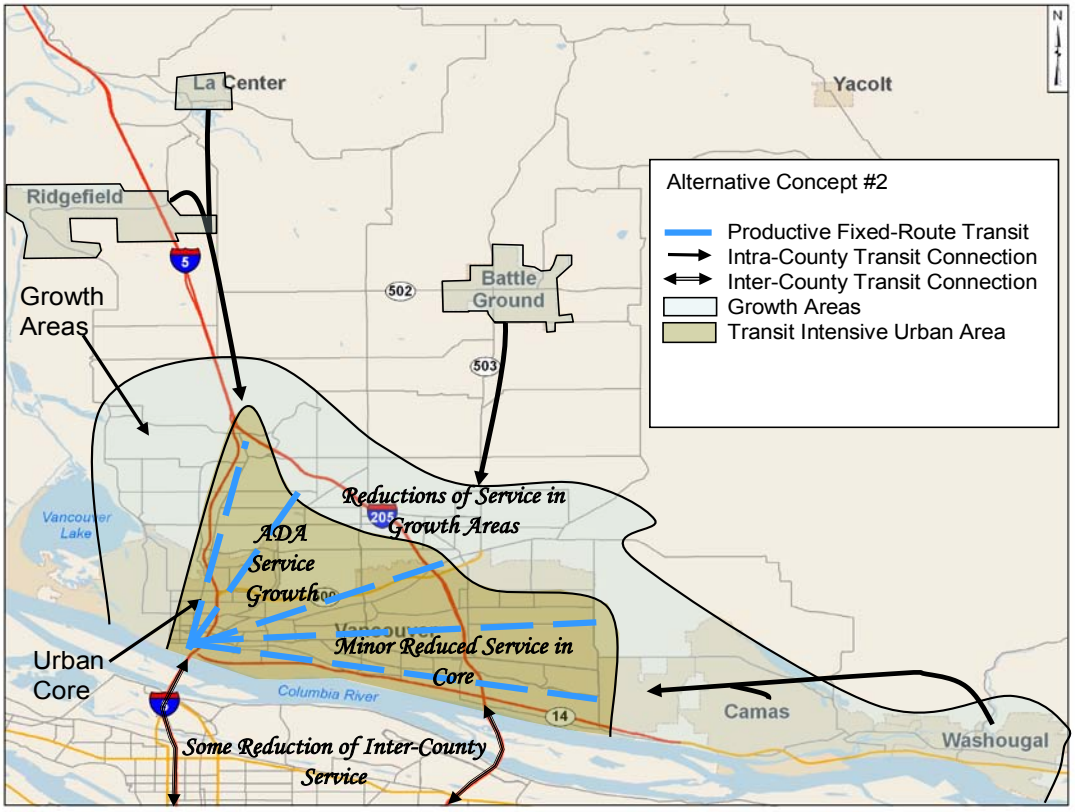
Benefits

- Highest ridership routes retained.
- No new funding required.

Consequences

- No progress towards implementation of the Board's 50-Year Vision.
- No ability to expand with additional modes of transit service.
- Reduces C-TRAN benefits to regional transportation network.
- No ability to expand service to provide broader coverage.
- Potentially reduced service area boundary.
- Unlikely to provide adequate transit service to new urban growth areas.

Alternative 2



Minimal Service Preservation: 0.2% Sales Tax Increase

Concept: Maintains current routes and coverage to the extent possible and utilizes limited sales tax increases to fund cost-constrained growth in complementary ADA service.

Comparison with Current Service:

- Frequency and span of fixed route service could be reduced to maintain coverage of existing routes throughout service area.
- Fixed route service reduced by 36,000 hours due to operating in increasingly congested conditions. Poorly performing routes may be eliminated.
- Weekday, Evening, and Weekend service may be reduced, although less severely than in Alternative #1.
- Connector service may be reduced based on service standard evaluations.
- Vanpool service continues as an option to reductions in commuter express service.

Commuter Service reduced but does maintain a connection to downtown Portland.

New Facilities are limited to capital replacements and maintenance as required to preserve assets. C-VAN fleet expanded to meet growing demand.

Alternative 2 continued…

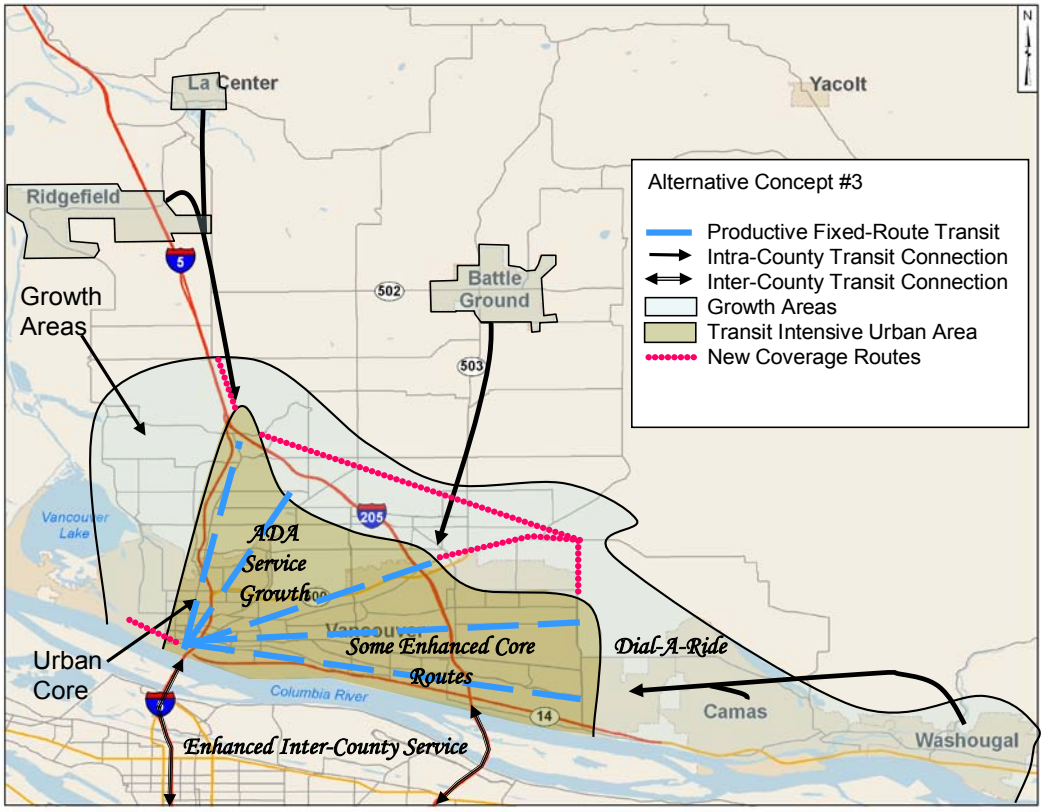
Benefits

- High ridership routes retained.
- ADA services will be fully funded and become a more prominent C-TRAN service.
- Maintains community mobility better than Alternative #1.

Consequences

- Board's 50-Year Vision unlikely to be realized.
- No ability to expand modes of transit service or service coverage.
- Potential reduced service boundary.
- Reduces C-TRAN benefits to regional transportation network.
- Asks voters to approve additional funding for transit service.
- No ability to expand service to provide broader coverage.
- Unable to provide service to new urban growth areas.

Alternative 3



Coverage Based Growth Service Plan: 0.4% sales tax increase

Concept: Maintains current levels of fixed route bus service to the extent possible. Utilizes sales tax increases to maintain existing service levels and also fund system-wide growth in coverage-based service.

Comparison with Current Service:

- Coverage and frequency of bus service increased based on growth projections in employment and housing densities.
- Approximately 65,000 additional hours available for 3-4 new routes providing coverage in new growth areas.
- Peak hour commuter service levels increase with additional service to existing and new park-and-ride facilities.
- Weekday, Evening, and Weekend service levels increased based on growth projections in employment and housing densities.
- Connector service maintained and possibly increased in smaller cities and other applications.

Alternative 3 continued…

- New service levels increased based on growth projections in employment and housing densities to emerging development areas in northern and eastern Clark County as well as Vancouver waterfront.
- Vanpool service increased in response to demand.

Commuter Service levels increased based on growth of employment districts within Clark County as well as bi-state demand.

New Facilities limited to capital replacement and maintenance as required to maintain assets, with potential for new park and ride lots in growth areas.

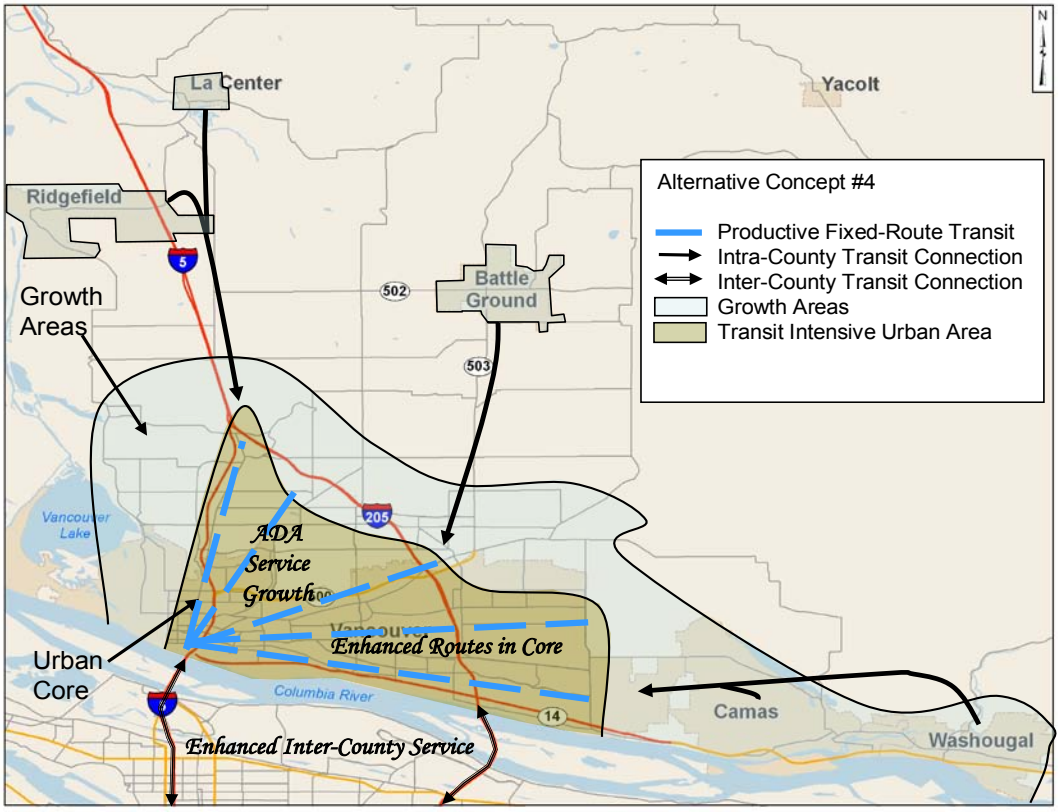
Benefits

- Improves access to social services and employment for riders dependent upon public transit.
- Highest ridership routes retained.
- More involvement in local land use planning and development.
- ADA services fully funded.
- Continues coverage service across service area.
- Connector service continues and possibly expands in smaller cities.
- More involvement and coordination with local land use planning and development.

Consequences

- Without additional transit modes, opportunities to implement Board's 50-Year Vision are limited.
- Limits C-TRAN's benefit to the regional transportation network, although provides more benefit than in Alternative #2.
- Asks voters to approve additional funding for transit service.

Alternative 4



Productivity Based Growth Service Plan: 0.4% sales tax increase

Concept: Increases bus service levels to the maximum extent possible. Utilizes sales tax increases to maintain existing service levels and also fund productivity based service growth system wide. Maintains transit connections throughout service area.

Comparison with Current Service:

- Frequency of bus service increased based on productivity of core routes. Approximately 65,000 additional hours available for new growth centers and corridors.
- New service to employment growth areas and transit supportive corridors.
- Commuter Express service increased based on productivity of individual routes.
- Weekday, Evening, and Weekend service levels increased based on productivity of individual routes.
- Connector service maintained in smaller cities and potentially converted to fixed route when warranted.
- Vanpool service increased in response to demand.

Alternative 4 continued…

Commuter Service levels increased based on productivity of individual routes, including expansion of intra-county and bi-state express bus service.

New Facilities programmed as required to meet demand in productive corridors as well as new park and ride facilities in growth areas.

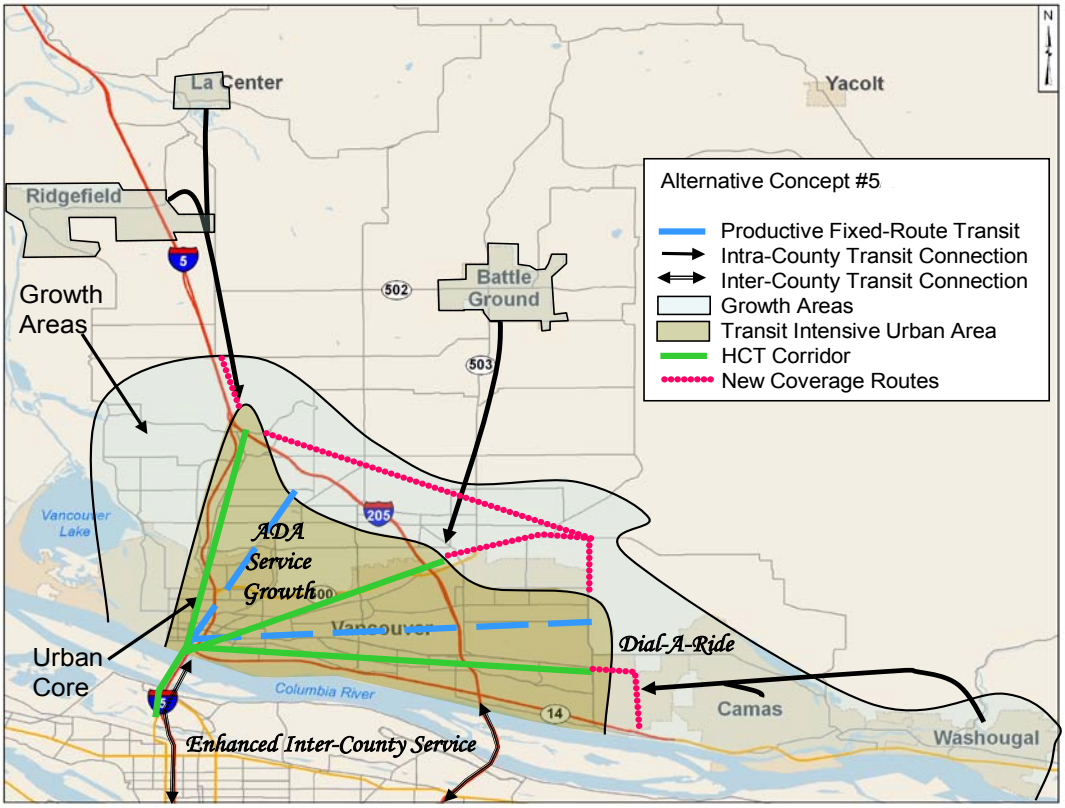
Benefits

- Increased service on high productivity routes attracts choice riders.
- Productive transit services provide congestion relief.
- More involvement and coordination with local land use planning and development.
- Supports economic development.
- ADA service fully funded.
- More efficient service is expected to carry more passengers per year than Alternative #3 service.

Consequences

- Alternative #4 is a first step toward implementing the Board's 50-Year Vision.
- Limits ability to expand modes of transit service to some BRT-lite type facilities in productive corridors but no high capacity transit services.
- Focuses C-TRAN's benefit to regional transportation network in the Vancouver core and urban growth areas. Benefits are limited outside of the core.
- Asks voters to approve additional funding for transit services.

Alternative 5



Regional High Capacity Transit System Plan: up to 0.6% increase in local sales tax and new high capacity transit sales and use tax

Concept: Increases transit service levels by adding high capacity transit modes with supportive fixed route bus service. Funds additional service through local sales tax increases, and new high capacity transit funding of up to 0.9 percent. Increases transit service in most productive regional and intra-county corridors. Service connections improve system-wide.

Comparison with Current Service:

- Frequency of fixed route bus service increased based on productivity of individual routes as well as some new routes serving developing areas of the county over time.
- Commuter Express increased based on productivity of individual routes and additional park-and-ride facilities.
- Weekday, Evening, and Weekend service levels increased based on productivity of individual routes.
- Connector service maintained.
- High capacity transit modes within Clark County.

Alternative 5 continued…

- High capacity transit between states
- Vanpool service increased in response to demand.

Commuter Service levels within the County are increased to serve new and growing employment centers as well as adding intra-county and bi-state high capacity transit service.

New Facilities programmed as required to respond to meet demand in productivity based areas, particularly new high capacity transit facilities. Highest productivity routes transitioned to high capacity transit modes.

The Columbia River Crossing high capacity transit project would provide a bi-state connection to the regional transportation system. Connecting to this corridor would be additional high capacity transit routes within Clark County that could include one exclusive guideway corridor and two additional BRT-lite corridors by 2030.

Benefits

- Begins to implement the Board's 50-Year Vision toward an interconnected regional transit and transportation network.
- C-TRAN owns and may operate high capacity transit within Clark County and bi-state.
- Supports economic development and access to social services.
- Serves both choice and transit dependent markets with a variety of modes.
- Improved transit service within county and bi-state.
- Helps reduce growth of traffic congestion.
- Helps reduce carbon emissions that lead to global warming.
- More involvement and coordination with local land use planning and development.
- ADA service fully funded.
- Increased passenger amenities.

Consequences

- Asks voters to approve significant additional funding for transit service.
- May require legislative action to access Section 81.104 (high capacity transit) funding.

C-TRAN 2030

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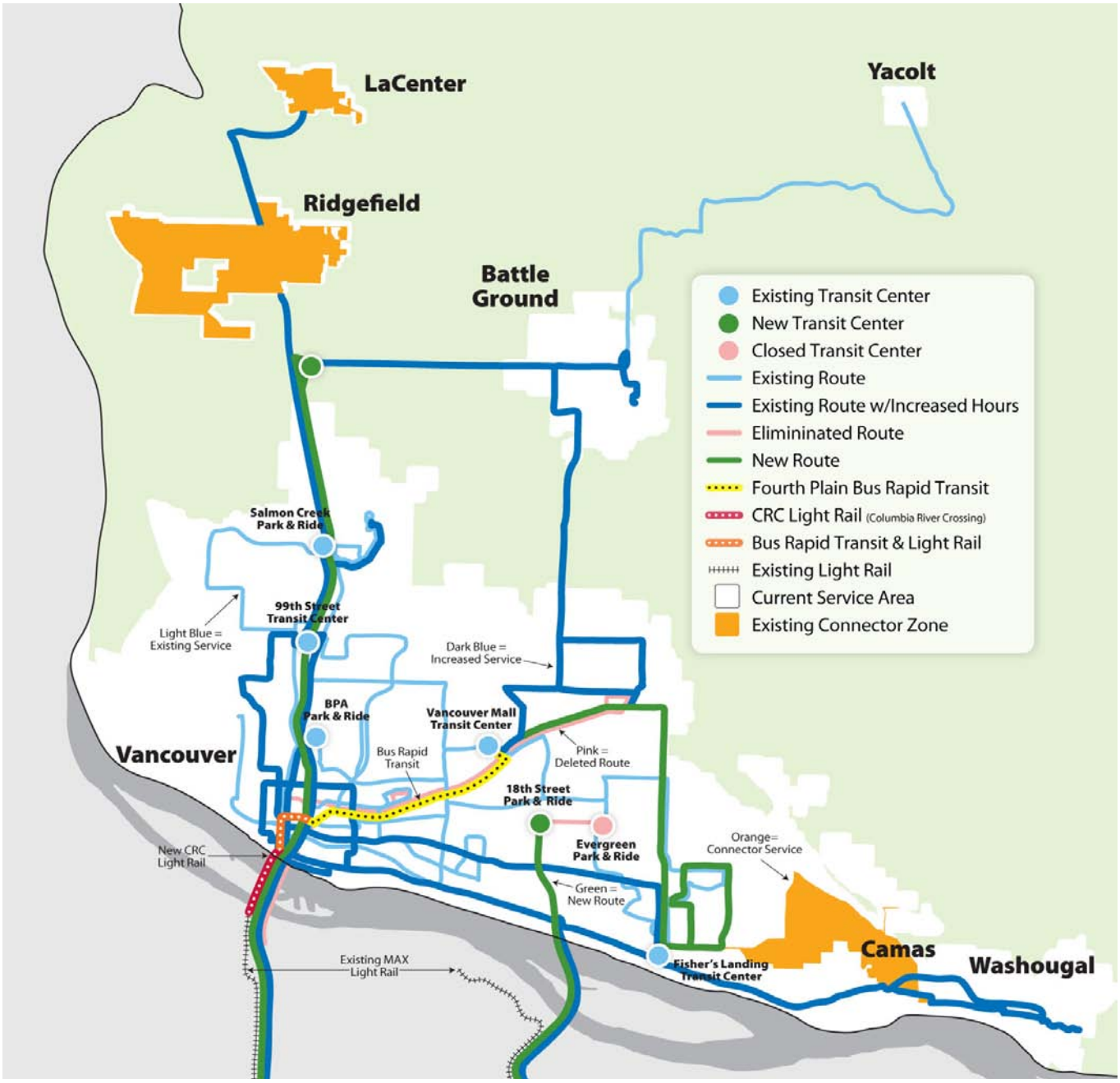
Chapter V

Preferred Alternative

Preferred Alternative Detail

The Preferred Alternative adds new service to rapidly growing areas, includes provisions for light rail in downtown Vancouver, adds C-TRAN's first bus rapid transit corridor, and provides more service in core areas.

C-TRAN 2030 System Map
Exhibit 8



C-TRAN 2030 Service Improvements

As described in the Implementation Strategy section, C-TRAN 2030's service improvements are phased in over two periods. In Phase I, a 0.3 (3/10's) percent increase in sales tax would fund system improvements from approximately 2013 to 2018. The majority of the transit enhancements would be implemented in Phase I. All other improvements would be realized in Phase II between 2019 and 2030 with an additional 0.2 (2/10's) percent increase in sales tax. The following chart summarizes the service improvements. A detailed route description as well as the implementation phase follows.

Commuter Improvements

Corridor / Area	Enhancement
I-5	• New Park-and-Ride at 219th and corresponding peak directional service to Vancouver and Portland • All-day service between downtown Vancouver, 99th Street TC, Salmon Creek, Legacy, and WSU Vancouver via I-5 • Additional trips to existing I-5 Park-and-Rides
I-205	• New Park-and-Ride at 18th Street and corresponding peak directional service to Portland • Additional Fisher's Landing to Parkrose/Sumner Station service
Battle Ground	• Additional peak-directional service to Salmon Creek and downtown Vancouver
Camas/Washougal	• Additional peak-directional service to downtown Vancouver

Local Route Improvements

Enhancement	Route
Improved Frequency	• 37 Mill Plain / Highway 99 • 2 Lincoln • 3 City Center • 7 Battle Ground • 92 Camas / Washougal
New Routes	• 192nd Loop – serving growing area in East Vancouver • 162nd/164th Route – connecting Fisher's Landing with Van Mall
Route Extensions	• 37 Mill Plain / Highway 99 extends to Legacy for all trips • 105 extended from Salmon Creek to WSU Vancouver and Legacy
Schedule Maintenance	• Additional peak-directional service to Salmon Creek and downtown Vancouver
Connector Service	• Improve midday frequency for Ridgefield / La Center Connector

High Capacity Transit Improvements

Mode	Enhancement
Light Rail	• Extend MAX across Columbia River to serve downtown Vancouver and Clark College
Bus Rapid Transit (BRT)	• Create Fourth Plain Corridor Hybrid BRT between downtown Vancouver and Vancouver Mall.

The route-by-route improvements are listed below. These include five new routes – Fourth Plain BRT, Route 48, Route 85, Route 118, and Route 219.

Route	Phase	Recommendation
2 Lincoln	2013-2018	Improve weekday frequency from 40 to 30-minutes
3 City Center	2013-2018	Improve weekday frequency from 40 to 30-minutes
4 Fourth Plain	2013-2018	Replace with Fourth Plain Bus Rapid Transit
Fourth Plain BRT	2013-2018	Downtown Vancouver to Vancouver Mall via Fourth Plain
7 Battle Ground	2013-2018	Improve weekday frequency from 45 to 30-minutes and weekend frequency from 90 to 45-minutes
19 Felida		No Change
25 St. Johns/Fruit Valley		No Change
30 Burton	2013-2018	Schedule Maintenance
32 Hazel Dell/Ever/And	2013-2018	Schedule Maintenance
37 Mill Plain /Hwy 99	2019-2030	Extend all trips to Legacy / Salmon Creek. Implement 15-minute service on weekdays and Saturdays
41 Camas/Washougal Limited	2013-2018	Add two morning and two afternoon peak trips
44 Fourth Plain Limited	2013-2018	Delete route and replace with Fourth Plain BRT
47 Battle Ground Limited	2013-2018	Add two morning and two afternoon peak trips – stop at Legacy
48 East 4th Plain/Fisher's	2013-2018	New route connecting Van Mall, Fourth Plain, and Fishers via 162nd.
65 Parkrose Limited	2013-2018	Add span, schedule maintenance, and Sunday service.
72 Orchards	2013-2018	Improve frequency to every 30-minutes on weekdays
78 78th Street	2013-2018	Schedule Maintenance
80 Van Mall / Fishers	2013-2018	No Change
85 192nd Avenue	2013-2018	New route connecting Fisher's with 192nd Avenue
92 Camas/Washougal	2013-2018	Improve peak hour frequency from 30 to 15-minutes
105 I-5 Express	2019-2030	Change to Limited – operate between downtown Vancouver, Legacy, WSU Vancouver and Salmon Creek

118 18th Street Express	2019-2030	New peak hour route serving new park-and-ride at I-205 @ 18th
134 Salmon Creek Exp	2019-2030	Schedule maintenance and added frequency
157 Lloyd District Exp		No Change
164 Fishers Landing Exp	2019-2030	Added frequency
177 Evergreen Express	2019-2030	Replace with new Route 118
190 Marquam Hill Exp		No Change
199 99th Street Exp	2019-2030	Schedule Maintenance
219 219th Street Exp	2019-2030	New peak hour route serving new park-and-ride at I-5 @ 219th
301 Ridgefield Connect.		No Change
302 La Center Connect.		No Change
303 Camas Connector		No Change
304 Ridgefield / La Center Connector	2013-2018	Improve midday frequency

Proposed Implementation Strategy for C-TRAN 2030

Background

Over the twenty years of C-TRAN's Preferred Alternative, it was assumed the agency would need to raise revenue equivalent to an additional 0.5 (5/10s) percent sales tax. Nearly half, or 0.2 (2/10s) percent, would be dedicated to the anticipated growth of C-TRAN's paratransit service, C-VAN. Roughly 0.2 (2/10s) percent sales tax would be dedicated to fixed route bus service improvements and the remaining 0.1 (1/10) percent sales tax would be dedicated to the introduction of high capacity transit to C-TRAN's system, including both CRC light rail operating costs and the capital costs for the Fourth Plain Bus Rapid Transit project.

The finance and capital plan associated with C-TRAN's Preferred Alternative assumed two separate votes over the life of the 20 Year TDP: 0.3 (3/10s) percent sales tax for the first ten years (Phase I), and an additional 0.2 (2/10s) percent sales tax for the final ten years (Phase II).

Phase I improvements would be divided in approximately the following manner:

0.1% Preservation and enhancement of fixed route bus
0.1% C-VAN Paratransit service increase
0.1% High Capacity Transit (CRC Light Rail and Fourth Plain Bus Rapid Transit)

0.3% Total Sales Tax Increase for Phase I

Phase II improvements would be divided in approximately the following manner:

0.1% Fixed route bus improvements
0.1% C-VAN Paratransit service increase

0.2% Total Sales Tax Increase for Phase II

With the introduction of High Capacity Transit to C-TRAN's network, the agency has an additional funding source outlined in RCW 81.104 (High Capacity Transportation Systems); in addition to its enabling law, RCW 36.57 (Public Transportation Benefit Areas), from which to draw funding. Both RCW's allow for a voter-approved sales tax of up to 0.9 (9/10s) percent that are independent from one another. Currently, C-TRAN has received voter approval and is levying a 0.5 (5/10s) percent sales tax from RCW 36.57, leaving 0.4 (4/10s) percent remaining from this funding source. C-TRAN has the full 0.9 (9/10s) percent voter approved sales tax available for High Capacity Transit from RCW 81.104 that upon voter approval, could be used for operating CRC Light Rail, Fourth Plain Bus Rapid Transit and fixed bus routes that would serve to connect to both High Capacity Transit projects.

Phase I Approach

While this section represents multiple ballot measure and funding scenarios, the information in no way represents a determination of current strategy for the future. Decisions on the ballot measure plan will require action by the C-TRAN Board of Directors following the adoption of 20 year TDP.

Three options have been developed for distributing the 0.3 (3/10s) percent sales tax increase for Phase I:

1. One Ballot Title, same year - 2011: 0.3% (RCW 36.57)
2. Two Ballot Titles, same year - 2011: 0.2% (RCW 36.57) + 0.1% (RCW 81.104)
3. Two Ballot Titles, two years - 2011: 0.2% (RCW 36.57) + 2012: 0.2% (RCW 81.104)

Phase II Approach

Given the fixed route bus service improvements proposed in Phase II, it is assumed that the full 0.2 (2/10s) percent sales tax increase will come from RCW 36.57. Depending on which option is selected for Phase I, C-TRAN could use up its full taxing authority within RCW 36.57, or it could have 0.1 (1/10) percent remaining if options 2 or 3 are selected as described above.

Timeline

In September 2005, nearly 68% of C-TRAN voters approved a 0.2 (2/10s) percent sales tax increase to fund C-TRAN's "Service Preservation Plan". That plan, adopted by the C-TRAN Board of Directors that same year, assumed sufficient revenue to "preserve" 2004 bus and paratransit service levels through 2011, recognizing additional revenue would be needed to maintain and/or expand service beyond that time. The current economic crisis continues to put pressure on the agency to identify its future service levels as soon as it feasibly can.

Assuming the C-TRAN Board of Directors approves the draft 20-Year Transit Development Plan and its Preferred Alternative, it will then need to decide at a later date when to hold the Phase I election. Based on C-TRAN's Service Preservation Plan, the current economic outlook, and the CRC Project timeline, C-TRAN staff has identified late 2010 or 2011 for a potential Phase I election.

Capital Program

The objective of the capital program is for C-TRAN to maintain, replace, and upgrade current facilities, equipment and systems based on customary and reasonable public transportation and engineering practices and the anticipated use of such facilities, equipment and systems.

Maintaining and upgrading existing capital facilities and infrastructure minimizes total program costs and maintains efficient, safe and reliable operations. Maintenance and upgrades of transit infrastructure are consistent with strategic planning objectives to design and modify services and infrastructure to be more efficient and effective.

Beginning in 2013, C-TRAN plans to borrow on a 30 year basis, a portion of the funding needed to complete capital projects including, 50% of the total cost for facility expansion and park and rides, and 20% of the total cost of constructing 4th Plain Bus Rapid Transit. It is understood that the capital program will depend greatly on the ability to obtain federal and/or state grant funds.

Capital Facility Improvements

The Preferred Alternative depends on a series of additional capital improvements to meet transit demands and support service enhancements. Each is described below.

Maintenance Facility Expansion

C-TRAN does not have the capacity to implement several new commuter routes, BRT, and expand C-VAN service without expanding base capacity. The Preferred Alternative includes provisions for adding base capacity to incorporate both fixed-route and paratransit fleet expansion.

Park-and-Ride Expansion

Parking at Fisher's Landing is at or near capacity. The lot must be expanded prior to extensive new services coming on line. The Preferred Alternative calls for adding capacity at this location.

New Park-and-Rides

Long-range modeling has shown a need for additional transit service in the northern I-5 and I-205 corridors. Park-and-ride capacity in both corridors must be added. In response, a new park-and-ride at the I-5/219th Interchange is assumed in the Preferred Alternative. Likewise, a new regional facility off of I-205 at the new 18th Street Interchange is assumed in the Preferred Alternative. This facility would replace the existing Evergreen Park-and-Ride.

Bus Rapid Transit Improvements

In order to make BRT a reality, stations as well as speed and reliability mechanisms must be constructed. The Preferred Alternative includes provisions for a semi-exclusive guideway, stations, transit signal priority, communications, and fare equipment.
The major capital projects in the 2010 to 2030 time period are summarized in Exhibit 9.

Passenger Amenities

In order to attract and retain ridership, C-TRAN's capital program includes improvements to facility access, shelter, lighting, bus stop locations and other amenities to enhance the waiting environment and provide an overall positive public transit experience.

Facility Design Considerations

The long-range plan will create a regional transit system that is easy to reach and use by everyone including pedestrians, bicyclists, people with disabilities and other public transportation customers.

Design considerations incorporated into transit route facilities include pedestrian and bicycle access and efficient bus ingress and egress while fitting in with and improving local community plans. C-TRAN will work with local jurisdictions to combine transit and construction projects assuring transit amenities are built together to lower costs and increase efficiency. Features may include access improvements by buses, bicycles and pedestrians.

Standard design features include:

- security and safety design standards
- consistent route and schedule information
- easy-to-read and consistent signs
- pedestrian-friendly design and full access for people with disabilities
- bicycle access and secure storage
- transit-friendly access to allow smooth transfers between transit modes
- bus layover areas

Bus Stop Improvements

Attractive, informative, and recognizable amenities are necessary to provide first-class service to customers. This includes bus stop signage, shelters, park and rides, kiosks, and other passenger amenities. Well designed signage at bus shelters will provide better route schedules, system maps, and other important information about transit services which will keep customers informed of new transit developments.

Improvements to bus stops should be designed to help provide transit customers with an accessible, comfortable and safe place to wait for the bus as well as to address the needs of transit vehicle operations. Locations for improvements are determined by community needs, operational requirements, ridership and service growth.

Bus stop improvements should be prioritized by the level of passenger activity, location near facilities and serving elderly persons or others with special transportation needs. An emphasis should also be given to stops located on major corridors. Real-time passenger information should be provided at high volume stops and major transfer locations.

The creation of a "Transit Access Program" could provide improved access to bus stops with the creation of pedestrian paths thereby encouraging additional ridership without adding more service. Bus stop improvements include a mix of the following actions or elements:

Pedestrian and bicycle access
Upgrade pedestrian access to bus stops to meet or exceed ADA standards; particularly as local jurisdictions make sidewalk improvements. Constructing curb ramps, providing paved waiting areas and improving sidewalk and pathway connections will improve access. Pedestrian safety issues and provision of bike racks should be addressed in coordination with local jurisdictions' programs.

Shelters and benches
New passenger shelters and benches should be provided at some bus stops as warranted by ridership, and be designed to increase customer and operator security. A variety of seating options including stand-alone benches and pole-mounted "simme" seats provide a place to rest when waiting for the bus

Lighting
New, improved or re-directed lighting should be installed at selected locations, using solar lighting where feasible, or electric hardwired lighting where agreements are reached for maintenance by the local jurisdiction and utilities.

iStops
Solar powered, customer activated lights and beacons should be considered for installation at bus stops in conjunction with selected service improvement projects, and at other selected locations meeting safety criteria for iStop installation. "iStop" poles increase customer visibility and security at night and in poor weather.

Signage and customer information

Transit service routing and levels of usage at bus stops are used to determine the type of customer information or signage that will be included at each bus stop. Regularly maintained and updated information about which routes serve the bus stop, bus departure times, maps and connections to other routes is a critical aspect of operations and customer service.

Curb lane transit improvements

This category generally requires a higher level of investment and also greater cooperation with local jurisdictions. Parking restrictions, extended bus stops, curb changes or bus bulbs, turning improvements and street reconfigurations are designed to improve operations at bus stops. Providing in-lane stops, for example, can help eliminate delays buses encounter when leaving and entering moving traffic.

Bus stop spacing

Stop spacing (the distance between bus stops) has a direct impact on transit operations and rider comfort. Bus stops can be re-spaced, relocated or consolidated to provide smoother, faster, and more comfortable operation and can concentrate ridership to provide for bus stop improvements in a more cost-effective manner. They are pursued when the benefit to a large majority of riders can be demonstrated.

Park-and-Ride modifications

Adjustments to signage, bus layovers, and other minor improvements are often required to accommodate changes in service and park-and-ride utilization.

Other improvements

A variety of other additions may be made at bus stops and shelters, particularly in funding partnership with local jurisdictions and others. Detailed bus schedules, art, community information, litter receptacles, special benches or other resting and seating structures, railings, and the use of buildings or awnings for weather protection can be included.

Park-and-Ride and Transit Center Facilities

Park and ride facilities allow commuters from throughout the area to conveniently access C-TRAN's bus routes. Residents can drive to the park and ride, park their cars for free, and board a bus that will take them to various destinations. As an alternative to the single occupancy vehicle, commuters can enjoy fuel and parking cost savings while relaxing during their commute.

Transit centers focus on a mix of uses and services immediately adjacent to a bus stop. Each facility provides a centralized location

to board the bus. Bicycle lockers or racks are also provided. Leasing space to transit friendly businesses could provide a long-term revenue stream sufficient to cover the cost of operating the facilities.

Park-and-ride facilities often function as transit centers, incorporating bus layover areas, route terminals, bicycle and pedestrian amenities and other transit-operating infrastructure. New park-and-ride lots should be readily and safely accessible to pedestrians and bicyclists as well as by motor vehicles. Increased accessibility to non-motorized modes can stimulate greater use of park-and-ride lots without the addition of more parking spaces.

Additional park-and-ride space is needed as the express bus, vanpool, and ridesharing programs continue to grow. As needed, expand park-and-ride capacity in congested corridors with full or overcrowded park-and-ride facilities. Supporting development of a series of small owned or leased park and ride lots along low density suburban routes in order to create artificially higher densities to enhance the ridership base should be considered. To help distribute usage of facilities, encourage vanpools and park-and-pools to utilize lots with unused capacity.

Street Level Improvements

Transit Speed, Safety, and Reliability Improvements

Programs involving speed and reliability should be in partnership with state and local governments. These programs strive to improve transit operating efficiency and to create speed, safety, and reliability improvements on important transit corridors.

Investment in these improvements will be needed as traffic congestion on arterials and freeways continues to pose a major challenge to the efficiency and effectiveness of the bus network. A transit speed, safety, and reliability program can emphasize implementation of relatively low to moderate-cost improvements along arterial corridors with high bus volumes and high ridership.

High traffic volumes slow buses down and lengthen travel times. Variations in daily traffic flows decrease the reliability of bus schedules and result in missed connections. The ability to serve multiple destinations with convenient connections between routes relies on timed transfers and schedule coordination. This reliance increases the importance of on-time performance, particularly where frequent service is not provided. Where frequent service is provided, improvements that enhance the speed and reliability of bus operations help maintain even intervals between buses thereby limiting overcrowding and schedule adherence problems.
There are two general types of speed and reliability improvements included in this program as follows:

Corridor-based projects

The goal of corridor facility improvement projects is to match the level of infrastructure with existing and targeted levels of transit service. Corridor facility improvements are generally coordinated with corresponding speed and reliability projects in order to maximize combined benefits.

Corridor-based projects are intended to improve corridors with high transit volumes used by bus routes primarily providing core connections and operating frequently. Corridor-based speed and reliability projects support the development of a regional system of transit signal priority. These projects are designed to be coordinated with the improvement of passenger facilities along the same corridors, with the intent to provide more pronounced benefits to riders and increases in service efficiency.
See the Technologies chapter for related information regarding transit signal priority programs. The following factors should be considered in evaluating and advancing corridors for systematic facility improvements:

- Frequent current or planned service
- Active transit signal priority or other speed and reliability projects
- Amount of ridership and projected growth
- Local jurisdiction support
- Local funding partnerships
- Potential to reduce delays through bus stop spacing
- Satisfaction of passenger access, safety, comfort and information needs

Spot improvement projects

Projects focused on spot improvements address problems with bus operations at specific locations, such as flow and circulation within or near activity centers and transit hubs. Spot improvements can include queue jumps, transit or HOV lanes, bus bulbs, curb radius modifications, and other forms of re-channelization of the street right-of-way. A series of spot improvements can also improve bus operations along significant route segments.

Operations Base Capacity

The expansion of the transit system, with an increase in fleet size, will impact the operations and maintenance capabilities of the agency. Sufficient space for service bays, fuel facilities, fare retrieval and other equipment as well as the bus storage area is essential. In addition, expanded service means more employees that require work space, amenities and parking. As the system expands, the agency will need to review current capabilities vs. projected needs to determine if an

expansion of the facility is needed and possible, or if moving the whole operation to a new location or constructing a satellite facility at another location makes the most sense.

Presently, C-TRAN's operations and maintenance facility handles 118 buses, 53 paratransit vehicles and 30 vanpool vans. The current base is nearing capacity and when maximum capacity is reached, expansion is required.

The transit fleet is projected to reach 162 buses, 120 paratransit vehicles, and 150 vanpool vehicles by 2030. In order to operate and maintain the expanded fleet, C-TRAN will need to expand the current facility or build a new satellite facility. A satellite facility, if located strategically, could reduce operations cost through a reduction of deadhead time and miles. However, the cost of property acquisition, construction, equipment, facilities operations and maintenance and additional staff must be considered.

Vehicle Plan

Replacement and Expansion of the Revenue Fleet

To provide a reliable fleet of vehicles, C-TRAN will coordinate the replacement and expansion of the transit bus fleet so that the size, mix and age of the fleet are consistent with service projections and operating characteristics of the bus system. The vanpool fleet will be expanded and replaced to maintain the appropriate mix of vehicle sizes to encourage and support vanpool program participants. The paratransit fleet also be replaced and expanded to support efficient operations. The vehicle procurement program will continue to acquire more efficient and energy-friendly vehicles and consider features including advanced and efficient propulsion systems and non-traditional fuels.

Fleet Procurement

The type and quantity of vehicles purchased and maintained by C-TRAN, both revenue and non-revenue support vehicles, is based on current and projected service levels. Service expansion determines the fleet expansion plans, defines the type of vehicle needed and the need for expanded base capacity.

Annually, during the period of the plan, older buses, vans and non-revenue vehicles will be replaced as they reach the end of their useful lives. This replacement represents a significant financial commitment. For transit buses, delivery time can be upwards to 1 ½ to 2 years after the order is placed. To assure timely delivery, continuous planning and coordination of the bid process and board approval of funding is essential. The time period can be shortened if C-TRAN is able to purchase options from contracts held by other transit agencies.

Bus Fleet Requirements

The year 2030 route network described in this plan, would increase the size of the C-TRAN bus fleet from 118 vehicles in 2009 to 151 vehicles in 2030 providing nearly 409,000 annual platform hours of fixed route bus service and 202,000 annual platform hours of ADA complementary paratransit service. This reflects the projected peak coach requirements for service with appropriate spares excluding paratransit or vanpool vehicles.

The number of buses planned for procurement would be sized to meet the service network described in this plan and modified by the most current service projections available.

ADA Paratransit Fleet Requirements

The current paratransit fleet is comprised of 53 vehicles. The demand for ADA paratransit service is growing and is projected to increase steadily over the plan period due in part to the aging population. As demand grows, it is estimated that an additional 54 vehicles will be needed by 2030.

Replacement vehicles are purchased when the in-service vehicles have reached the end of their defined useful economic life and should be retired from active service. To address this need, a total of 126 vehicles are scheduled to be replaced from 2010 to 2030 for an overall paratransit fleet size of 120 vehicles.

Vanpool Fleet Requirements

The current vanpool fleet is comprised of 30 vehicles with an additional 150 vehicles projected to be needed by 2030. Replacement vans are purchased when vans have reached the end of their defined useful economic life and should be retired from active service. At a replacement cycle of seven years, 300 vans are scheduled for replacement from 2010 through 2030. The revenue vehicle expansion forecast is based on modeling of vehicles needed to implement more than 113,000 new service hours over the plan period.

Total purchases from 2010 to 2030 will exceed 284 revenue vehicles at a projected cost of more than $110 million. The average annual capital cost for fleet replacement/expansion will be about $5 million for fixed route and $1 million for paratransit. It should be noted that expanding and replacing vanpool vehicles is accomplished through the Washington State Vanpool Investment Program, FTA 5307 formula funds and farebox revenues.

This vehicle plan assumes substantial local funding of vehicle needs from reserves and bonding. A high priority over the plan period will be the pursuit of additional federal and state vehicle replacement subsidies, allowing C-TRAN to prioritize local funding for service improvements rather than capital purchases.

C-TRAN's current fleet of 118 fixed-route buses consumes nearly 1 million gallons of diesel fuel a year. Based on the service expansion proposed in the 20 year plan, the fleet size is projected to grow to 151 buses. C-TRAN understands that while expanded service is necessary to help meet the community's transportation needs and is an important component to the region's overall transportation system, much effort is also needed to help improve the region's air quality.

Capital Plan Actions

C-TRAN's vision by 2030 is to connect cities and communities in all directions with employment, commercial, entertainment and residential areas providing congestion relief, economic development, access to social services, and transportation to those dependent on the public transit system. To sustain this goal, capital facilities are important components of the infrastructure to effectively attract customers and deliver high quality service. To that end, C-TRAN will:

- Develop and implement guidelines for the prioritization of capital investment
- Complete the Bus Stop Improvement Program.
- Initiate an operations and maintenance base modernization and expansion project to provide for expanded transit services, new and additional vehicles and advanced technologies.
- Plan for a satellite maintenance facility to reduce cost and improve service delivery.
- Implement a "Transit Access Program" to improve pedestrian and bicycle access to bus stops and transit facilities.
- Work with jurisdictions to implement speed, safety and reliability improvements that are both corridor-based and spot-based as needed.

C-TRAN 20-Year Transit Development Plan

Capital Program in 2009 dollars

Project	Year	Total Funds	Local	Grant	Debt
PHASE I					
Bus Stop Replacement Program	2010-2013	$823,000	$210,000	$613,000	
Facility Capital Maintenance	2010-2018	$5,571,000	$3,313,000	$2,258,000	
Fisher's Landing Expansion	2015-2016	$7,500,000		$3,750,000	$3,750,000
Park and Ride @ I-5/219th Interchange	2018-2018	$16,200,000		$8,100,000	$8,100,000
Bus Rapid Transit Improvements	2010-2014	$78,000,000		$62,400,000	$15,600,000
Passenger Amenities	2010-2018	$4,440,000	$2,710,000	$1,730,000	
Miscellaneous Capital Repair/Replacement	2010-2018	$4,828,000	$3,123,000	$1,705,000	
Office Equipment/Computer Systems/Printers	2010-2018	$4,378,000	$4,378,000		
Fixed Route & Paratransit Coaches	2010-2018	$42,948,000	$8,590,000	$34,358,000	
Major Engine Component Replacements	2010-2018	$700,000	$140,000	$560,000	
Vanpool Vehicle Acquisitions	2010-2018	$1,740,000	$870,000	$870,000	
Maintenance & Support Vehicles	2010-2018	$1,221,000	$1,221,000		
Subtotal		**$168,349,000**	**$24,555,000**	**$116,344,000**	**$27,450,000**
PHASE II					
Admin, OPS, Maint. Facility Upgrades	2019-2020	$22,725,000		$11,363,000	$11,362,000
Facility Capital Maintenance	2019-2030	$7,740,000	$3,870,000	$3,870,000	
Park and Ride @ I-205/18th Interchange	2021-2022	$14,600,000		$7,300,000	$7,300,000
Passenger Amendities	2019-2030	$38,000,000	$38,000,000		
Miscellaneous Capital Repair/Replacement	2019-2030	$3,000,000	$3,000,000		
Office Equipment/Computer Systems/Printers	2019-2030	$6,000,000	$6,000,000		
Fixed Route & Paratransit Coaches	2019-2030	$67,867,000	$13,573,000	$54,294,000	
Major Engine Component Replacements	2019-2030	$1,200,000	$240,000	$960,000	
Vanpool Vehicle Acquisitions	2019-2030	$1,740,000	$870,000	$870,000	
Maintenance & Support Vehicles	2019-2030	$1,320,000	$1,320,000		
Subtotal		**$164,192,000**	**$66,873,000**	**$78,657,000**	**$18,662,000**
Total		**$332,541,000**	**$91,428,000**	**$195,001,000**	**$46,112,000**

2012 - 2030 Capital Projects

Prepared for Final June 2010

Amounts represented in 2009 $

	Capital Project	Project Description	Components	Cost	Alt 1	Alt 2	Alt 3	Alt4	Alt 5	Preferred Alt
	ROLLING STOCK									
	Buses									
1	Fixed Route Bus Purchase	Replacing 29 foot to 40 foot buses once they have reached the end of their useful life & expand buses due to more service hours. Artics can be added at an appoximate cost of one for two buses.	No matter what size a bus cost is $363,000.	363,000	26,136,000	34,485,000	92,202,000	92,202,000	86,757,000	84,014,885
			# of vehicles at 2030		61	108	146	146	140	151
			Frequency of replacement		20 years	20 years	12 years	12 years	12 years	16 years
2	Paratransit Bus Replacement & Expansion	Replace and Expand 25 foot buses to accommodate ADA paratransit services		80,000	14,480,000	17,040,000	24,080,000	24,080,000	24,080,000	12,400,000
			# of vehicles		103	120	120	120	120	107
			Frequency of replacement		12 years	12 years	7 years	7 years	7 years	11 years
3	Alternative Fuel Technology	As move out years increase ratio of Alternative fuels to diesel 50%	Add $200,000 for alternative fuel technology	222,000	0	0	37,795,500	37,795,500	35,464,500	14,400,000
4	Engine Component Replacements	Occasionally engine components fail and need replaced	Estimate annual cost		5,700,000	5,700,000	1,900,000	1,900,000	1,900,000	1,900,000
					300,000 annually	300,000 annually	100,000 annually	100,000 annually	100,000 annually	100,000 annually
5	Vanpool Vehicle Acquisitions	Purchase and replacement of 58 vans.		30,000	3,480,000	3,480,000	3,480,000	3,480,000	3,480,000	3,480,000
	Support Vehicles									
6	Maintenance and Utility Trucks	Assume replace and/or expand 1 per year			285,000	285,000	950,000	950,000	950,000	950,000
					15,000 annually	15,000 annually	50,000 annually	50,000 annually	50,000 annually	50,000 annually
7	Field Support/Security Staff Vehicles	Assume replace and/or expand 2 per year			285,000	285,000	1,140,000	1,140,000	1,140,000	1,140,000
					15,000 annually	15,000 annually	60,000 annually	60,000 annually	60,000 annually	60,000 annually
	FACILITIES									
	Transit Centers and Park & Rides									
8	Central County @ Padden Parkway	Padden Park and Ride Development 450 parking spaces	Design $2,000,000 Construction $22,000/parking space Property - already own	11,900,000	0	0	11,900,000	11,900,000	11,900,000	
9	Fisher's Landing Phase 2 @ 34th Street & 164th Avenue	Park and Ride Development 250 parking spaces	Design $2,000,000 Construction $22,000/parking space Property - already own	7,500,000	0	0	7,500,000	7,500,000	7,500,000	7,500,000
10	I-5/219th Interchange	Park and Ride 219th development in conjunction with I-5/SR502 Interchange 500 parking spaces	Design $2,000,000 Construction $22,000/parking space Property $10,000/parking space	16,200,000	0	0	0	0	16,200,000	16,200,000
11	Evergreen @ 18th & 138th Avenue	Expand/Relocate Park and Ride Development 450 parking spaces	Design $2,000,000 Construction $22,000/parking space Property $10,000/parking space	14,600,000	0	0	0	0	14,600,000	14,600,000
12	Clark County Fair Grounds @ NE 179th & I-5	Park and Ride Development 100 parking spaces	Design $2,000,000 Construction $22,000/parking space Property $10,000/parking space	5,200,000		0	0	0	5,200,000	
	Other Facilities									

2012 - 2030 Capital Projects

Prepared for Final June 2010

Amounts represented in 2009 $

	Capital Project	Project Description	Components	Cost	Alt 1	Alt 2	Alt 3	Alt4	Alt 5	Preferred Alt
13	Administration, Operation & Maintenance Facility @ 65th Street	Expansion and/or redevelopment of maintenance facility and administration offices	Property Acquisition $3,500,000 prior to 2012 Master Planning $75,000 prior to 2012 Phase 1 - Preliminary Engineering $750,000 Phase II - Environmental & Permitting $575,000 Phase III - Final Design $2,000,000 Phase IV - Construction $19,400,000	26,300,000	0	0	22,725,000	22,725,000	22,725,000	22,725,000
14	General Facility Maintenance	Maintain current all C-TRAN facilities	Based on depreciation schedule		7,600,000	7,600,000	9,500,000	12,255,000	12,255,000	12,255,000
					400,000 annually	400,000 annually	500,000 annually	645,000 annually	645,000 annually	645,000 annually
15	Maintenance New Equipment	Scissor lift, paint booth, drive thru bus wash for artics	Equipment needed to maintain 60-65' artics	2,000,000	0	0	0	0	2,000,000	0
16	Satellite Maintenance Facility	Development of new offsite maintenance facility for C-VAN, articulated BRT or LRT vehicles.	Site Selection Study $250,000 Property Acquisition $10,500,000 Master Planning $225,000 Phase 1 - Preliminary Engineering $1,500,000 Phase II - Environmental & Permitting $1,700,000 Phase III - Final Design $4,000,000 Phase IV - Construction $43,000,000	61,175,000	0	0	0	0	61,175,000	
17	Transit-Oriented Development (TOD), Public/Private Partnership Joint Development	Pursue PPP Joint Development Opportunities for Transit Facilities	Regulatory Analysis $75,000 Site Selection Study $500,000 PPP Development Study $500,000 Property Acquisition $5,000,000 Phase 1 - Preliminary Engineering $500,000 Phase II - Environmental & Permitting $1,000,000 Phase III - Final Design $2,000,000 Phase	19,575,000	0	0	0	0	19,575,000	
18	Fixed Route Facilities	Upgrade street and shelter facilities to better accommodate high quality fixed route bus service e.g. limited, express and rapid transit for 3 locations	Per Corridor Signing and striping $100,000 Public Information $50,000 Signal Upgrades $250,000 Right-of-way $345,000 Lane improvements $2,500,000	3,245,000	0	0	0	0	6,490,000	0

2012 - 2030 Capital Projects

Prepared for Final June 2010

Amounts represented in 2009 $

	Capital Project	Project Description	Components	Cost	Alt 1	Alt 2	Alt 3	Alt4	Alt 5	Preferred Alt
19	Planning and Alternative Analysis for Intra County High Capacity Transit Corridor(s)	Conduct an alternatives analysis and develop an environmental impact statement for regional priority High Capacity Transit Bus Rapid Transit corridors that meet FTA's standards to move into full grant funding under New Starts or Small Starts	Scoping $500,000 Alternative Analysis $2,500,000 EIS $3,500,000	6,500,000	0	0	0	0	6,500,000	3,000,000
20	Final Engineering & Construction of Intra County High Capacity Transit Project in the Fourth Plain Corridor	Bus Rapid Transit in a fixed guideway project within Clark County based on RTC HCT Study corridor prioritization.	Permitting $2,500,000 Design $2,000,000 Construction $30,000,000 per mile for 10 miles	304,500,000	0	0	0	0	304,500,000	75,000,000
	EQUIPMENT									
21	Passenger Amenities & Equipment on buses & buildings	Farebox, shelters, signs, maintenance equipment, cameras, fork lift, bus wash, VAST, fast fueling	Based on depreciation of current assets		11,875,000 625,000 annually	11,875,000 625,000 annually	23,750,000 1,250,000 annually	38,000,000 2,000,000 annually	38,000,000 2,000,000 annually	38,000,000 2,000,000 annually
22	Office Equipment/Computers Systems/Printers	Software, hardware, printers, copiers, servers, phone system, cubical, furnishings	Based on depreciation of current assets		4,750,000 250,000 annually	4,750,000 250,000 annually	9,500,000 500,000 annually	9,500,000 500,000 annually	9,500,000 500,000 annually	9,500,000 500,000 annually
23	Misc Capital Repair/Replacement	Unanticipated needs based on historical data			4,750,000 250,000 annually	4,750,000 250,000 annually	4,750,000 250,000 annually	4,750,000 250,000 annually	4,750,000 250,000 annually	4,750,000 250,000 annually

Summary Information at 2030

Prepared for Final June 2010

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Preferred Alt
Service Hours						
Local Urban Fixed Route	144,976	221,000	312,187	312,187	268,395	253,329
ADA Service	194,467	227,149	227,149	227,149	227,149	201,972
Express Route	28,755	57,510	73,726	73,726	72,156	81,977
Innovative/Connector, Feeder, Circulator	0	21,850	21,850	21,850	21,872	11,694
Special Events & Amtrak	1,715	1,715	1,750	1,750	1,750	1,750
HCT - LRT	0	0	0	0	19,821	19,821
HCT - BRT	0	0	0	0	52,643	66,909
Total	369,913	529,224	636,662	636,662	663,786	637,452
% change in service hours over 2008 budget (excluding ADA)	-41.3%	1.1%	37.1%	37.1%	46.1%	45.8%
% change in ADA Service from 2008 budget	223.3%	260.8%	260.8%	260.8%	260.8%	231.9%
Ridership						
Local Urban Fixed Route	3,160,477	4,817,800	9,443,301	10,926,535	9,393,833	8,866,527
ADA Service	485,671	567,294	567,294	567,294	567,294	505,889
Express Route	621,108	1,920,441	2,461,958	2,580,424	2,525,446	2,869,191
Innovative/Connector, Feeder, Circulator	0	77,215	77,215	77,215	77,292	42,913
Special Events & Amtrak	58,310	58,310	59,500	59,500	59,500	59,500
HCT - LRT	0	0	0	0	3,060,572	3,060,572
HCT - BRT	0	0	0	0	3,467,751	3,876,873
Total	4,325,566	7,441,060	12,609,267	14,210,968	19,151,688	19,281,465
Fares						
Local Urban Fixed Route	3,700,286	5,640,680	11,056,217	12,792,787	10,071,331	10,716,972
ADA Service	791,645	924,689	924,689	924,689	924,689	1,112,862
Express Route	1,074,517	7,777,785	9,970,929	10,450,718	10,228,056	17,303,429
Innovative/Connector, Feeder, Circulator	0	123,659	123,659	123,659	123,784	134,390
Special Events & Amtrak	26,240	26,240	26,775	26,775	26,775	148,750
Vanpool	208,833	208,833	208,833	208,833	208,833	186,905
HCT - LRT	0	0	0	0	4,223,590	2,374,661
HCT - BRT	0	0	0	0	4,785,496	4,685,977
Total	5,801,521	14,701,886	22,311,103	24,527,462	30,592,554	36,663,946
Revenues						
Passenger Fares	5,801,521	14,701,886	22,311,103	24,527,462	30,592,554	36,663,945
Sales Tax	58,094,704	81,332,586	104,570,468	104,570,468	127,808,349	99,317,253
Other Revenue	486,694	486,694	486,694	486,694	486,694	493,536
Operating Grants	6,272,193	10,512,104	397,744	397,744	397,744	6,555,687
Short Term Interest	363,485	539,692	1,120,651	1,120,651	1,183,520	1,175,386
Mid Term Interest	600,567	451,196	774,801	758,948	3,533,277	193,029
Total	71,619,164	108,024,158	129,661,460	131,861,966	164,002,138	144,398,836
Sales Tax rate at 2030	0.5%	0.7%	0.9%	0.9%	1.1%	1.0%
Expenses						
Wages	33,850,373	49,913,741	61,633,730	61,633,730	62,953,014	65,216,652
Benefits	19,393,109	29,042,139	36,109,107	36,109,107	36,739,532	35,637,357
Services	2,701,305	4,308,499	5,583,921	5,583,921	5,670,610	8,151,116
Fuel	9,055,930	13,663,502	17,076,125	17,076,125	17,592,341	12,169,442
Supplies	2,741,388	4,271,258	5,453,712	5,453,712	5,644,357	4,905,864
Utilities	1,405,160	2,259,868	2,943,975	2,943,975	2,990,473	1,447,493
Insurance	522,854	747,911	899,636	899,636	909,949	945,314
Taxes	6,424	10,854	14,559	14,559	14,811	14,234
Miscellaneous	215,278	360,359	480,801	480,801	488,987	940,681
Leases	215,388	314,314	383,690	383,690	388,405	515,953
Additional BRT Expenses	0	0	0	0	974,588	973,775
Contracted Services	0				3,839,900	3,839,900
Innovative Programs	787,558	787,558	787,558	787,558	787,558	742,349
Total	70,894,767	105,680,003	131,366,814	131,366,814	138,994,525	135,500,130
Self Insurance Reserve	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Working Capital Reserve	10,634,215	13,117,049	32,215,898	32,841,704	34,748,632	33,875,033
Capital Replacement Reserve	5,000,000	5,000,000	0	0	0	0
General Fund Balance	1,834,642	0	4,370,529	5,538,683	72,545,962	3,566,144

20 Year TDP - Financial Model Factors

Prepared for Final June 2010

Factor	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Preferred Alternative
Sales Tax	Based on current collections and Clark County estimates through 2016. Increases after 2016 were estimated at 3.43% per year. No Sales Tax increase through 2030	Based on current collections and Clark County estimates through 2016. Increases after 2016 were estimated at 3.43% per year. Sales tax rate increase only when needed. 0.1% increase in 2017 & 2023 (tax rate at 2030 = 0.7%)	Based on current collections and Clark County estimates through 2016. Increases after 2016 were estimated at 3.43% per year. Rate increase of 0.2% in 2012 and 2019.	Based on current collections and Clark County estimates through 2016. Increases after 2016 were estimated at 3.43% per year. Rate increase of 0.2% in 2012 and 2019.	Based on current collections and Clark County estimates through 2016. Increases after 2016 were estimated at 3.43% per year. Rate increase of 0.3% in 2010 and 0.2% in 2019.	Growth rate in 2010 = 2% to respond to current cyclical downturn in retail sales and construction. Growth rate 2011-2013 5.1%, 2014-2030 = 4% to correspond to population and CPI growth rates. Rate thru 2010 = 0.5%, 2011-2018 = 0.8%, 2019 - 2030 = 1.0%
Platform Hours	Reduced Express hours by 50% in 2012 to drop at MAX stations. Eliminate Connector service mid 2012. Reduced Fixed Route platform hours 20% in 2016 and 18% in 2023. ADA platform hours in 2009-2018 increase 5% per year, 2019-2022 increase 4% per year, 2023-2030 increase 2% per year. 95% productivity, 5% coverage	2030 Fixed Route platform hours same as 2008 for all services except ADA. ADA platform hours in 2009-2018 increase 5% per year, 2019-2030 increase 4% per year. 85% productivity, 15% coverage	Fixed Route platform hours increase 1.0% every other year. 20% growth in 2013 less 10,000 hours to Express routes & 11% growth in 2020 (year after sales tax rate increase years). ADA platform hours in 2009-2018 increase 5% per year, 2019-2030 increase 4% per year. 70% productivity, 30% coverage	Fixed Route platform hours increase 1.0% every other year. 20% growth in 2013 & **11%** growth in 2020 (year after sales tax rate increase years). ADA platform hours in 2009-2018 increase 5% per year, 2019-2030 increase 4% per year. 80% productivity, 20% coverage	BRT lite platform hours based on estimates for 2030 then decrease with 4% changes in 2017, 2020 & 2024. LRT platform hours begin in 2017 and remain the same through 2030 based on 83% of CRC hour estimates. Fixed route platform hours 1.0% increase every other year. 6% growth in 2013 & 20% growth in 2017. Express route increase 5,000 in 2013 & 2020. ADA platform hours in 2009-2018 increase 5% per year, 2019-2030 increase 4% per year. 80% productivity, 20% coverage	Service hours match th 20 Year TDP service implementation schedule. ADA platform hours in 2010-2011 increase 2%, 2012-2018 increase 5% per year, 2019-2030 increase 4% per year.
Ridership	Based on historical. No increase in estimates per hour since service will be cut. ADA maxed at 2.5 riders per hour, Innovative maxed at 3.53 riders per hour.	Based on historical. No increase in estimates per hour since no fixed route service enhancements. Increased Express at 2% for population growth. ADA maxed at 2.5 riders per hour, Innovative maxed at 3.53 riders per hour.	More coverage routes with lower ridership. Based on historical plus 1.5% increase for population growth. ADA maxed at 2.5 riders per hour, Innovative maxed at 3.53 riders per hour.	Based on historical plus 2% increase for population growth plus 1% for productivity routes. ADA maxed at 2.5 riders per hour, Innovative maxed at 3.53 riders per hour.	Based on historical plus 2% increase for population growth plus 1% for productivity routes. LRT ridership based on CRC data. ADA maxed at 2.5 riders per hour, Innovative maxed at 3.53 riders per hour.	Fixed Route, Express, and BRT based on historical plus 2% increase for population growth plus 1% for productivity routes. Maximum 35 passengers per hour for fixed route/non HCT. LRT ridership based on CRC data. ADA maxed at 2.5 riders per hour, Innovative maxed at 3.67 riders per hour.
Fares	Average fare calculated with the 2007-08 budget. 5 cent increase every year for C-Zone & All Zone (including ADA). All Zone fare used for Express routes since they drop at MAX station. Vanpool fares based on 100% cost recovery.	Average fare calculated with the 2007-08 budget. 5 cent increase every year for C-Zone & All Zone (including ADA). 25 cent increase every 3 years for Express routes. Vanpool fares based on 100% cost recovery.	Average fare calculated with the 2007-08 budget. 5 cent increase every year for C-Zone & All Zone (including ADA). 25 cent increase every 3 years for Express routes. Vanpool fares based on 100% cost recovery.	Average fare calculated with the 2007-08 budget. 5 cent increase every year for C-Zone & All Zone (including ADA). 25 cent increase every 3 years for Express routes. Vanpool fares based on 100% cost recovery.	Average fare calculated with the 2007-08 budget. 5 cent increase every year for C-Zone & All Zone (including ADA). 25 cent increase every 3 years for Express routes. BRT & LRT based on average All-Zone. BRT lite/limited based on average C-Zone. Vanpool fares based on 100% cost recovery.	Average fare calculated based on 2009 Actual results. Five cent increase every year for thru 2015. Annual fare increases to 10 cents 2016-2030 to address long-term inflation. Express routes increase 10 cents and 15 cents every other year beginning 2010 then 10 cents and 20 cents 2016-2030. Vanpool fares based on 100% cost recovery.
Interest Revenue	Current borrowing rates for 2008 then revert to historical averages over the following 10 years. Investment rates are assumed based on their historical relationship with borrowing rates.	Current borrowing rates for 2008 then revert to historical averages over the following 10 years. Investment rates are assumed based on their historical relationship with borrowing rates.	Current borrowing rates for 2008 then revert to historical averages over the following 10 years. Investment rates are assumed based on their historical relationship with borrowing rates.	Current borrowing rates for 2008 then revert to historical averages over the following 10 years. Investment rates are assumed based on their historical relationship with borrowing rates.	Current borrowing rates for 2008 then revert to historical averages over the following 10 years. Investment rates are assumed based on their historical relationship with borrowing rates.	Current borrowing rates for 2009 then revert to historical averages over the following 10 years. Investment rates are assumed based on their historical relationship with borrowing rates.
Other Revenue	Modest 0.5% - 1.0% increase per year	Modest 0.5% - 1.0% increase per year	Modest 0.5% - 1.0% increase per year	Modest 0.5% - 1.0% increase per year	Modest 0.5% - 1.0% increase per year	Modest 0.5% - 1.0% increase per year
Grants	5307 grant funds applied to operating expenses with increases at 4% per year and calculated based on platform hours. All small grants based on historical. Inflation taken into account. 5309 for replacement buses at 50/50 each year (approximately $1,000,000 per year).	5307 grant funds applied to operating expenses with increases at 4% per year and calculated based on platform hours. All small grants based on historical. Inflation taken into account. $1,000,000 of 5309 for replacement buses each year.	5307 grant funds redirected to capital with increases at 4% per year and calculated based on platform hours. All small grants based on historical. Capital grants of $1,000,000 per year for alternative fuel, 50/50 for facility related capital projects. Inflation taken into account.	5307 grant funds redirected to capital with increases at 4% per year and calculated based on platform hours. All small grants based on historical. Capital grants of $1,000,000 per year for alternative fuel, 50/50 for facility related capital projects. Inflation taken into account.	5307 grant funds redirected to capital with increases at 4% per year and calculated based on platform hours. All small grants based on historical. Capital grants of $1,000,000 per year for alternative fuel, 50/50 for facility related capital projects. Inflation taken into account. TOD pays for itself by 2030.	Updated with 2009 information. 5307 grant funds directed to capital with increases at 4% per year and changes as platform hours change. All small grants based on historical with increases of 4% per year. Capital grants of 50/50 for facility and Park & Ride related capital projects. Capital grants of 80/20 for HCT capital projects. Inflation taken into account.
Wages	Average 4% increase per year based on historical and budget. Vacancy factor of 5% incorporated.	Average 4% increase per year based on historical and budget. Vacancy factor of 5% incorporated.	Average 4% increase per year based on historical and budget. Vacancy factor of 5% incorporated.	Average 4% increase per year based on historical and budget. Vacancy factor of 5% incorporated.	Bus - Average 4% increase per year based on historical and budget. Vacancy factor of 5% incorporated. BRT - Incremental cost increases for maintenance of BRT buses and larger transit centers.	Updated with 2009 information.Bus - Average 3.5% increase per year based on historical and budget. Indirect wages weighted for incremental increases. BRT - Incremental cost increases for maintenance of BRT buses and larger transit centers.
Benefits	Average 4% increase per year based on historical and budget.	Average 4% increase per year based on historical and budget.	Average 4% increase per year based on historical and budget.	Average 4% increase per year based on historical and budget.	Bus - Average 4% increase per year based on historical and budget. BRT - Incremental costs for addl staff for maintenance of BRT buses and larger transit centers.	Updated with 2009 information. Bus - Average 6% increase per year 2010-2014 based on historical and budget. 2015-2019 5.25%, 2020-2024 4.5%, 2025-2030 4% BRT - Incremental costs for addl staff for maintenance of BRT buses and larger transit centers.
Services	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Updated with 2009 information. Average 4% increase per year based on historical and budget.

20 Year TDP - Financial Model Factors

Prepared for Final June 2010

Factor	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Preferred Alternative
Fuel	Average 6% increase per year based on historical and budget.	Average 6% increase per year based on historical and budget.	Average 6% increase per year based on historical and budget.	Average 6% increase per year based on historical and budget.	Bus - Average 6% increase per year based on historical and budget. BRT - Incremental costs incorporated for larger BRT buses.	Updated with 2009 information. Bus - Average 5% increase per year based on historical and budget. BRT - Incremental costs incorporated for larger BRT buses.
Other Supplies	Average 4% increase per year for fixed route and 3% for ADA based on historical and budget.	Average 4% increase per year for fixed route and 3% for ADA based on historical and budget.	Average 4% increase per year for fixed route and 3% for ADA based on historical and budget.	Average 4% increase per year for fixed route and 3% for ADA based on historical and budget.	Average 4% increase per year for fixed route and 3% for ADA based on historical and budget.	Updated with 2009 information. Average 2% increase per year based on historical and budget.
Utilities	Average 6% increase per year based on historical and budget.	Average 6% increase per year based on historical and budget.	Average 6% increase per year based on historical and budget.	Average 6% increase per year based on historical and budget.	Average 6% increase per year based on historical and budget.	Updated with 2009 information. Average 3% increase per year based on historical and budget.
Insurance	Average 2% increase per year based on historical and budget.	Average 2% increase per year based on historical and budget.	Average 2% increase per year based on historical and budget.	Average 2% increase per year based on historical and budget.	Average 2% increase per year based on historical and budget.	Updated with 2009 information. Average 3% increase per year based on historical and budget.
Taxes	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Updated with 2009 information. Average 3% increase per year based on historical and budget.
Miscellaneous	Average 1% increase per year based on historical and budget.	Average 1% increase per year based on historical and budget.	Average 1% increase per year based on historical and budget.	Average 1% increase per year based on historical and budget.	Average 1% increase per year based on historical and budget.	Updated with 2009 information. Average 1% increase per year based on historical and budget.
Leases	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Average 3% increase per year based on historical and budget.	Updated with 2009 information. Average 2.3% increase per year based on historical and budget.
Contracted Services	None	None	None	None	LRT contracted to TriMet at their platform cost per hour.	LRT contracted to TriMet at their platform cost per hour.
Other HCT additional	None	None	None	None	Additonal costs incorporated for offboard fare collection and fare inspectors based on TriMet data.	Additonal costs incorporated for offboard fare collection and fare inspectors based on TriMet data.
Innovative Programs	$200,000 to start. Varying growth from 3 - 10% per year depending on program type.	$200,000 to start. Varying growth from 3 - 10% per year depending on program type.	$200,000 to start. Varying growth from 3 - 10% per year depending on program type.	$200,000 to start. Varying growth from 3 - 10% per year depending on program type.	$200,000 to start. Varying growth from 3 - 10% per year depending on program type.	$200,000 to start. Varying growth from 3 - 10% per year depending on program type.
Capital Program	See attached.	See attached.	See attached.	See attached.	See attached.	See attached.
Designated Cash Flow Reserve	15% of operating expenses	15% of operating expenses	25% of operating expenses	25% of operating expenses	25% of operating expenses	25% of operating expenses
Designated Self-Insurance Reserve	Remains at $3,000,000	Remains at $3,000,000	Remains at $3,000,000	Remains at $3,000,000	Remains at $3,000,000	Remains at $3,000,000
Designated Vehicle Replacement Reserve	Reduced to $5,000,000 to cover following year rolling stock purchases.	Reduced to $5,000,000 to cover following year rolling stock purchases.	Removed due to complete capital program included into the model.	Removed due to complete capital program included into the model.	Removed due to complete capital program included into the model.	Removed due to complete capital program included into the model.
Debt Issues	None	None	Beginning 2012 borrow for all necessary non-grant funding for rolling stock.	Beginning 2012 borrow for all necessary non-grant funding for rolling stock.	Beginning 2012 borrow all necessary non-grant funding for rolling stock. Also borrow (on a 30 year basis) 50% of the local costs (25% of total costs) for Intra-County HCT project B.	Beginning 2013 borrow with 30 year term50% of the local costs for Maintenance Facility upgrades and Park & Rides; 20% of local costs for Intra-County HCT.
Investment Issues	Short-term, investment horizon < 3 months = working capital reserve Medium-term, investment horizon < 2 years = all other general fund balance Long-term, investment horizon > 10 years = none	Short-term, investment horizon < 3 months = working capital reserve Medium-term, investment horizon < 2 years = all other general fund balance Long-term, investment horizon > 10 years = none	Short-term, investment horizon < 3 months = working capital reserve Medium-term, investment horizon < 2 years = all other general fund balance and bond proceeds Long-term, investment horizon > 10 years = debt service reserve funds	Short-term, investment horizon < 3 months = working capital reserve Medium-term, investment horizon < 2 years = all other general fund balance and bond proceeds Long-term, investment horizon > 10 years = debt service reserve funds	Short-term, investment horizon < 3 months = working capital reserve Medium-term, investment horizon < 2 years = all other general fund balance and bond proceeds Long-term, investment horizon > 10 years = debt service reserve funds	Short-term, investment horizon < 3 months = working capital reserve Medium-term, investment horizon < 2 years = all other general fund balance and bond proceeds Long-term, investment horizon > 10 years = debt service reserve funds

PERFORMANCE SNAPSHOT
20-Year Development Plan Alternatives

Prepared for Final June 2010

	Fixed route productivity	Fixed route coverage	Express	Innovative	ADA	HCT	Total
Expense Allocation							
1988	49%	43%	1%	0%	7%	0%	100%
2008	55%	14%	14%	2%	15%	0%	100%
2030 Alternative 1	45%	7%	10%	0%	38%	0%	100%
2030 Alternative 2	44%	8%	13%	5%	30%	0%	100%
2030 Alternative 3	41%	17%	14%	4%	24%	0%	100%
2030 Alternative 4	46%	12%	14%	4%	24%	0%	100%
2030 Alternative 5	37%	10%	13%	4%	23%	13%	100%
2030 Preferred Alt.	36%	9%	13%	2%	29%	11%	100%
Ridership							
1988	1,524,398	576,956	12,588	504	62,491	N/A	2,176,937
	73%	27%					
2008	5,310,002	747,819	915,490	32,472	224,773	N/A	7,230,556
	83%	17%					
2030 Alternative 1	2,892,591	326,196	621,108	0	485,671	N/A	4,325,566
	90%	10%					
2030 Alternative 2	4,378,859	497,250	1,920,441	77,215	567,294	N/A	7,441,059
	90%	10%					
2030 Alternative 3	8,097,960	1,404,840	2,461,958	77,215	567,294	N/A	12,609,267
	85%	15%					
2030 Alternative 4	10,049,475	936,560	2,580,424	77,215	567,294	N/A	14,210,968
	91%	9%					
2030 Alternative 5	8,648,148	805,186	2,525,446	77,292	567,294	6,528,323	19,151,689
	91%	9%					
2030 Preferred Alt.	9,125,371	831,081	2,869,191	42,913	505,889	5,907,020	19,281,465
	92%	8%					
Farebox Recovery							
1988	18.3%	7.8%	16.6%	34.7%	3.0%	N/A	12.7%
2008	12.9%	7.4%	55.0%	5.0%	4.0%	N/A	16.4%
2030 Alternative 1	10.8%	7.1%	15.1%	0.0%	3.0%	N/A	8.2%
2030 Alternative 2	11.0%	7.2%	55.6%	2.3%	3.0%	N/A	13.9%
2030 Alternative 3	17.7%	7.2%	55.8%	2.3%	3.0%	N/A	17.0%
2030 Alternative 4	19.2%	7.2%	58.5%	2.3%	3.0%	N/A	18.7%
2030 Alternative 5	17.3%	7.2%	58.4%	2.3%	3.0%	49.5%	22.0%
2030 Preferred Alt.	22.6%	8.3%	97.5%	5.3%	2.8%	39.8%	27.1%
Platform Hours per capita							
1988	0.32	0.28	0.00	0.00	0.09	N/A	0.69
2008	0.57	0.15	0.15	0.03	0.27	N/A	1.17
2030 Alternative 1	0.23	0.04	0.05	0.00	0.36	N/A	0.68
2030 Alternative 2	0.35	0.06	0.11	0.04	0.42	N/A	0.98
2030 Alternative 3	0.41	0.17	0.14	0.04	0.42	N/A	1.18
2030 Alternative 4	0.47	0.11	0.14	0.04	0.42	N/A	1.18
2030 Alternative 5	0.40	0.10	0.13	0.04	0.42	0.13	1.22
2030 Preferred Alt.	0.41	0.10	0.15	0.02	0.38	0.12	1.18

20 Year Transit Development Plan Draft Recommendations and Implementation Schedule

Funding	Year	Routes	Current Hours	2030 Hours	Difference	Recommendation
PHASE 1*	2013	41 Camas/Washougal Limited	842	2,396	1,554	Add commute service to total 3 a.m. and 3 p.m. trips
0.3%	v	47 Battle Ground Limited	1,227	2,794	1,567	Add commute service to total 3 a.m. and 3 p.m. trips. Serve Legacy on each trip
sales tax	v	65 Parkrose Limited	7,286	13,522	6,236	Add span, schedule maintenance & Sunday service
revenues	v	80 VanMall/Fisher's	15,120	16,313	1,193	Increase frequency to 30-minute peak and midday service
being	v	85 192nd Avenue (NEW)	0	4,022	4,022	New route serving 192nd Avenue area from Fisher's Landing
collected	v	304 Ridgefield/LaCenter Off-peak	653	2,678	2,025	Extend beyond peak hour commute trips with midday service every 2 hours
v	2014-16	30 Burton	25,767	29,082	3,315	Schedule Maintenance
v	v	32 Evergreen/Andresen/Hazel Dell	18,060	21,375	3,315	Schedule Maintenance
v	v	78 78th Street	5,064	8,379	3,315	Schedule Maintenance
v	v	4 Fourth Plain	38,916	0	-38,916	Delete routes 4 and 44 - move combined hours (49,028) to other service (BRT = 43,211)
v	v	44 Fourth Plain Limited	10,112	0	-10,112	
v	v	Fourth Plain Bus Rapid Transit (NEW)	0	43,211	43,211	BRT Downtown to Van Mall - 8-minute peak service/ 15 minute off-peak service
v	2017	3 City Center (A&B)	7,023	10,668	3,645	Increase frequency from 40-min to 30-min.
v	2018	2 Lincoln	7,626	10,668	3,042	Adjust Frequency from 40-min to 30-min.
v	v	48 Fishers/Van Mall via 164th (NEW)	0	14,124	14,124	New Route connecting Van Mall, East 4th Plain, 162nd/164th Avenues and Fisher's Landing
v	v	7 Battle Ground	8,592	13,238	4,646	Increase frequency to 30-minute weekday peak and midday service; 45-min weekends
v	v	72 Orchards	5,133	9,763	4,630	Increase frequency to 30-minutes to accommodate loss of 44
v	v	92 Camas/Washougal	8,949	13,098	4,149	Increase frequency to 15-minute weekdays peak
PHASE 2**	2019	105 I-5 Express	16,959	13,085	-3,874	Change to Limited service between Downtown Vancouver, Salmon Crk, Legacy, and WSUV
0.2%	v	37 Extension	51,090	78,977	27,887	Extend all trips to Salmon Creek. 15-min service weekdays and Saturdays
sales tax	2020	219 219th Street Express (NEW)	0	10,152	10,152	Express Commuter service from new 219th Street Transit P&R
revenues	2024	177 Evergreen Express	2,287	0	-2,287	Delete route - redesign service for opening of new 18th Street P&R
being	2025	118 18th Street Express (NEW)	0	13,661	13,661	Express Commuter service from new 18th Street Transit P&R
collected	2028	164 Fisher's Landing Express	10,436	11,797	1,361	Add frequency
v	2030	134 Salmon Creek Express	10,310	13,600	3,290	Schedule Maintenance and added frequency
v	v	199 99th Street Express	12,258	14,043	1,785	Schedule Maintenance
		19 Felida	7,071	7,071	0	Existing Service Levels
		25 St. Johns/Fruit Valley	13,530	13,530	0	Existing Service Levels
		39 VA/NE 87th Avenue	3,021	3,021	0	Existing Service Levels
		157 Lloyd District Express	1,981	1,981	0	Existing Service Levels
		190 Marquam Hill Express	3,658	3,658	0	Existing Service Levels
		301 Ridgefield Connector - Peak Only	1,384	1,384	0	Existing Service Levels
		302 LaCenter Connector - Peak Only	1,384	1,384	0	Existing Service Levels
		303 Camas Connector	6,249	6,249	0	Existing Service Levels
		Fixed Route/Bus Rapid Transit* **	**301,988**	**408,923**		
		C-VAN Paratransit	**87,100**	**201,972**		
		CRC Light Rail	**0**	**19,821**		
		TOTAL	**389,088**	**630,716**		

* Phase I - first 10 years. Improvements implemented only after a successful ballot measure asking voters to fund the plan with an additional 0.3% sales tax

** Phase 2 - second 10 years. Implementation would follow a second successful ballot measure for 0.2% sales tax (2019-2020)

*** BRT hours **43,211** of fixed route total

C-TRAN 2030

CHARTING TOMORROW'S C-TRAN

Chapter VI

C-TRAN Service Related Strategies

Technology

This section describes potential capital technology improvements to enhance C-TRAN operations and service. When complete, customers would have access to real-time transit information and next bus information in addition to other amenities. These projects will provide efficiencies, attract new riders; make it easier and more convenient for people to use transit services, and "Think Transit First".

Advanced Public Transportation Systems (APTS)

As travel demand increases in growing Clark County, Advanced Public Transportation Systems (APTS) (also known as Intelligent Transportation Systems – ITS) improve opportunities to provide better service and reach new riders while maintaining and enhancing mobility. APTS projects can improve safety and customer service and help vehicles become more efficient using a system of advanced electronics and communication technologies as well as management strategies that will improve expanding operations.

APTS can include global positioning technology that provides real-time schedule information to riders, electronic fare payment for greater customer convenience, and devices that integrate with traffic signal systems allowing transit vehicles priority over other vehicles. An example may include use of C-TRAN's website to answer the question, "When will my bus arrive?"

APTS programs are aimed toward improving customer convenience, vehicle operations, and mechanical systems. This includes advances in vehicle dispatching, tracking, and telecommunications that translate into real transit user benefits: safer, more reliable, more responsive and more accessible service. In addition, APTS enhancements are designed to:

- Make bus travel easier for all customers, including those with hearing and vision disabilities.
- Reduce traffic congestion and improve on-time performance.
- Provide timely and comprehensive transit information through kiosks and variable-message signs installed not only in transit centers and at park and ride locations, but also at various other locations such as hotels, shopping malls and offices.
- Make schedules and a host of itinerary-planning features available through the web site and web-equipped devices such as cell phones, PDAs and pagers.

APTS options include:

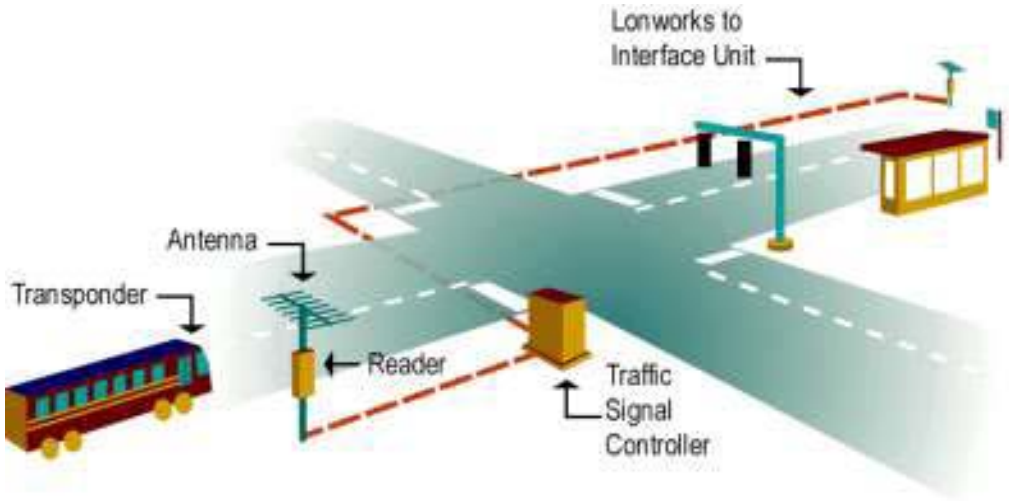
- Automatic vehicle location;
- Onboard automated stop announcements;
- Traveler information systems;
- Electronic fare collection utilizing "smart cards;"
- Automatic passenger counters;
- Fleet maintenance technologies;
- Safety and security; and
- Transit signal priority.

Transit Signal Priority

Communication between an approaching bus and an intersection signal controller allows the bus to extend the green light at an intersection for a little bit longer under certain traffic conditions. This adjustment allows the bus to get through the intersection rather than be stopped at a red light, while producing generally unnoticeable additional delays for other traffic.

The amount of bus travel time savings at individual intersections is usually fairly small, but can be significant over an entire corridor. The reduced delay translates into faster bus trips and more reliable schedule adherence for customers, as well as operating cost savings for C-TRAN.

Exhibit 10
Transit Signal Priority System



Source: King County Metro Transit

Speed, Reliability and Safety

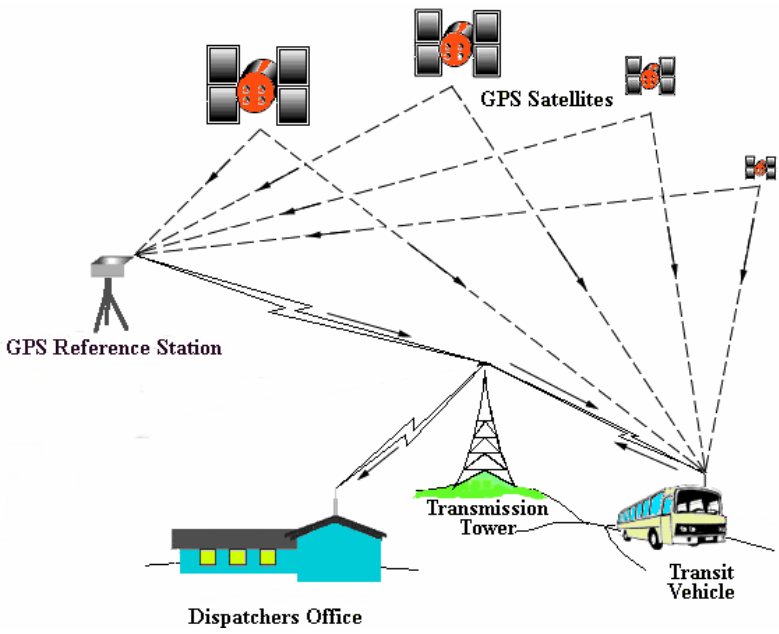
Transit Signal Priority programs are generally tied-in with corridor-based speed, reliability and safety projects. The corridors identified for potential Bus Rapid Transit (BRT) in the next 20 years include Fourth Plain, Mill Plain, and Highway 99, and are the most likely candidates for a corridor-wide speed and reliability program.

Automatic Vehicle Locator (AVL)

Automatic Vehicle Locator systems allow dispatch and field supervisor staff to track the movement of buses and analyze their ability to stay on schedule while recognizing obstacles preventing them from reaching stops in a timely manner. This feature can also indicate vehicle locations to police in an emergency.

A Computer-Aided Dispatch and Automatic Vehicle Location (CAD/AVL) system provides dispatchers and field supervisors with the capability of tracking the location of the entire fleet in real-time. Global Positioning Satellite (GPS) devices placed on each fixed-route, demand response, supervisor and maintenance vehicle allows dispatchers to track any vehicle at any time. Additionally, the system can automatically calculate important operational metrics for fixed route vehicles, such as whether the bus is running late, early, or off-route.

Not only does the system track the location of the entire fleet in real-time, but it also archives information for analysis and incident/dispute resolution at a later date. This archive function provides the capability to "playback" events as they actually happened, allowing a wide range of incidents and disputes to be resolved quickly and easily; eliminating the need to spend numerous hours of already limited staff time resolving these issues. Service planners can also analyze data to determine if the current route structure is providing the greatest efficiencies, and if service changes are having the desired effects.



Automatic Passenger Counters (APC)

Automatic Passenger Counters are devices that automatically count passengers as they board and alight a bus. This information can help schedule and route planners improve service and reduce field work, data collection and analysis time.

With APCs, electronic sensors located near the front and rear doors of selected fixed route vehicles count daily boardings and alightings, while also recording boarding and alighting locations. Utilizing this data, planners can make timely decisions affecting route alignments and improve vehicle on-time performance, all with a goal of improving system reliability and ultimately, the level of customer satisfaction.

Automated Stop Annunciation (ASA)

Automated Stop Annunciation devices use electronic reader boards and public address speakers on-board the bus to announce the next stop along a route. As a bus approaches a stop, the AVA system automatically announces the next stop, as well as displaying the location on a variable message sign inside the bus.

The announcements are made using the existing public address system speakers inside and outside the bus. The variable message signs are ceiling-mounted at the front of each bus inside the vehicle.

Utilizing a Computer-Aided Dispatch and Automatic Vehicle Location (CAD/AVL) system to track the location and progress of every bus provides benefits not only for customers with hearing and vision disabilities, but also other customers who may not be familiar with the stops of a particular route reducing the reliance on driver's verbal announcements. These benefits would also apply to individuals who, due to poor or limited visibility caused by night or inclement weather conditions, have difficulty identifying their bus stop location. This amenity can help attract new customers who are hesitant to ride the bus due to the fear of missing their stop.

Computer-Aided Dispatch (CAD)

This technology helps improve the efficiency of operations, the speed of emergency response and the communication between dispatch and drivers. CAD will also support more efficient and effective data processing and real-time information for customers.

Advanced Traveler Information Systems (ATIS)

These include real-time traveler information displays and interactive voice response systems. Real-time travel information displays provide customers with real-time bus arrival information at transit stations, onboard vehicles or to web-enabled mobile devices. Interactive voice response systems provide real-time bus arrival, schedule and fare information through a touch-tone telephone.

The ATIS program provides a web-based trip planner through which customers can access interactive screens on a web site to input origin/destination or arrival/ departure information; generate quick itineraries for trips; use look-ups for popular destinations; and receive complete, printable itineraries including maps, transfers, stop locations, fares, and written travel instructions.

Additional information enhancements could include "next bus" information at high volume passenger locations and a web based e-mail subscription service to notify customers via e-mail when their bus is within a specified time from the stop, or if there is an unexpected change in normal bus service. Since this information can be displayed on any Internet-ready device, real-time data could be sent to devices including kiosks at transit centers or flat panel displays at bus shelters. These signs can provide a time-based countdown for the arrival of the next bus in addition to informing the customer if the bus they are waiting for has left or is yet to arrive.

Real Time Bus Information

Countdown is considered to be the most user-friendly format for presentation and can be readily implemented with scheduled time, current time and schedule adherence data. Partnerships with local private entities could provide other data such as weather forecasts, news head lines and other relevant information.

Data Radios

Data radios are used for data communications between vehicles and the central processing equipment in the dispatch center.

Mobile Data Terminals (MDT)

MDTs allow two-way communication between dispatch centers and drivers via a digital display, and provide an on-board operations console for the driver that can include schedule or route changes as well as weather and traffic information.

Collectively, these enhancements can improve on-time performance and customer access to information while increasing efficiency through improved speed and reliability as well as fleet management.

Electronic Rider Alerts

This service allows subscribers to receive up-to-date information on service changes, meetings, publications and job opportunities directly to their e-mail. Subscribers can also choose to receive wireless-friendly messages to text-enabled devices such as cell phones and pagers.

Electronic Fare Collection via "Smart Cards"

Providing easier payment options is another way APTS technology can enhance the customer's experience. Currently, the fare boxes support exact change only using both coin and paper. Upgrading the fare box system to incorporate magnetic fare cards or "smart card" technologies would allow C-TRAN to:

King County Metro Smart Card

- Reduce the number of different fares and different discounts available;
- Speed-up boarding times;
- Generate ridership information based on data gathered by fare boxes;
- Integrate data associated with "flash" passes with existing fare box data;
- Integrate ridership data with the GPS system to allow ridership data to be evaluated at the bus stop level;
- Reduce fare box maintenance costs;
- Increase convenience to transit users;
- Decrease cash handling and improve security of fare revenues; and
- Create equitable fare structure.

Fleet Maintenance

APTS technology can enhance fleet maintenance capabilities through vehicle component monitoring (VCM). VCM, or preventive maintenance software, allows the automatic monitoring of transit vehicle engine components and provides warning to maintenance personnel if failures are about to occur.

To monitor the vehicle, an on-board microcomputer is connected to various input devices: engine sensors, GPS receiver, ramp deployment signals, and odometer sensors, which can record characteristics such as acceleration/deceleration, speed/RPM, engine run time, and cumulative distance traveled. External sensors can also be connected to the on-board microcomputer to record temperatures (engine, coolant, interior passenger comfort), road conditions (vibration), air compression usage (tire pressure), and stress on brakes. When the vehicle returns to the garage the data is downloaded, via the wireless local area network, to the maintenance system in order to help maintenance personnel conduct proactive fleet maintenance in a more timely and efficient manner, reducing overall maintenance costs.

In addition, APTS technology can provide an intelligent vehicle initiative (IVI) system designed to enhance the safety of the bus by providing crash warning and crash avoidance capabilities. IVI systems address driving behavior including following too close, unintended lane departures, driving too fast in turns, and other operational characteristics.

Safety and Security

Ensuring the safety of customers and operators is a high priority. Examples of APTS technologies used in ensuring a safe and secure environment include a video surveillance system which incorporates multiple cameras in each fixed-route bus, images from which are stored automatically to hard drives on the buses. This system will serve as a deterrent to criminal activity, vandalism, or other inappropriate behavior. The system also provides protection to employees and customers from inappropriate actions or accusations of improper behavior. The system will also capture events leading to accidents and could assist in improving training to avoid such accidents in the future. Additional on-board security equipment includes emergency alarms and other sensitive security features which allow dispatchers to monitor situations on the bus and act accordingly.

Also, monitoring of facilities with a closed circuit television surveillance system can be provided with APTS as well as controlling building access through a swipe card system. The swipe badges can control not only access to the buildings but also to associated parking areas. Video surveillance cameras installed at transit centers and park-and-rides can deter vandalism and inappropriate behavior.


Security Cameras in Bus

Action

C-TRAN's 2030 vision will be achieved through its commitment to connect the community in all directions providing congestion relief and economic development while operating safe and specialized services including the application of new technologies to maximize effectiveness.
To reach the vision, C-TRAN will:

- Develop and implement guidelines for prioritizing and financing APTS technology investments to enhance the customer riding experience, attract new customers, improve operational efficiencies and provide operations and planning staff timely information to make better and faster informed decisions.
- Support regular maintenance and upgrades to software and hardware utilized by staff.
- Provide funding for upgrading run-cutting software and other modular add-ons to improve work duty efficiencies, equipment utilization and service delivery.

C-VAN Cost Containment Strategies (ADA Complementary Paratransit)

The recent decline gyrations in diesel prices and sales tax revenue in addition to the increased demand have made C-VAN a very costly service to provide. Each one-way ride costs C-VAN approximately $34.99; passenger fares cover only about 4 percent of that cost. The number of hours dedicated to C-VAN costs is projected to grow by 148 percent between 2009 and 2030. Moreover, the total percentage of service hours required by C-VAN will increase from approximately 24 percent to 34 percent of the operating budget over that same time period. Given that a typical paratransit trip is up to five times more expensive to provide than a trip on fixed-route bus service, this represents an unsustainable trend of additional resources providing more service, but carrying less passengers than fixed-route services.

This section describes both the global strategies C-TRAN could employ to reduce the rate of growth in paratransit service as well as the specific short-term initiatives being completed by C-TRAN.

Global Cost Reduction Strategies

Financial Incentives

Federal law allows transit systems to set their complementary paratransit fares at double the regular fixed-route fare. C-TRAN charges the same fare for paratransit as fixed-route service. Given the fact that paratransit service costs significantly more than fixed-route transit, while also providing curb to curb service, it is reasonable to charge a higher fare for this specialized service. A strategy to reduce the overall cost of the paratransit service would be to charge the highest allowable fare – i.e. double the regular fixed-route fare.

C-TRAN also provides monthly passes for C-VAN. People with monthly passes are likely to ride more often as there is no financial disincentive to ride less. C-TRAN priced the monthly C-VAN pass lower than an adult monthly pass and in 2008, doubled the cost of the C-VAN monthly pass. In order to further reduce the demand for trips, C-TRAN could eliminate the pass entirely, increase the cost of the pass to be commensurate with the adult fixed-route passes, or increase the cost of the monthly C-VAN pass to be double the fixed-route adult pass.

Strict Interpretation of the ADA

C-VAN provides service in excess of what is required by the ADA. For instance, there are cases where riders are picked-up and/or dropped-off outside of the ¾ mile radius of an existing fixed-

route service. In order to reduce the financial exposure, C-TRAN should apply a strict interpretation of the service guidelines of the ADA including service span, service area, response time, and travel times.

Travel Training

Travel training allows existing C-VAN customers to take advantage of the flexibility of fixed-route service. It can be designed for several distinct markets, including those with cognitive disabilities or those who have never ridden a bus. In either case, the training should cover the primary elements of riding a bus, including how to read a bus schedule and map, where to wait for a bus, how to board and pay a fare, and how to signal where to stop. Larger agencies have reported a reduced need for complementary paratransit service for individuals who have received travel training. It is a strategy that may have potential for C-TRAN.

Agency Control of Eligibility

In order to become eligible for C-VAN, individuals must apply for the service. A doctor's signature is necessary to confirm eligibility. National practice has shown that doctors have no incentive to decline filling out the form for their patients, which may lead to instances where eligibility is granted for persons without a true need. One strategy to maintain service for those who truly qualify for C-VAN is for C-TRAN to contract with a medical doctor to determine final eligibility.

Conditional Eligibility

Individuals who are certified for C-VAN may have conditional eligibility – i.e. there are conditions when they are eligible for C-VAN and there are times when they are not. Many agencies do not check or enforce conditional eligibility when making reservations. Enforcing conditional eligibility is a strategy to reduce C-VAN costs.

Integrating Taxi Service

C-VAN is required to provide service to eligible patrons, and therefore must grow as demand grows. The fleet and staff size must be tailored to the highest anticipated demand. In order to reduce the height of the peak vehicle requirements, there may be opportunities to contract overflow trips with local taxi providers, particularly for passengers not requiring a lift. C-TRAN has in the past, made arrangements with local taxi service for AMTRAK feeder service as well as limited paratransit overflow. A reexamination of this arrangement to provide C-VAN relief trips should also be considered as a strategy to reduce costs.

Coordination with Social Service Agencies

One successful strategy proven by transit systems is to give social service agencies vehicles to transport their own clients. The agency receives a vehicle at a nominal cost, but is then responsible for transporting the clients. While there is an initial capital expense, the operating savings are usually substantial. This "community vanpool" strategy may also be used for non-profits that can show a demonstrable reduction in the need for C-VAN services. Community Transit in Snohomish County, Washington has a very successful model for this strategy.

Service Routes

A number of daily C-VAN trips are for shopping and essential services. These trips are not currently coordinated, so they are occurring throughout the service day. Several agencies have successfully implemented service routes to address these shopping and service needs. A scheduled vehicle takes seniors or the disabled from their residence to shopping or services on a defined route and schedule. With set schedules and destinations, more patrons will be on the vehicle, which will reduce the overall cost per passenger for providing these trips. C-TRAN should consider implementing service routes as a strategy to constrain costs.

Immediate Cost Reduction Strategies

In 2009, C-TRAN staff assisted the Americans with Disabilities Act (ADA) Task Force, comprised of community members, including C-VAN clients and various local social service agencies to develop suggestions to slow growth, cut costs, and preserve service. The task force met regularly from January 2009–April 2009 to review resource materials and discuss potential solutions. The following suggestions are the top short-term priorities for containing C-VAN costs. All of them are short-term implementations of some of the global strategies listed above.

Senior/disabled shopping bus

This recommendation is to establish a fixed route shopping circulator to replace some of the regularly scheduled C-VAN service.

Incorporate new technology to improve service and maintain costs

Use technology to improve efficiency of service and accessibility.

Increase outreach and travel training to encourage use of fixed route buses

Several recommendations were suggested for transitioning C-VAN customers to C-TRAN fixed route service, including:

- Educate customers on the benefits of using C-TRAN fixed route service;
- Offer bus orientation classes to familiarize seniors and the disabled on how to ride;
- Enhance operator training in dealing with seniors and disabled passengers;
- Educate the public regarding C-TRAN's trip-planning services;
- Provide travel training for visually impaired persons from certified orientation and mobility instructors; and
- Incorporate a "bus buddy" or travel trainer volunteer coordinator program.

Door-to-Door Service

Next-day scheduling with emphasis on standing rides

Use smaller-sized vehicles for ambulatory customers

Smaller, more fuel-efficient vehicles could provide service to passengers who do not require a lift. This is also a potential market for taxi service.

Create a community vanpool program for nonprofits that transport C-VAN-eligible riders

C-VAN passengers could be diverted to community vanpools that provide a more specialized service at a reduced cost to C-TRAN.

C-VAN Eligibility

Ensure service matches applicants' capabilities.

Fares

Fares cover approximately 4 percent of C-VAN costs. This is significantly less than the fare recovery for fixed route bus service and reflects both low fares and the high cost of providing the service. ADA maximum fares are governed by federal law. Some immediate fare suggestions include:

- Update fares paid by users and maintain a reasonable timetable of adjustment;
- Incorporate a "punch-card" style fare instrument to allow infrequent riders a non-cash method of payment; and
- Create incentives to use C-TRAN fixed route service.

Use taxi services to cover excessive demand

During periods of excessive demand, incorporate taxi services to meet demand.

Educate the public regarding funding for C-TRAN and C-VAN

The public is less aware of the increases in costs for C-VAN service. Additional alternative forms of revenue should be researched.

Vanpool Program

Overview

In 2009, C-TRAN reintroduced a Commuter Vanpool program to its menu of services offered to the public. Vanpool has been a popular transit mode in Washington State with 15 transit agencies operating roughly 2,700 vanpools. Vanpool has increased to a 2.1% mode split in counties that are impacted by the requirements of Commute Trip Reduction (CTR) legislation. Until recently, C-TRAN had been the only transit agency in a CTR-impacted County that did not operate a vanpool program.

The average Clark County employee of a CTR affected worksite commutes over 22 miles round trip. Vanpool is a cost-effective mode once a commute exceeds 20 miles. Also, the local economies of Southwestern Washington are intermingled causing workers to commute north and south on the I-5 corridor between Clark and Cowlitz counties. Yet there is no current transit option other than the new vanpool program for these citizens to utilize. In the short term, vanpool should be able to grow by tapping into this latent demand in the local commuter market.

In addition, many Cowlitz and Clark County workers commute south across the Columbia River to work in Oregon. Some commuters travel a substantial distance to work sites outside of Downtown Portland that are not readily accessible by traditional transit which presents another major, long term opportunity to boost Vanpool usage. Further enhancing this aspect of the Vanpool market is the Columbia River Crossing (CRC), a bridge replacement project on the I-5 Corridor. There is substantial analysis pointing to the need for tolling to raise funds to build the replacement bridge. Should this occur, tolling will act as a major incentive to all transit modes including vanpool.

Washington State Department of Transportation (WSDOT) Vanpool Investment Program

C-TRAN will be supported in the long term by actions at the state level. WSDOT has set a goal to increase the approximately 2,700 vanpools currently operating in Washington State, to 4,300 vanpools by the year 2015, and 6,600 by the year 2035. In an effort to meet that goal, WSDOT provides vanpool funding for both user incentives and capital needs through its Vanpool Investment Program. Utilizing a competitive grant process, funds are allocated to cover 100% of the cost of new vans. While the legislation authorizing this program expires in 2013, WSDOT has committed to seek legislative action to ensure vanpools remain a viable transportation option in Washington State.

Vanpool Funding

In addition to the Vanpool Investment Program, funding for vanpools is also collected through monthly user fares and through Federal Transit Administration (FTA) 5307 formula funds.

C-TRAN's vanpool program is designed to be financially self-sustaining based on the current fare structure once the program reaches approximately 40 active vans. At that level, fare revenues should be sufficient to cover all administrative and operating costs, in addition to most (if not all) of the local matching funds needed to utilize the 5307 funding to its maximum potential.

Vanpool Market Potential

In 2003, C-TRAN commissioned a study to identify the vanpool market. That study indicated the vanpool market was from 130 to 560 vanpools depending upon what incentives were offered. This study also identified two primary commutes that vanpool would serve: intra-Washington commutes and Washington-to-Oregon commutes. The primary market would be commuters crossing the Columbia River for work in Oregon. However, there would be a secondary market of Washington residents commuting into or out of Clark County from other Washington State locations such as a commuter group traveling to and from work between Vancouver and the Longview/Kelso area.

With the advent of the Columbia River Crossing project, C-TRAN anticipates having 115 vanpools crossing into Oregon with an additional 30 intra-Washington State vanpools by the year 2017. Predicting vanpool growth is difficult due to the variety of factors involved, the most prevalent being the CRC project. However, the following chart shows a probable growth pattern with and without the Columbia River Crossing.

	With CRC		Without CRC	
Year	**Total Vanpools**	**WA-OR Vanpools**	**Total Vanpools**	**WA-OR Vanpools**
2009	16	10	16	10
2010	35	~23	35	~23
2011-2012	55-76	~61	40-55	~38
2013-2014	80-118	~99	65-80	~60
2020	110-145	~116	95-120	~90
2025	150-195	~140	150-160	~140
2030	200-250	~185	190-220	~175

Other Vanpool Growth Potential

Community Vanpool

Many transit agencies are enacting or studying the possibility of a Community Vanpool Service that would offer vehicle leasing to local non-profit agencies to provide their own client transportation. Similar programs focus on non-profit agencies that specifically serve the disabled community. Often, these groups would like to provide their own transportation but find it cost prohibitive.

A Community Vanpool program can expand the transit agency's ability to serve the elderly and disabled at a cost that is significantly less than the traditional paratransit service.

Regional Vanpool Provider

The state departments of transportation in Oregon and Washington have discussed the possibility of a regional vanpool program, preferably publicly operated and similar to the Washington State vanpool model. If this occurred, C-TRAN would be a potential program operator. Such an undertaking would require careful review of policies, goals, regional partnerships, and staffing resources.

Transit Incentives and Marketing

This section describes the various programs provided or those that could be provided through customer information, transit service promotions, customer relations and congestion management that support the vision and programs of C-TRAN. In addition, although buses are very visible on the streets, the general public is sometimes unaware of available services and benefits. It is therefore imperative that transit agencies actively market services to the community at large.

Marketing

Customer Information

Information on C-TRAN's services is currently available through a variety of materials, signage, technologies and outreach efforts. Schedules and general information, as well as a system map showing the entire route network, are available in printed form. These materials are available at numerous locations throughout the county. Other materials include rider alerts which highlight changes in service, Transitions Newsletter, a monthly publication distributed on board buses and on-line, News Releases available on-line and through e-mail subscription, and a notification e-mail program where customers receive electronic service messages upon request. Information about other programs such as Pass-by-Mail and Bikes on Buses is also available on-line.

The most complete service information is available on C-TRAN's website featuring a trip planner to assist riders with planning their own transit trips. Passenger Service Representatives are available everyday to provide individual trip planning, bus stop locations, fares and passes, additional public transportation services and to take comments. Transit service and fare information as well as bike and bus training are available at the C-TRAN Passenger Service Offices located at Fisher's Landing and Vancouver Mall transit centers.

Bus stop signs are maintained at each bus stop for easy identification and other amenities such as shelters, benches and route schedules are posted at specific bus stops and at park & ride locations. Outreach efforts include the C-TRAN Speakers Bureau through which staff is scheduled to share information with community groups, clubs and associations. Prior to service and fare change decisions, C-TRAN staff meet with riders, affected communities and other stakeholders to collect and consider public opinion before making a recommendation.

General Promotions

C-TRAN can utilize a number of promotional campaigns to make using transit easier and increase knowledge of public transportation services to attract new riders.

Bus Class Program

The Bus Class Program, oriented to middle school aged children, connects agency staff with local schools to teach students about transit service. By learning how to behave, locate the route number, board the bus, ride the bus and exit the bus, younger citizens will be ready to make transit their first choice.

A travel instruction program is another means to teach transit skills. Travel instruction is targeted to senior citizens, persons with disabilities, and non-English speaking customers to provide the necessary assistance and knowledge for these individuals to successfully learn how to use the bus system.

Pass Sales

Pass sales are made easier through the Pass-by-Mail program and the establishment of numerous commercial outlets throughout the county including TriMet's customer service office in Portland. Passes are tailored to customer's needs such as the Go Anywhere Express Pass for commute travel to and from Portland, discounted passes for those who qualify as low income, senior, youth and disabled, the annual Summer Blast Pass for school age youth during June, July and August, and the basic monthly pass.

The Go Anywhere Express Pass allows unlimited rides on all C-TRAN and TriMet services. It can be purchased monthly or annually through an employer sponsored program that utilizes a convenient sticker fixed to the front of an employee's employer-provided ID badge. A bonus for the casual rider or visitor is the availability of the Day Pass that can be purchased for local travel or the Go Anywhere Day Pass good for travel on all C-TRAN and TriMet buses, MAX light rail and the Portland Streetcar.

Route Marketing

Promotions could target a corridor or specific underutilized route or park-and-ride facility. Rider forums, direct mail and print ads can be used to get the message out about specific service offerings. Partnerships are an important element of route promotion. A partnership with Vancouver Mall to promote bus service to mall employees and regular mall customers could provide benefits to mall businesses and transit in addition to maintaining special event services out of the Vancouver Mall Transit Center.

Year round promotions and outreach programs serve to market the advantages of using bus service, participating in a vanpool or ride sharing. Some promotions to consider include offering incentives such as free ride tickets, money, prizes or through promoting the environmental and economical benefits of using alternate commute modes.

Commute Trip Reduction Promotions

As discussed early in the Transportation Demand Management section below, C-TRAN can work in a number of ways to promote employer-based commute trip reduction (CTR) programs and vanpools through the Smart Commute Campaign offered by the Clark County Commute Trip Reduction Program (ClarkCommute).

Commute incentive programs, such as the twice yearly statewide Wheel Options campaign or a bicycle commuter contest which offer prizes for carpooling, vanpooling or taking transit, have been very successful in moving commuters out of their single occupant vehicles. C-TRAN could also expand its role in commute trip reduction efforts by promoting assistance to employers that are not affected by the CTR law. This might include facilitating relationships between CTR worksites and smaller worksites to maximize potential trip reduction; networking meetings, training, promotions and individual consultation; as well as expanding on the Smart Commute Campaign that rewards commuters for utilizing alternative modes of transportation.

Corporate Positioning

An important component of the "Think Transit First" vision and providing the best possible service for customers could include an ongoing effort to increase funding, improve the regulatory environment, and raise awareness of C-TRAN's accomplishments and activities. The Public Affairs Division, Executive Team and Board of Directors can work with leaders in the community and at the state and federal levels to build relationships and awareness that will positively impact the agency's ability to deliver high-quality transportation services.

Wi-Fi

Another service to consider implementing on select commuter routes would be Wireless Internet or Wi-Fi. Providing Wi-Fi is another amenity that can be marketed to attract the non-or choice rider to utilize transit.

Customer Relationships/Satisfaction

C-TRAN regularly monitors customer satisfaction and citizen opinion using measures that assess system changes, improvements and system management through regular surveys of riders and non-riders. The Rider Satisfaction Survey provides a measure of service quality and acceptance of system changes and improvements. The Community Report Card looks into how the non-riding public gets around the community and measures their awareness and opinion of C-TRAN services. This information is particularly important in retaining riders who have other transportation options and to attract new riders to the system.

The Rider Satisfaction Survey is used to assess satisfaction levels with system performance, service changes, and overall improvements and at the subarea level in areas including:

- Directness of travel
- Wait time between transfers
- Safety, comfort, and convenience
- On time performance
- Service frequency (headway) - the time between buses

Other programs reaching out to riders and non-riders include a C-TRAN presence at various community events, as well as special events to meet the public at high use transit centers or other locations.

In addition, the C-TRAN Citizen's Advisory Committee (CCAC) serves as an effective outlet to connect with users of the system and stay engaged with the public. The CCAC acts as a liaison between the community and the C-TRAN Board of Directors and staff. The CCAC meets monthly to advise the C-TRAN Board and C-TRAN staff members on transit and paratransit policies, programs, plans, and other related issues. Members represent a broad spectrum of C-TRAN riders and stakeholders.

Customer satisfaction should be considered in the context of service evaluation, as an element of each area that is evaluated. This approach will utilize the information gained from regular customer surveys to link the evaluation of service with a corresponding evaluation of the customer's viewpoint.

TDM / Congestion Management Program

An important tool for managing congestion is the regional public transportation system. Every day, thousands of people in the county use public transportation to access employment centers, commercial areas, recreation facilities, entertainment venues, and public institutions. By doing so, transit riders reduce the travel demand on the region's roadways while moderating congestion and pollution, particularly during the peak travel periods.

Public transportation has the potential to significantly reduce congestion on the regional roadway network. According to the American Public Transportation Association, only 49 percent of Americans live within ¼ mile of a transit stop. In contrast within the Clark County PTBA, over 70 percent of area households are within ¼ mile of a bus stop.

Transit riders want direct access to employment, commercial, and entertainment centers. The goal of transportation officials attempting to reduce roadway congestion is to attract riders that own automobiles i.e. choice riders, to public transit. Convincing choice riders to use public transportation in place of their automobiles is challenging, but doing so may help better manage congestion on the regional roadway network.

Advanced Public Transportation System (APTS)

Advanced Public Transportation System (APTS) refers to the use of technological innovation to manage the transportation system more effectively, improve its efficiency, and make the system more user-friendly. There are a wide variety of APTS techniques under development or in use across the country, ranging from variable motorist message signs, automated vehicle locators (AVL), and toll collection systems to more futuristic in-vehicle guidance systems.

Utilizing the latest APTS technologies will assist in providing more cost-effective, safe, and reliable transportation services. Automatic vehicle locators, automatic passenger counters, and "smart card" technology will provide more usable and timely data for planners and management to make decisions that improve transit services. In addition, signalization changes and dedicated bus lanes will improve on-time performance, speed service and make the system more attractive to the choice rider.

Additional information regarding APTS can be found in the Chapter VI, C-TRAN Service Related Strategies under the heading, "Technology."

Transportation Demand Management (TDM)

The term "transportation management" is used in the Long-Range Transportation Plan (LRTP) to encompass a wide range of strategies that make more efficient use of existing transportation

facilities. Such strategies are generally less costly than major capacity improvements and may increase or constitute cost-effective alternatives to major highway and transit projects. In addition, transportation management strategies are generally viewed as having positive impacts on air quality and energy consumption when compared with more capital-intensive alternatives.

Transportation management techniques fall into two general categories: 1) transportation system management (TSM) and 2) transportation demand management (TDM). TSM strategies are generally physical improvements that improve traffic flow, such as signalization, signal coordination, channelization, addition of turn lanes, ramp metering, contra-flow or reversible traffic lanes, and high-occupancy vehicle (HOV) lanes. TDM strategies are intended to reduce or shift the demand for travel, and include alternative work schedule programs, programs to encourage transit use or ridesharing, telecommuting and congestion pricing. Other transportation management strategies include APTS techniques such as motorist information systems and incident management programs that address non-recurrent congestion caused by accidents or disabled vehicles.

Achieving the full benefits of the long-range plan will require extensive efforts by local, regional, and statewide agencies as well as the private sector to promote using public transportation and other options that reduce the number of miles traveled in single-occupant vehicles.

The TDM strategy for congestion management is to promote a mode shift from Single Occupancy Vehicle (SOV) to High Occupancy Vehicle (HOV) – carpool, vanpool, transit – improving the efficiency of corridors and effectively increasing the person through-put of the overall transportation system. C-TRAN could participate as a partner for market development programs, and cooperate with other agencies working with employers and local jurisdictions to match high quality transit services with economic incentives to use transit and promote ridesharing and other options to reduce drive-alone commute trips.

TDM comprises a collection of land use and transit strategies that, when applied in a coordinated effort, will enable SOV to HOV mode shift and the successful accommodation of future growth. The following information identifies several TDM components.

TDM Components

Alternate Mode Support

- Promotion and Outreach
- Ridematch
- Transit
- Vanpool
- Non-motorized
- HOV
- Park-and-Rides

Worksite Strategies

- Monetary Incentives
- Alternate Work Schedules
- Guaranteed Ride home
- Parking Management
- Facility Amenities
- Land Use Strategies
- Density
- Activity Centers
- Mixed-Use
- Transit and Pedestrian Orientations
- Connectivity
- Jobs-Housing Balance
- Affordable Housing
- Developer TDM Fees

Telecommunications

- Internet-Based Strategies (reduce travel)
- Telecommuting

Programmatic and Policy Support

- Trip Reduction Ordinance and Programs
- Access Priority or Restrictions
- New Institutional Relationships

Pricing

- Parking
- Fuel
- Road – Congestion (Hot Lanes)
- Transit and Vanpool Fare Subsidy

Alternate Mode Support

Convenient access to trip planning information and bus schedule information is provided through C-TRAN's web site or through the passenger service call center. The Clark County Commute Reduction Program offers the 'ClarkCommute' web site providing a commute calculator to compare cost differences between commuting options and free computerized ride-matching services

allowing commuters to find others who live and work in the same area and want to share a ride or vanpool. Groups of 7 to 15 people can form a vanpool and enjoy the benefits of transit while controlling their own schedules. Also, the Southbound Solutions campaign is for Southwest Washington residents who commute to the Portland Metro area for work. http://clarkcommute.org/southbound/default.aspx

Pedestrians

Implementing a transit access program by utilizing a GIS based inventory of sidewalks and pedestrian paths that lie within a quarter mile of C-TRAN's bus stops will help make using transit easier, provide better access to facilities and reduce dependence on cars. This is discussed further in the Capital Program in Chapter V. Preferred Alternative.

Bicycles

Bicycling is a non-polluting and healthy alternative to driving. Through use of on-board bike racks or bike lockers at park-and-rides, cyclists can extend their range and commute options. Biking is more of a challenge due to auto-oriented transportation networks, climate and dispersed land use patterns. C-TRAN's participation with the Bicycle Transportation Alliance group to promote "Bike to Work Day" would further encourage residents to utilize non-motorized means of transportation reducing congestion. The use of three position bike racks on buses and expansion of bike lockers at park-and-rides and transit centers will encourage bike use in conjunction with transit.

Worksite Based Strategies

The Commute Trip Reduction program requires the participation of employers with 100 or more employees. The Smart Commute Campaign, managed by Clark County through 'ClarkCommute', maintains contact with area employers. Efforts to ensure that new transportation products are aimed at the TDM market and are well-designed to provide the greatest opportunity for success is important to promote transportation alternatives to help manage and reduce congestion.

Land Use

Studies throughout the United States confirm the strong link between land use planning and the transportation system. Research shows that travel and congestion can be substantially reduced by creating better job-housing balances (locating employment, housing and services in close proximity), walkable communities, and encouraging the development of transit-orientated developments. Integrating land use and transportation decisions has profound benefits for the community and the transportation system.

C-TRAN's active role in reviewing development proposals, road improvements and land use plans would provide a mechanism to promote transit-oriented development, transportation networks and community designs that effectively support TDM and transit market development while identifying "transit emphasis corridors" and viable transit markets.

Inter-Agency Coordination

TDM is a multi-disciplinary effort encompassing regional and local land use planning, road network development and transit. C-TRAN's involvement in coordinated planning with the Southwest Washington Regional Transportation Council (RTC), WSDOT, Clark County, local jurisdictions and other transit agencies is essential in promoting transit, encouraging alternative transportation modes and reducing congestion.

The Regional Transportation Council (RTC) is the state-designated Metropolitan Transportation Planning Organization for the three-county area of Clark, Skamania and Klickitat. The primary functions of the RTC are to develop regional plans and policies for transportation, growth management, environmental quality, and other topics; provide data and analysis to support local and regional decision making; build community consensus on regional issues through information and citizen involvement; build intergovernmental consensus on regional plans, policies and issues, advocate local implementation; and provide planning and technical services on a contractual basis.

The RTC manages the Congestion Management Process that focuses on delivering improved transportation system performance information to decision-makers who must identify the most cost-effective strategies for addressing transportation congestion and improving mobility. This project consists of collecting additional transportation data, analyzing transportation system performance, and annual preparation of a System Performance Report. The performance measures considered for this project include a corridor congestion ratio, speed as percent of speed limit, auto vehicle occupancy, truck percentage, transit seat capacity used, and other transportation measures.

Action

C-TRAN's vision for 2030 includes providing connections throughout the area for diverse purposes such as employment, entertainment and social services; providing congestion relief by working with other entities to provide safe and specialized services; and utilizing a variety of transportation modes. Therefore, C-TRAN will:

- Aggressively market transit and alternative mode services and expand the current level of marketing including the convenient day, monthly and annual pass programs that allow inter-agency travel;
- Expand community outreach efforts and stay connected with customers while enhancing customer satisfaction; and
- Continue to build upon close alliances with other agencies such as the RTC to develop effective congestion management programs.

C-TRAN 2030

CHARTING TOMORROW'S C-TRAN

Chapter VII

Service Performance Strategy

C-TRAN
SERVICE STANDARDS

September 2008

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APPENDICES

I. INTRODUCTION

C-TRAN's Board of Directors has set direction for the organization in three critical areas: achieving financial integrity, increasing public trust and confidence, and becoming integral to regional transportation planning. Within this broad direction, there are specific annual goals pertaining to increasing farebox recovery, comparing favorably to benchmarks of peer transit agencies, and managing resources to best serve citizens in C-TRAN's service area.

C-TRAN's mission is to provide safe, reliable, efficient mobility choices. In order to fulfill this mission, resolve the Board's critical issues, and meet the expectations of citizens by designing and delivering effective transit service, C-TRAN has developed service standards. These standards provide a framework for evaluating transit services, guiding planning and service decisions, and informing and engaging the public in service changes.

ANNUAL SERVICE REVIEW

On an annual basis, all categories of service will be reviewed using the applicable performance measures. This review will identify routes that are performing well and meeting all standards as well as routes that are underperforming and need attention.

There are four broad categories of service: fixed route, innovative transit, paratransit, and vanpool services. These categories are further defined in Section III. The annual service review will examine performance by category as well as by route, where applicable.

APPLICATION OF SERVICE STANDARDS

The specific standards and a procedure for applying the standards are outlined in this document. However, this process must be regarded as flexible. Adopting service standards provides a framework for identifying routes most in need of improvements such as adjusting service frequency to better meet demand, restructuring to eliminate low-productivity segments, or providing additional marketing and promotion to build ridership. Routes which do not meet the standards are not immediately targeted for elimination; rather, they are analyzed in greater detail to determine what options exist to improve route performance, as detailed in Section V and VI. Elimination of routes is a last resort, to be used when cost-effective options are not available to improve route productivity. There are also considerations that may warrant the preservation of service not meeting all service standards – as addressed in Section V.

It should also be noted that service standards do not preclude making changes to routes that are effectively meeting the standards described in this document. Even routes that are performing well may be optimized to better serve C-TRAN's customers and the

community. Changes to service will be limited to what can be implemented given available resources.

The service standards described in this document are ordered by category of service delivery: fixed route, innovative transit services, Americans with Disabilities Act (ADA) required paratransit service, and vanpool service. On an annual basis, all C-TRAN services will be evaluated against established performance standards. The standards vary by type of service, but all are intended to ensure that service is productive, effective, and efficient.

Annual standards will be developed using previous year performance, C-TRAN's budget, and benchmark data from comparable transit systems. Staff will review and update performance standards annually. Finance will compile and provide benchmark data to be used in setting the standards for service performance. Annual service evaluations will be used to inform budgeting and service improvement processes.

Systemwide

Systemwide, three standards will be used to evaluate C-TRAN service. Population within ¼ mile of service and service hours per capita will be used to evaluate service availability.

C-TRAN strives to find an equitable balance between productivity (the desire to maximize ridership per revenue hour of service) with coverage (the desire to serve all parts of the community, maintaining lifeline connections and transit access.) C-TRAN's target for the balance is approximately 80 percent productivity and 20 percent coverage, although the exact percentage will vary with changes in service. Specific standards will differ for productivity and coverage oriented services.

Fixed Route Service

This category includes local urban, limited, and express commuter service. These services will be evaluated using standards for passengers per revenue hour, farebox recovery, on time performance, operating cost per revenue hour, operating cost per passenger, maximum load factor, and service hours per capita. The following sections provide brief descriptions of fixed route services.

Local Urban Route

These routes operate within urban areas along established routes with fixed timepoints and scheduled headways. Route performance will be evaluated against all applicable standards. Any local urban route falling below 75 percent of the standard for passengers per revenue hour will be identified as an underperforming route.

Limited Route

Limited routes make limited stops along a fixed route, terminating at major destinations within Clark County or at MAX light rail stations. Route performance will be evaluated

against all applicable standards. Any limited route falling below 75 percent of the standard for passengers per revenue hour will be identified as an underperforming route.

Express Commuter

Express Commuter routes provide a single seat express trip between park and ride facilities in Clark County and downtown Portland. Due to operating on interstate highway corridors and the premium nature of the service, it is preferable that the maximum load on commuter express trips not exceed 1.25 passengers per seat except in extraordinary circumstances and given resource limitations. Route performance will be evaluated against all applicable standards.

Innovative Transit Service

Innovative transit services use a variety of service delivery concepts to deliver Connector service in the smaller cities and other areas where ridership demand does not support fixed route service. Service delivery concepts, such as dial-a-ride, deviated fixed route, or feeder routes, may be combined to deliver seamless service on a single route. Route segment analysis may be necessary to fully understand how each delivery concept is performing within the route.

Paratransit

Paratransit service provides the required ADA-compliant service to ensure transit access for individuals who cannot use fixed route service.

ADA-compliant paratransit service is required by law as a complement to fixed route service. Given this, the application of service standards to this service is to identify and support opportunities to increase operational efficiency and productivity.

Vanpool

Vanpools provide a rideshare commute option that is more customized than fixed route commuter service. They also provide a rideshare option in suburban employment areas where employment density may not support fixed route service. Vanpools usually include a group of 7-15 commuters with a common trip destination. In 2008, C-TRAN will be re-engaging in a regional vanpool program and working to expand the program. For vanpools that originate in Clark County, C-TRAN will monitor performance to ensure effective use of resources.

OTHER STANDARDS

Vehicle Assignment

Vehicles will be assigned to routes based on ridership and anticipated need for capacity. Same size vehicles will be used interchangeably when daily route assignments are made.

Service Availability

The following table presents standards for availability by type of service.

Service Type	Standard
Fixed Route	Provide service within ¼ mile of 60 percent of households where fixed route service operates.
Innovative Transit Services	Service should be accessible to all households within service area during scheduled service times.
Paratransit	Paratransit service will be provided throughout the Vancouver Urban Growth Area (UGA) and within ¾ mile of all fixed routes that operate outside the Vancouver UGA. During night hours of service, paratransit service will be available within ¾ mile of fixed routes operating night service.

All service types will operate with fully ADA-accessible vehicles.

Vehicle Headways

Where possible, clockface headways will be used as these schedules are more customer-friendly. Headways will be adjusted based on ridership demand, using load factors and productivity to inform the planning process.

Distribution of Amenities

Transit amenities, including facilities, should be located where existing or projected demand supports the investment. There should be an equitable distribution of amenities, given that different types of service, safety and operational issues, and ridership levels will affect where amenities such as benches, shelters, lighting, and shelter flashers are placed. C-TRAN's Bus Stop Guidelines provide more detail on amenities.

Transit Security

Measures to ensure a safe and reliable transit experience for passengers are taken by C-TRAN. Digital video cameras and automated vehicle locators on all coaches, security personnel who monitor transit centers and park and ride lots, and passenger education campaigns have been successful and will continue to ensure safety and security. C-TRAN will continue to participate in SafeWatch, collaborating with local public agencies and emergency responders to facilitate prompt response to emergencies. Additionally, C-TRAN will continue its effective working relationships and coordination with law enforcement agencies in the service area. Additional security measures will be considered as needs arise and funding is available.

MITIGATING CONSIDERATIONS

New Service

New services require time to mature and develop full ridership potential. It may require 18 months to two years for new routes or services to meet performance standards. These services should be monitored to ensure performance is improving during each year, but should not be expected to meet performance standards until mature.

Significantly Changed Routes/Services

Routes that have been changed significantly will also require time to mature. A route that has had its service level adjusted by 25 percent or more of its platform hours or its routing changed by 25 percent or more of its total miles should be considered as new service.

Budget/Available Resources

Improvements to existing service or new service requests that pass evaluation and are expected to meet applicable standards can be implemented only if necessary resources (service hours, vehicles, operators, etc.) are available.

Transit Dependent/Social Service Destinations

Rider surveys conducted on underperforming routes should identify what percentage of riders is transit dependent. The productivity standard for the route can be decreased by one-quarter of the percentage of transit dependent riders on the route. For example, if 40 percent of riders are identified as transit dependent, the performance standard would be reduced by 10 percent (40%)4=10%). Additionally, there may be routes or segments that serve key social service destinations where a connection may be more important. Even when these mitigating circumstances apply, efforts should be made to improve route performance to meet established standards, not just decrease the standard.

Environmental Justice/Title VI

Environmental justice, including Title VI, analysis and impacts must be considered when developing and evaluating proposals to add, delete, or change service.

Intercity Connections

Maintaining intercity connections, regardless of the service category used to fulfill this need, is an important consideration. Routes that fulfill this role should be improved so they meet performance standards, but if remediation actions do not achieve desired results, maintaining a lifeline connection may be more important. These routes help maintain the coverage/productivity balance.

Fare Increases

Service productivity will likely decrease following a fare increase as ridership initially drops and then rebuilds over time. This should be considered during the annual review following a fare increase.

IMPROVEMENT OF UNDERPERFORMING ROUTES

Routes that are identified as underperforming routes based on the service standards described for each category of service will require a detailed review to identify the cause of poor performance and options for improving the route.

The following list presents some of the sources of information that may be used in the detailed analysis of underperforming routes. Development and planning staff will use judgment in determining what information is needed to assess routes and recommended strategies to improve performance. Information that may be utilized for developing an action plan to improve route performance includes:

- External factors, such as changes in traffic conditions, land uses, and trip characteristics;
- Observations/comments from customers, Coach Operators, supervisors, Passenger Service Representatives, and other stakeholders;
- Operational factors such as dispatch, park and ride utilization, operator effectiveness, security, etc.;
- On-board survey responses;
- Market analysis to determine why ridership is lagging;
- Assessment of promotional opportunities;
- Analysis of farebox data;
- Automated Vehicle Locator/Automatic Passenger Counter data for route and segment activity; and
- Evaluation of impact to paratransit service and riders if changes in fixed route or innovative transit services are considered.

Action plans should begin with remedial actions and progress to more substantial changes only if required. A first tier of remedial actions includes increased promotion or targeted marketing to improve route ridership. Secondary tier strategies could include adjusting trip times or frequency. Changes in routing to eliminate unproductive segments or changes to add service to key destinations/uses comprise a third tier of actions. Elimination of a route would be recommended when other cost-effective strategies failed to produce sufficient improvement in route performance.

Proposed changes to routes must be evaluated for their environmental justice impacts. Public involvement strategies should seek to involve affected communities and constituencies in the process of developing and refining service proposals and action plans to improve performance.

An action plan to improve route performance will be implemented, with quarterly monitoring to follow progress. Proposed changes to routing or schedule should be implemented after appropriate public involvement, customer feedback, and decision-making processes.

Routes that continue to perform poorly, despite actions taken to improve performance, need to be evaluated in light of mitigating characteristics to determine whether the route should continue, if there are additional improvement strategies to utilize, or if the route should be eliminated.

SERVICE EXPANSION

There are a number of indicators that may suggest when additional service is supported on existing routes or in new service areas. These include but are not limited to, existing routes/trips consistently exceeding the maximum load factor, customer requests/ suggestions, excess demand on first or last trips, and transit supportive development in growth areas identified in local jurisdiction comprehensive plans. The table below presents minimum threshold density guidelines for transit service developed by the Institute of Transportation Engineers (1989, *A Toolbox for Alleviating Traffic Congestion*.)

Transit Service Supported by Residential Densities	
Frequency (20-hour service day)	Dwelling Units per Acre
1 bus/hour	4-5
1 bus/30 minutes	7
1 bus/10 minutes	15

Transit Service Supported by Non-Residential Densities		
Frequency (20-hour service day)	Employees per Acre	Non-Residential Square Feet
1 bus/hour	50-80	5-8 million
1 bus/30 minutes	80-200	8-20 million
1 bus/10 minutes	200-500	20-50 million

Proposals to expand service should be reviewed to estimate ridership as well as the costs of the new service. New services should be expected to mature and meet performance standards, though this will require time as discussed in section V. Service expansion and improvements would also be constrained by available resources.

Where appropriate, C-TRAN will evaluate corridors for high capacity transit (HCT) service investment. At a minimum, the Federal Transit Administration's Very Small Starts program requires existing ridership in a potential HCT corridor to be 3,000 rides per day. Routes meeting or exceeding this criterion may be evaluated for HCT project development.

DEFINITIONS

Coverage Service – Service that operates in areas with lower employment and residential densities, with peak period service frequencies greater than 30 minutes. Routes that provide an intercity connection are also considered coverage service.

Deviated Fixed Route – Equally accessible transit service that permits the bus to deviate from the established route and service destinations within a prescribed distance.

Dial-a-Ride – Demand response, equally accessible service that responds to phone calls and reservations from passengers. Typically, a vehicle is dispatched to pick up several passengers at their pick-up points before taking them to their destinations.

Farebox Recovery Ratio – The percentage of the cost of providing service that is recovered from fares paid by customers. This measure is calculated by dividing passenger/operating revenue by net operating costs.

Limited Route – A limited route is a local route that operates with a limited number of strategically located stops between origin and destination. Limited routes may terminate at light rail stations in Oregon where a transfer to light rail is possible.

Maximum Load Factor – The load factor is calculated by dividing the number of passengers aboard the bus by the number of total seats. For a bus operating with the same number of passengers as seats, the load factor would be 1.0. The maximum load factor is the highest passenger loading desired for a type of service. When the maximum load factor is consistently exceeded, adjusting trip times or adding service may be indicated.

On-Time Performance – For fixed route and innovative services, a route is on time if it is 0 minutes early to 5 minutes late departing. For paratransit service, a route is on time if it arrives to pick up a passenger within the 30 minute window negotiated with the passenger.

Operating Cost (Net) – The total cost to operate service, minus depreciation, leases, and contracted services.

Operating Cost per Revenue Hour – The cost of providing service per revenue hour of operation for a vehicle. This measure is calculated by dividing the net cost of the service by the number of revenue hours for the route.

Passenger Trip – Also referred to as an unlinked passenger trip or boarding. A passenger trip is a single ride on the bus. Passengers who take two bus routes to reach their destination make two passenger trips.

Passengers per Revenue Hour – The total number of passenger boardings on a route divided by the number of revenue hours used to operate the route. This is a measure of service productivity.

Platform Hour – Total hours required to operate service including revenue hours and not-in-service travel time.

Productivity Service – Service that operates in areas with higher residential and employment densities, with 30 minute or better peak period service frequencies.

Revenue Hour – An hour a vehicle is in service, including layover time.

Transit Dependent Rider – A rider who a) lives in a household which does not own a car, b) has no car available for needed trip (including individuals without licenses or with suspended licenses), or c) has a physical or mental disability that prevents the operation of a motor vehicle.

Vanpool – A group of 7-15 passengers who commute by van. Vanpools are usually most effective for commuters traveling 15-30 mile one-way to large urban or suburban employment centers. They complement Express Commuter service.

APPENDIX A - 2008 DRAFT STANDARDS

These standards will be updated annually. The following are the draft standards for 2008 route performance.

Systemwide

	2007	2008 Target
Productivity/Coverage Balance	81/19	80/20
Population within ¼ mile of service	59.51%	60%
Revenue Hours per Capita	0.72	TBD

Fixed Route - *Local Urban & Limited*

	2007	2008 Productivity Standard	2008 Coverage Standard (80%)
Passengers per Revenue Hour	27.04	27.85	22.28
Farebox Recovery	15.64%	16.11%	12.88%
On Time Performance	--	90%	90%
Operating Cost per Revenue Hour	$106.09	$109.28	$109.28
Operating Cost per Passenger Trip	$3.93	$4.05	$4.05
Maximum Load Factor	--	1.5	1.5
Revenue Hours per Capita	0.44	TBD	TBD

Fixed Route - *Express Commuter*

	2007	2008 Standard
Passengers per Revenue Hour	26.66	27.45
Farebox Recovery	78.49%	80.84%
On Time Performance	--	90%
Operating Cost per Revenue Hour	$143.39	$147.69
Operating Cost per Passenger Trip	$4.11	$4.24
Maximum Load Factor	--	1.25
Revenue Hours per Capita	0.07	TBD

Innovative Transit Service

	2007	2008 Standard
Passengers per Revenue Hour	5.76	6.0
Farebox Recovery	6.35%	6.35%
On Time Performance	--	90%
Operating Cost per Revenue Hour	$94.14	$96.95
Operating Cost per Passenger Trip	$15.43	$15.89
Maximum Load Factor	--	1.25
Revenue Hours per Capita	0.02	TBD

Paratransit Service

	2007	2008 Standard
Passengers per Revenue Hour	2.7	3.0
Farebox Recovery	2.80%	3.04%
On Time Performance	98%	95%
Operating Cost per Revenue Hour	$90.53	$93.25
Operating Cost per Passenger Trip	$34.20	$35.23
Revenue Hours per Capita	0.19	TBD

Vanpool Service – *possible standards*

	2008 Standard
Number of Vans in Operation	TBD
Farebox Recovery	TBD
Average Persons per Van	TBD
Passengers per Mile	TBD
Operating Cost per Mile	TBD

APPENDIX B - 2008 ROUTE CLASSIFICATION

This information will be updated as routes and/or route classifications are changed. The following table presents weekday revenue hours for service as of February 24, 2008.

Productivity			Coverage		
Route	Frequency (min.)	Revenue Hours	Route	Frequency (min.)	Revenue Hours
#4 Fourth Plain	15	127.27	#2 Lincoln	40	22.78
#19 Salmon Creek	30	33.48	#3 City Center	40	24.68
#25 St. Johns	30	43.30	#7 Battle Ground	45	27.97
#25 Fruit Valley	30		#9 Felida	60	15.82
#30 Burton	25	83.42	#39 Clark College/ Medical Center	70	10.43
#32 Evergreen/ Andresen	30	58.23	#41 Camas/ Washougal Limited	1 trip am/ 1 trip pm	2.25
#32 Hazel Dell	30		#47 Battle Ground Limited	1 trip am/ 1 trip pm	2.68
#37 Highway 99	20	136.93	#72 Orchards	60	16.78
#37 Mill Plain	20		#78 78th Street	60	16.38
#44 Fourth Plain Limited	25	29.08	#92 Camas/ Washougal	30	28.63
#65 Parkrose Limited	20	21.33	Camas Connector	60	22.50
#80 Van Mall/ Fisher's	30	46.22	La Center Connector	limited trips	5.05
#105 I-5 Express	15	39.65	Ridgefield Connector	limited trips	limited trips
#134 Salmon Creek Exp.	13	29.25	Total Coverage Route Revenue Hours		201.00
#157 Lloyd District Exp.	30	6.18	Percentage Coverage		22%
#164 Fisher's Landing Express	13	31.72			
#177 Evergreen Express†	37	6.37	Percentage Express Commuter		16%
#190 Marquam Hill Exp.	20	8.42	Percentage Limited		6%
#199 99th Street Express	10	27.53	Percentage Connector		3.5%
Total Productivity Route Revenue Hours		728.38			
Percentage Productivity		78%			

†Express routes are defined as productivity routes regardless of frequency due to higher expectations for farebox recovery for these routes.

Service Planning Committee

C-TRAN'S Service Planning Committee (SPC) is charged with implementing and administering the adopted Service Standards. The SPC, a working group with members representing short and long range planning, passenger services, marketing and outreach, is responsible for monitoring transit system performance and for planning improvements and solutions to service-related issues over a 12-month moving horizon. Specific tasks the group has been charged with include:

- Develop service proposals and recommendations
- Administer surveys and data gathering
- Research and Analysis
- Staff open houses and other public meetings
- Establish implementation teams
- Educate and inform internal and external stakeholders
- Develop and implement detours
- Liaison with other jurisdictions and agencies

The SPC utilizes a number of methods and tools to accomplish their work as prescribed by the Service Standards. Route performance is monitored on a regular basis and standards are set on a passenger-per-revenue-hour basis on productivity and coverage routes. Routes performing at less than seventy-five percent of the standard for that route are termed "unproductive," those performing at seventy-five percent of the standard and above for that route are termed "below standard," and all others are considered to be performing.

When a route is under performing, committee members conduct analysis including but not limited to a yearly, monthly, daily, and time of day view of passengers per revenue hour, boardings and alightings, service stop usage, the current routing, potential destinations, span and frequency of service, customer comment history, stakeholder contact, operator feedback, new and existing surveys and external factors like weather or construction.

C-TRAN 2030

CHARTING TOMORROW'S C-TRAN

Chapter VIII

FTA Funding

Small Starts

Program Overview:

The following summarize the requirements of the Small Starts program:

- Grants are for capital costs associated with new fixed guideway systems, extensions, and bus corridor improvements. Requests must be for under $75 million in New Starts funds and total project costs must be under $250 million.
- Small Starts has a separate funding category for a total of $200 million per year.
- Streamlined criteria and approval process.
- Non-fixed guideway corridor improvements (e.g. Bus Rapid Transit) are allowed under Small Starts.
- Exemption for projects under $25 million will be eliminated once Small Starts regulation is final.
- All projects receiving funding will be analyzed and rated.

Updated Interim Program Guidance (July 2007):
The Updated Interim Guidance on Small Starts describes the eligibility, evaluation, and project development procedures for projects seeking Small Starts funding, as well as the information required from project sponsors to evaluate and rate a project for the purpose of project advancement or a funding recommendation. The update features further streamlining and clarification of the Small Starts process and implements the Small Starts provisions contained in FTA's June 2007 Guidance on New Starts and Small Starts Policies and Procedures.

Companion Documents to the Updated Interim Guidance

- Small Starts Templates (excel) - Revised version July 2008. For questions on the small starts templates, please contact Beth Day at elizabeth.day@dot.gov.
- Qualitative Land Use Information for Small Starts Template (word)
- Standard Cost Category (SCC) Worksheets for Reporting Small Starts Cost Information
- Simple Side by Side Comparison of Reporting Requirements for New Starts, Small Starts, Very Small Starts, and "Exempt" Projects

FTA is in the process of broader rulemaking on its major capital investments program, but the Interim Guidance and Instructions will allow projects into project development. The document will enable FTA to evaluate and rate projects as part of the Annual Report on New Starts and make funding recommendation prior to completion of the broader rulemaking process.

Additional Resources:

- January 2007 – Guidance for Documenting Existing, Benefiting Transit Riders to Prove Eligibility for Very Small Starts. This methodology describes how to demonstrate that a Very Small Starts project will benefit at least 3,000 existing transit riders in the project corridor on an average weekday. This is one of the key requirements for Very Small Starts projects.
- January 2007 – For additional information click either of the following links for a printable fact sheet on the Small and Very Small Starts program:
- Small Starts Fact Sheet
- Very Small Starts Fact Sheet

FTA urges anyone who is interested in the Small Starts program to review this guidance immediately. If your project is not yet ready for entry into project development, this interim guidance should be used when you are ready to submit the request to enter into project development. There is no deadline for submissions; FTA accepts applications as projects are ready for project development.

SAFETEA-LU Implementation:
The following links to *Federal Register* notices provide further information on FTA's implementation of Small Starts, as required by SAFETEA-LU:

- *Notice of Availability of Interim Guidance and Instructions for Small Starts* (August 8, 2006) [PDF] [HTML]
- *Notice of Availability of Proposed Interim Guidance and Instructions for Small Starts and Request for Comments* (June 9, 2006) [PDF] [HTML]
- *"Small Starts" Advanced Notice of Proposed Rulemaking – for New Major Capital Investment Projects* (January 30, 2006) [PDF] [HTML]

Introduction to New Starts

The Federal Transit Administration's (FTA) discretionary New Starts program is the federal government's primary financial resource for supporting locally-planned, implemented, and operated transit "guideway" capital investments. From heavy to light rail, from commuter rail to bus rapid transit systems, the FTA's New Starts program has helped to make possible hundreds of new or extended transit fixed guideway systems across the country. These rail and bus investments, in turn, have improved the mobility of millions of Americans; have helped to reduce congestion and improve air quality in the areas they serve; and have fostered the development of viable, safer, and more livable communities.

The *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) has authorized $6.6 billion in New Starts funding through fiscal year 2009. $600 million of this funding is set-aside for "Small Starts;" that is, major transit capital projects costing less than $250 million, and requiring less than $75 million in Small Starts resources. While the level of New Starts funding has never been higher, neither has the demand for it. SAFETEA-LU authorizes over 330 projects nationwide to compete for these discretionary federal dollars. Many of these projects are currently in FTA's New Starts pipeline (that is, projects pursuing New Starts funding which are in the preliminary or final design stages of development, or Small Starts projects approved into the single "project development" phase).

SAFETEA-LU directs FTA to evaluate and rate candidate New Starts projects as an input to federal funding decisions and at specific milestones throughout each project's planning and development. SAFETEA-LU further supports a comprehensive planning and project development process which New Starts projects must follow, and which is intended to assist local agencies and decisionmakers evaluate alternative strategies for addressing transportation problems in specified corridors and select the most appropriate improvement to advance into engineering, design, and construction. Planning and project development for New Starts projects is a continuum of analytical activities carried out as part of metropolitan systems planning and *National Environmental Policy Act of 1969* (NEPA) review processes

FTA published a Final Rule on Major Capital Investment Projects in 2000 which outlines these New Starts requirements. FTA has also issued guidance on Advancing Major Transit Investments Through Planning and Project Development which provides additional detail on the project development and evaluation processes for fixed guideway transit projects seeking New Starts funding.

On May 22, 2006, and also on June 4, 2007, FTA issued updated guidance on policies and procedures of the New Starts program. SAFETEA-LU requires this guidance be updated at least every two years. FTA intends to issue updated policy guidance in the spring of 2008, which will be preceded by proposed guidance and a public review and comment period. FTA will also publish a new Rule for Major Capital Investment Projects in response to changes specified in SAFETEA-LU to the methods, criteria, and procedures used to evaluate and rate projects proposed for funding under both the New Starts and Small Starts programs FTA issued a Notice of Proposed Rulemaking in August 2007, followed by a public comment period.

The following describes the planning, project development, evaluation, and budget recommendation processes for fixed guideway transit projects seeking New Starts funding.

New Starts Criteria

SAFETEA-LU identifies several specific New Starts criteria which the Federal Transit Administration must consider in its approval to advance transit fixed guideway projects through the project development process and enter into a long term financial commitment to implement the proposed investments. The law categorizes these criteria into three broad areas:

1. **Alternatives Analysis and Preliminary Engineering.**
Along with Final Design, these activities constitute the planning and project development process for New Starts investments. All projects seeking discretionary New Starts funding must follow this process, and FTA must approve project entrance into all but the alternatives analysis phase of planning and development. The planning and project development process is the forum for the development and refinement of the project justification and local financial commitment New Starts criteria (see below), and for addressing other planning, environmental, engineering, and design issues and requirements.

2. **Project Justification.**
SAFETEA-LU requires that proposed New Starts projects be justified based on several project justification criteria, including the following:

- Mobility Improvements
- Environmental Benefits;
- Operating Efficiencies;
- Cost Effectiveness; and
- Transit Supportive Land Use Policies and Future Patterns

SAFETEA-LU also continues the TEA-21 requirement of considering "other factors."

SAFETEA-LU further requires that FTA consider in its review the economic development effects of New Starts projects. FTA desires through the rulemaking process to work with the industry on the development of appropriate factors for measuring the economic development effects of candidate projects, and therefore did not consider economic development explicitly in the FY 2008 and FY 2009 evaluation cycles as a specific criteria for evaluation However, FTA does encourage candidate New Starts project sponsors to submit information which they believe demonstrates the economic development impacts of their proposed transit investments as an "other factor."

3. **Local Financial Commitment.**
SAFETEA-LU requires that New Starts project sponsors demonstrate adequate local support for the project, as measured by:

- The proposed share of total project costs from sources other than from the New Starts program, including federal formula and flexible funds and state and local funding;
- The strength of the proposed project's capital financing plan; and
- The ability of the sponsoring agency to fund operation and maintenance of the entire system – existing and planned – as planned once the guideway project is built.

Planning and Project Development Process for New Starts Projects
Projects seeking New Starts funding – like all federally-funded transportation investments in metropolitan areas – must emerge from a locally-driven, *multimodal* corridor planning process.

There are three key phases in the planning and project development process for projects seeking New Starts funding: 1) Alternatives Analysis; 2) Preliminary Engineering; and 3) Final Design. These phases are described below.

1. **Alternatives Analysis**
   To specifically qualify for New Starts funding (49 USC §5309), candidate projects must have resulted from an alternatives analysis study (also known as major investment study or multimodal corridor analysis) which evaluates appropriate modal and alignment options for addressing mobility needs in a given corridor. Alternatives analysis can be viewed as a bridge between systems planning (which identifies regional travel patterns and transportation corridors in need of improvements) and project development (where a project's design is refined sufficiently to complete the NEPA environmental process). The alternatives analysis study is intended to provide information to local officials on the benefits, costs, and impacts of alternative transportation investments developed to address the purpose and need for an improvement in the corridor. Potential local funding sources for implementing and operating the alternatives should be identified and studied, and New Starts criteria should be developed. At local discretion, the alternatives analysis may include the undertaking of a *Draft Environmental Impact Statement* (DEIS). Involvement of a wide range of stakeholders – including the general public – in the alternative analysis study process is strongly encouraged.

   Alternatives analysis is considered complete when a locally preferred alternative (LPA) is selected by local and regional decisionmakers and adopted by the metropolitan planning organization (MPO) into the financially constrained long range metropolitan transportation plan. At this point, the local project sponsor may submit to FTA the LPA's New Starts project justification and local financial commitment criteria and request FTA's approval to enter into the preliminary engineering phase of project development.

   FTA's *Procedures and Technical Methods for Transit Project Planning* provides detailed technical guidance on the alternatives analysis study process. FTA requests the opportunity to review the alternatives analysis study's scope of work, purpose and need, description of alternatives, and technical methodologies and results as they are developed. FTA desires to become involved in these local studies to assist agencies in addressing technical and procedural issues early in the study process (rather than at the end when it may be too late to efficiently solve them) and to gain sufficient understanding of the resulting project to support FTA's decision to advance it into preliminary engineering and, later, final design.

2. **Preliminary Engineering**
   During the preliminary engineering phase of project development, local project sponsors refine the design of the proposal, taking into consideration all reasonable design alternatives. Preliminary engineering results in estimates of project costs, benefits, and impacts at a level of detail necessary to complete the NEPA process. The proposed project's New Starts criteria are similarly refined in the preliminary engineering phase of development, project management plans are updated, and local funding sources are committed to the project (if not previously committed).

   FTA typically assigns Project Management Oversight contractors to projects undergoing PE to ensure that the engineering effort progresses in accordance with FTA requirements, and that the project sponsor is adequately preparing for the final design stage of development. Preliminary engineering for a New Starts project is considered complete when FTA has issued a *Record of Decision* (ROD) or *Finding of No Significant Impact* (FONSI), as required by NEPA. Projects which complete preliminary engineering and whose sponsors are determined by FTA to have the technical capability to advance further in the project development process must request FTA approval to enter final design and submit updated New Starts criteria for evaluation.

3. **Final Design**
   Final design is the last phase of project development, and includes right-of-way acquisition, utility relocation, and the preparation of final construction plans (including construction management plans), detailed specifications, construction cost estimates, and bid documents. The project's financial plan is finalized, and a plan for the collection and analysis of data needed to undertake a Before and After Study – which is required of all projects seeking an FFGA – is developed.

Project Justification
SAFETEA-LU's project justification criteria are intended to reflect the broad range of benefits and impacts which may be realized by the implementation of the proposed New Starts transit investment. Project justification criteria are initially developed as part of alternatives analysis and are refined throughout the preliminary engineering and final design phases of project development. FTA periodically issues guidance on the calculation of project justification measures. FTA's New Starts project justification criteria – and the current measures which make up each criteria – are summarized below:

Criterion	Measure(s)
Mobility Improvements	☐ Normalized Travel Time Savings (Transportation System User Benefits per Project Passenger Mile) ☐ The Number of Transit Dependent Riders Using the Proposed New Starts Project ☐ Transit Dependent User Benefits per Passenger Mile on the Project ☐ The Share of User Benefits Received by Transit Dependents Compared to the Share of Transit Dependents in the Region
Environmental Benefits	☐ EPA Air Quality Designation
Cost Effectiveness	☐ Incremental Cost per Hour of Transportation System User Benefit ☐ Incremental Cost per New Rider (for informational purposes only)
Transit Supportive Land Use and Future Patterns	☐ Existing Land Use ☐ Transit Supportive Plans and Policies ☐ Performance and Impacts of Policies
Other Factors	☐ Economic Development ☐ Making the Case for the project ☐ Congestion Pricing ☐ Optional considerations.

Local Financial Commitment
The local financial commitment criterion is intended to reflect the level of local funding proposed for the project, and the extent to which this local funding is dedicated to, and in place for, the proposed investment. This criterion also addresses the reasonableness of project cost estimates and revenue forecasts; the adequacy of provisions to address unanticipated costs and funding shortfalls; the financial condition of the New Start project sponsor; and how the sponsor will ensure the operation and maintenance of its entire transit system after implementation of the proposed fixed guideway system.

Like the project justification criteria, information which supports the local financial commitment criteria is refined throughout the planning and project development process. Guidance on the development of transit financial plans is available from FTA.

The three measures for local financial commitment include:

Criteria	Measure(s)
Local Financial Commitment	• Stability and Reliability of Capital Financing Plan • Stability and Reliability of Operating Financing Plan • Local Share of Project Costs

New Starts Evaluation and Rating
FTA evaluates and rates New Starts projects for several specific reasons:

1. To approve project entrance into preliminary engineering;
2. To approve project entrance into final design;
3. As an input to development of the US Department of Transportation's annual New Starts budget request. FTA's ratings are included in the *Annual Report on Funding Recommendations*, which is submitted to Congress each spring;
4. To execute a full funding grant agreement (FFGA).

In undertaking its evaluation, SAFETEA-LU requires that FTA rate each candidate New Starts project (in preliminary engineering or final design) as either *high, medium-high, medium, medium-low,* or *low*. These overall project ratings are based on ratings assigned by FTA to each of the project justification and local financial commitment criteria and their measures described above.

It is very important to emphasize that project evaluation is an on-going process. FTA evaluation and rating occurs annually in support of budget recommendations presented in the *Annual Report on Funding Recommendations* and when projects request FTA approval to enter into preliminary engineering or final design. Consequently, as proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings updated to reflect new information.

FTA Budget Recommendations
FTA's ratings are intended to reflect overall project merit; proposed projects that are rated as either *high, medium-high, medium* have demonstrated significant potential benefits and are therefore eligible for New Starts funding. However, these **project ratings do not translate directly into a funding recommendation or commitment in any given year.**

Rather, FTA must also consider the amount of New Starts funding available on an annual basis and the phase of project development of candidate New Starts projects. To be included in FTA's annual budget request, proposed New Starts must also be sufficiently developed for consideration of a federal full funding grant agreement (FFGA) – FTA's funding mechanism for supporting the multi-year capital needs of project construction.

The following general principles are applied when determining annual funding allocations among proposed New Starts projects:

- Any project recommended for new funding commitments should meet the project justification, local financial commitment, and process criteria established by Sections 5309(d) and 5309(e) and be consistent with Executive Order 12893, *Principles for Federal Infrastructure Investments*, issued January 26, 1994.
- Existing FFGA commitments should be honored before any additional funding recommendations are made, to the extent that funds can be obligated for these projects in the coming fiscal year.
- The FFGA and Project Construction Grant Agreement (PCGA) define the terms of the Federal commitment to a specific project, including funding. Upon completion of an FFGA or PCGA, the Federal funding commitment has been fulfilled. Additional project funding will not be recommended. Any additional costs beyond the scope of the Federal commitment are the responsibility of the grantee, although FTA works closely with grantees to identify and implement strategies for containing capital costs at the level included in the FFGA or PCGA at the time it was executed.
- Funding for initial planning efforts such as alternatives analysis is no longer eligible for Section 5309 funding under SAFETEA-LU, but may be provided through grants under the Section 5303 Metropolitan Planning or Section 5307 Urbanized Area Formula programs; from Title 23 "flexible funding" sources; or from the newly created Section 5339 Alternatives Analysis program.
- Firm funding commitments, embodied in FFGAs or PCGAs, will not be made until projects demonstrate that they are ready for such an agreement, i.e. the project's development and design has progressed to the point where its scope, costs, benefits, and impacts are considered firm and final.
- Funding should be provided to the most worthy investments to allow them to proceed through the process on a reasonable schedule, to the extent that funds can be obligated to such projects in the upcoming fiscal year. Funding decisions will be based on the results of the project evaluation process and resulting project justification, local financial commitment, and overall project ratings

New Starts Fact Sheet

OVERVIEW

The Federal Transit Administration's discretionary New Starts program is the federal government's primary financial resource for supporting locally planned, implemented, and operated major transit capita investments.

The New Starts program funds new and extensions to existing fixed guideway transit systems in every area of the country. These projects include commuter rail, light rail, heavy rail, bus rapid transit, streetcars, and ferries.

The Federal Transit Administration is preparing rulemaking, per SAFETEA-LU.

FUNDING

SAFETEA-LU authorizes $6.6 billion in total funding for fiscal years 2006, 2007, 2008, and 2009. This includes funding for more than 330 projects for proposed, pending, and existing Full Funding Grant Agreements (FFGA). FFGAs are multi-year contractual agreements between the FTA and project sponsors that formally define the project scope, cost and schedule. They also establish the maximum leve of federal financial assistance and outline the terms and conditions of federal financial participation.

PROJECT DEVELOPMENT

New Starts projects, like all transportation investments in metropolitan areas, must emerge from a regional, multi-modal transportation planning process. The process is based upon rational decision making that benefits from the information developed during the following three phases of New Starts project development:

Phase I – Alternatives Analysis
Local project sponsors are required to perform an alternatives analysis that evaluates the mode and alignment options for a particular corridor in the community. This analysis informs local officials and community members on the benefits, costs and impacts of transportation options, so that the community can identify a preference. This phase is complete when local and regional decision makers select a locally preferred alternative, and it is adopted by the metropolitan planning organization (MPO) into the region's long-range transportation plan.

Phase II – Preliminary Engineering
During the preliminary engineering (PE) phase of project development for New Starts investments, local project sponsors consider their design options to refine the locally preferred alternative and complete the *National Environmental Policy Act* (NEPA) process. Preliminary engineering hones the estimates of project costs, benefits, and impacts. In addition, during the PE phase of project development, local sponsors finalize management plans, demonstrate their technical capabilities to develop the project, and commit local funding sources.

Phase III – Final Design
Final design is the last phase of project development and includes the preparation of final construction plans, detailed specifications and bid documents.

PROJECT EVALUATION

New Starts projects must undergo evaluation by the FTA throughout the entire project development process. Projects are evaluated according to a variety of criteria. As required by SAFETEA-LU, which amends 49 USC §5309(d)(5)(B), the FTA assigns ratings of "high," "medium-high," "medium," "medium-low," or "low" throughout the project development process as information concerning costs, benefits, and impacts is refined.

Based on these evaluations, the FTA makes decisions about moving projects forward, from preliminary engineering to final design, to annual funding recommendations to Congress, and to the execution of a FFGA. In the *Annual Report on New Starts*, FTA applies these evaluations to recommend funding for projects anticipated to be ready for an FFGA before the end of the budget fiscal year, and to recommend funding for other meritorious projects.

CRITERIA

49 USC §5309(d) establishes the criteria under which proposed New Starts projects are evaluated. The FTA evaluates the project justification and the local financial commitment according to the following measures:

Project Justification

- **Mobility Improvements**
  - measured by travel time benefits per project passenger mile, low-income households served, and employment near stations.
- **Environmental Benefits**
  - measured by change in regional pollutant emissions, change in regional energy consumption, and EPA air quality designation
- **Cost Effectiveness**
  - measured as the cost per hour of travel time saved.
- **Operating Efficiencies**
  - measured by system operating cost per passenger mile.
- **Transit Supportive Land Use & Future Patterns**
  - measured by existing land use, transit supportive plans and policies and performance, and impacts of policies.
- **Other**
  - includes a number of optional factors, including the projected economic impact of project.

In addition, SAFETEA-LU adds two criteria - Economic Development and the Reliability of Forecasts.

Local Financial Commitment

- The proposed share of total project costs from sources other than 49 USC §5309 New Starts, including federal formula and flexible funds, the local match required by federal law, and any additional capital funding.
- The stability and reliability of the proposed capital financing plan.
- The ability of the sponsoring agency to fund operations and maintenance of the entire transit system (including existing service) as planned, once the project is built.

Overall Evaluation

To assign overall project ratings to each proposed New Starts project, FTA considers the individual ratings for each of the project justification and local financial commitment measures. FTA combines this information into summary "finance" and "project justification" ratings for each prospective New Starts project. Individual measures, summary criteria ratings, and overall project ratings are designated as "high," "medium-high," "medium," "medium-low" or "low."

Side-by-Side of Required Information for New Starts/Small Starts Evaluation and Rating

Reporting Item	Required Information	New Starts	Small Starts	Very Small Starts	Exempt
Project Background					
Project Description	Project Description Template				
Make the Case Document*	Narrative, Data, Maps, Graphics				
Certification of Technical Methods and Planning Assumptions	Signed Certification				
Documentation of existing, benefiting transit riders in corridor	Data, methodology, maps of affected routes, evidence of benefit for affected riders				
Project Maps					
Project Site Map	Map				
Vicinity Map	Map				
Capital Costs					
Standard Cost Categories, including schedule, inflation, and funding	SCC Worksheets				
Annualized Cost Worksheets for Build and Baseline	SCC Worksheets				
Travel Forecasts**					
User Benefits Forecasts	Summit				
Thematic Maps and Legend	Summit Output				
Summary of Travel Forecasts	Travel Forecast Template, Narrative, Data (as necessary)				
O&M Costs					
Summary of O&M Cost Productivities	Narrative, Data				

* Evaluated as an "Other Factor." Submission of any other "Other Factor" is optional.

** Simplified travel forecasting procedures and results may be acceptable for Small Starts projects. Sponsors should discuss such procedures with FTA.

Reporting Item	Required Information	New Starts	Small Starts	Very Small Starts	Exempt
Project Justification					
Mobility Improvements	Mobility Improvements and Cost Effectiveness Template				
Cost Effectiveness (2030)					
Cost Effectiveness (Opening Year)	Cost Effectiveness for Small Starts Template				
Annualization Factor Justification	Narrative, Data				
Transit Supportive Existing Land Use and Future Patterns					
Quantitative Land Use Information for New Starts	Quantitative Land Use Information Template				
Qualitative Land Use Information for New Starts	Qualitative Land Use Information Template, Narrative, Data, Maps				
Quantitative Land Use Information for Small Starts	Quantitative Land Use Information for Small Starts Template				
Qualitative Land Use Information for Small Starts	Qualitative Land Use Information for Small Starts Template, Narrative, Data, Maps				
Other Factors (Optional)					
Evidence of Economic Development, Congestion Pricing, and other project benefits	Narrative, Data, Maps				
Local Financial Commitment* **					
Financial Plan Summary	Finance Template				
Checklist for Financial Submittals	Checklist				
20-year Capital Operating Plan	Financial Plan, 20-Year Cash Flow				
20-year Operating Financial Plan	Financial Plan, 20-Year Cash Flow				
Evidence of Agency Financial Condition	Audited Financial Statements				
Evidence that Project O/M Costs are Within 5% of Systemwide O/M Costs	O/M Cost Analysis				
Supporting Financial Documentation	Narrative, Plans, Data, etc				

*** Assumes Small Starts/Very Small Starts qualify for streamlined financial evaluation. If not, New Starts financial reporting requirements must be met, but only covering the period up to and including the opening year.

C-TRAN 2030

CHARTING TOMORROW'S C-TRAN

Chapter IX

Appendices