INTERSTATE 5 COLUMBIA RIVER CROSSING

Neighborhoods and Population Technical Report for the Final Environmental Impact Statement

May 2011

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Cover Sheet

Interstate 5 Columbia River Crossing

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ACRONYMS

Acronym	Description
ADA	Americans with Disabilities Act
API	area of potential impact
BNSF	Burlington Northern Santa Fe Railroad
CD	collector-distributor
CEJG	Community and Environmental Justice Group
CRC	Columbia River Crossing
CTR	Commute Trip Reduction
C-TRAN	Clark County Public Transit Benefit Area Authority
DEIS	Draft Environmental Impact Statement
DOT	U. S. Department of Transportation
ECO	Employee Commute Options
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
LEP	limited English proficiency
LPA	locally preferred alternative
LRV	light rail vehicle
MAX	Metropolitan Area Express
NEPA	National Environmental Policy Act
ODOT	Oregon Department of Transportation
OTC	Oregon Transportation Commission
RLIS	Regional Land Information System
ROD	Record of Decision
RTC	Regional Transportation Council
SPUI	single-point urban interchange
SR	state route
TDM	transportation demand management
TriMet	Tri-County Metropolitan Transportation District
TSM	transportation system management
U.S.	United States
UDAG	Urban Design Advisory Group
VNHR	Vancouver National Historic Reserve
WSDOT	Washington State Department of Transportation
WTC	Washington Transportation Commission

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1. Summary

1.1 Introduction

Transportation facilities are major public resources that, when altered, can result in positive and/or negative changes to surrounding neighborhoods and people. The purpose of the Neighborhoods and Population Technical Report is to evaluate and disclose long-term and temporary effects of the I-5 Columbia River Crossing (CRC) Locally Preferred Alternative (LPA) to neighborhoods and specific populations in the corridor.

This report addresses the following questions about potential effects from this project:

- Does the project displace people or community resources?
- Does the project separate neighborhood residents from their community resources such as educational, religious, health care, cultural, or recreational facilities, and/or commercial services?[1]
- Does the project increase traffic through a neighborhood or severely decrease access to transit, bicycle, or pedestrian opportunities?
- Does the project severely impact community cohesion?[2]
- Is the project consistent with existing adopted neighborhood plan goals?

1.2 Description of Alternatives

This technical report evaluates the CRC project's locally preferred alternative (LPA) and the No-Build Alternative. The LPA includes two design options: The preferred option, LPA Option A, which includes local vehicular access between Marine Drive and Hayden Island on an arterial bridge; and LPA Option B, which does not have arterial lanes on the light rail/multi-use path bridge, but instead provides direct access between Marine Drive and the island with collector-distributor (CD) lanes on the two new bridges that would be built adjacent to I-5. In addition to the design options, if funding availability does not allow the entire LPA to be constructed in one phase, some roadway elements of the project would be deferred to a future date. This technical report identifies several elements that could be deferred, and refers to that possible initial investment as LPA with highway phasing. The LPA with highway phasing option would build most of the LPA in the first phase, but would defer construction of specific elements of the project. The LPA and the No-Build Alternative are described in this section.

[1] Separation of a neighborhood from its community resources may be caused by operational changes such as rerouting traffic, pedestrian, or transit service, as well as physical barriers such as new soundwalls or roadways.

[2] Cohesion impacts may include major displacements, separation of a neighborhood, impacts to traffic circulation, reduction in neighborhood activities, or inconsistency with adopted neighborhood plan goals.

1.2.1 Adoption of a Locally Preferred Alternative

Following the publication of the Draft Environmental Impact Statement (DEIS) on May 2, 2008, the project actively solicited public and stakeholder feedback on the DEIS during a 60-day comment period. During this time, the project received over 1,600 public comments.

During and following the public comment period, the elected and appointed boards and councils of the local agencies sponsoring the CRC project held hearings and workshops to gather further public input on and discuss the DEIS alternatives as part of their efforts to determine and adopt a locally preferred alternative. The LPA represents the alternative preferred by the local and regional agencies sponsoring the CRC project. Local agency-elected boards and councils determined their preference based on the results of the evaluation in the DEIS and on the public and agency comments received both before and following its publication.

In the summer of 2008, the local agencies sponsoring the CRC project adopted the following key elements of CRC as the LPA:

- A replacement bridge as the preferred river crossing,
- Light rail as the preferred high-capacity transit mode, and
- Clark College as the preferred northern terminus for the light rail extension.

The preferences for a replacement crossing and for light rail transit were identified by all six local agencies. Only the agencies in Vancouver – the Clark County Public Transit Benefit Area Authority (C-TRAN), the City of Vancouver, and the Regional Transportation Council (RTC) – preferred the Vancouver light rail terminus. The adoption of the LPA by these local agencies does not represent a formal decision by the federal agencies leading this project – the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) – or any federal funding commitment. A formal decision by FHWA and FTA about whether and how this project should be constructed will follow the FEIS in a Record of Decision (ROD).

1.2.2 Description of the LPA

The LPA includes an array of transportation improvements, which are described below. When the LPA differs between Option A and Option B, it is described in the associated section. For a more detailed description of the LPA, including graphics, please see Chapter 2 of the FEIS.

1.2.2.1 Multimodal River Crossing

Columbia River Bridges

The parallel bridges that form the existing I-5 crossing over the Columbia River would be replaced by two new parallel bridges. The eastern structure would accommodate northbound highway traffic on the bridge deck, with a bicycle and pedestrian path underneath; the western structure would carry southbound traffic, with a two-way light rail guideway below. Whereas the existing bridges have only three lanes each with virtually no shoulders, each of the new bridges would be wide enough to accommodate three through-lanes and two add/drop lanes. Lanes and shoulders would be built to full design standards.

The new bridges would be high enough to provide approximately 95 feet of vertical clearance for river traffic beneath, but not so high as to impede the take-offs and landings by aircraft using Pearson Field or Portland International Airport to the east. The new bridge structures over the

Columbia River would not include lift spans, and both of the new bridges would each be supported by six piers in the water and two piers on land.

North Portland Harbor Bridges

The existing highway structures over North Portland Harbor would not be replaced; instead, they would be retained to accommodate all mainline I-5 traffic. As discussed at the beginning of this chapter, two design options have emerged for the Hayden Island and Marine Drive interchanges. The preferred option, LPA Option A, includes local vehicular access between Marine Drive and Hayden Island on an arterial bridge. LPA Option B does not have arterial lanes on the light rail/multi-use path bridge, but instead provides direct access between Marine Drive and the island with collector-distributor lanes on the two new bridges that would be built adjacent to I-5.

LPA Option A: Four new, narrower parallel structures would be built across the waterway, three on the west side and one on the east side of the existing North Portland Harbor bridges. Three of the new structures would carry on- and off-ramps to mainline I-5. Two structures west of the existing bridges would carry traffic merging onto or exiting off of I-5 southbound. The new structure on the east side of I-5 would serve as an on-ramp for traffic merging onto I-5 northbound.

The fourth new structure would be built slightly farther west and would include a two-lane arterial bridge for local traffic to and from Hayden Island, light rail transit, and a multi-use path for pedestrians and bicyclists. All of the new structures would have at least as much vertical clearance over the river as the existing North Portland Harbor bridges.

LPA Option B: This option would build the same number of structures over North Portland Harbor as Option A, although the locations and functions on those bridges would differ, as described below. The existing bridge over North Portland Harbor would be widened and would receive seismic upgrades.

LPA Option B does not have arterial lanes on the light rail/multi-use path bridge. Direct access between Marine Drive and the island would be provided with collector-distributor lanes. The structures adjacent to the highway bridge would carry traffic merging onto or exiting off of mainline I-5 between the Marine Drive and Hayden Island interchanges.

1.2.2.2 Interchange Improvements

The LPA includes improvements to seven interchanges along a 5-mile segment of I-5 between Victory Boulevard in Portland and SR 500 in Vancouver. These improvements include some reconfiguration of adjacent local streets to complement the new interchange designs, as well as new facilities for bicyclists and pedestrians along this corridor.

Victory Boulevard Interchange

The southern extent of the I-5 project improvements would be two ramps associated with the Victory Boulevard interchange in Portland. The Marine Drive to I-5 southbound on-ramp would be braided over the I-5 southbound to the Victory Boulevard/Denver Avenue off-ramp. The other ramp improvement would lengthen the merge distance for northbound traffic entering I-5 from Denver Avenue. The current merging ramp would be extended to become an add/drop (auxiliary) lane which would continue across the river crossing.

***Potential phased construction option*:** The aforementioned southbound ramp improvements to the Victory Boulevard interchange may not be included with the CRC project. Instead, the

existing connections between I-5 southbound and Victory Boulevard could be retained. The braided ramp connection could be constructed separately in the future as funding becomes available.

Marine Drive Interchange

All movements within this interchange would be reconfigured to reduce congestion for motorists entering and exiting I-5 at this location. The interchange configuration would be a single-point urban interchange (SPUI) with a flyover ramp serving the east to north movement. With this configuration, three legs of the interchange would converge at a point on Marine Drive, over the I-5 mainline. This configuration would allow the highest volume movements to move freely without being impeded by stop signs or traffic lights.

The Marine Drive eastbound to I-5 northbound flyover ramp would provide motorists with access to I-5 northbound without stopping. Motorists from Marine Drive eastbound would access I-5 southbound without stopping. Motorists traveling on Martin Luther King Jr. Boulevard westbound to I-5 northbound would access I-5 without stopping at the intersection.

The new interchange configuration changes the westbound Marine Drive and westbound Vancouver Way connections to Martin Luther King Jr. Boulevard and to northbound I-5. These two streets would access westbound Martin Luther King Jr. Boulevard farther east. Martin Luther King Jr. Boulevard would have a new direct connection to I-5 northbound.

In the new configuration, the connections from Vancouver Way and Marine Drive would be served, improving the existing connection to Martin Luther King Jr. Boulevard east of the interchange. The improvements to this connection would allow traffic to turn right from Vancouver Way and accelerate onto Martin Luther King Jr. Boulevard. On the south side of Martin Luther King Jr. Boulevard, the existing loop connection would be replaced with a new connection farther east.

A new multi-use path would extend from the Bridgeton neighborhood to the existing Expo Center light rail station and from the station to Hayden Island along the new light rail line over North Portland Harbor.

LPA Option A: Local traffic between Martin Luther King Jr. Boulevard/Marine Drive and Hayden Island would travel via an arterial bridge over North Portland Harbor. There would be some variation in the alignment of local streets in the area of the interchange between Option A and Option B. The most prominent differences are the alignments of Vancouver Way and Union Court.

LPA Option B: With this design option, there would be no arterial traffic lanes on the light rail/multi-use path bridge over North Portland Harbor. Instead, vehicles traveling between Martin Luther King Jr. Boulevard/ Marine Drive and Hayden Island would travel on the collector-distributor bridges that would parallel each side of I-5 over North Portland Harbor. Traffic would not need to merge onto mainline I-5 to travel between the island and Martin Luther King Jr. Boulevard/Marine Drive.

***Potential phased construction option*:** The aforementioned flyover ramp could be deferred and not constructed as part of the CRC project. In this case, rather than providing a direct eastbound Marine Drive to I-5 northbound connection by a flyover ramp, the project improvements to the interchange would instead provide this connection through the signal-controlled SPUI. The flyover ramp could be constructed separately in the future as funding becomes available.

Hayden Island Interchange

All movements for this interchange would be reconfigured. The new configuration would be a split tight diamond interchange. Ramps parallel to the highway would be built, lengthening the ramps and improving merging speeds. Improvements to Jantzen Drive and Hayden Island Drive would include additional through, left-turn, and right-turn lanes. A new local road, Tomahawk Island Drive, would travel east-west through the middle of Hayden Island and under the I-5 interchange, improving connectivity across I-5 on the island. Additionally, a new multi-use path would be provided along the elevated light rail line on the west side of the Hayden Island interchange.

LPA Option A: A proposed arterial bridge with two lanes of traffic, one in each direction, would allow vehicles to travel between Martin Luther King Jr. Boulevard/ Marine Drive and Hayden Island without accessing I-5.

LPA Option B: With this design option there would be no arterial traffic lanes on the light rail/multi-use path bridge over North Portland Harbor. Instead, vehicles traveling between Martin Luther King Jr. Boulevard/Marine Drive and Hayden Island would travel on the collector-distributor bridges that parallel each side of I-5 over North Portland Harbor.

SR 14 Interchange

The function of this interchange would remain largely the same. Direct connections between I-5 and SR 14 would be rebuilt. Access to and from downtown Vancouver would be provided as it is today, but the connection points would be relocated. Downtown Vancouver I-5 access to and from the south would be at C Street rather than Washington Street, while downtown connections to and from SR 14 would be made by way of Columbia Street at 4th Street.

The multi-use bicycle and pedestrian path in the northbound (eastern) I-5 bridge would exit the structure at the SR 14 interchange, and then loop down to connect into Columbia Way.

Mill Plain Interchange

This interchange would be reconfigured into a SPUI. The existing "diamond" configuration requires two traffic signals to move vehicles through the interchange. The SPUI would use one efficient intersection and allow opposing left turns simultaneously. This would improve the capacity of the interchange by reducing delay for traffic entering or exiting the highway.

This interchange would also receive several improvements for bicyclists and pedestrians. These include bike lanes and sidewalks, clear delineation and signing, short perpendicular crossings at the ramp terminals, and ramp orientations that would make pedestrians highly visible.

Fourth Plain Interchange

The improvements to this interchange would be made to better accommodate freight mobility and access to the new park and ride at Clark College. Northbound I-5 traffic exiting to Fourth Plain would continue to use the off-ramp just north of the SR 14 interchange. The southbound I-5 exit to Fourth Plain would be braided with the SR 500 connection to I-5, which would eliminate the non-standard weave between the SR 500 connection and the off-ramp to Fourth Plain as well as the westbound SR 500 to Fourth Plain Boulevard connection.

Additionally, several improvements would be made to provide better bicycle and pedestrian mobility and accessibility, including bike lanes, neighborhood connections, and access to the park and ride.

SR 500 Interchange

Improvements would be made to the SR 500 interchange to add direct connections to and from I-5. On- and off-ramps would be built to directly connect SR 500 and I-5 to and from the north, connections that are currently made by way of 39th Street. I-5 southbound traffic would connect to SR 500 via a new tunnel underneath I-5. SR 500 eastbound traffic would connect to I-5 northbound on a new on-ramp. The 39th Street connections with I-5 to and from the north would be eliminated. Travelers would instead use the connections at Main Street to connect to and from 39th Street.

Additionally, several improvements would be made to provide better bicycle and pedestrian mobility and accessibility, including sidewalks on both sides of 39th Street, bike lanes, and neighborhood connections.

***Potential phased construction option*:** The northern half of the existing SR 500 interchange would be retained, rather than building new connections between I-5 southbound to SR 500 eastbound and from SR 500 westbound to I-5 northbound. The ramps connecting SR 500 and I-5 to and from the north could be constructed separately in the future as funding becomes available.

1.2.2.3 Transit

The primary transit element of the LPA is a 2.9-mile extension of the current Metropolitan Area Express (MAX) Yellow Line light rail from the Expo Center in North Portland, where it currently ends, to Clark College in Vancouver. The transit element would not differ between LPA and LPA with highway phasing. To accommodate and complement this major addition to the region's transit system, a variety of additional improvements are also included in the LPA:

- Three park and ride facilities in Vancouver near the new light rail stations.
- Expansion of Tri-County Metropolitan Transportation District's (TriMet's) Ruby Junction light rail maintenance base in Gresham, Oregon.
- Changes to C-TRAN local bus routes.
- Upgrades to the existing light rail crossing over the Willamette River via the Steel Bridge.

Operating Characteristics

Nineteen new light rail vehicles (LRV) would be purchased as part of the CRC project to operate this extension of the MAX Yellow Line. These vehicles would be similar to those currently used by TriMet's MAX system. With the LPA, LRVs in the new guideway and in the existing Yellow Line alignment are planned to operate with 7.5-minute headways during the "peak of the peak" (the two-hour period within the 4-hour morning and afternoon/evening peak periods where demand for transit is the highest) and 15-minute headways during off-peak periods.

Light Rail Alignment and Stations

Oregon Light Rail Alignment and Station

A two-way light rail alignment for northbound and southbound trains would be constructed to extend from the existing Expo Center MAX station over North Portland Harbor to Hayden Island. Immediately north of the Expo Center, the alignment would curve eastward toward I-5, pass beneath Marine Drive, then rise over a flood wall onto a light rail/multi-use path bridge to cross North Portland Harbor. The two-way guideway over Hayden Island would be elevated at approximately the height of the rebuilt mainline of I-5, as would a new station immediately west of I-5. The alignment would extend northward on Hayden Island along the western edge of I-5, until it transitions into the hollow support structure of the new western bridge over the Columbia River.

Downtown Vancouver Light Rail Alignment and Stations

After crossing the Columbia River, the light rail alignment would curve slightly west off of the highway bridge and onto its own smaller structure over the Burlington Northern Santa Fe (BNSF) rail line. The double-track guideway would descend on structure and touch down on Washington Street south of 5th Street, continuing north on Washington Street to 7th Street. The elevation of 5th Street would be raised to allow for an at-grade crossing of the tracks on Washington Street. Between 5th and 7th Streets, the two-way guideway would run down the center of the street. Traffic would not be allowed on Washington between 5th and 6th Streets and would be two-way between 6th and 7th Streets. There would be a station on each side of the street on Washington between 5th and 6th Streets.

At 7th Street, the light rail alignment would form a couplet. The single-track northbound guideway would turn east for two blocks, then turn north onto Broadway Street, while the single-track southbound guideway would continue on Washington Street. Seventh Street will be converted to one-way traffic eastbound between Washington and Broadway with light rail operating on the north side of 7th Street. This couplet would extend north to 17th Street, where the two guideways would join and turn east.

The light rail guideway would run on the east side of Washington Street and the west side of Broadway Street, with one-way traffic southbound on Washington Street and one-way traffic northbound on Broadway Street. On station blocks, the station platform would be on the side of the street at the sidewalk. There would be two stations on the Washington-Broadway couplet, one pair of platforms near Evergreen Boulevard, and one pair near 15th Street.

East-west Light Rail Alignment and Terminus Station

The single-track southbound guideway would run in the center of 17th Street between Washington and Broadway Streets. At Broadway Street, the northbound and southbound alignments of the couplet would become a two-way center-running guideway traveling east-west on 17th Street. The guideway on 17th Street would run until G Street, then connect with McLoughlin Boulevard and cross under I-5. Both alignments would end at a station east of I-5 on the western boundary of Clark College.

Park and Ride Stations

Three park and ride stations would be built in Vancouver along the light rail alignment:

- Within the block surrounded by Columbia, Washington 4th and 5th Streets, with five floors above ground that include space for retail on the first floor and 570 parking stalls.
- Between Broadway and Main Streets next to the stations between 15th and 16th Streets, with space for retail on the first floor, and four floors above ground that include 420 parking stalls.
- At Clark College, just north of the terminus station, with space for retail or C-TRAN services on the first floor, and five floors that include approximately 1,910 parking stalls.

Ruby Junction Maintenance Facility Expansion

The Ruby Junction Maintenance Facility in Gresham, Oregon, would need to be expanded to accommodate the additional LRVs associated with the CRC project. Improvements include additional storage for LRVs and other maintenance material, expansion of LRV maintenance bays, and expanded parking for additional personnel. A new operations command center would also be required, and would be located at the TriMet Center Street location in Southeast Portland.

Local Bus Route Changes

As part of the CRC project, several C-TRAN bus routes would be changed in order to better complement the new light rail system. Most of these changes would re-route bus lines to downtown Vancouver where riders could transfer to light rail. Express routes, other than those listed below, are expected to continue service between Clark County and downtown Portland. The following table (Exhibit 1-1) shows anticipated future changes to C-TRAN bus routes.

Exhibit 1-1. Proposed C-TRAN Bus Routes Comparison

C-TRAN Bus Route	Route Changes
#4 - Fourth Plain	Route truncated in downtown Vancouver
#41 - Camas / Washougal Limited	Route truncated in downtown Vancouver
#44 - Fourth Plain Limited	Route truncated in downtown Vancouver
#47 - Battle Ground Limited	Route truncated in downtown Vancouver
#105 - I-5 Express	Route truncated in downtown Vancouver
#105S - I-5 Express Shortline	Route eliminated in LPA (The No-Build runs articulated buses between downtown Portland and downtown Vancouver on this route)

Steel Bridge Improvements

Currently, all light rail lines within the regional TriMet MAX system cross over the Willamette River via the Steel Bridge. By 2030, the number of LRVs that cross the Steel Bridge during the 4-hour PM peak period would increase from 152 to 176. To accommodate these additional trains, the project would retrofit the existing rails on the Steel Bridge to increase the allowed light rail speed over the bridge from 10 to 15 mph. To accomplish this, additional work along the Steel Bridge lift spans would be needed.

1.2.2.4 Tolling

Tolling cars and trucks that use the I-5 river crossing is proposed as a method to help fund the CRC project and to encourage the use of alternative modes of transportation. The authority to toll the I-5 crossing is set by federal and state laws. Federal statutes permit a toll-free bridge on an interstate highway to be converted to a tolled facility following the reconstruction or replacement of the bridge. Prior to imposing tolls on I-5, Washington and Oregon Departments of Transportation (WSDOT and ODOT) would have to enter into a toll agreement with U.S. Department of Transportation (DOT). Recently passed state legislation in Washington permits WSDOT to toll I-5 provided that the tolling of the facility is first authorized by the Washington legislature. Once authorized by the legislature, the Washington Transportation Commission (WTC) has the authority to set the toll rates. In Oregon, the Oregon Transportation Commission (OTC) has the authority to toll a facility and to set the toll rate. It is anticipated that prior to tolling I-5, ODOT and WSDOT would enter into a bi-state tolling agreement to establish a cooperative process for setting toll rates and guiding the use of toll revenues.

Tolls would be collected using an electronic toll collection system: toll collection booths would not be required. Instead, motorists could obtain a transponder that would automatically bill the vehicle owner each time the vehicle crossed the bridge, while cars without transponders would be tolled by a license-plate recognition system that would bill the address of the owner registered to that license plate.

The LPA proposes to apply a variable toll on vehicles using the I-5 crossing. Tolls would vary by time of day, with higher rates during peak travel periods and lower rates during off-peak periods. Medium and heavy trucks would be charged a higher toll than passenger vehicles. The traffic-related impact analysis in this FEIS is based on toll rates that, for passenger cars with transponders, would range from $1.00 during the off-peak to $2.00 during the peak travel times (in 2006 dollars).

1.2.2.5 Transportation System and Demand Management Measures

Many well-coordinated transportation demand management (TDM) and transportation system management (TSM) programs are already in place in the Portland-Vancouver Metropolitan region and supported by agencies and adopted plans. In most cases, the impetus for the programs is from state-mandated programs: Oregon's Employee Commute Options (ECO) rule and Washington's Commute Trip Reduction (CTR) law.

The physical and operational elements of the CRC project provide the greatest TDM opportunities by promoting other modes to fulfill more of the travel needs in the project corridor. These include:

- Major new light rail line in exclusive right-of-way, as well as express bus and feeder routes;
- Modern bicycle and pedestrian facilities that accommodate more bicyclists and pedestrians, and improve connectivity, safety, and travel time;
- Park and ride lots and garages; and
- A variable toll on the highway crossing.

In addition to these fundamental elements of the project, facilities and equipment would be implemented that could help existing or expanded TSM programs maximize capacity and efficiency of the system. These include:

- Replacement or expanded variable message signs or other traveler information systems in the CRC project area;
- Expanded incident response capabilities;
- Queue jumps or bypass lanes for transit vehicles where multi-lane approaches are provided at ramp signals for entrance ramps;
- Expanded traveler information systems with additional traffic monitoring equipment and cameras, and
- Active traffic management.

1.2.3 LPA Construction

Construction of bridges over the Columbia River is the most substantial element of the project, and this element sets the sequencing for other project components. The main river crossing and immediately adjacent highway improvement elements would account for the majority of the construction activity necessary to complete this project.

1.2.3.1 Construction Activities Sequence and Duration

The following table (Exhibit 1-2) displays the expected duration and major details of each element of the project. Due to construction sequencing requirements, the timeline to complete the initial phase of the LPA with highway phasing is the same as the full LPA.

Exhibit 1-2. Construction Activities and Estimated Duration

Element	Estimated Duration	Details
Columbia River bridges	4 years	• Construction is likely to begin with the bridges. • General sequence includes initial preparation, installation of foundation piles, shaft caps, pier columns, superstructure, and deck.
Hayden Island and SR 14 interchanges	1.5 - 4 years for each interchange	• Each interchange must be partially constructed before any traffic can be transferred to the new structure. • Each interchange needs to be completed at the same time.
Marine Drive interchange	3 years	• Construction would need to be coordinated with construction of the southbound lanes coming from Vancouver.
Demolition of the existing bridges	1.5 years	• Demolition of the existing bridges can begin only after traffic is rerouted to the new bridges.
Three interchanges north of SR 14	4 years for all three	• Construction of these interchanges could be independent from each other or from the southern half of the project. • More aggressive and costly staging could shorten this timeframe.
Light rail	4 years	• The river crossing for the light rail would be built with the bridges. • Any bridge structure work would be separate from the actual light rail construction activities and must be completed first.
Total Construction Timeline	6.3 years	• Funding, as well as contractor schedules, regulatory restrictions on in-water work, weather, materials, and equipment, could all influence construction duration. • This is also the same time required to complete the smallest usable segment of roadway – Hayden Island through SR 14 interchanges.

1.2.3.2 Major Staging Sites and Casting Yards

Staging of equipment and materials would occur in many areas along the project corridor throughout construction, generally within existing or newly purchased right-of-way or on nearby vacant parcels. However, at least one large site would be required for construction offices, to stage the larger equipment such as cranes, and to store materials such as rebar and aggregate. Suitable sites must be large and open to provide for heavy machinery and material storage, must have waterfront access for barges (either a slip or a dock capable of handling heavy equipment and material) to convey material to the construction zone, and must have roadway or rail access for landside transportation of materials by truck or train.

Three sites have been identified as possible major staging areas:

1. Port of Vancouver (Parcel 1A) site in Vancouver: This 52-acre site is located along SR 501 and near the Port of Vancouver's Terminal 3 North facility.
2. Red Lion at the Quay hotel site in Vancouver: This site would be partially acquired for construction of the Columbia River crossing, which would require the demolition of the building on this site, leaving approximately 2.6 acres for possible staging.
3. Vacant Thunderbird hotel site on Hayden Island: This 5.6-acre site is much like the Red Lion hotel site in that a large portion of the parcel is already required for new right-of-way necessary for the LPA.

A casting/staging yard could be required for construction of the over-water bridges if a precast concrete segmental bridge design is used. A casting yard would require access to the river for barges, including either a slip or a dock capable of handling heavy equipment and material; a large area suitable for a concrete batch plant and associated heavy machinery and equipment; and access to a highway and/or railway for delivery of materials.

Two sites have been identified as possible casting/staging yards:

1. Port of Vancouver Alcoa/Evergreen West site: This 95-acre site was previously home to an aluminum factory and is currently undergoing environmental remediation, which should be completed before construction of the CRC project begins (2012). The western portion of this site is best suited for a casting yard.
2. Sundial site: This 50-acre site is located between Fairview and Troutdale, just north of the Troutdale Airport, and has direct access to the Columbia River. There is an existing barge slip at this location that would not have to undergo substantial improvements.

1.2.4 The No-Build Alternative

The No-Build Alternative illustrates how transportation and environmental conditions would likely change by the year 2030 if the CRC project is not built. This alternative makes the same assumptions as the build alternatives regarding population and employment growth through 2030, and also assumes that the same transportation and land use projects in the region would occur as planned. The No-Build Alternative also includes several major land use changes that are planned within the project area, such as the Riverwest development just south of Evergreen Boulevard and west of I-5, the Columbia West Renaissance project along the western waterfront in downtown Vancouver, and redevelopment of the Jantzen Beach shopping center on Hayden Island. All traffic and transit projects within or near the CRC project area that are anticipated to be built by 2030 separately from this project are included in the No-Build and build alternatives.

Additionally, the No-Build Alternative assumes bridge repair and continuing maintenance costs to the existing bridge that are not anticipated with the replacement bridge option.

1.3 Long-term Effects

1.3.1 Oregon

The most significant effects from the LPA would occur on Hayden Island, where the current project designs would require the displacement of 32 floating homes in North Portland Harbor within the Hayden Island Neighborhood. In addition to the floating homes displaced from North Portland Harbor, eight shelters for boat storage would be displaced, some of which contain seasonal apartments.

Two businesses located on the on-land parcel associated with the Jantzen Beach Moorage would be displaced, and access at the east end of the property would be eliminated with the remaining access being at the far west end of the property.

Construction of the LPA would displace the Safeway grocery store and pharmacy on Hayden Island, which is the only grocery store and pharmacy on the island and an important community resource. Displacing the Safeway store would be a significant impact, as the store would have to be relocated on the island or island residents would have to leave the island to purchase groceries and prescription drugs. The CRC project may suggest replacement sites for the relocation of Safeway, but it is entirely up to the store owners to choose their replacement location, if any. Officials representing the Jantzen Beach SuperCenter initiated a site plan review with the City of Portland. The SuperCenter plans a significant rebuilding effort that will include an expansion of the Target store. Early indications suggest the SuperCenter will include a pharmacy and drugstore in a new location.

The LPA would displace many restaurants and one bank on the island. Although restaurants and banks are not typically considered community resources, the loss of these businesses would require residents to travel to mainland Oregon or Vancouver more often to access these services.

Both LPA Option A and B would improve on-island circulation, and reduce the hours of congestion in this area of I-5. Additionally, the current sub-standard and difficult to navigate bike and pedestrian connection to the existing I-5 bridge would be improved, and a light rail transit station would serve the island. LPA Option A would provide more options for access to the island because it would provide access to and from Hayden Island from I-5 as well as from a local arterial bridge.

Other neighborhoods would also be affected by the LPA. In the Kenton neighborhood, long-term impacts would be focused at the north end of the neighborhood near the Portland Expo Center and North Portland Harbor. The project would displace several structures, including three floating homes and one duplex on land. Four marine businesses and one billboard in Kenton would also be displaced. Fifteen parcels would be impacted by the expansion of the maintenance center in the Rockwood neighborhood in Gresham, Oregon. Within those 15 parcels, nine residences and eight businesses would be displaced because some parcels contain two buildings, one serving as a residence, and one serving as a business. Displacing these residences and businesses would leave just one non-industrial parcel in this community, eliminating any cohesion in the neighborhood as residents would be relocated.

1.3.2 Washington

The LPA would require four residential displacements in the Shumway neighborhood. Some residents in Shumway may experience noise impacts from the highway and visual impacts from sound walls.

The LPA would require the displacement of five single family residences in the Arnada neighborhood due to the 17th Street transit alignment.

In the Central Park neighborhood, the Clark College Recreation Fields along McLoughlin Boulevard would be impacted due to construction of the light rail guideway, terminal station, and the Clark College Park and Ride. Construction would require a permanent use of one acre of the southern edge of the fields. Further east along the parcel, property would be needed for a widened street cross-section to accommodate a left-turn lane into Marshall Community Center and Park. The permanently affected area would constitute approximately 0.6 acres of the 14-acre recreational property, and is occupied by a grassy slope serving predominately as a transition area between parking on McLoughlin Boulevard and the softball and multi-use field to the north, as well as a line of trees. Additionally, eight parking spaces at the Community Center would be permanently displaced due to the project. The impacts are not expected to interfere with any of the public recreational activities that take place at the fields.

The LPA would displace two apartment units located above the Vancouver Funeral Chapel on 12th street in downtown Vancouver in the Esther Short neighborhood. The western end of Waterfront Park, an identified community resource, is in the southeast corner of the Esther Short neighborhood, just to the west of the existing new bridges. This portion of the park would be permanently altered after construction of the new bridges over the top of the park. However, Waterfront Park in the Columbia Way neighborhood would be improved with new open space once the existing I-5 bridges are removed.

All Vancouver neighborhoods would benefit from increased access to transit due to the introduction of light rail.

1.4 Temporary Effects

Hayden Island residents would experience the most significant temporary effects during construction. Displacing 24 restaurants and the Safeway grocery store would eliminate a majority of the eating establishments on the island. Some groceries could be purchased at the Target store within the Jantzen Beach SuperCenter, and a few eating establishments will remain. Although restaurants and a grocery store would probably reestablish on the island once construction is complete, residents would have to travel off of the island through construction delays and detours to purchase groceries and access a larger variety of eating establishments during construction.

Additionally, the loss of one of two banks and the pharmacy at Safeway would require residents to travel off of the island more often to bank and to obtain prescription medications. Construction delays and detours will complicate residents' ability to leave the island to reach these services elsewhere.

Residents of Hayden Island are likely to experience noise and vibration impacts due to construction equipment, vibratory compaction equipment, and pile driving during bridge construction. Air quality would be affected on Hayden Island by emissions from construction equipment. Residents living in floating homes would be susceptible to construction-related noise and air quality effects due to their close proximity to both the highway and transit alignments.

Construction activities for the highway and interchanges would result in traffic delays on I-5 during construction. These delays would have the greatest impact on Hayden Island residents as they have no route to bypass the construction activity. As a result, residents would experience increased travel times while construction activity is underway.

Other neighborhoods would also be affected by temporary property acquisitions (construction easements) and noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in some neighborhoods due to emissions from construction equipment. Construction activities for the highway and transit alignments are expected to result in traffic delays and detours in some neighborhoods, meaning increased travel times for residents. Some neighborhoods may also experience traffic spillovers due to motorists attempting to avoid construction delays.

1.5 Proposed Mitigation

The LPA would require acquisition of floating homes in the Hayden Island neighborhood on both the west and east sides of the existing bridge over North Portland Harbor. Three floating homes and one residence on the south shore of the North Portland Harbor in the Kenton Neighborhood would also be displaced. The project team would evaluate a variety of mitigation options including relocating these floating homes to a nearby location or other areas on the river in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Long-term noise impacts within the Hayden Island neighborhood could be mitigated with the construction of sound walls or residential sound insulation.

Residential displacements would occur within the Arnada and Shumway neighborhoods, and the project would acquire partial right-of-way from several residences in both the Shumway and Rose Village neighborhoods. Depending on the individual residents' preferences, opportunities to relocate within the same neighborhood would be explored.

Long-term impacts to the Clark College Recreation Fields would be mitigated through several methods:

- Establishing a shared parking arrangement for use of the parking spaces in the new park and ride facility to compensate for lost parking;
- Constructing a pedestrian connection between the park and ride and the recreation fields; and
- Planting tall landscaping to visually screen views of the parking structure from the fields.

Similarly, as some parking would be removed from the Marshall Community Center and Park, parking mitigation would be necessary. For more information about mitigation plans at these parks, please refer to the Parks and Recreation Technical Report.

2. Methods

2.1 Introduction

This section describes the methods that were used to collect data and evaluate potential effects to neighborhoods and population for the I-5 CRC project. The analysis was developed to comply with the National Environmental Policy Act (NEPA) and relevant federal, state, and local laws.

2.2 Study Area

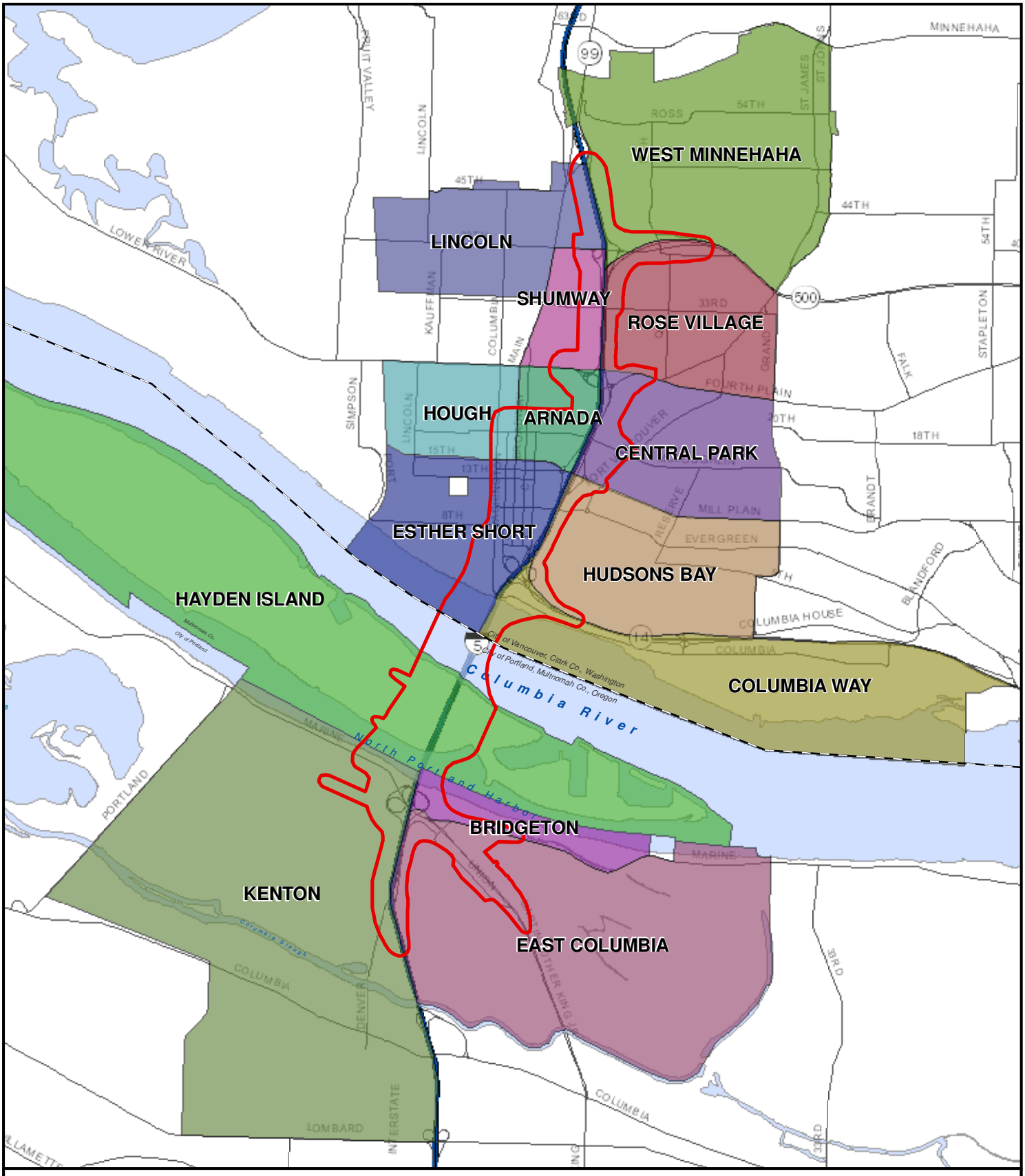
The project study area runs along a 5-mile segment of I-5, between approximately State Route (SR) 500 in Washington and Columbia Boulevard in Oregon, as well as in downtown Vancouver west and east of I-5. Temporary construction easements would occur directly adjacent to the improvements, while larger staging areas and casting yards could be located upstream or downstream of the I-5 bridges. The Ruby Junction maintenance facility is located in Gresham, Oregon, and is also included in the study area.

The analysis area for the neighborhoods and population assessment was organized at a neighborhood level. The project team conducted an in-depth analysis of neighborhoods that are expected to experience direct construction or operational effects due to the project. Exhibit 2-1 lists these neighborhoods located in Vancouver and Portland. Exhibit 2-2 maps these neighborhoods. Any neighborhoods not specified are not expected to experience direct construction or operational effects from the project.

Since publication of the DEIS Neighborhoods Technical Report in 2007, the project area has slightly changed due to further analysis of build alternatives. Therefore, this report does not evaluate the West Hazel Dell neighborhood in Clark County or the Northwest and Carter Park neighborhoods in Vancouver as they are no longer expected to experience any impacts. The East Columbia neighborhood in Portland was added to this report because since the DEIS, the City of Portland expanded the neighborhood boundary west to include the area that was formerly known as Multnomah County Unclaimed Number One, which is within the project area. This report also addresses all age ranges of the population, not just the population aged 65 and older, as did the DEIS.

Exhibit 2-1. Study Area Neighborhoods

Vancouver Neighborhoods		Portland Neighborhoods
West Minnehaha	Arnada	Hayden Island
Lincoln	Central Park	Bridgeton
Shumway	Esther Short	Kenton
Rose Village	Hudson's Bay	East Columbia
Hough	Columbia Way	



N
W E
S

0 0.4 0.8
Miles

Main Project Area

Roads

Freeways

Major Streets

Exhibit 2-2. Neighborhoods and Main Project Area

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Dec. 10, 2010; File Name: NEI_Figure.mxd

2.3 Effects Guidelines

This report addresses the following questions about potential effects from this project:

- Does the project displace people or community resources?
- Does the project separate neighborhood residents from their community resources such as educational, religious, health care, cultural, or recreational facilities, and/or commercial services?[3]
- Does the project increase traffic through a neighborhood or severely decrease access to transit, bicycle, or pedestrian opportunities?
- Does the project severely impact community cohesion?[4]
- Is the project consistent with existing adopted neighborhood plan goals?

For more details about these effects guidelines, please see Section 2.5.1.

2.4 Data Collection Methods

To determine if the effects listed above would affect neighborhoods and population, various types of data were collected for this report. Data were collected to develop a profile for each neighborhood in order to compare the existing conditions in each neighborhood to future conditions based on the LPA.

Potential cumulative effects from this project are evaluated in the Cumulative Effects Technical Report, and indirect effects are evaluated in the Indirect Effects Technical Report.

2.4.1 Spatial Analysis

For spatial analysis, the project team used Geographic Information System (GIS) data from Metro's Regional Land Information System (RLIS) and Clark County's GIS system, ClarkView.

2.4.2 Neighborhood Plans

Historical data and general land use information about the neighborhoods were reviewed in adopted neighborhood plans from the City of Vancouver Office of Neighborhoods and the City of Portland Bureau of Planning and Sustainability. The plans were also reviewed for neighborhood plan goals to determine which goals were relevant to the project. The project team worked with neighborhood associations to determine whether the associations held neighborhood meetings or produced a newsletter.

2.4.3 Crime Statistics

Crime statistics for Vancouver were obtained from the Clark County Sheriff's Office Crime Analysis Unit. Crime statistics for Portland were obtained from the Portland's Bureau of Police.

[3] Separation of a neighborhood from its community resources may be caused by operational changes such as rerouting traffic, pedestrian, or transit service, as well as physical barriers such as new soundwalls or roadways.

[4] Cohesion impacts may include major displacements, separation of a neighborhood, impacts to traffic circulation, reduction in neighborhood activities, or inconsistency with adopted neighborhood plan goals.

To derive crime statistics for Vancouver, the project team analyzed the total number of crimes committed in each neighborhood in 2006, as well as the total number of crimes committed at the city and county level in 2006. Crimes were defined as any offenses reported to law enforcement.

To derive crime statistics for Portland, the project team collected crime totals classified by neighborhood and normalized for 1,000 residents. In order to normalize the Vancouver neighborhood crime numbers, project staff divided the total number of crimes committed in each neighborhood by the total number of residents in that neighborhood. This percentage was then multiplied by 1,000 residents, to derive the total number of crimes committed per 1,000 residents within each neighborhood. The same normalization process was conducted for Vancouver and Clark County totals, with total populations for these jurisdictions drawn from the 2000 U.S. Census. To compare the two, the crime rate by neighborhood was subtracted from the rate by jurisdiction. This difference was divided by the city and/or county crime rate to determine the difference in rate.

2.4.4 Census Data

Demographic information for neighborhood profiles was developed using the 2000 U.S. Census, Summary File 3. Since conditions may have changed since that census was completed, the CRC team also used more recent supplemental data, public meetings, and outreach efforts to communities potentially affected by this project. This helped the team gain a better understanding of the character of each neighborhood and which concerns are most important to these communities. Fully updated information from the U.S. Census will not be available until 2011-2012.

The following data were collected to determine the population and demographics for each neighborhood within the study area:

- Percentage of minority and ethnicity populations compared to city and county percentages (Table P7).
- Median home value compared to city and county median home values (Table H85).
- Percentage of population with income below the poverty level compared to the city and county percentages (Table P88).
- Percentage of population with disabilities compared to the city and county percentages (Table P42).
- Percentage of households with 5 or more residents compared to the city and county percentages (Table H16).
- Percentage of owner-occupied housing compared to the city and county percentages (Table H7).
- Percentage of housing units with no vehicle (H44).
- Age distributions (Table P8).[5]

Because these data were not available at a neighborhood boundary level, the project team used GIS software to adjust the data to the neighborhood level. Neighborhood boundaries were laid on

[5] In the Neighborhoods and Population Technical Report for the DEIS, only populations 65 and older were addressed. This version of the technical report address all age ranges.

top of census block group boundaries to determine the proportion of neighborhood area within the block group. Block group data from several data sets from the 2000 U.S. Census Bureau American Fact Finder were joined to the neighborhood data to summarize characteristics of each neighborhood. Population data were adjusted by applying the proportion of the original area to totals where block groups were divided by neighborhood boundaries.

2.4.5 Other Technical Reports

The following CRC technical reports were reviewed for neighborhoods and population information, as described below:

- The Land Use Technical Report identified comprehensive plan designations, zoning codes, and other applicable land use laws for the neighborhoods.
- The Economics Technical Report identified effects on local and regional businesses located in the neighborhoods.
- The Historic Built Environment Technical Report helped to identify historic resources within the neighborhoods that may contribute to neighborhood cohesion.
- The Visual and Aesthetics Technical Report identified visual resources within the neighborhoods.
- The Public Services and Utilities Technical Report identified important resources within neighborhoods, such as hospitals and fire stations.
- The Environmental Justice Technical Report helped define the demographics of each neighborhood and identify block groups within neighborhoods with low income and minority populations.
- The Air Quality Technical Report described the effects of air pollution and air toxics in neighborhoods.
- The Noise and Vibration Technical Report described the effects of noise levels in the neighborhoods.
- The Acquisitions Technical Report provided information about the potential displacement of people and community resources.
- The Traffic Technical Report identified effects on traffic circulation patterns on local and collector streets.
- The Transit Technical Report identified effects on transit service, including changes to transit routes, level of service, ridership capacity, and frequency of stations.

2.4.6 Cohesion Assessment

Neighborhood cohesion describes the livability of a neighborhood, and more specifically, the opportunities for residents to connect to one another within the neighborhood. These opportunities can be offered through gathering places such as schools, community centers, parks, or shopping centers. High home ownership rates can also contribute to cohesion because there may be fewer turnovers in neighborhoods with high home ownership rates than in neighborhoods with high rental rates. Crime rates may affect cohesion because they are important factors in determining how safe residents feel in their homes and neighborhoods. Neighborhood associations and neighborhood activities such as meetings or production of a newsletter may also affect cohesion, because they bring residents together and give them a chance to connect with one another.

These indicators of cohesion were assessed in the neighborhood profiles using input from the community resource mapping process, crime data, census data, tax assessor information, and neighborhood association information gathered through the public involvement process. See Section 2.6 for more information on the community resource mapping process and public involvement efforts.

2.5 Analysis Methods

The following methods were employed to measure effects to neighborhoods and population.

2.5.1 Long-term Effects

2.5.1.1 Displacements

Project staff analyzed right-of-way data to determine if major displacements of people or community resources would occur within the neighborhoods. The Acquisitions Technical Report was referenced to determine how many people would be affected by the alternative. The Environmental Justice Technical Report was referenced to determine if any of those displaced were low-income or minority residents. Additional analyses were performed to identify child-care facilities, senior housing facilities, and neighborhood resources which may be displaced or otherwise impacted.

2.5.1.2 Separation of a Neighborhood from its Community Resources

Project staff analyzed the LPA to determine if the project separated neighborhoods from their community resources. Community resources were identified through the community resource mapping process. The Acquisitions Technical Report was also referenced to determine if the project would displace any community resources identified through the community resource mapping process described in Section 2.6.

2.5.1.3 Impacts to Traffic Circulation

Impacts to traffic circulation patterns were determined by referencing the traffic and transit technical reports, with particular attention to local or collector streets and the accessibility of surrounding land uses. If effects were considered important based on the thresholds for those disciplines the same effects were considered significant for the neighborhoods where the effects took place.

2.5.1.4 Effects to Cohesion

Displacements, separation of a neighborhood from its resources, impacts to traffic circulation, or inconsistencies with neighborhood goals could all impact cohesion. In addition to these factors, a reduction in neighborhood activities could affect cohesion. Project staff coordinated with neighborhood representatives to determine if a neighborhood association existed and how often the association met. Project staff also inquired about the frequency of neighborhood activities and the presence of a neighborhood newsletter.

2.5.1.5 Inconsistencies with Adopted Neighborhood Plan Goals

Inconsistencies with adopted neighborhood plan goals were determined through reviews of neighborhood plans to determine if the proposed alternative would violate goals or would prevent future implementation of the goals.

2.5.2 Temporary Effects

Temporary effects to neighborhoods and population would likely result from temporary access changes to neighborhoods and their resources, and short-term construction activities that may increase noise levels and affect air quality. Data for access changes came from traffic models. Information regarding noise levels came from the Noise and Vibration Technical Report, and air quality data came from the Air Quality Technical Report.

2.6 Coordination

2.6.1 Neighborhood Meetings and Public Events

The project team met with each of the neighborhood associations in the project area as well as neighborhoods in surrounding areas, to discuss issues specific to each neighborhood. In most cases, the project team met with neighborhood associations several times throughout the planning process. Appendix A contains a list of all meetings held with neighborhood associations and neighborhood groups.

The project team also collected information from public events such as AsiaFest, Good in the Hood, Alberta Coop Farmers Market, Vietnamese New Year celebration, Say Hey! Partners in Diversity, Juneteenth Festival, and the Slavic Coalition. In total, project staff engaged over 20,000 community members in conversation about the project at over 600 events from February 2005 to October 2009. For a complete list of outreach activities please refer to the Public Involvement appendix in the FEIS.

2.6.2 Community and Environmental Justice Group

To achieve the goal of meaningful public involvement in the project development process, in August of 2006 the project team formed the Community and Environmental Justice Group (CEJG). The 15 members of CEJG came from neighborhoods in the project area and included environmental justice communities (low-income, African American, Latino), and five at-large members. They represented the diverse interests and perspectives of Vancouver, Portland, and Hayden Island neighborhoods potentially affected by the project.

2.6.3 Community Resource Mapping

An inventory of community resources within each neighborhood was collected by the project team. The team met with members of the community who identified the resources that were important to them on a map. Maps and legends of community resources for Washington and Oregon are provided on Exhibits 2-3, 2-4, and 2-5.

The analysis methods for identifying community resources were as follows:

- Project staff identified neighborhood resources within and near the study area that fit the following commonly accepted neighborhood resource categories: parks, schools, locally and nationally recognized historic structures, and emergency services. Project staff created two draft maps based on these resources; one for Oregon and one for Washington.
- On September 14, 2006, CEJG reviewed the two draft neighborhood resource maps and identified additional resources.

- On November 2, 2006, the neighborhood resource maps were distributed and discussed at a meeting of the Shumway Neighborhood Association, resulting in additional identified resources.
- In early 2007, four open houses were held to discuss the project team's recommendations of the range of alternatives to advance into the DEIS. These open houses were held in the four major geographic areas of the study area:
  - Vancouver (January 20, 2007)
  - North Vancouver - Clark County (February 5, 2007)
  - Hayden Island (January 30, 2007)
  - North Portland (January 25, 2007)
- In addition to information on the range of alternatives, the neighborhood resource maps were distributed and discussed in one-on-one conversations at these open houses, resulting in additional identified resources.
- In mid-2007, the project team used right-of-way data for the alternatives to determine if the resources identified by the community would be affected.
- In the spring of 2008, more community resources were identified through the public comment process for the DEIS.

2.6.4 Public Involvement Activities

Public outreach activities have evolved with the project development process. The initial range of project options included ideas from the public gathered at open houses and during a public comment period in fall 2005. These ideas were narrowed down in spring 2006 to those offering the best outcomes based on initial project team screening and public feedback. The list of project options to receive rigorous study and analysis in the DEIS process grew as a result of public input and CRC Task Force recommendations.

Strategies to reach and communicate with the broader public have been refined as a result of conversations with neighborhood associations and the CEJG. The following are the means by which the project team sought public input:[6]

2.6.4.1 Advisory Groups

- Columbia River Crossing Task Force
- Community and Environmental Justice Group (CEJG)
- Pedestrian and Bicycle Advisory Committee
- Urban Design Advisory Group (UDAG)
- Marine Drive Stakeholder Group
- Freight Working Group
- Pedestrian and Bicycle Advisory Committee
- Portland Working Group
- Vancouver Working Group

[6] Please see the Public Involvement Appendix to the FEIS for a complete listing of public involvement activities as of July, 2007.

2.6.4.2 Presentations and Discussions

- Neighborhood associations
- Business associations
- Civic clubs
- Faith groups and community organizations
- Schools and university classes

2.6.4.3 Community Meetings and Events

- Open Houses
- Design Workshops

2.6.4.4 Fairs and Festival Booths

- Street fairs
- Festivals and celebrations
- Farmers markets

2.6.4.5 Project News and Information

- Comprehensive website
- Monthly email news
- Newsletters
- Fact sheets
- Postcards
- Traveling displays

In addition to broad public outreach, project staff provided information to communities with limited English proficiency (LEP) in the project area. Based on a review of census data, environmental justice communities with LEP in the project area were determined to be Russian-, Spanish-, and Vietnamese-speaking communities. As a result, project newsletters, some project documents, and portions of the project web site have been translated into those languages. Russian-, Spanish-, and Vietnamese-speaking interpreters have also been provided upon request at numerous public open houses. Deaf and blind translation services have also been provided upon request. Project staff also attended events, such as AsiaFest and a Slavic Coalition meeting, to broaden outreach to communities with LEP. CEJG further facilitated the involvement of those with LEP. More detail on community outreach, including surveys conducted with residents potentially subject to impacts or displacement can be found in the Environmental Justice Technical Report.

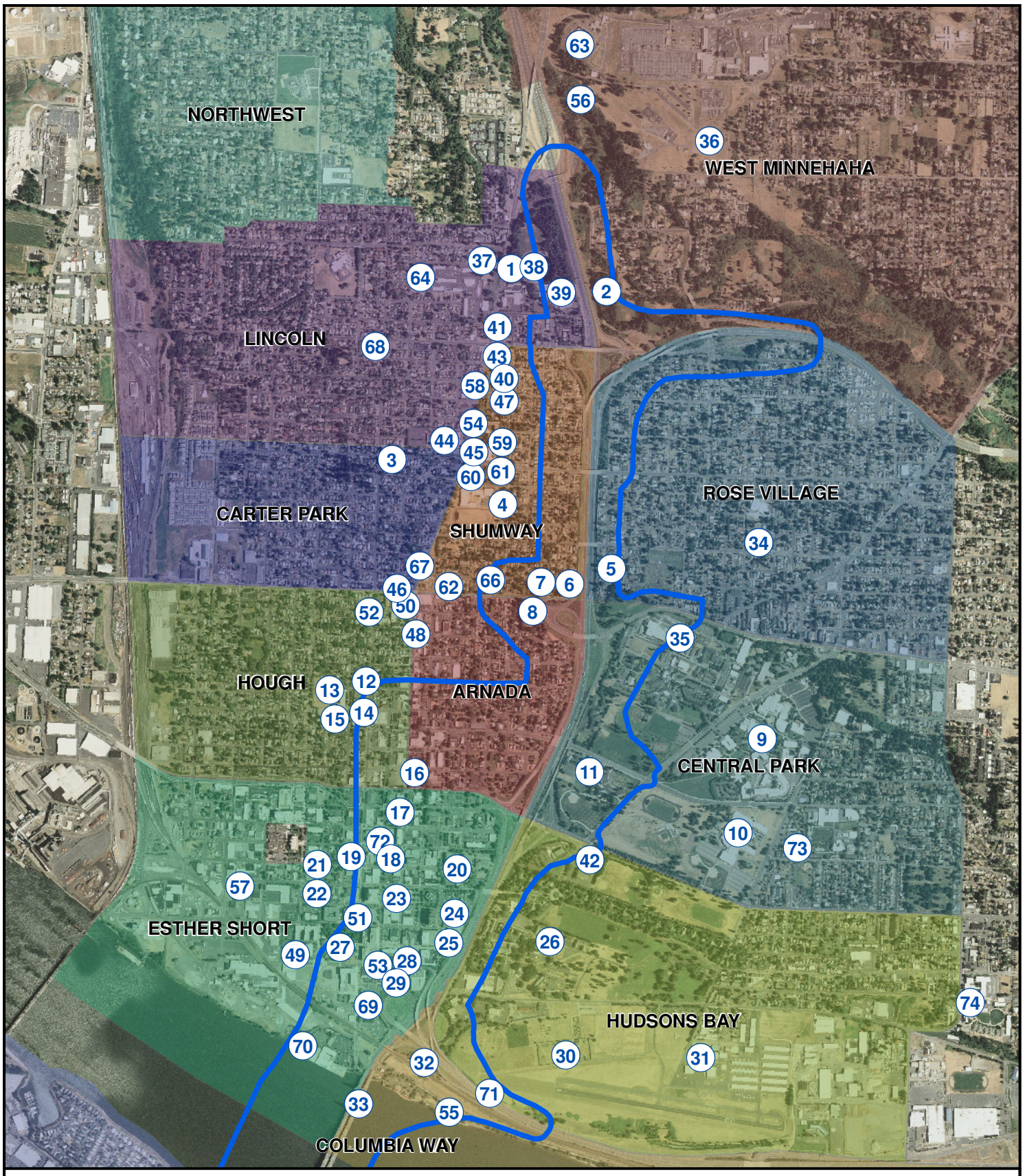


Exhibit 2-3. Neighborhood Resources
Clark County, Washington (1 of 2)

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Dec. 10, 2010; File Name: NEIREsources_DC146_NEI.mxd

1 **Covington House**
4201 Main Street
historical

2 **Leverich Park**
39th and M Street
park

3 **Carter Park**
33rd Street
park

4 **Shumway Park**
3014 F Street
park

5 **Leach Park**
28th and K Street
park

6 **2613 "H" Street House**
2613 H Street
historical

7 **Swan House**
714 E. 26th Street
historical

8 **Arnada Park**
W. 25th and G Street
park

9 **Clark College**
1800 E. Mcloughlin Boulevard
educational

10 **Hudson's Bay High School**
1206 E. Reserve Street
educational

11 **Marshall and Luepke Centers**
1009 E. McLoughlin Boulevard
community center

12 **Hough Elementary School**
1900 Daniels Street
educational

13 **Steffan House**
2000 Columbia Street
historical

14 **Charles Zimmerman House**
1812 Columbia Street
historical

15 **Hough Aquatic Center**
1801 Esther Street
recreational

16 **Carnegie Library**
1511 Main Street
educational

17 **Hidden, Lowell M. House**
100 W. 11th Street
historical

18 **Vancouver Telephone Exchange**
112 W. 11th Street
historical

19 **Chumasero-Smith House**
310 W. 11th Street
historical

20 **House of Providence (Academy)**
400 E. Evergreen Boulevard
historical

21 **Langsdorf House**
1010 Esther Street
historical

22 **Lloyd DuBois House**
902 Esther Street
historical

23 **Elks Building**
916 Main Street
historical

24 **Future Library**
educational

25 **Regal Cinema**
801 C Street
recreational

26 **National Historic Reserve**
East Reserve Street to I-5
historical

27 **Slocum House/Ester Short Park**
605 Esther Street
historical/park

28 **Heritage Building**
601 Main Street
historical

29 **Evergreen Hotel**
500 Main Street
historical

30 **Fort Vancouver**
612 E. Reserve Street
historical

31 **Pearson Field**
1115 E. 5th Street
historical

32 **Old Apple Tree Park**
East of I-5
historical/park

33 **I-5 Bridges**
historical

34 **Washington Elementary School**
2908 S Street
educational

35 **VA Medical Center**
1601 E. 4th Plain Boulevard
healthcare

36 **Dog Park**
Between NE 15th and NE 18th
park

37 **First Presbyterian Church**
4300 Main Street
religious institution

38 **Kiggins Sports Fields/Stadium**
800 E. 40th Street
recreational

39 **Discovery Middle School**
801 E. 40th Street
educational

40 **Safeway**
3707 Main Street
shopping

41 **Community Wellness Center**
317 E. 39th Street
healthcare

42 **Fort Vancouver Regional Library**
1007 E. Mill Plain Boulevard
educational

43 **Home Ownership Center**
3801-A Main Street
public service

44 **SW Washington Medical Center**
3400 Main Street
healthcare

45 **Arts & Academics School of Vancouver**
3101 Main Street
educational

46 **Vancouver Housing Authority**
2500 Main Street
public service

47 **YWCA**
3609 Main Street
community center

48 **Uptown Village**
Main Street
shopping

49 **Farmers Market**
555 W. 8th Street
shopping

50 **Starbucks**
2420 Main Street
community/recreation

51 **Starbucks**
304 W. 8th Street
community/recreation

52 **Columbia House**
33415 NW Lancaster Road
community/recreation

53 **Smith Tower**
515 Washington Street
senior/low income

54 **Pythian Home Retirement Center**
3409 Main Street
senior/low income

55 **Waterfront Park**
115 Columbia Way
park

56 **Discovery & Ellen Davis Trails**
Highway 99 and I-5
park

57 **Vancouver Fire Department, #82**
900 W. Evergreen Boulevard
public service

58 **Vancouver Fire Department, #86**
400 E. 37th Street
public service

59 **Vancouver Health and Rehabilitation Center**
400 E. 33rd Street
public service

60 **First United Methodist Church of Vancouver**
401 E. 33rd Street
religious institution

61 **Evergreen Habitat for Humanity**
521 E. 33rd Street
public service

62 **First Church of Christ Scientist**
204 E. 4th Plain Boulevard
religious institution

63 **Bonneville Power, Ross Complex**
5411 NE Highway 99
public services

64 **City of Vancouver Water Tower**
42nd and NW Washington
historical

65 **WSDOT Service Center**
11018 NE 51st Circle (not in map extent)
public service

66 **Saint Luke's Episcopal Church**
426 E. 4th Plain Boulevard
religious institution

67 **First Baptist Church**
108 W. 27th Street
religious institution

68 **Trinity Lutheran Church**
309 W. 39th Street
religious institution

69 **Accordiing to His Word Worship Center**
210 W. 4th Street
religious institution

70 **Amphitheater at Vancouver Landing**
100 Columbia Street
park

71 **Land Bridge**
park

72 **Saint James Catholic Church**
218 W. 12th Street
religious institution

73 **State School for the Blind**
2214 E. 13th Street
educational

74 **State School for the Deaf**
611 Grand Boulevard
educational

Exhibit 2-4. Neighborhood Resources
Clark County, Washington (2 of 2)

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Dec. 17, 2010; File Name: NEIREsources_DC146_NEI.mxd

1 **Private Community Center**
N. Arbor Avenue and Alder Street
recreational

2 **Former Hayden Is. Yacht Club**
120050 N. Jantzen Drive
community center

3 **Safeway**
11919 N. Jantzen Drive
shopping

4 **Lotus Isle Park**
N. Tomahawk and Island Drive
park

5 **North Portland Harbor & Industrial Marinas**

natural resource/housing

6 **Vanport Wetlands**

natural resource

7 **Off-leash Dog Area**

park

8 **Delta Park**
N. Martin Luther King Boulevard and Denver Avenue
park

9 **Portland International Raceway**
1940 N. Victory Boulevard
recreational

10 **Portland Meadows**
1001 N. Schmeer Road
recreational

11 **Columbia Slough**

recreational

12 **Columbia Cemetery**
1151 N. Columbia Boulevard
historical

13 **Paul Bunyan Statue**
N. Denver Avenue and Interstate Avenue
historical

14 **Christmas Lights House (NRHP)**
1441 N. McClellan Street
historical

15 **Kenton Commerical Historic District**
Denver Avenue
historical/shopping

16 **Kenton Community Policing Office**
8134 N. Denver Avenue
public service

17 **Jantzen Beach**

shopping

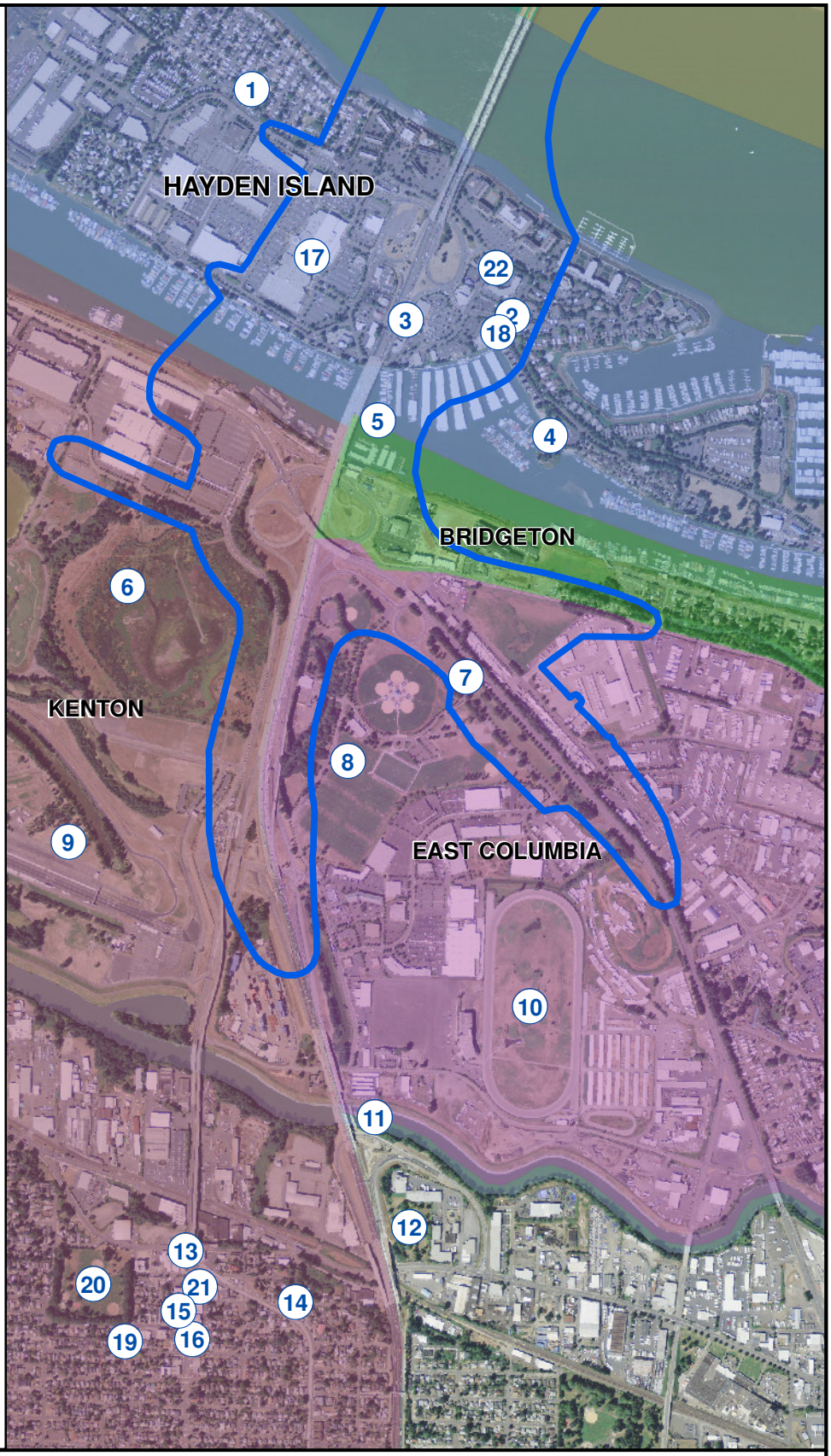
18 **Portland Fire and Rescue, Station #17**
848 N. Tomahawk Drive
public service

19 **Historic Kenton Firehouse**
8105 N. Brandon Avenue
community center

20 **Kenton Park**
8417 N. Brandon Avenue
park

21 **Wells Fargo Bank**
8324 N. Denver Avenue
financial services

22 **Wells Fargo Bank**
12240 N. Jantzen Drive
financial services



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Main Project Area

Exibit 2-5. Neighborhood Resources
Multnomah County, Oregon

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Dec. 17, 2010; File Name: NEIREsources_DC146_NEI.mxd

3. Affected Environment

3.1 Introduction

This section presents the existing conditions of the neighborhoods and population most likely to experience effects from construction or operational changes. The assessment describes several characteristics of each neighborhood and identifies important community resources within the neighborhoods.

The project area and associated neighborhoods are divided into two segments, Oregon and Washington. The names and definitions of race/ethnicities and demographic categories analyzed were taken from those used by the U.S. Census Bureau. Because of rounding percentages for demographics may not sum to 100.

3.2 Oregon Project Segment

3.2.1 Hayden Island Neighborhood Profile

The Hayden Island neighborhood is located on Hayden Island in the Columbia River, and extends from the eastern end of the island, west to the Burlington Northern Santa Fe (BNSF) Railroad tracks 1.0 mile west of I-5. The neighborhood is only accessible via I-5 or boat, and is dominated by commercial uses lining both sides of I-5, including retail, service, and office space. A large retail mall and other large retailers are located directly west of I-5, while single- and multi-family residential uses are concentrated to the east of I-5. Small marinas are located around the island, with floating homes, boat houses, and small, marine-related commercial businesses concentrated on the south side of the island in the North Portland Harbor.

Hotels and restaurants are also located on Hayden Island, as is the community's only grocery store, Safeway. The Jantzen Beach shopping center is located west of I-5. Recreational areas on Hayden Island include a private community center between Arbor and Alder Streets, the former Hayden Island Yacht Club on Jantzen Drive, and Lotus Isle Park on Tomahawk Island Drive. The Wells Fargo Bank on N Jantzen Drive provides financial services to the island, while the Portland Fire and Rescue Station 17 on N Tomahawk Drive provides a public service.

C-TRAN Routes 41 (Camas/Washougal Limited), 44 (Fourth Plain Limited), 47 (Battle Ground Limited), 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), and 199 (99th Street Express) all pass through Hayden Island via I-5, but do not make any service stops within the community. C-TRAN Route 4 (Fourth Plain) serves the Jantzen Beach SuperCenter and Safeway. It is the only C-TRAN service to the island, offering connections to the Delta Park/Vanport light rail transit Station to the south and downtown Vancouver to the north. TriMet's Line 6 (Martin Luther King Jr. Boulevard), which has its northern terminus on Hayden Island, offers a local bus connection to North Portland neighborhoods to the south and downtown Portland.

There is an existing multi-use pathway through Hayden Island along I-5 and a proposed bike lane along Hayden Island and Jantzen drives. A pedestrian path has been proposed along the Columbia River on Tomahawk Island and Hayden Island Drives.

For 2006, the Hayden Island neighborhood reported 255.4 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 210 percent more than Portland's overall rate of 82.5 per 1,000 residents. This high crime rate is mainly caused by a high volume of "Other Larceny" crimes, as reported by the City of Portland Police Bureau. These crimes can most likely be attributed to the large shopping center at Jantzen Beach, where larcenies are reported by store officials. This crime rate probably does not accurately portray crime rates outside of the shopping center.

In early 2009 the City of Portland Bureau of Planning and Sustainability published the Hayden Island Plan. The plan includes goals, objectives, proposed comprehensive plan and zoning changes, and an implementation strategy. For a description of goals for the island please refer to Exhibit 3-46. Section 4 of this report analyzes project impacts in relation to plan goals. The Hayden Island Neighborhood Network meets on the second Thursday of every month at the former Hayden Island Yacht Club.

Cohesion on Hayden Island appears to be high. The concentration of residential uses on the island likely indicates that neighbors often have an opportunity to connect to one another. Additionally, the Lotus Isle Park and Safeway on the island provide opportunities for residents to interact. A high home ownership rate also contributes to cohesion on the island. Although there is a high crime rate, these crimes are probably attributable to the Jantzen Beach shopping center, and do not have the same effect on cohesion as crimes committed within the residential areas of the neighborhood.

3.2.1.1 Hayden Island Demographics

Race/ethnicity demographic data for the Hayden Island neighborhood reveal differences from Multnomah County and Portland (Exhibit 3-1). The Caucasian percentage is higher than both the county and city rates, whereas the percentage of all other races and ethnicities, with the exception of Native Hawaiian and Other Pacific Islander Alone, is lower than both the county and the city. The percentages of African American, Some Other Race Alone, Two or More Races, and Hispanic or Latino populations are less than one-third the rates in the county or city.

Additional demographic data for the neighborhood show further differences between the neighborhood, county, and city (Exhibit 3-2). It has a lower median home value, lower percentage of population below the poverty level, lower percentage of large families, and lower percentage of housing units with no vehicle compared to both the county and city. The median home value is approximately 62 percent of the median home value in the county and approximately 63 percent of the median home value in the city. The percentage of population below the poverty level is slightly more than half the percentage in the county or city. No residents in the neighborhood are members of a large household (five people or more), compared to 8 percent in both the county and city. Seventy-nine percent of Hayden Island residents live in owner-occupied housing compared to slightly more than half in the county and city. The rate of housing units with no vehicle is less than half the county and city. Finally, the number of children age 0 to 17 on Hayden Island is significantly lower than in Multnomah County or the City of Portland (Exhibit 3-3).

Exhibit 3-1. Hayden Island Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Hayden Island	2086	92%	2%	0%	4%	0%	1%	1%	3%
Multnomah County	660,486	76%	5%	1%	6%	0%	0%	4%	7%
Portland	529,025	75%	6%	1%	6%	0%	0%	4%	7%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-2. Hayden Island Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Hayden Island	$109,467	9%	27%	1%	84%	7%
Multnomah County	$156,600	12%	19%	8%	57%	13%
Portland	$154,700	13%	19%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-3. Hayden Island Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Hayden Island	2,086	62 (3%)	114 (5%)	1,536 (74%)	374 (18%)
Multnomah County	660,486	41,869 (6%)	105,138 (16%)	439,651 (67%)	73,828 (11%)
Portland	529,025	31,969 (6%)	79,269 (15%)	356,542 (67%)	61,245 (12%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.2.2 Bridgeton Neighborhood Profile

The Bridgeton neighborhood is located east of I-5 on North Portland Harbor. It is an early Portland neighborhood with cottages built between 1915 and 1930 along the Columbia River. Residential uses are concentrated at the eastern end of the neighborhood, both on land in rowhouses and detached single-family dwellings, and on the river in floating homes. Industrial uses can be found directly adjacent to I-5 around the Marine Drive interchange. There is a small commercial node at Marine Drive and I-5. Columbia High School and its adjacent playfield act as important community resources, as do the neighboring sloughs and the Columbia River, which provide recreational uses.

TriMet Line 16 (Front Avenue/St. Johns) serves the Bridgeton neighborhood along Marine Drive and points west such as the Port of Portland Terminal 6. C-TRAN Routes 4 (Fourth Plain), 41 (Camas/Washougal Limited), 44 (Fourth Plain Limited), 47 (Battle Ground Limited), 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), 199 (99th Street Express), and TriMet Line 6 (Martin Luther King Jr. Boulevard) all run through the neighborhood via I-5, but do not make any service stops within the community. There is an existing multi-use pathway and bike lane along Marine Drive, and a proposed multi-use pathway along the North Portland Harbor.

For 2006, Bridgeton reported 122.3 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 48 percent higher than the Portland average of 82.5 per 1,000 residents.

The Bridgeton Neighborhood Plan was adopted by the Portland City Council in November 1997. For a description of neighborhood plan goals, please refer to Exhibit 3-46. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Bridgeton Neighborhood Association meets on the third Wednesday of every month at Columbia High School.

Cohesion in Bridgeton appears to be high. The school and recreational resources in the area provide residents an opportunity to connect to one another. A moderate crime rate and high home ownership also contribute to cohesion.

3.2.2.1 Bridgeton Demographics

Race/ethnicity demographics for the Bridgeton neighborhood reveal differences between the neighborhood, Multnomah County, and Portland (Exhibit 3-4). The percentages of Caucasians are equal to the County, and the Hispanic or Latino population is lower than the county and city. The percentage of African Americans is double that found in Multnomah County and almost double the percentage in Portland. Demographic data show that there are no residents reporting as Some Other Race Alone. Note that the population in Bridgeton within the API is only 39, so single individuals or households will have a large effect on these percentages and the neighborhood demographics can change quickly.

Additional demographic data for Bridgeton further illustrates differences between the neighborhood, county, and city (Exhibit 3-5). Approximately three-quarters of Bridgeton residents live in owner-occupied housing, a higher rate than the county or city. The percentage of housing units with no vehicles is less than one-fourth of the county and city percentages. Finally, the percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage (Exhibit 3-6).

Exhibit 3-4. Bridgeton Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Bridgeton	39	76%	11%	1%	7%	0%	0%	5%	1%
Multnomah County	660,486	76%	5%	1%	6%	0%	0%	4%	7%
Portland	529,025	75%	6%	1%	6%	0%	0%	4%	7%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-5. Bridgeton Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Bridgeton	$134,500	9%	23%	7%	71%	3%
Multnomah County	$156,600	12%	19%	8%	57%	13%
Portland	$154,700	13%	19%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-6. Bridgeton Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Bridgeton	39	3 (8%)	5 (13%)	28 (72%)	3 (8%)
Multnomah County	660,486	41,869 (6%)	105,138 (16%)	439,651 (67%)	73,828 (11%)
Portland	529,025	31,969 (6%)	79,269 (15%)	356,542 (67%)	61,245 (12%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.2.3 East Columbia Neighborhood Profile

The East Columbia neighborhood is located directly east of I-5 and extends from Marine Drive south to the Columbia Slough. At the time the DEIS was published, East Columbia was not included in the analysis for this technical report because the neighborhood boundaries did not extend into the project area of potential impact (API). Since the DEIS, the City of Portland expanded the neighborhood boundary west to include the area that was formerly known as Multnomah County Unclaimed Number One, which is within the project API. Because East Columbia is now within the API, this technical report assesses impacts to the neighborhood.

East Columbia contains a variety of land uses including large recreational and entertainment uses on the western and eastern boundaries of the neighborhood. One such use is East Delta Park, which is 86 acres in size and was acquired in 1950. It features the Delta Sports Complex with five lighted softball fields and a synthetic soccer field. The complex also hosts additional softball fields, seven grass soccer fields, six sand volleyball courts, a playground, picnic tables, an off-leash dog area, and nature trails. The neighborhood also includes wetlands, trucking companies, and small industrial businesses.

Other amenities within the East Columbia Neighborhood are Portland Meadows Race Track, and Columbia Edgewater Golf Course. Between these large tracts of land are several manufactured home parks and large tracts of industrial land.

TriMet lines 16 (Front Avenue/St. Johns) and 8 (15th Avenue/Jackson Park) serve the East Columbia neighborhood. Line 16 serves the Jubitz Truck Stop on NE Vancouver Way and runs north on NE 6th Drive to Marine Drive, where it runs west to the Port of Portland west of I-5. Line 8's northern terminus is the Jubitz Truck Stop. It runs on Vancouver Way south to Martin

Luther King Jr. Boulevard and points south on NE 15th Avenue C-TRAN Routes 4 (Fourth Plain), 41 (Camas/Washougal Limited), 44 (Fourth Plain Limited), 47 (Battle Ground Limited), 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), 199 (99th Street Express), and TriMet Line 6 (ML King Jr. Boulevard) all run through the neighborhood via I-5, but do not make any service stops within the community.

Because the City of Portland recently expanded the neighborhood boundaries for East Columbia, the Portland Bureau of Police does not yet have crime statistics for the new neighborhood boundary.

East Columbia has a neighborhood association that meets on the second Tuesday of every month. At this time, the neighborhood does not have a neighborhood plan.

Cohesion in the East Columbia neighborhood appears to be moderate. Although cohesion within individual manufactured home parks is probably high, there are few community resources at which to gather in the neighborhood. Although East Delta Park serves as a recreational resource, its large size makes it a regional attraction serving residents from around the Portland-Vancouver metropolitan area, rather than solely residents of East Columbia.

3.2.3.1 East Columbia Demographics

Race/ethnicity demographics for East Columbia reveal differences between the neighborhood, Multnomah County, and Portland (Exhibit 3-7). The percentage of Caucasians in East Columbia is equal to that in the county and within one percent of the city percentage. East Columbia has approximately twice the percentage of African American residents as the county or city, and has only once percent of the population with Hispanic or Latino ethnicity, whereas the county and city have seven percent (Exhibit 3-8).

Nearly three-fourths of the households in East Columbia are owner-occupied compared to just over 55 percent of the households in the county or city. There is also a slightly higher percentage of disabled residents, and far fewer housing units with no vehicle than the county or city. Finally, the percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage (Exhibit 3-9).

Exhibit 3-7. East Columbia Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
East Columbia	344	76%	11%	1%	7%	0%	0%	5%	1%
Multnomah County	660,486	76%	5%	1%	6%	0%	0%	4%	7%
Portland	529,025	75%	6%	1%	6%	0%	0%	4%	7%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-8. East Columbia Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
East Columbia	$152,950	9%	23%	8%	71%	3%
Multnomah County	$156,600	12%	19%	8%	57%	13%
Portland	$154,700	13%	19%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-9. East Columbia Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
East Columbia	344	24 (7%)	43 (13%)	251 (73%)	26 (7%)
Multnomah County	660,486	41,869 (6%)	105,138 (16%)	439,651 (67%)	73,828 (11%)
Portland	529,025	31,969 (6%)	79,269 (15%)	356,542 (67%)	61,245 (12%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.2.4 Kenton Neighborhood Profile

The Kenton neighborhood is located west of I-5 and extends from North Portland Harbor to Lombard Avenue. Kenton contains a wide range of uses, including residential, commercial, industrial, and recreational. Single-family residential development is concentrated south of Columbia Boulevard, with commercial and industrial uses located to its north. Multi-family residential dwellings are scattered throughout the neighborhood, but a majority are found among densely packed commercial structures along Interstate and Lombard Avenues.

The northern portion of Kenton contains multiple community resources including Portland International Raceway, Heron Lakes Golf Course, Multnomah County Fairgrounds, and the Expo Center. The large Paul Bunyan statue at the intersection of N Interstate and N Argyle Avenues, the Kenton Neighborhood Rose Garden, and the Historic Kenton Firehouse are also important cultural resources that provide identity to the community. Peninsula Elementary, Kenton Elementary, and De La Salle North Catholic High School are all located within Kenton. West Delta Park and Vanport Wetlands serve as natural resources, as does Kenton Park on Brandon Avenue. There are many historic resources including the Kenton commercial historic shopping district on Denver Avenue, the historic David Cole House on N McClellan, and the historic Kenton Firehouse on Brandon Avenue. The Kenton Community Policing Office on Denver Avenue provides public service to the community, while the nearby Wells Fargo Bank provides financial services. Religious institutions include Peninsula Open Bible Church, Celebration Tabernacle, and Peninsula Baptist Church.

Kenton is served by TriMet lines 16 (Front Avenue/St. Johns) via Marine Drive, 4 (Fessenden) via Fessenden, 35 (Greeley/Macadam) via Greeley, and 75 (Lombard/39th Avenue) via Lombard

Street. Line 6 also enters the Kenton neighborhood and runs along Denver Avenue. C-TRAN Routes 4 (Fourth Plain), 41 (Camas/Washougal Limited), 44 (Fourth Plain Limited), and 47 (Battle Ground Limited) all stop in Kenton at the Delta Park/Vanport MAX Station served by the Yellow Line trains. Routes 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), and 199 (99th Street Express) all run through Kenton via I-5, but do not make any service stops within the community.

There are designated bike routes without lanes along Broadacre Drive and Force Avenue, and existing dedicated bike lanes along Victory Boulevard, Denver Avenue, Interstate Avenue, and Expo Road. Bike lanes are being proposed along Columbia Boulevard, Peninsular Avenue, Willis Boulevard, Kilpatrick Street, and an additional section on Victory Boulevard. There is also an existing multi-use pathway along Columbia Boulevard and Marine Drive.

For 2006, the Kenton neighborhood reported 88.8 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 8 percent more reported crimes than the Portland average of 82.5 per 1,000 residents.

The Kenton Neighborhood Action Plan was adopted by the Portland City Council in October 1993 and amended in January 2001. For a description of neighborhood plan goals, please refer to Exhibit 3-46. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Kenton Neighborhood Association typically meets on the second Wednesday of every month at the Kenton Firehouse.

Cohesion in Kenton appears to be high. With several schools, community gathering places, and parks, residents have many opportunities to connect with one another. A viable downtown shopping area and new streetscape improvements add to a cohesive community. A low crime rate, a moderate home ownership rate, and an active neighborhood association also contribute to cohesion.

3.2.4.1 Kenton Demographics

Race/ethnicity demographics for Kenton reveal differences between the neighborhood, Multnomah County, and Portland (Exhibit 3-10). The percentage of Caucasians is lower than the county or city, while the percentages of African Americans and Two or More Races are higher in comparison. The percentage of African Americans is more than double the percentage in Multnomah County and Portland and the percentage of Two or More Races is double the percentages in the county and city. The percentage of African Americans and Two or More Races in the Kenton neighborhoods is the highest within the project area.

Other demographic data show a few similarities between the neighborhood, county, and city (Exhibit 3-11). Two exceptions include a higher rate of disabled residents and a higher rate of owner occupied residences than the county or city averages. Exhibit 3-12 identifies age ranges for Kenton residents. It is important to note that nearly half of the Kenton neighborhood consists of large tracts of land dedicated to recreational and entertainment uses, such as Portland International Raceway, Heron Lakes Golf Course, Multnomah County Fairgrounds, and the Expo Center. Therefore, the demographic statistics listed below may over-represent the Kenton population, and like all demographic statistics in this report, should be used for discussion purposes only.

Exhibit 3-10. Kenton Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Kenton	7,086	62%	13%	2%	6%	0%	0%	8%	9%
Multnomah County	660,486	76%	5%	1%	6%	0%	0%	4%	7%
Portland	529,025	75%	6%	1%	6%	0%	0%	4%	7%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-11. Kenton Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Kenton	$119,456	14%	26%	11%	66%	14%
Multnomah County	$156,600	12%	19%	8%	57%	13%
Portland	$154,700	13%	19%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-12. Kenton Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Kenton	7,086	528 (7%)	1,252 (18%)	4,527 (64%)	779 (11%)
Multnomah County	660,486	41,869 (6%)	105,138 (16%)	439,651 (67%)	73,828 (11%)
Portland	529,025	31,969 (6%)	79,269 (15%)	356,542 (67%)	61,245 (12%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.2.5 Rockwood Neighborhood Profile

Although the principal project components occur along I-5 and near the I-5 bridges, expansion of the light rail maintenance center at Ruby Junction in Gresham, Oregon, is necessary to support the expansion of light rail service to Vancouver. The maintenance center is within the Rockwood neighborhood in Gresham, so data for the census block group surrounding the Ruby Junction portion of the Rockwood neighborhood was collected and summarized below (Exhibits 3-13 and 3-14).

Census data for the area surrounding the site indicate that 55 percent of residents are minority and 35 percent have incomes below the poverty line. Given these data, initial observations indicated

that the expansion of the Gresham maintenance facility could result in a disproportionate impact to low-income or minority populations.

Exhibit 3-13. Rockwood Neighborhood Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Rockwood Area	2,342	45%	4%	0%	1%	0%	0%	3%	47%
Multnomah County	660,486	76%	5%	1%	6%	0%	0%	4%	7%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-14. Rockwood Neighborhood Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Rockwood Area	$37,500	35%	21%	8%	23%	19%	22%
Multnomah County	$156,600	12%	19%	11%	8%	57%	13%
Portland	$154,700	13%	19%	12%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

The project team surveyed the properties that would be displaced or partially displaced by the expansion at Ruby Junction to determine whether those impacted by the project match the census demographics in the area. The survey shows that nine occupied residences that would be displaced differ somewhat from the characteristics of the census tract data and more closely resemble those of Multnomah County. Only three of the nine residents reported Hispanic or Latino ethnicity. One residence indicated Some Other Race Alone, and six indicated Caucasian race. Additionally, only two of the nine residences potentially earn incomes below the poverty level based on the number of occupants in the household and the total annual income reported. The survey indicated there are six people between 0 and 18 years of age, 17 people between 19 and 64 years of age, and three people age 65 and older living in the Ruby Junction residences. For more information about the demographic survey, please see the Environmental Justice Technical Report.

3.3 Washington Project Segment

3.3.1 West Minnehaha Neighborhood Profile

West Minnehaha is a large neighborhood extending from SR 500 to Minnehaha Avenue at the city limits, and bordered by St. Johns Road to the east and I-5 and Highway 99 to the west. This

mid-20th century neighborhood is composed primarily of single-family residential development, with a concentration of multi-family and commercial uses at the eastern edge of the neighborhood between St. Johns and St. James Roads.

Schools in the neighborhood include Minnehaha Elementary and the private Hosana Christian School. The neighborhood is home to Leverich Park and the Burnt Bridge Creek Greenway, which includes the Discovery and Ellen Davis Trails near I-5 SR 500 interchange. Other park resources include a well-used dog park between 15th and 18th Streets north of NE 49th Street. The Community of Christ Church: Garden Grove Branch, the Church of Christ: Minnehaha, and the First Evangelical Church also serve the West Minnehaha community.

The West Minnehaha neighborhood is served by C-TRAN Routes 25 (St. Johns and Fruit Valley) and 190 (Marquam Hill Express). Route 25 runs along St. James and St. Johns Roads at the eastern perimeter of the neighborhood and Route 190 stops at the BPA/Ross Park-and-Ride on 15th and Ross Streets. Routes 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 47 (Battle Ground Limited), and 199 (99th Street Express) also run along the perimeter of West Minnehaha via I-5, but do not have service stops within the community. There is an existing multi-use pathway through West Minnehaha along Ross Avenue and existing bike lanes along 15th Street, St. James Boulevard, and St. Johns Boulevard.

For 2006, West Minnehaha had 186.3 reported crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 29 percent less than the Vancouver average of 264 per 1,000 residents.

The West Minnehaha Neighborhood Action Plan was adopted in May 1998 and later accepted by Vancouver City Council. For a description of neighborhood plan goals, please refer to Exhibit 3-45. Section 4 analyzes project impacts in relation to neighborhood plan goals. The West Minnehaha Neighborhood Association meets inconsistently at West Minnehaha Neighborhood Association Center on NE 49th Street and publishes community information and meeting notes via an online blog, which can be found at http://westiminnehaha.blogspot.com/.

Cohesion in West Minnehaha appears to be moderate. The many commercial centers and few schools add to cohesion. However, the large geographic area of the neighborhood, low densities, inconsistent neighborhood association meetings, and moderate home ownership rates might limit cohesion.

3.3.1.1 West Minnehaha Demographics

The race/ethnicity demographics in the West Minnehaha neighborhood are similar to Clark County and Vancouver (Exhibit 3-15). The race/ethnicity population percentages for each attribute are within 1.0 percent. The percentage of Caucasians is slightly higher than in Vancouver and slightly less than in Clark County.

Additional demographic data for the West Minnehaha neighborhood (Exhibit 3-16) reveal that the neighborhood falls between Clark County and Vancouver for median home value and the percentage of population below the poverty level. The median home value is approximately $10,000 more than in Vancouver, and is approximately $2,200 less than in Clark County. The percentage of owner-occupied housing is higher than either Clark County or Vancouver, although only slightly higher than the county rate. The percentage of population reporting a disability is higher than Clark County and Vancouver. Exhibit 3-17 displays age ranges for West Minnehaha residents.

Exhibit 3-15. West Minnehaha Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
West Minnehaha	3,091	83%	3%	2%	2%	0%	0%	4%	6%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-16. West Minnehaha Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
West Minnehaha	$150,867	11%	26%	9%	70%	6%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-17. West Minnehaha Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
West Minnehaha	3,091	187 (6%)	590 (19%)	1,926 (62%)	389 (13%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.2 Lincoln Neighborhood Profile

The Lincoln neighborhood is bordered by 45th Street to the north, the alley between 34th and 33rd Streets to the south, and extends from I-5 to the BNSF Railroad tracks. It is the most northern of the early Vancouver neighborhoods, with some homes dating back to the 1930s. For more information on the history of the Lincoln neighborhood, please refer to the Historic Built Environment Technical Report. Lincoln is almost entirely composed of single-family residential development, with higher density multi-family residential development along Main Street and 39th Street, and a commercial center at their intersection.

Lincoln has many important community resources, including the Lincoln Elementary, Discovery Middle School, and the adjacent Kiggins Bowl athletic field. The Memorial Health Urgent Care Center is located in Lincoln on Main Street and serves the entire downtown area with emergency medical care. Historic resources in the neighborhood include the Covington House on Main Street and the City of Vancouver water tower located on 42nd and Washington. The Church of Jesus Christ of Latter-Day Saints: Vancouver 3rd Ward, the First Presbyterian Church, the Abundant Life Center, Unity of Vancouver, and Trinity Lutheran all serve the community.

C-TRAN Routes 2 (Lincoln), 3 (City Center), 32 (Hazel Dell and Evergreen-Andresen), and 37 (Highway 99 and Mill Plain) serve the Lincoln neighborhood along Columbia/39th/Lincoln, 33rd Street, and Main Street (both Routes 32 and 37), respectively. Routes 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), 199 (99th Street Express), and 47 (Battle Ground Limited) run through Lincoln via I-5, but do not have service stops within the community. There are designated bike routes without lanes through the neighborhood along Kauffman Avenue.

For 2006, Lincoln reported 204.4 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 23 percent less than the Vancouver average of 264 per 1,000 residents.

The Lincoln Neighborhood Action Plan was adopted in June 1998 and later accepted by Vancouver City Council. For a description of neighborhood plan goals, please refer to Exhibit 3-45. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Lincoln Neighborhood Association meets on the second Monday of every month in the cafeteria of Lincoln Elementary, and consistently publishes a newsletter.

Cohesion in Lincoln is relatively high, due to the presence of several schools, commercial uses, and parks such as Kiggins Bowl, where high school athletic competitions are held. The active neighborhood association and frequent newsletters add to this cohesion.

3.3.2.1 Lincoln Demographics

Race/ethnicity demographics in the Lincoln neighborhood resemble those of Clark County, while there are more differences between Lincoln and Vancouver (Exhibit 3-18). There is a slightly higher percentage of Caucasians and a lower percentage of Asian and Hispanic or Latino populations in Lincoln than the county. In comparison to Vancouver, it has a higher percentage of Caucasians and lower rate of Asians, Native Hawaiian and Other Pacific Islander Alone, Some Other Race Alone, and Hispanic or Latino populations.

Lincoln has a lower median home value, percentage of residents with a disability, and percentage of large families than Clark County and Vancouver (Exhibit 3-19). Rates of population below the poverty level and living in owner-occupied housing fall between Clark County and Vancouver. Lincoln has fewer vehicles per housing unit than the county and city. Exhibit 3-20 displays age ranges for Lincoln residents.

Exhibit 3-18. Lincoln Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Lincoln	3,440	89%	2%	1%	1%	0%	0%	3%	3%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-19. Lincoln Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Lincoln	$136,000	10%	15%	7%	61%	11%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-20. Lincoln Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Lincoln	3,440	235 (7%)	577 (17%)	2,169 (63%)	459 (13%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.3 Shumway Neighborhood Profile

The Shumway neighborhood is located immediately west of I-5 between 39th Street and Fourth Plain Boulevard, with a western boundary of Main Street. It is one of the earliest neighborhoods in Vancouver, with some homes dating back to the early 20th century. For more information on the history of the Shumway neighborhood, please refer to the Historic Built Environment Technical Report.

Shumway consists mainly of single-family residential development, with higher density multi-family housing located along Main and 39th Streets. The intersections of Main Street with Fourth Plain Boulevard and 39th Street are zoned for commercial uses.

Clark County's only YWCA is located in Shumway on Main Street, as is one of downtown Vancouver's grocery stores, Safeway. The Vancouver Westside Fire Department and the Pythian Home for low-income senior residents are both located on Main Street, as is the Vancouver School of Arts and Academics, which draws students from the surrounding region interested in specific academic subjects and artistic pursuits. Shumway Park serves as a recreation resource for the community as do the athletic fields associated with the Academy. There are many historic resources located in Shumway, including an historical house at 2613 H Street, and the Swan House across the street. Vancouver's Health and Rehabilitation Center and Evergreen Habitat for Humanity are both located on 33rd Street. The Breaking Free Ministries, First United Methodist Church of Vancouver, First Church of Christ Scientist, the Lords Church (Korean), the Slavic Evangelic Church, and St. Luke's Episcopal Church all serve the neighborhood.

C-TRAN Route 3 (City Center) runs through the center of the Shumway neighborhood along 33rd Street, while Route 4 (Fourth Plain) runs along the neighborhood's southern boundary on Fourth Plain Boulevard. Routes 32 (Hazel Dell and Evergreen-Andresen) and 37 (Highway 99 and Mill Plain) run through Shumway along Main Street. Routes 47 (Battle Ground Limited), 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), and 199 (99th Street Express) all run along the eastern boundary via I-5, but do not have service stops within the community. There are currently bike routes without dedicated bike lanes through Shumway along G Street.

For 2006, Shumway reported 318.5 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 21 percent more than the Vancouver average of 264 per 1,000 residents.

The Shumway Neighborhood Plan was adopted in May 1998 and later accepted by the Vancouver City Council. For a description of neighborhood plan goals, please refer to Exhibit 3-45. Section 4 analyzes project impacts in relation to neighborhood plan goals.

The Shumway Neighborhood Association meets on the first Thursday of every month at the Vancouver School of Arts and Academics. They publish a monthly newsletter and hold an annual "dumpster day" and a neighborhood yard sale.

Cohesion in Shumway appears to be moderate. The YWCA, Safeway, Shumway Park, and active neighborhood association all add to cohesion. However, a relatively high crime rate and low home ownership may limit its cohesion.

3.3.3.1 Shumway Demographics

Race/ethnicity data for Shumway reveal that the neighborhood has similar demographics as Clark County, with the exception of percentage of the Asian population (Exhibit 3-21). It has 0 percent Asians while Vancouver has 4 percent and Clark County has 3 percent. The remaining race/ethnicity rates are within 1 percent of the city and county rates.

When comparing Shumway to Vancouver, the neighborhood has a higher percentage of Caucasians and Two or More Races and there are no Asian or Native Hawaiian and other Pacific Islander Alone residents. Shumway and Vancouver have the same percentages of African American and Hispanic or Latino populations.

Additional demographic data (Exhibit 3-22) show that almost 20 percent of housing units in Shumway do not have cars and slightly fewer than half of the housing units are owner-occupied. The rate of housing units with no vehicle is three times higher than Clark County's rate and more

than twice as high as Vancouver's. The percentage of owner-occupied housing is lower than Clark County and Vancouver, although only slightly lower than the city. The percentage of population below the poverty level is higher, and the median home value is lower than Clark County and Vancouver. Exhibit 3-23 displays age ranges for Shumway residents.

Exhibit 3-21. Shumway Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Shumway	1,127	88%	2%	0%	0%	0%	0%	5%	6%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-22. Shumway Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Shumway	$126,000	14%	18%	5%	46%	18%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-23. Shumway Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Shumway	1,127	78 (7%)	161 (14%)	719 (64%)	169 (15%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.4 Rose Village Neighborhood Profile

The Rose Village neighborhood (formerly known as the Rosemere neighborhood) is located directly east of I-5 between 39th Street and Fourth Plain Boulevard. Rose Village, which is bordered by Grand Boulevard to the east, is composed almost entirely of single-family residences. However, high-density multi-family development and community commercial centers

can be found along the perimeter and along St. Johns Boulevard, which runs through the middle of the neighborhood.

Community resources include Washington Elementary School, Fort Vancouver Historic Cemetery, and Leach Park located immediately east of I-5 on Fourth Plain Boulevard. The Jehovah's Witnesses Central Church, Cascade Community Church, Memorial Lutheran Church-LCMS, Calvary Baptist Church, New Life Friends Church, United Pentecostal Church, and Everlasting Missionary Baptist Church all serve the neighborhood.

Rose Village is served by C-TRAN Routes 3 (City Center), which runs along 33rd Street and Grand Boulevard; 4 (Fourth Plain), 39 (Clark College/Medical Center), and 44 (Fourth Plain Limited) which run along Fourth Plain Boulevard; and 25 (St. Johns and Fruit Valley) along St. Johns Boulevard. Routes 47 (Battle Ground Limited), 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), and 199 (99th Street Express) all run through Rose Village via I-5, but do not make any service stops within the community. Route 190 also runs along the northern border of Rose Village on SR 500. There are existing bike lanes through Rose Village along Fort Vancouver Way and Grand Boulevard.

For 2006, Rose Village reported 351.3 reported crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 30 percent more than the Vancouver average of 264 per 1,000 residents.

The Rosemere Neighborhood Association is a private non-profit although it has not been recognized by the City as the official representative for the neighborhood since 2005. The Rose Village Neighborhood Association meets on the fourth Thursday of every month at the Memorial Lutheran Church, and publishes a monthly newsletter. The association has yet to publish a neighborhood action plan for adoption by the City of Vancouver.

Cohesion in Rose Village appears to be moderate. The existence of one school and one park help add to cohesion, but the relatively high crime rate and low home ownership rate may limit cohesion.

3.3.4.1 Rose Village Demographics

Race/ethnicity demographic data for Rose Village shows that it has a lower percentage of Caucasians than Clark County or Vancouver (Exhibit 3-24). In comparison, it has twice or more American Indian and Alaska Native Alone, Some Other Race Alone, and Hispanic or Latino population than the county or city. The percentage of residents reporting Hispanic or Latino ethnicity is nearly three times the county and over twice the Vancouver percentage.

Additional demographic data for Rose Village reveal several differences between it, Clark County, and Vancouver (Exhibit 3-25). Overall, the neighborhood has a higher percentage of population below the poverty level, a lower percentage of owner-occupied housing, and lower median home value. The percentage of population below the poverty level is almost twice the city and more than twice the county rates. Fewer than half of the housing units are owner-occupied, compared to slightly more than half in the city and almost three-quarters in the county. The median home value is approximately 40 percent lower than median home values in Clark County and approximately 33 percent lower than in Vancouver. Slightly over one-fourth of residents report a disability and slightly more than 10 percent of the housing units do not have a vehicle. In both cases, the rates are higher than the county and city. Exhibit 3-26 displays age ranges for Rose Village residents.

Exhibit 3-24. Rose Village Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Rose Village	5,269	74%	3%	2%	2%	0%	0%	4%	14%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-25. Rose Village Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Rose Village	$95,425	23%	27%	10%	42%	13%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-26. Rose Village Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Rose Village	5,269	506 (10%)	1,033 (20%)	3,259 (62%)	471 (9%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.5 Hough Neighborhood Profile

The Hough neighborhood is located west of Main Street between 15th Street and Fourth Plain Boulevard, with the BNSF tracks as its western boundary. It is one of the earliest neighborhoods in Vancouver, with many homes dating back to the early 20th century. For more information on the history of the Hough neighborhood, please refer to the Historic Built Environment Technical Report.

Hough has a mix of single-and multi-family housing within a perimeter of largely non-residential land uses. Along the eastern boundary (Main Street), the Uptown Village area includes restaurants, specialty stores, and personal services. The western boundary (BNSF) includes

industrial uses and higher density housing. Mill Plain Boulevard, to the south, includes professional offices and runs along the edge of a campus of government buildings, while Fourth Plain Boulevard, on the north, is mostly residential.

Hough Elementary School and the Hough Public Pool are two major community resources in this neighborhood. Residents remark that the Starbucks on Main Street acts as an important community center for Hough, as does the Vancouver Housing Authority located at the intersection of Main Street and Fourth Plain Boulevard. Historic resources in Hough include the Steffan House and Charles Zimmerman House, both located on Columbia Street. Hough is also home to an historic district that encompasses approximately twenty blocks north of Mill Plain Boulevard, between Daniels and Markle Streets. The Renewed Hope Ministries, Word of Life Church-Vancouver, New Hope Center Vancouver Foursquare Church, Compass Church, and the First Christian Church-Disciples of Christ all serve the community.

The neighborhood is served by C-TRAN Routes 25 (St. Johns and Fruit Valley), which runs through Hough along Mill Plain Boulevard; 2 (Lincoln) along Columbia Street; 3 (City Center) along Kauffman Avenue; and 4 (Fourth Plain), 32 (Hazel Dell and Evergreen-Andresen), and 37 (Highway 99 and Mill Plain), all run along the eastern boundary of Hough on Main Street. There are existing bike lanes through Hough along Fourth Plain Boulevard, McLoughlin Boulevard, and 15th Street.

For 2006, Hough had 300.7 reported crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 14 percent more than the Vancouver average of 264 per 1,000 residents.

The Hough Neighborhood Action Plan was adopted in February 1996 and later accepted by Vancouver City Council. In 2009, the neighborhood developed a draft update to the 1996 Action Plan that is not yet adopted. For a description of neighborhood plan goals, please refer to Exhibit 3-45. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Hough Neighborhood Association meets on the third Thursday of every month, except for the month of December, at Hough Elementary. The neighborhood association also holds an annual yard sale and neighborhood clean-up, and celebrated their 30th anniversary as a neighborhood association in 2007.

Cohesion in Hough appears to be moderate. The Uptown Village area, the school, public pool, and many historic resources provide opportunities for residents to connect. However, a relatively high crime rate and low rates of home ownership may adversely affect cohesion.

3.3.5.1 Hough Demographics

Race/ethnicity demographics in Hough resemble those of Clark County and Vancouver (Exhibit 3-27). The rate of Asians is one-fourth the city's percentage. The percentage of Two or More races is more than double the county, and almost double the city percentage.

Additional demographic data for the Hough neighborhood show several differences between Hough, the county, and city (Exhibit 3-28). It has a lower median home value, a higher percentage of population below poverty level, more residents with a disability, less owner-occupied housing, and fewer housing units with a vehicle. The median home value is approximately 22 percent lower than Clark County and approximately 11 percent lower than Vancouver. The population below the poverty level is more than double the rate in Clark County but slightly less than double the city. The percentage of population with a disability is approximately one-third more than the county or city. The percentage of owner-occupied housing

is almost half that of Clark County and approximately one-third less than Vancouver. One-fourth of the housing units do not have vehicles. This is four times the rate of Clark County and three times the rate of Vancouver. Exhibit 3-29 displays age ranges for Hough residents.

Exhibit 3-27. Hough Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Hough	2,285	83%	2%	1%	1%	0%	0%	7%	7%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-28. Hough Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Hough	$125,400	20%	30%	9%	36%	25%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-29. Hough Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Hough	2,285	169 (7%)	415 (18%)	1,434 (63%)	267 (12%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.6 Arnada Neighborhood Profile

The Arnada neighborhood is located immediately west of I-5 between Fourth Plain Boulevard and 15th Street, with Main Street as its western boundary. It is one of the earliest neighborhoods in Vancouver. For more information on the history of the Arnada neighborhood, please refer to the Historic Built Environment Technical Report.

Arnada is primarily composed of single-family residential development. Its commercial areas are located along Main Street, Broadway, and McLoughlin Boulevard. The business district, or Uptown Village, is located on Main Street, between McLoughlin and Fourth Plain Boulevards. The blocks between 15th Street and McLoughlin Boulevard are in large part located in the commercial downtown district, which promotes a mix of retail, office, civic, and housing uses.

Arnada Park, the only park in the neighborhood, is located near the Fourth Plain Boulevard interchange and serves as a recreational resource for the community. The Historic Carnegie Library is on Main Street and has been converted into a Historical Museum that serves all of Clark County. Metropolitan Community Church of the Gentle Shepherd, the Vancouver District United Methodist Church, and Breaking Free Ministries all serve the community.

C-TRAN Route 30 (Burton) runs through the heart of the neighborhood on McLoughlin Boulevard. Route 4 (Fourth Plain) runs along the northern boundary of the neighborhood on Fourth Plain Boulevard, while Routes 32 (Hazel Dell and Evergreen - Andresen) and 37 (Highway 99 and Mill Plain) run near its western boundary, on Main and Broadway Streets. Routes 37 (Highway 99 and Mill Plain), 47 (Battle Ground Limited), and 105 (I-5 Express) serve the community via Mill Plain Boulevard on the southern boundary of the neighborhood. Routes 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), 199 (99th Street Express), and 47 (Battle Ground Limited) run along the eastern boundary via I-5, but do not make any service stops on I-5. Currently there are bike lanes through Arnada along McLoughlin and Fourth Plain Boulevards.

For 2006, Arnada reported 276.4 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 5 percent more than the Vancouver average of 264 per 1,000 residents.

The Arnada Neighborhood Action Plan was adopted in August 1996 and later adopted by Vancouver City Council. For a description of neighborhood plan goals, please refer to Exhibit 4-45. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Arnada Neighborhood Association meets the second Thursday of every month at the Vancouver Housing Authority on Main Street. The neighborhood association regularly publishes a newsletter, assists with the annual Uptown Village Street Festival in the summer, and sponsors the Arnada Memorial picnic near Memorial Day.

Cohesion in Arnada appears to be moderate. The Uptown Village shopping area and commercial downtown district allow residents a chance to connect to one another. However, a slightly higher crime rate than the city or county and moderate home ownership rates may reduce cohesion.

3.3.6.1 Arnada Demographics

Race/ethnicity demographics in the Arnada neighborhood reveal that it has a higher percentage of Caucasians than Clark County or Vancouver (Exhibit 3-30). Correspondingly, the percentages of all other races and ethnicities in the data set are lower than those of the county and city, with the exception of American Indian and Alaska Native Alone, which is the same in all three jurisdictions. The percentages of African Americans, Asians, Native Hawaiian and Other Pacific Islander Alone, Some Other Race Alone, Two or More Races, and Hispanic or Latino are all half or less those of the county and city.

Additional demographic data for Arnada show that the neighborhood has a slightly higher percentage of population below the poverty level, slightly more residents with a disability, and fewer housing units without vehicles than either Clark County or Vancouver (Exhibit 3-31).

Larger demographic differences between the neighborhood and the county and city are found in the family size and age attributes. The neighborhood has less than half the city's rate of large families, and nearly one-third the county rate of large families. Similarly, it has less than half the number of children age 0 to 4 than the county or city (Exhibit 3-32).

Exhibit 3-30. Arnada Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Arnada	984	96%	0%	1%	0%	0%	0%	1%	2%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-31. Arnada Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Arnada	$127,000	15%	20%	4%	53%	11%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-32. Arnada Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Arnada	984	29 (3%)	135 (14%)	744 (76%)	77 (8%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.7 Central Park Neighborhood Profile

The Central Park neighborhood is located immediately east of I-5 between Mill Plain and Fourth Plain Boulevards, with a western boundary of Grand Boulevard. It is an early Vancouver neighborhood. Some homes in this neighborhood were originally built for officers and soldiers

based at Fort Vancouver. For more information on the history of Central Park, please refer to the Historic Built Environment Technical Report.

Central Park has a mix of single- and multi-family residential development. The neighborhood has three schools: Clark Community College, the Washington State School for the Blind, and Hudson's Bay High School. The neighborhood also includes the Veterans Administration at its northern edge, and the Luepke and Marshall Community Centers. The Veterans Administration provides healthcare through its medical center and Center for Community Health. Many of these community resources have large campuses that combine open space, high concentrations of people, and activity centers. Vancouver Vineyard Church also serves the Central Park community.

The Central Park neighborhood is served by C-TRAN Routes 3 (City Center), which runs through the neighborhood along Grand Boulevard, 30 (Burton) along McLoughlin Boulevard, 4 (Fourth Plain) along Fourth Plain Boulevard, 37 (Highway 99 and Mill Plain) along Mill Plain Boulevard, 25 (St. Johns and Fruit Valley) along Fort Vancouver Way, and Routes 44 (Fourth Plain Limited) and 39 (Clark College/Medical Center) along Fourth Plain Boulevard and Fort Vancouver Way. Routes 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), 199 (99th Street Express), and 47 (Battle Ground Limited) run along the eastern perimeter via I-5, but do not have service stops within the community.

There are existing bike lanes through Central Park along McLoughlin Boulevard, Mill Plain Boulevard, Reserve Street, Fort Vancouver Way, and Grand Boulevard. The current bike lanes along McLoughlin and Mill Plain Boulevards would be expanded east, and a bike lane along Fourth Plain Boulevard has been proposed. In addition, there is a proposed multi-use pathway from Waterworks Park to Officers Row.

For 2006, the Central Park Neighborhood reported 403.6 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 53 percent more than the Vancouver average of 264 per 1,000 residents.

The Central Park Neighborhood Action Plan was adopted in October 2000 and later accepted by Vancouver City Council. The neighborhood plan was used as the foundation of the recently completed Central Park Subarea Plan. For a description of neighborhood plan goals, please refer to Exhibit 3-45. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Central Park Neighborhood Association holds a potluck followed by a meeting on the last Wednesday of every month at the Washington State School for the Blind. The neighborhood also holds an annual yard sale and supports the annual Fourth of July Kids Parade.

Cohesion in Central Park appears to be moderate. Three schools and two community centers add cohesion by providing gathering places for residents. However, the relatively high crime rate and low home ownership rate may limit neighborhood cohesion in Central Park.

3.3.7.1 Central Park Demographics

Race/ethnicity in the Central Park neighborhood is similar to the demographics in Vancouver (Exhibit 3-33). Although both the neighborhood and the city have the same percentage of Caucasian, the percentages of other races and ethnicities vary slightly. The percentage of African Americans is half the percentage of the city. The percentage of Native Hawaiian and Other Pacific Islander Alone is double that of the city. The percentage of Hispanic or Latino population is one-third higher than the city. Compared to Clark County, the neighborhood has more than

double the percentage of Native Hawaiian and Other Pacific Islander Alone. The percentage of Hispanic or Latino population is almost double the percentage of the county.

Additional demographic data for the Central Park neighborhood reveal several differences between the neighborhood, county, and city (Exhibit 3-34). One-fourth of the Central Park population is below poverty level, more than double the percentage in the county or city. Approximately one-fourth of residents live in owner-occupied housing, compared to approximately half of Vancouver and two-thirds of Clark County residents. One-fourth of housing units do not have vehicles. This is more than four times the rate of Clark County and three times the rate of Vancouver. Finally, the percentage of population 65 years of age or older is half the percentage of Clark County and slightly more than half that of Vancouver. Exhibit 3-35 displays age ranges for Central Park residents.

Exhibit 3-33. Central Park Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Central Park	2,091	81%	1%	1%	3%	2%	0%	4%	9%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-34. Central Park Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Central Park	$107,600	25%	27%	7%	26%	25%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-35. Central Park Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Central Park	2,091	155 (7%)	317 (15%)	1,484 (71%)	135 (6%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.8 Esther Short Neighborhood Profile

The Esther Short neighborhood is located immediately west of I-5, extending from 15th Street to the Columbia River. The BNSF railroad tracks run along the western border of this neighborhood. It is one of the earliest neighborhoods in Vancouver. For more information on the history of the Esther Short neighborhood, please refer to the Historic Built Environment Technical Report.

Esther Short is primarily composed of commercial development, which is concentrated in the downtown area. Some light industry is located in the western portion of the neighborhood, with heavy industry along the railroad tracks and a portion of the Columbia River. Most of the residential development is in the form of condominiums and apartments near Esther Short Park and in the northwest corner of the neighborhood.

Community facilities in the neighborhood include an Amtrak train station and the regionally important Esther Short Park. The park is the site of many festivals, concerts, and the Vancouver Farmers Market. The Starbucks located on the perimeter of the park serves as a central meeting place for the surrounding community. The County Public Service Center, a State Crime Lab, the Federal Building, and other government buildings are concentrated on a government campus along Franklin Street in the northwest corner of the neighborhood. City Hall is also located in the neighborhood on E 13th Street. Esther Short is the future location of the Vancouver Library, which will be located near the Regal Cinemas on C Street. The Vancouver Downtown Fire Department is located in Esther Short, as is Smith Tower which offers senior and low-income housing. This neighborhood has the highest concentration of historic resources in the county, including the Lowell M. Hidden House, the Vancouver Telephone Exchange, the Evergreen Hotel, the Heritage Building, the Langsdorf House, the Elks Building, the House of Providence Academy, the Lloyd Dubois House, the Chumasero-Smith House, and the Slocum House in Esther Short Park. St. Paul Lutheran Church, According to His Word Worship Center, St. James Catholic Church, the Christian Science Reading Room, and the Chabad of Clark County all serve the community.

The neighborhood is served by C-TRAN Route 25 (St. Johns and Fruit Valley), which runs through Esther Short along Mill Plain Boulevard, and Route 3 (City Center) through the center of the neighborhood, serving the Clark County and Federal government complexes on Franklin and 11th Streets. Routes 2 (Lincoln), 4 (Fourth Plain), 30 (Burton), 32 (Hazel Dell and Evergreen-Andresen), 37 (Highway 99 and Mill Plain), 41 (Camas/Washougal Limited), 44 (Fourth Plain Limited), 47 (Battle Ground Limited), and 105 (I-5 Express) all serve the downtown core via Broadway and/or Washington Streets. Routes 134 (Salmon Creek), 157 (Lloyd Center Express), 190 (Marquam Hill Express), and 199 (99th Street Express) run along the eastern perimeter via I-5, but do not have service stops within the community.

There is an existing multi-use path through Esther Short that begins at Esther Short Park and moves toward the Columbia River, and a proposed multi-use path heading west along the Columbia River. There are existing bike lanes throughout the neighborhood, including lanes along the Columbia River, C Street and 10th, 14th, and 15th Streets. Bike lanes have been proposed along Lincoln Avenue, Kauffman Avenue, and Jefferson, Columbia, and Broadway Streets.

For 2006, Esther Short had the highest crime rate in all of Clark County with 1,167.3 reported crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is significantly higher than the Vancouver average of 264 per 1,000 residents. It is likely that this high crime rate poorly characterizes the neighborhood, as all of the crimes committed at the County Court House and Jail are recorded as taking place within this neighborhood.

The Esther Short Neighborhood Action Plan was adopted in June 1998 and later accepted by Vancouver City Council. For a description of neighborhood plan goals, please refer to Exhibit 3-45. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Esther Short Neighborhood Association meets on the second Thursday of every month in the food court of the Vancouver Farmers Market.

Cohesion in Esther Short appears to be moderate. Esther Short Park is within the neighborhood and is the site of several community events. The active neighborhood association also contributes to cohesion. However, the neighborhood's extremely low home ownership rate and high rate of apartment renters may decrease cohesion.

3.3.8.1 Esther Short Demographics

Race/ethnicity demographics in the Esther Short neighborhood are similar to those of Clark County (Exhibit 3-36). Although both the neighborhood and the county have the same percentage of Caucasian population, the percentages of other races and ethnicities vary slightly. Compared to Vancouver, the neighborhood has a higher percentage of Caucasian and a lower percentage of American Indian and Alaska Native Alone, Asian, Native Hawaiian and Other Pacific Islander Alone, and Two or More Races.

Additional demographic data for Esther Short show that the demographics differ from the county and city (Exhibit 3-37). The median home value is approximately 61 percent of the median home value in Clark County and 67 percent the value in Vancouver. The percentage of the population below poverty level is almost four times as high as in Clark County and almost three times as high as in Vancouver. It is likely that median home values and income levels have risen since 2000, as many newer and higher cost residential developments have been completed since 1999. Almost half of Esther Short residents reported a disability, which is more than double the percentage reported for the county or city.

The percentage of large families in the neighborhood is one-third of the percentage in the city and almost one-fourth that of the county. The percentage of owner-occupied housing is more than four times lower than the percentage in Clark County and more than three times lower than percentage in Vancouver. Finally, 34 percent of housing units do not have vehicles. This rate is almost six times higher than in Clark County and slightly more than four times higher than in Vancouver. The percentage of children age 0 to 17 in Esther Short is significantly lower than in the county or city (Exhibit 3-38).

Exhibit 3-36. Esther Short Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Esther Short	2,074	86%	2%	0%	3%	0%	0%	3%	6%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-37. Esther Short Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Esther Short	$93,750	35%	45%	3%	15%	34%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-38. Esther Short Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Esther Short	2,074	62 (3%)	192 (9%)	1,495 (72%)	326 (16%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.9 Hudson's Bay Neighborhood Profile

Hudson's Bay neighborhood is located directly east of I-5 between Mill Plain Boulevard and SR 14. It is one of the earliest neighborhoods in Vancouver, with many homes dating back to the 1820s through 1840s. For more information on the history of the Hudson's Bay neighborhood, please refer to the Historic Built Environment Technical Report.

Hudson's Bay is home to large public facilities and open spaces such as Officers Row, the Vancouver National Historic Reserve, and a portion of Pearson Airfield, and has few single-family residential structures. These few homes are a combination of late nineteenth and early twentieth century two-story frame houses and 1930s style bungalows. Residential development is concentrated at the eastern portion of the neighborhood to Grand Boulevard, with a few housing units in the restored vintage structures on Officers Row. High-density multi-family residential development is scattered throughout the neighborhood, with a majority located south of Evergreen Boulevard. Limited commercial uses are concentrated along Evergreen Boulevard, east towards Grand Boulevard. Hudson's Bay is also the current home of the Fort Vancouver Regional Library on Mill Plain Boulevard.

The Hudson's Bay neighborhood is served by C-TRAN Route 3 (City Center), which runs along Grand and Columbia House Boulevards, and Route 32 (Hazel Dell and Evergreen-Andresen) along Evergreen Boulevard. Route 37 (Highway 99 and Mill Plain) runs along the northern perimeter of Hudson Bay on Mill Plain Boulevard, and Route 41 (Camas/Washougal Limited) runs along its southern boundary via SR 14. Routes 25 (St. Johns and Fruit Valley) and 44 (Fourth Plain Limited) both run through the northwest corner of the neighborhood on Ft. Vancouver Way and Evergreen Boulevard on their way to downtown Vancouver. Routes 41

(Camas/Washougal Limited), 47 (Battle Ground Limited), 105 (I-5 Express), 134 (Salmon Creek Express), 157 (Lloyd Center Express), 190 (Marquam Hill Express), and 199 (99th Street Express) all run along the western perimeter via I-5, but do not have service stops within the community.

There is an existing multi-use pathway through Hudson's Bay along Officers Row, and proposed multi-use pathways from Officers Row north into the Central Park neighborhood and across SR 14 into the Columbia Way neighborhood. There are existing bike lanes along Mill Plain and Evergreen Boulevards. There are proposed bike lanes on Mill Plain Boulevard, a small section of Evergreen Boulevard, and Fifth Street.

For 2006, Hudson's Bay reported 365.1 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 38 percent more than the Vancouver rate of 264 per 1,000 residents.

The Hudson's Bay Neighborhood Action Plan was adopted in April 1998 and later accepted by the Vancouver City Council. For a description of neighborhood plan goals, please refer to Exhibit 3-45. Section 4 analyzes project impacts in relation to neighborhood plan goals. The Hudson's Bay Neighborhood Association meets on the second Tuesday bi-monthly in the cafeteria of Harney Elementary.

Cohesion in Hudson's Bay appears to be low. The neighborhood library and neighborhood association contribute to cohesion, but with the limited number of residences, the neighborhood may not be very cohesive.

3.3.9.1 Hudson's Bay Demographics

Race/ethnicity demographics for Hudson's Bay show that the neighborhood has a lower Caucasian population rate than Clark County or Vancouver (Exhibit 3-39). Correspondingly, some of the percentages for the other races and ethnicities are higher. The percentage of African Americans is more than three times higher compared to the county and the city. The Hispanic or Latino population is double the county and almost double the city rates.

Further demographic data show additional differences when comparing Hudson's Bay to Clark County and Vancouver (Exhibit 3-40). The primary differences are the poverty level, large family rate, amount of owner-occupied housing, and number of housing units with no vehicle. The percentage of population below the poverty level is more than twice that of the county. The percentage of large families is almost four times lower than the percentage in the county and is three times lower than the city. The percentage of owner-occupied housing in the neighborhood is less than half that of the county and city. The rate of housing units with no vehicles is twice that of Clark County. The percentage of children age 5 to 17 in Hudson's Bay is less than half the county or city rate (Exhibit 3-41).

Exhibit 3-39. Hudson's Bay Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Hudson's Bay	1,386	79%	7%	0%	1%	1%	0%	1%	10%

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-40. Hudson's Bay Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Hudson's Bay	$132,350	19%	28%	3%	24%	12%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-41. Hudson's Bay Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Hudson's Bay	1,386	89 (6%)	122 (9%)	973 (70%)	202 (15%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.3.10 Columbia Way Neighborhood Profile

The Columbia Way neighborhood is located directly east of I-5, between SR 14 and the Columbia River, and extends east to include Marine Park. Commercial uses, which include many waterfront restaurants, comprise most of Columbia Way. The neighborhood is home to historically important parks, including the Waterfront Park, Marine Park, and Old Apple Tree Park. Single-family town homes and multi-family structures have recently been built along the shoreline just east of Waterfront Park. A mix of light and heavy industrial uses is concentrated at the eastern end of this neighborhood, along with the Water Resources Education Center.

The Columbia Way neighborhood is served by C-TRAN Route 3 (City Center), which runs along Columbia Way, and Route 41 (Camas/Washougal Limited) along SR 14. There is an existing multi-use pathway through Waterfront Park along Columbia Way.

For 2006, Columbia Way reported 282.4 crimes per 1,000 residents, a rate that includes both crimes against property and individuals. This is roughly 7 percent more than the Vancouver average of 264 per 1,000 residents.

The Columbia Way Neighborhood Association is currently inactive, and has not published a neighborhood action plan.

Cohesion in Columbia Way appears to be low. Although it contains several parks, with its limited number of residences and an inactive neighborhood association, the neighborhood may not be very cohesive.

3.3.10.1 Columbia Way Demographics

Race/ethnicity demographic data for the Columbia Way neighborhood generally show similarities to the county and city, with the exceptions of Native Hawaiian and Other Pacific Islander Alone and Hispanic or Latino (Exhibit 3-42). The percentage of Native Hawaiian and Other Pacific Islander Alone is five times the city rate; none are reported for Clark County. The Hispanic or Latino population percentage is less than half the county and one-third the city.

Additional demographic data for Columbia Way generally show similar demographics as the county and city, with the exceptions of the percentage of large families and the percentage of population 65 years or older (Exhibit 3-43). The percentage of large families is less than half the county and slightly more than half the city. The percentage of residents who are 65 years of age or older is more than twice the county and almost twice the city rate, while the percentage of children age 0 to 17 is half or less than half the county and city rate (Exhibit 3-44).

Exhibit 3-42. Columbia Way Race/Ethnicity

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Columbia Way	680	85%	3%	0%	3%	5%	0%	3%	2%
Clark County	345,238	86%	1%	1%	3%	0%	0%	3%	5%
Vancouver	143,226	82%	2%	1%	4%	1%	0%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P7.

Exhibit 3-43. Columbia Way Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% Disabled[a]	% of Large Families[b]	% of Owner-Occupied Housing	% of Housing Units with No Vehicle
Columbia Way	$137,000	14%	22%	5%	47%	10%
Clark County	$153,100	9%	18%	11%	67%	6%
Vancouver	$140,800	12%	19%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P88, P42, H16, H7, and H44.

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per household.

Exhibit 3-44. Columbia Way Age Characteristics

Area	Total Population	0-4 Years	5-17 Years	18-64 Years	65 and Older
Columbia Way	680	27 (4%)	54 (8%)	359 (53%)	241 (35%)
Clark County	345,238	27,086 (8%)	71,858 (21%)	213,236 (62%)	33,058 (10%)
Vancouver	143,226	11,752 (8%)	26,681 (19%)	89,279 (62%)	15,514 (11%)

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Table P8.

3.4 Description of Relevant Neighborhood Plan Goals for Vancouver and Portland

This section is a general description of the goals listed in the City of Vancouver and City of Portland Neighborhood Plans, which are listed in Exhibits 3-45 and 3-46. This section is intended to offer an understanding of ways in which the project may help neighborhoods accomplish their goals, or may hinder neighborhoods' ability to meet their goals.

- Housing
  - Minimize the adverse impacts of increased density.
  - Preserve the neighborhood's existing housing stock.
  - Maintain housing affordability.
- Transportation and Traffic
  - Reduce transportation-related noises and odor.
  - Reduce speeding within the neighborhood.
  - Reduce non-neighborhood cut-through traffic.
  - Enhance and maintain on-street parking throughout the neighborhood for bikes and cars.
  - Maintain adequate bus service to the neighborhood.
  - Reduce impact of truck traffic.
  - Support development of light rail transit.
  - Improve bike and pedestrian facilities and connections to destinations.
- Community Image and Character
  - Support neighborhood amenities.
  - Support cultural activities.
  - Enhance attractiveness.
  - Protect neighborhood trees and encourage tree planting.
  - Create opportunities for people to interact, become acquainted and strengthen their sense of community.
- Land Use
  - Avoid construction of intrusive, out-of-scale structures in the neighborhood.
  - Maintain all single-family zoning.

    - Support density adjacent to transit.
- Historic and Cultural
    - Preserve the neighborhood's historic character through the establishment of historic districts.
    - Keep the look of new homes consistent with the look of existing and historic homes.
- Recreation and Open Space
    - Establish safe and accessible recreational facilities.
    - Develop and maintain open space within the residential areas of the neighborhood.
    - Ensure that individuals, owners and government agencies protect the Columbia River from contaminants, including oil and other hazardous materials.
    - Protect natural resource values of the Columbia and Bridgeton Sloughs.
    - Maintain North Portland Harbor as a scenic corridor.
- Public Facilities
    - Improve local and arterial roads to ensure safe travel within the neighborhood.
    - Provide multimodal access to and within the neighborhood for all levels of ability.
- Noise Reduction
    - Mitigate traffic noise from I-5.
- Economic Development
    - Encourage businesses to stay in neighborhoods.
    - Support business and retail revitalization.
- Public Safety
    - Improve neighborhood pedestrian safety and accessibility.
    - Improve and maintain sidewalks and street crossings.
    - Give people with disabilities, children, and seniors every consideration for protection from street traffic.
    - Encourage site design that increases sense of security.

Exhibit 3-45. Summary of Vancouver Relevant Adopted Neighborhood Action Plan Goals[a]

Neighborhood Action Plan	Housing	Transportation and Traffic	Community Image and Character	Land Use	Historic and Cultural	Recreation and Open Space	Public Facilities	Noise Reduction	Economic Development	Public Safety
Lincoln	X	X	X	X		X	X	X	X	X
Central Park	X	X	X	X	X	X	X			X
Shumway	X	X	X		X	X	X			X
Arnada	X	X	X	X	X	X		X	X	X
Hough	X	X	X	X		X	X			
Esther Short	X	X	X	X	X		X	X		
Hudson's Bay	X	X	X	X	X	X	X		X	
West Minnehaha		X	X			X			X	

a Goals identified in applicable City of Vancouver Neighborhood Action Plans.

Exhibit 3-46. Summary of Portland Relevant Adopted Neighborhood and Community Plan Goals[a]

Neighborhood Action Plan	Housing	Transportation and Traffic	Community Image and Character	Land Use	Historic and Cultural	Recreation and Open Space	Public Facilities	Noise Reduction	Economic Development	Public Safety
Hayden Island	X	X	X	X		X	X		X	X
Bridgeton	X	X		X	X				X	X
Kenton	X	X	X	X	X	X	X		X	X

a Goals identified in applicable City of Portland Neighborhood Plans.

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4. Long-term Effects

4.1 Introduction

This section evaluates the potential long-term effects of the project in each of the neighborhoods described in Section 3, Affected Environment. The neighborhoods discussed in this section are divided up according to their location in Oregon and Washington. Unless stated otherwise, the LPA with highway phasing options would have the same impacts to neighborhoods as the corresponding LPA full build options. Similarly, whether Option A or Option B is built, the impacts to neighborhoods are expected to be the same, except where noted. Temporary effects are described in Section 5.

4.2 Oregon Long-term Effects

4.2.1 Effects to Portland Local Streets

4.2.1.1 Changes in Traffic Volumes

This section characterizes the changes in traffic volumes throughout the study area. In most locations, there are reductions in volumes on the local street system. This occurs as motorists switch routes to the previously congested Interstate corridor.

Portland AM Peak Period

During the morning peak, westbound traffic on both sides of the highway would decrease less than 10 percent compared to No-Build conditions. Eastbound traffic on both sides of I-5 would increase up to 10 percent, with the higher growth forecast for the eastside of I-5. During the morning peak, southbound traffic in Portland would decrease by up to five percent over No-Build conditions. Northbound traffic in Portland would remain unchanged or decrease between 10 and 20 percent compared to No-Build conditions.

Portland PM Peak Period

During the afternoon/evening peak, eastbound and westbound traffic on both sides of the highway would change by less than 10 percent compared to No-Build conditions. Northbound and southbound traffic in Portland would change by less than 10 percent during the afternoon/evening peak hour.

4.2.1.2 Intersection Operations

This section characterizes the performance of local streets at intersections. Intersections, rather than the links between them, are where failures often occur. This section compares the operations at dozens of local intersections with the adopted local standards, and discloses any foreseeable failures. Many of these failures would be prevented with the mitigation measures listed at the end of this section. Many of these mitigation measures would not need to be employed for many years, and may be redesigned as traffic patter change through the years.

Martin Luther King Jr. Boulevard Analysis Area

During the morning and afternoon/evening peaks, all of the study intersections would operate acceptably under the LPA and LPA with highway phasing with improved, similar, or slightly degraded conditions. All seven of the study intersections would operate with acceptable vehicle queuing under the LPA and LPA with highway phasing when compared to the No-Build Alternative, with the exception of Rosa Parks Way and the I-5 northbound on-/off-ramps intersection during the afternoon/evening peak hour.

Interstate Avenue Analysis Area

During the morning peak, three of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions under the LPA and LPA with highway phasing. One would degrade from acceptable or unacceptable operations under the No-Build Alternative to unacceptable operations under the LPA.

During the afternoon/evening peak, all four of the study intersections would operate acceptably under the LPA and LPA with highway phasing with similar conditions as compared to the No-Build Alternative.

During the morning peak, all of the study intersections would operate with acceptable vehicle queuing under the LPA and LPA with highway phasing. During the afternoon/evening peak, two of the study intersections would operate with acceptable vehicle queuing while two intersections would experience queuing extending past turn lane storage capacities.

Victory Boulevard Interchange Area

During the morning and afternoon/evening peaks, all four of the study intersections would operate acceptably; and all of the proposed study intersections would operate with acceptable vehicle queuing.

Marine Drive Interchange Area

Under the LPA, the Marine Drive interchange would be reconstructed as a three-legged urban interchange with a flyover ramp for the eastbound Marine Drive to northbound I-5 on-ramp movement. This configuration would allow the highest volume traffic movements to move freely without being impeded by stop signs or traffic signals. The LPA with highway phasing would include a full, four-legged interchange without the flyover ramp.

All five of the proposed intersections during the morning and afternoon/evening peaks would operate acceptably; and all intersections would operate with acceptable vehicle queuing.

Hayden Island Interchange Area

The Hayden Island interchange area consists of 11 study intersections. Four of the new study intersections would replace the existing two ramp terminal intersections. During the morning peak, all four of the proposed ramp intersections and all seven of the local street intersections would operate acceptably as compared to the applicable standards. During the afternoon/evening peak, all 11 of these intersections would also operate acceptably. All of the study intersections would operate with acceptable vehicle queuing.

4.2.2 Hayden Island

The project would require the displacement of a number of floating homes in North Portland Harbor. Current designs indicate that the project would displace a total of 32 floating homes. Twelve of those displacements would be in the Columbia Crossings moorage to the east of the bridge, two of which also contain businesses. An additional floating home in this moorage used only as a business would also be displaced. Twenty of the residential displacements would occur in the Jantzen Beach Moorage, to the west of the bridge. Additionally, two businesses located on the on-land parcel associated with the Jantzen Beach Moorage would be displaced, and access at the east end of the property would be eliminated with the remaining access being at the far west end of the property. In addition to the floating homes displaced from North Portland Harbor, eight shelters for boat storage would be displaced from the Columbia Crossings moorage, some of which contain seasonal apartments.

Construction of the LPA would displace the Safeway grocery store and pharmacy on Hayden Island, which is the only grocery store and pharmacy on the island and an important community resource. Displacing the Safeway store would be a significant impact, as the store would have to be relocated on the island or island residents would have to leave the island to purchase groceries and prescription drugs. The CRC project may suggest replacement sites for the relocation of Safeway, but it is entirely up to the store owners to choose their replacement location, if any. Safeway officials have indicated that it would be difficult for the store to relocate to another site on Hayden Island or in the Delta Park area, because of the lack of available sites. They may be able to locate a replacement store in either the North Portland area or South Vancouver. Alternately, Safeway may choose to remodel or expand existing stores in Vancouver or Portland, which would not directly serve residents of Hayden Island. Another grocery store could return to the island as new commercial space is constructed with the redevelopment of the Jantzen Beach SuperCenter.

LPA Option A would displace 24 restaurants on the island, including Denny's, BJ's Restaurant & Brewery, McDonald's, Bradley's Bar & Grill, Café Del Toro, Newport Bay Restaurant, JB's Deli, and several more. LPA Option B would displace the same restaurants as Option A, with the addition of Burger King, for a total of 25 displaced restaurants. Most of these restaurants are located directly adjacent to the current location of the highway. Displacing so many restaurants within this island community would require residents to travel off of the island to eat at similar restaurants, either on the Oregon mainland or in Vancouver. While not a standard category of long-term effects to a neighborhood, this reduction in restaurant availability (at least until the redevelopment of the Jantzen Beach SuperCenter is complete) would impact neighborhood cohesion. Additionally, the Wells Fargo Bank would be displaced by the LPA, leaving just one bank on the island.

The LPA has the potential to significantly affect wage-earning opportunities for those seeking service industry employment on Hayden Island. An estimated 37 businesses would be displaced on Hayden Island, many of which are restaurants, with approximately 350 employees affected. Business acquisitions would be comprised of a variety of commercial, service and retail establishments. As mentioned above, this includes Safeway and many restaurants, as well as an office supply store, and a cellular services store.

As a whole, food preparation and service related employers are more likely to offer low-income positions (e.g., dishwashers, cooks, hosts, and counter attendants). According to the Oregon Employment Department, the average salaries of most food preparation and service workers within Multnomah and Washington counties fall within the range of $18,000 and $23,000 per year.

Some of these displaced businesses may choose to not relocate locally. Even with relocation assistance, some of the employees may be unable to retain their jobs; for example, an employee may have to accept a new job during the transition period of relocation.

Because I-5 is such a prominent component of Hayden Island, bi-secting it and serving as the southern end of the new I-5 bridge, the neighborhood would be most affected by changes from this project. The largest impact would be to the floating home community in North Portland Harbor due to the loss of homes in this area. The neighborhood would also undergo significant visual setting changes due to changes in the footprint for I-5 and the addition of light rail tracks and stations (these are more thoroughly discussed in the Visual and Aesthetics Resources Technical Report).

Both LPA Option A and B would improve on-island circulation, and reduce the hours of congestion in this area of I-5. Additionally, the current sub-standard and difficult to navigate bike and pedestrian connection to the existing I-5 bridge would be improved, and a light rail transit station would serve the island. LPA Option A would provide more options for access to the island because it would offer access to and from Hayden Island from I-5 as well as from a local arterial bridge.

Hayden Island residents would not be tolled to enter the Oregon mainland, but they would be tolled when traveling north on I-5 to Vancouver. To the extent that Hayden Island residents travel to Vancouver to utilize community resources due to Vancouver's proximity, island residents may experience a greater impact from tolling than residents of other Oregon neighborhoods who do not travel to Vancouver as frequently. For an exhibit of displacements on Hayden Island and other neighborhoods, please see Exhibit 4-1.

4.2.3 Bridgeton

No residences would be displaced in the Bridgeton neighborhood as a result of the LPA. The project would not separate residents from any identified local community resources or impact the neighborhood's community cohesion.

The Marine Drive interchange improvements and associated surface street improvements included as part of the project would improve the functionality of the movements onto and off of I-5. The improvements in the interchange area include a new multi-use bike and pedestrian path connecting the Bridgeton neighborhood to the existing Expo Center light rail station.

4.2.4 East Columbia

No residential or community resources would be displaced in the East Columbia neighborhood. The project would not separate residents from any identified local community resources or impact the neighborhood's community cohesion.

The Marine Drive interchange improvements and associated surface street improvements included as part of the project would improve the functionality of the movements onto and off of the highway. This would improve the approach to I-5 from within the East Columbia neighborhood resulting in better merging conditions. As mentioned for the Bridgeton neighborhood, the LPA would create a new multi-use path connection to the Expo Center light rail station. That new connection would also benefit the residents of East Columbia.

4.2.5 Kenton

Long-term impacts in Kenton would be focused at the north end of the neighborhood near the Portland Expo Center and the North Portland Harbor. The project would displace several structures on the south shore of North Portland Harbor including three floating homes and two residential units on land. Two businesses would also be displaced. The marina also houses 17 moored boats, and the boat moorage and marina operations may be partially re-established after project completion. This property was not identified as a community resource for the neighborhood. The project would permanently displace up to 250 parking spaces at the Portland Expo Center. The Expo Center was not listed as a neighborhood community resource.

The project would not separate neighborhood residents from community resources or decrease access to transit and bicycle or pedestrian opportunities. The new multi-use path connection would provide access from the Portland Expo Center to the Bridgeton Neighborhood, expanding bicycle and pedestrian opportunities. No impacts to local community cohesion are anticipated.

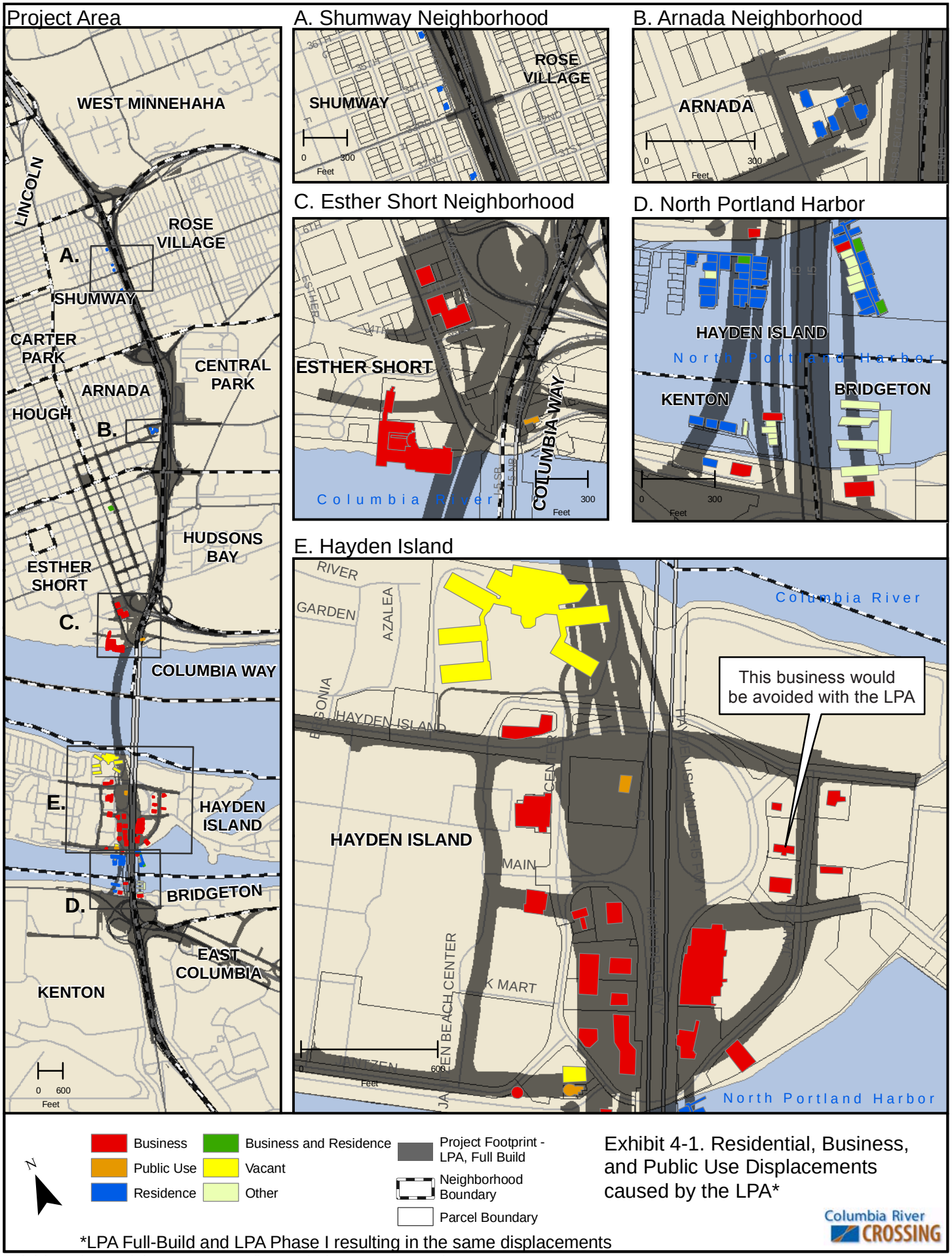


Exhibit 4-1. Residential, Business, and Public Use Displacements caused by the LPA*

*LPA Full-Build and LPA Phase I resulting in the same displacements

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Dec. 10, 2010; File Name: Dispalcements_KM242_TR.mxd

4.2.6 Rockwood

Although the principal project components occur along I-5 near the I-5 bridges, expansion of the light rail maintenance center at Ruby Junction in Gresham, Oregon, is necessary to support the expansion of light rail service to Vancouver. The maintenance center is within the Rockwood neighborhood in Gresham.

Fourteen parcels would be impacted by the expansion of the maintenance center. Within those 14 parcels, nine residences and eight businesses would be displaced because some parcels contain two buildings, one serving as a residence, and one serving as a business. Displacing these residences and businesses would leave just one non-industrial parcel in this community, eliminating any cohesion in the neighborhood as residents would be relocated.

Although displacements in the Rockwood Neighborhood must follow the Uniform Relocation Act, it may be difficult to find similar lots in the area due to the unique setting that allows for small industrial business owners to live and work at the same location. For a map of displacements in the Rockwood neighborhood, please see Exhibit 4-2.

4.3 Washington Long-term Effects

4.3.1 Effects to Vancouver Local Streets

4.3.1.1 Changes in Traffic Volumes

This section characterizes the changes in traffic volumes throughout the study area. In most locations, there are reductions in volumes on the local street system. This occurs as motorists switch routes to the previously congested Interstate corridor.

Vancouver AM Peak Period

During the morning peak, eastbound and westbound traffic west of I-5 would increase between 10 and 20 percent over No-Build conditions. With the LPA, eastbound and westbound traffic east of I-5 would increase by up to five percent over No-Build conditions. Under the LPA with highway phasing, eastbound traffic east of I-5 would increase by approximately 30 percent and westbound traffic east of I-5 would remain relatively unchanged. The difference in eastbound traffic between the LPA and the LPA with highway phasing would be due to the addition of the direct connect ramp from southbound I-5 to eastbound SR 500. Without the direct connect ramp, eastbound traffic would remain on 39th Street to access SR 500.

During the morning peak, southbound traffic in Vancouver would decrease between 10 and 35 percent along most major streets with the exception of the downtown area. Southbound traffic in downtown is expected to increase over the No-Build by approximately 10 percent. The decrease in southbound traffic on local streets would be caused by the improvements to I-5, which would encourage arterial traffic to return to I-5.

Northbound traffic south of Fourth Plain Boulevard would increase between five and 20 percent. Northbound traffic in the area of the 39th Street interchange area would increase by approximately 80 percent compared to No-Build. This increase is the result of the closure of the entrance to northbound I-5 at 39th Street. Instead motorists will enter at Main Street to the north.

Vancouver PM Peak Period

During the afternoon/evening peak, traffic volumes along key east-west local streets west of I-5 would remain unchanged or increase by approximately 20 percent over No-Build conditions. Under the LPA, westbound traffic just east of I-5 would increase by approximately 15 percent and eastbound traffic just east of I-5 would decrease by approximately 25 percent compared to No-Build conditions. Under the LPA with highway phasing, eastbound traffic would decrease by approximately 10 percent. The difference in eastbound traffic between the LPA and the LPA with highway phasing would be due to the addition of the direct connect ramp from southbound I-5 to eastbound SR 500.

During the afternoon/evening peak hour, southbound traffic in Vancouver, depending on location, would remain unchanged or could increase up to 20 percent. Under the LPA, the southbound off-ramp to 39th Street would be removed and replaced with the new southbound SR 500 off-ramp, which would cause traffic to shift from southbound I-5 to southbound Main Street to access the neighborhood.

Northbound traffic in Vancouver would decrease between five and 30 percent over No-Build conditions, with the highest decrease north of the Fourth Plain interchange area.

4.3.1.2 Intersection Operations

This section characterizes the performance of local streets at intersections. Intersections, rather than the links between them, are where failures often occur. This section compares the operations at dozens of local intersections with the adopted local standards, and discloses any foreseeable failures. Many of these failures would be prevented with the mitigation measures listed at the end of this section. Many of these mitigation measures would not need to be employed for many years, and may be redesigned as traffic patter change through the years.

SR 14/City Center Interchange Area

The SR 14/City Center interchange area consists of 39 study intersections of which five would be new intersections. During the morning peak, all 39 of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions compared to No-Build conditions. Also, during the afternoon/evening peak, all 39 of the study intersections would operate acceptably.

During the morning peak, 33 of the study intersections would operate with acceptable vehicle queuing. However, six of the study intersections would experience queuing extending past turn lane storage capacities or to upstream intersections. During the afternoon/evening peak, 29 intersections would operate with acceptable vehicle queuing. Of these, 10 of the study intersections would experience queuing extending past turn lane storage capacities or to upstream intersections.

Mill Plain Boulevard Interchange Area

The Mill Plain Boulevard interchange area consists of 29 study intersections. Of the 29 study intersections, four would be new intersections that were not modeled under No-Build conditions and one would be removed.

During the morning peak, all 29 of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions.

During the afternoon/evening peak 27 of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions. Two intersections would have unacceptable operations under the LPA. The intersections with unacceptable operations would be the Mill Plain Boulevard at C Street, and 15th Street at C Street.

During the morning peak 18 of the study intersections would operate with acceptable vehicle queuing. However, 11 experience queuing extending past turn lane storage capacities or to upstream intersections. During the afternoon/evening peak 18 of the study intersections would operate with acceptable vehicle queuing. But, 11 of the study intersections would not.

Fourth Plain Boulevard Interchange Area

During the morning peak, 13 of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions as compared to the No-Build Alternative. The unsignalized intersection of 29th Street at Main Street would degrade from acceptable operations under the No-Build Alternative to unacceptable operations under the LPA and LPA with highway phasing.

During the afternoon/evening peak, all 14 of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions as compared to the No-Build Alternative. With the LPA with highway phasing configuration, the intersection of 33rd Street at Main Street would degrade from acceptable operations under the No-Build Alternative to unacceptable operations. This is caused by downstream congestion at the intersection of 39th Street and Main Street.

During the morning peak, 11 of the study intersections would operate with acceptable vehicle queuing, while three of the study intersections would not. During the afternoon/evening peak, 13 of the study intersections would operate with acceptable vehicle queuing; and one would not.

SR 500/Main Street/39th Street Interchange Area

During the morning peak, with the LPA all 10 of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions as compared to the No-Build Alternative. With the LPA with highway phasing option nine of the study intersections would operate acceptably. The intersection of 39th Street at H Street would degrade to unacceptable operations under the LPA with highway phasing.

During the afternoon/evening peak, nine of the study intersections would operate acceptably with improved, similar, or slightly degraded conditions. The intersection of 39th Street at I-5 Southbound would degrade to unacceptable operations under the LPA. With the LPA with highway phasing, the additional intersections of 39th Street at H Street and 40th Street at Main Street would degrade.

During the morning peak, with the LPA eight study intersections would operate with acceptable vehicle queuing while two of the study intersections would not. With the LPA with highway phasing six of the study intersections would operate with acceptable vehicle queuing while four of the study intersections would not.

During the afternoon/evening peak, with the LPA nine study intersections would operate with acceptable vehicle queuing while one of the study intersections would not. With the LPA with highway phasing, eight of the study intersections would operate with acceptable vehicle queuing while two would not.

4.3.2 West Minnehaha

The project would not displace any people or businesses within the West Minnehaha neighborhood. No long-term impacts would occur to neighborhood cohesion, community resources, or bicycle or pedestrian facilities. The neighborhood would have increased access to transit due to the introduction of light rail in Vancouver.

4.3.3 Lincoln

The project would not displace any residences, businesses, or community resources in the Lincoln neighborhood. Kiggins Sports Fields/Stadium at Discovery Middle School is the largest community resource identified in this neighborhood and the only one being impacted. The LPA would impact the site, but no structures would be displaced, and long-term use of the site would not be affected by the construction of a retaining wall adjacent to the highway in the southwest corner of the property. These minor impacts are not anticipated to affect community cohesion. For more information about construction plans at this location, please refer to the Parks and Recreation Technical Report.

If construction of the northern legs of the SR 500 Interchange is deferred, there would be no property impacts to Kiggins Bowl at Discovery Middle School.

No other community resources would be impacted by the project. The project would not have long-term impacts on bicycle or pedestrian facilities. The neighborhood would have increased access to transit due to the introduction of light rail in Vancouver.

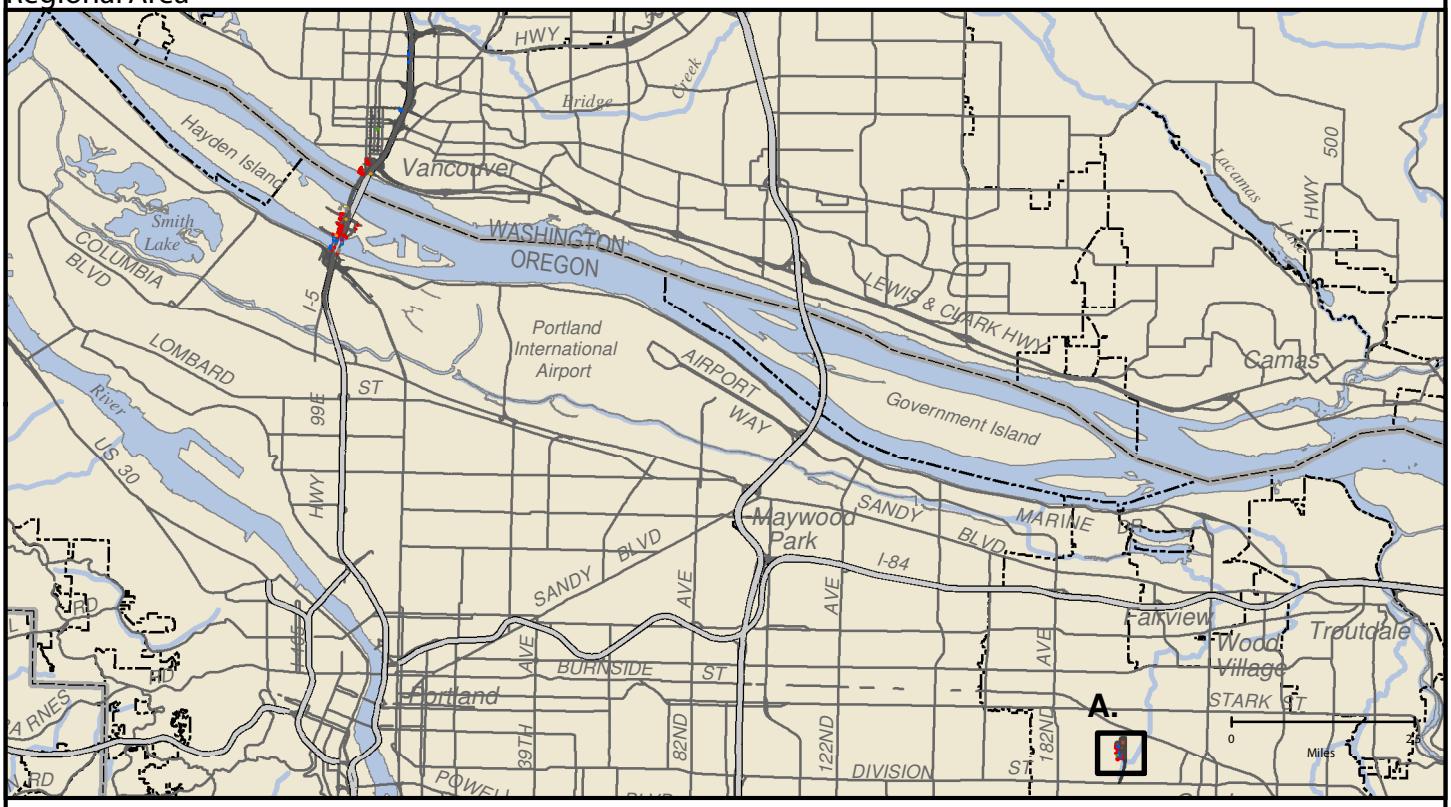
4.3.4 Shumway

The LPA would require four residential displacements and partial acquisitions from residential parcels for permanent right-of-way. Residents may experience noise impacts from the highway and visual impacts from sound walls. However, the sound walls would likely reduce the current noise levels near these homes. As such, it is unlikely that these impacts would have a notable adverse effect on neighborhood cohesion. No other residents or community resources would be impacted by the project.

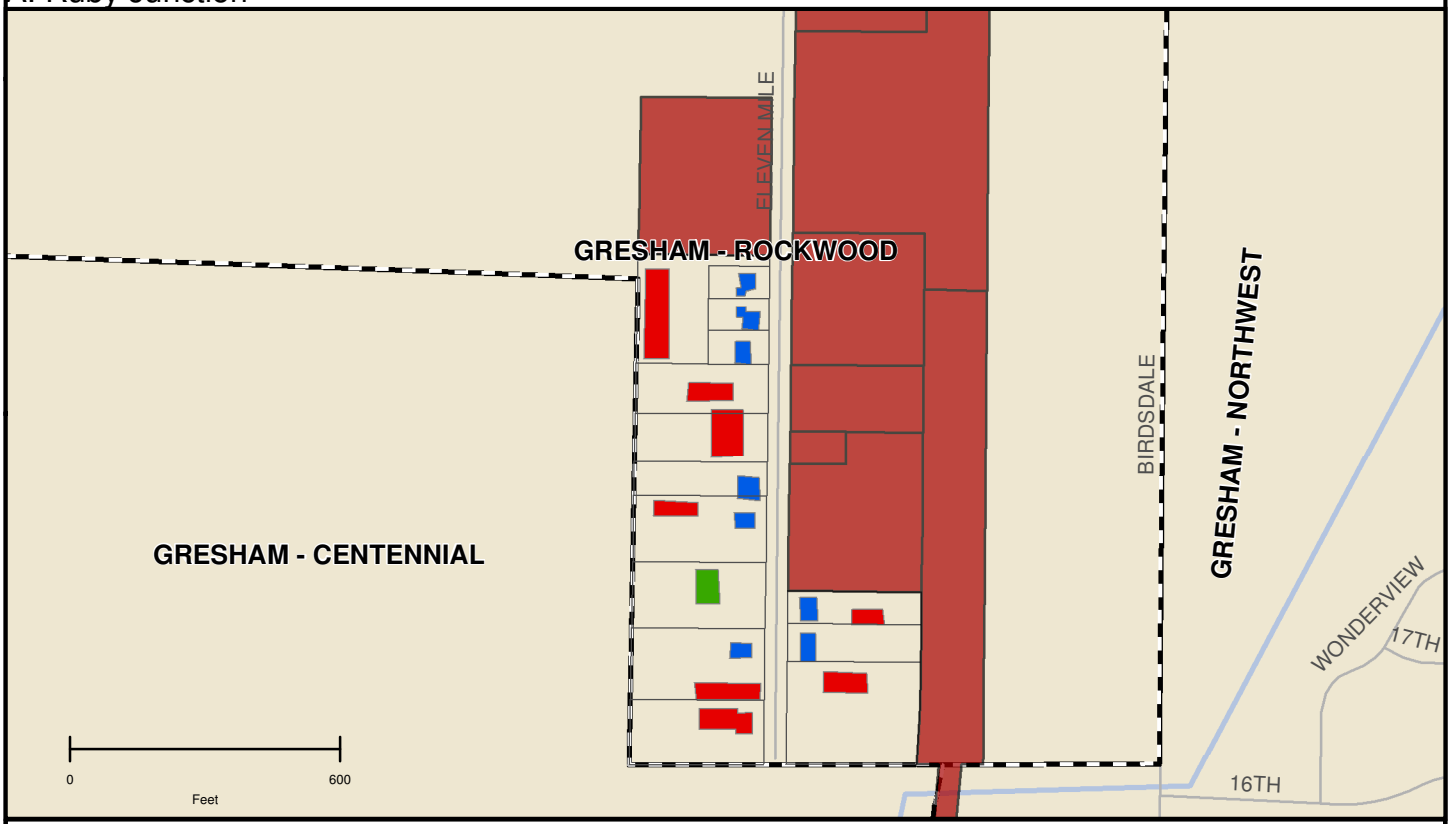
After the replacement of the currently ineffective sound walls along I-5 in Northern Vancouver, residual noise impacts may still affect some homes primarily in the Shumway and Rose Village neighborhoods. Noise impacts may particularly occur near openings in the proposed noise walls near Mill Plain Boulevard and 29th, 33rd, and 39th Streets. These openings may allow noise to reach some residential uses in Shumway and Rose Village. Despite this residual impact, the project would provide mitigation where none exists today, and would improve existing sound walls. Therefore the project would result in an overall decrease in noise levels in the I-5 corridor. For more information on noise impacts please see the Noise and Vibration Technical Report.

The project would not increase traffic through the neighborhood or decrease access to bicycle or pedestrian facilities. The neighborhood would have increased access to transit due to the introduction of light rail in Vancouver.

Regional Area



A. Ruby Junction



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Business
Public Use
Residence
Business and Residence
Vacant
Parcel Boundary
Project Design
Existing
Major Streets
Neighborhood Boundary
Ruby Junction - Existing Facility

Exhibit 4-2. Residential, Business, and Public Use Displacements caused by the LPA*

*Full Build and Phase I resulting in the same displacements for LPA Option A or B

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Dec. 21, 2010; File Name: Dispalcements_RubyJ_KM242_TR.mxd

4.3.6 Rose Village

The LPA would not displace any residences in the Rose Village neighborhood. No permanent residential, business, or community resource displacements would occur. The project would improve bicycle and pedestrian facilities within the neighborhood at the Mill Plain and Fourth Plain interchanges. The neighborhood would have increased access to transit due to the introduction of light rail in Vancouver.

After the replacement of the existing sound walls along I-5 in Northern Vancouver, residual noise impacts may still affect some homes primarily in the Shumway and Rose Village neighborhoods. Noise impacts may particularly occur near openings in the proposed noise walls near Mill Plain Boulevard and 29th, 33rd, and 39th Streets. These openings may allow noise to reach some residential uses in Shumway and Rose Village. Despite this residual impact, the project would provide mitigation where none exists today, and would improve existing sound walls. Therefore the project would result in an overall decrease in noise levels in the corridor. It is unlikely that these impacts would have a notable adverse effect on neighborhood cohesion. For more information on noise impacts please see the Noise and Vibration Technical Report.

4.3.7 Hough

The project would not displace any residences or community resources in the Hough neighborhood. There would be some permanent loss of off-street parking adjacent to retail and service establishments in the southeast corner of the neighborhood. The introduction of light rail transit along Washington and Broadway would create visual and physical changes that may slightly increase the nature of these streets as barriers for pedestrians. However, the light rail stations and line may contribute to redevelopment and community investment, increasing the attractiveness of these areas. The LPA would not displace community resources, separate residents from those resources or adversely impact community cohesion. The new light rail line would increase access to transit for residents in the Hough neighborhood.

The Hough neighborhood plan specifically states support for the concept and development of light rail transit.

4.3.8 Arnada

The project would displace five single family residences in the Arnada neighborhood due to the 17th Street transit alignment. The construction of light rail along Broadway and 17th Street would permanently alter access to and from properties along 17th Street, most of which would be restricted to right-in-right-out only turning movements. No businesses would be displaced or impacted by the project.

The introduction of light rail transit along 17th in the Arnada neighborhood would create visual and physical changes that may slightly increase the nature of this street as a barrier for pedestrians. However the light rail line may contribute to redevelopment and community investment, increasing the attractiveness of these areas. The project would not separate residents from any community resources, and would increase access to transit. As discussed in Section 4.3.1 above, one intersection located at Mill Plain Boulevard and I-5 adjacent to the Arnada neighborhood would perform worse under the LPA than under the No-Build Alternative. However, this is the only intersection near the neighborhood that would not perform at the same level of service or better due to the project. The project is not anticipated to adversely affect community cohesion.

4.3.9 Central Park

In the Central Park neighborhood, no residences would be displaced by the project, however portions of two identified recreational community resources, the Clark College Athletic Annex and Recreation Fields and Marshall Community Park and Center, would be impacted by the construction of a park and ride facility and the Clark College light rail station.

Long-term impacts at the Clark College Annex and Recreation Fields include the displacement of all structures and parking within the Annex area and displacement of some trees and landscaping to the south of the recreation fields near the Annex.

Across McLoughlin Boulevard to the south of the Clark College Athletic Annex, the Marshall Community Park and Center and the Luepke Senior Center would experience long-term impacts. Construction of a new retaining wall along the highway would displace parking spaces, horseshoe pits, landscaping, and trees that serve as a buffer between the community center and I-5. In the far northeast corner of the park property, a new turning lane on McLoughlin would require permanent right-of-way acquisition that would displace more landscaping.

The introduction of light rail transit with a station directly adjacent to the park would increase public transit accessibility to both Clark College and Marshall Community Center and Park. Residents would not be separated from any community resources, and the project would not adversely affect community cohesion.

Under the LPA, the level of service for intersections in Central Park neighborhood and around the future Clark College Park and Ride would be improved from current conditions. As discussed in Section 4.3.1 above, one intersection located at Mill Plain Boulevard and I-5 adjacent to the Central Park neighborhood would perform worse under the LPA than under the No-Build Alternative. However, this is the only intersection near the neighborhood that would not perform at the same level of service or better due to the project.

The Clark College Recreation Fields and Marshall Park may also be impacted by increased noise levels. Please refer to the Noise and Vibration Technical Report for details on noise levels and mitigation.

4.3.10 Esther Short

The LPA would displace two apartment units located above the Vancouver Funeral Chapel on 12th street in downtown Vancouver.

The western end of Waterfront Park, an identified community resource, is in the southeast corner of the Esther Short neighborhood, just to the west of the current I-5 bridges. This portion of the park would be permanently acquired for the LPA. Complete details for relocating park features, and reconstruction of this portion of the park have not been determined at this time. However, there are opportunities for expanding the park in the location of the existing I-5 bridges, once they are removed.

Two multi-story apartments, Normandy Apartments at Seventh and C Streets and Fort Apartments (previously the Fort Vancouver Motel), at the southwest corner of the Mill Plain interchange would experience noise impacts due to this project. Noise impacts (noise levels exceeding standards) already exist at these two buildings. The upper stories are too high to be adequately and cost-effectively mitigated with noise walls. Despite these residual impacts, the project would provide mitigation where none exists today, and would improve existing sound

walls. Additionally, the Evergreen Inn, immediately north of the SR 14 interchange will experience noise impacts which cannot be mitigated. Noise levels at these three properties will increase very slightly (less of an increase than can be detected by the human ear). The project would result in an overall decrease in noise levels in the corridor.

Along the new light rail transit lines on Washington and Broadway Streets, no off-street parking would be permanently displaced, but access to parcels would be permanently restricted to right-in-right-out only turning movements. The introduction of light rail transit along Washington and Broadway in the Esther Short neighborhood would not separate residents from any community resources, and would increase access to transit. Because Esther Short neighborhood is becoming a more densely developed urban core, the introduction of light rail would complement the vibrancy of downtown Vancouver and provide widely increased transit access to the rest of the region.

Project impacts are not anticipated to adversely impact neighborhood community cohesion because residents would not be separated from identified resources, access to transit would increase, and all noise impacts would be mitigated resulting in lower noise levels than existing conditions. As discussed in Section 4.3.1 above, the Esther Short neighborhood is adjacent to two intersections located at Mill Plain Boulevard and I-5 and 15th Street and C Street that would perform worse under the LPA than under the No-Build Alternative. Additionally, there are two more intersections within the neighborhood that would perform worse under the LPA than under the No-Build Alternative. However, these are the only intersection within the neighborhood that would not perform at the same level of service or better due to the project.

The Esther Short neighborhood plan specifically states that the neighborhood supports the concept and development of light rail transit.

4.3.11 Hudson's Bay

The project would permanently displace up to 10 parking spaces at the United States Department of Transportation (DOT) building at 610 East 5th Street, located within the Vancouver National Historic Reserve (VNHR), an identified community resource. The impacts occur along the west property boundary adjacent to I-5 and also include the removal of an electronic gate, curbs, and landscaping. The project would also require permanent right-of-way acquisition of the far western edge of the VNHR property. The acquisition consists of trees at the edge of the existing highway interchange loop and would not displace any buildings, parking, or other uses at Fort Vancouver.

The project would not separate neighborhood residents from community resources, and would not decrease access to bicycle or pedestrian facilities. As discussed in Section 4.3.1 above, one intersection located at Mill Plain Boulevard and I-5 adjacent to the Hudson's Bay neighborhood would perform worse under the LPA than under the No-Build Alternative. However, this is the only intersection near the neighborhood that would not perform at the same level of service or better due to the project. The neighborhood would have increased access to transit due to the introduction of light rail in Vancouver. Because the impacts to the community resources are minor and no other impacts would occur, there would be no adverse impact to community cohesion.

4.3.12 Columbia Way

There would be no residential or community resource displacements in the Columbia Way neighborhood, and the project would not create separation between neighborhood residents and community resources. The neighborhood would have increased access to transit due to the introduction of light rail in Vancouver.

The LPA is not expected to increase traffic in the neighborhood. Waterfront Park would be improved due to reduced noise and the addition of open space in the area vacated by the existing I-5 bridges.

Because the project would not adversely affect residents or resources in the neighborhood, no impacts to community cohesion are anticipated.

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5. Temporary Effects

5.1 Introduction

The LPA includes the temporary effects listed below and may impact neighborhoods. Mitigation measures for these effects are discussed in Section 6. The likely temporary effects include:

- Temporary property acquisitions for construction staging areas. These acquisitions would be returned to the landowner after construction is complete. The locations of staging areas are yet to be confirmed based on final engineering designs.
- Noise impacts due to construction.
- Vibration from construction.
- Effects to air quality due to construction equipment.
- Traffic spillover during construction.
- Traffic detours and delays during construction.

Most neighborhoods would not experience impacts as a result of using the staging and casting yards listed below for the project. The Esther Short and Hayden Island neighborhoods may experience some temporary impacts due to the Red Lion and Thunderbird Hotels' proximity to more densely populated areas. The Esther Short and Hayden Island neighborhoods may experience temporary noise from construction equipment and construction materials moving on the site while stored there. The neighborhoods may also experience a temporary increase in truck traffic traveling to and from these sites. The following sites are proposed as staging areas or casting yards:

- Port of Vancouver Parcel 1A site.
- Red Lion at the Quay Hotel site.
- Vacant Thunderbird Hotel site on Hayden Island.
- Port of Vancouver Alcoa/Evergreen West site.
- Sundial site between Fairview and Troutdale.

5.2 Construction Methods

The CRC project encompasses the reconstruction of 5 miles of interstate highway, including seven interchanges, construction and widening of bridges over North Portland Harbor and the main channel of the Columbia River, construction of new pedestrian and bicycle pathways, and extension of light rail from the Expo Center to Clark College. The river crossing is the most substantial element of the project, and its construction sets the sequencing for other project components.

The precise character of construction impacts would depend on details of design and methods that will not be finalized until final design, construction contracting, and even construction itself. However, it is possible to identify key aspects of construction that allow this report to evaluate potential impacts and identify appropriate mitigation. This section explains the anticipated sequencing and duration of construction and the types of activities involved in building the major elements of this project.

The construction timeline is estimated at 6 to 7 years. The first construction activities would be associated with building the new bridges, although other elements of the project would be started well before these bridges are finished. Construction of the new bridges is estimated to last approximately 4 years.

Interchanges on each end of the bridge would first be partially constructed so that all I-5 traffic could be temporarily re-routed onto the new southbound (western) bridge. Constructing the southbound approaches for both the SR 14 and Hayden Island interchanges would require approximately 3 years. Certain portions of both the SR 14 and Hayden Island interchanges must be completed before traffic can be moved onto the new southbound lanes and construction of the remaining northbound lanes and interchange ramps can proceed. Once I-5 traffic in both directions is rerouted to the new western I-5 bridge, the new northbound segments of the Hayden Island and SR 14 interchanges would be constructed.

Similarly, the Marine Drive interchange construction would need to be coordinated with construction of the southbound lanes coming from Vancouver. While this interchange can be constructed independently from the work described above, the completion and utilization of the collector-distributor system from Hayden Island to Marine Drive requires the work to occur in the same period. The interchange reconstruction also needs to occur so that Marine Drive can be elevated, allowing the light rail extension to cross under Marine Drive. The Marine Drive interchange is expected to take a little more than 3 years to construct, including work at the Victory Boulevard interchange.

The northbound bridge and the northbound off-ramp to SR 14 must be completed and opened before traffic can be routed to the new bridges Removal of the existing bridges is expected to take about 1.5 years. It can commence after traffic is rerouted to the new bridges near the completion of the SR 14 and Hayden Island interchanges. During removal of the bridges, there will likely be weekend closures of I-5. Traffic would be encouraged to take I-205 during these periods rather than navigate around the closed I-5 section. Detour routes would be signed. Extensive outreach would be made prior to any closure and traffic advisories and updates would be made available to the public to help make travel choices.

The three interchanges north of SR 14—Mill Plain, Fourth Plain, and SR 500/39th Street—could be constructed independently of the southern half of the project, and independently of each other. It would be most efficient to complete all highway construction north of SR 14 at once. Detours of I-5 around the SR 500/39th Street interchange would facilitate efficient construction in this area. These I-5 closures would be at night and/or on weekends only. All three interchanges could be constructed in 4 years. More aggressive and costly staging could shorten this timeframe.

Construction of the light rail component would require about 4 years for completion. A shorter construction period is possible if work on either side of the river precedes the completion of the new bridges. Any bridge structure work would be separate from the actual light rail construction activities and must be completed first.

The shortest total project construction timeline is approximately 6 years if the project sequencing is staged as efficiently as possible. This would require construction of all interchanges before the completion of the new bridges. Funding will be a major factor in determining the overall sequencing and construction duration. Contractor schedules, weather, materials, and equipment could also influence construction duration. Approximately 6 years is also the time required to complete the smallest usable segment of roadway, which is the Hayden Island through SR 14 interchanges. Timelines are in part dependent on how much work can be funded and commenced

at any given time. Estimation of timelines may be revisited once funding and other factors are more fully defined.

5.2.1 Detours and Road Closures

Constructing the project would entail many different activities, some of which would disrupt traffic. Typical construction methods would require shifting I-5 traffic onto temporary alignments, narrowing lanes and shoulders to accommodate equipment and workers, shortening merge and exit distances, reducing posted speed limits, and closing or detouring some traffic movements. For I-5, it is anticipated that three southbound and three northbound lanes would be maintained during all weekdays, except when the final changeover occurs between the old bridges and the new bridges. When temporary lane closures are needed to accommodate construction and ensure safety, they would typically occur at night and on weekends. It is expected that all of the current movements at each interchange would remain open during construction, with the exception of those movements that would be permanently changed, as described below.

During reconstruction of the SR 14 interchange, it is estimated that connections between SR 14 and downtown Vancouver, and between I-5 and downtown Vancouver will be closed for 4 years and 9 months. Connections between SR 14 and downtown Vancouver and between northbound I-5 and downtown Vancouver would be rerouted to Columbia Way or the Mill Plain Boulevard interchange.

The Evergreen Boulevard, 29th Street, and 33rd Street crossings of I-5 would also be closed for 9 months, though the crossings at 29th Street and 33rd street will not be closed simultaneously. N Jantzen Drive on Hayden Island would be closed for 8 months. Traffic would be detoured during those periods.

During Years 6 and 7 of construction traffic from Hayden Island to I-5 northbound will be detoured via Columbia House Blvd. Drivers from Hayden Island would cross the current northbound I-5 bridge, exit to SR 14 eastbound, U-turn at Columbia House Boulevard and return via SR 14 westbound to I-5 northbound. The duration of this detour is expected to be 1 year and 8 months.

5.2.2 Light Rail Construction

Construction of the light rail alignment over North Portland Harbor and Hayden Island is described above, with the river crossing and highway improvements, since these elements are so closely tied to the adjacent highway structures. Following is a description of construction activities necessary to build the light rail alignment through Vancouver.

The roadway along the light rail alignment would need to be rebuilt to support the weight of a two-car train. This would generally require that any utilities located beneath the guideway be relocated. Light rail would also require construction of catenary wires directly over the guideway to provide electrical power to the trains. Additionally, it would be necessary to seek temporary construction easements or small permanent easements on some properties adjacent to the light rail alignment to allow construction workers to encroach on several feet of a property while rebuilding the sidewalk in front of the property or to place specific elements such as overhead catenary poles behind the sidewalk.

Construction of the light rail guideway in Vancouver streets would need to be sensitive to the area's active urban environment. Maintaining access for motorists, delivery and service vehicles,

cyclists, and pedestrians during business hours is a key component of construction plans. Streets would be open to traffic and pedestrians when possible, but would need to close during some construction activities (pedestrian access would always be maintained except for brief disruptions). Rather than partially closing lanes through the entire segment for long periods of time, there would instead be full traffic closures of short segments to allow construction to be completed in a much shorter time frame in any given block. Crews typically work within a three- to five-block area before moving to the next construction zone. Light rail transit construction on existing streets would be staged and managed so as not to disrupt any single area for an extended period of time.

Transit construction would also require staging areas along the guideway to store construction equipment and to store and assemble materials. Many of the staging activities would take advantage of land that is already in the public right-of-way or in public ownership and that is not being used for other purposes, such as vacant lots. One large vacant site has been identified for light rail transit construction staging, located between Washington and Columbia Streets and 8th and 9th Streets.

5.2.3 Haul Routes

Existing transportation corridors consisting of highways and arterials will be the major routes into and out of the construction areas. Trucks will be the primary and predominant carrier of goods and services. I-5, SR 14, SR 500, Martin Luther King, and Marine Drive will serve as the major corridors into and out of the construction areas. Fourth Plain and Mill Plain Boulevards will serve important roles, but they are not expected to be as heavily used east of I-5. Materials source sites and the Port of Vancouver are west of the project site in Washington and west Fourth Plain and west Mill Plain could experience higher use depending on material source sites and the potential use of Port property for staging or casting yards. Road networks in Vancouver and on Hayden Island will provide access to individual work areas and provide circulation for construction vehicles. Columbia Way parallels SR 14 and becomes the main access into the industrial area that could be used for various staging purposes. As such, it could become a heavier used haul route than envisioned for the other local road networks. However, Columbia Way may be used as a detour route which may compound issues surrounding its use.

5.2.4 Bicycle and Pedestrian Mobility

Bicycle and pedestrian movements through the project area would remain during constructions, though rerouting would be necessary. Detours would lengthen the distance of some bicycle and pedestrian routes. Temporary routes may be narrower in some places than exist today. There will be the occasional need for enclosures to protect users from debris. Bicycle and pedestrian traffic that is currently separated northbound from southbound on the bridge crossing would be shifted for extended periods to one pathway accommodating traffic in both directions.

East-west connections over I-5 in Vancouver at SR 14, Evergreen Boulevard, Mill Plain Boulevard, McLoughlin Boulevard, Fourth Plain Boulevard, 29th Street and 33rd Street would be temporarily closed at times throughout project construction. When full closure of a connection is required, users would be detoured to a nearby intersection.

5.3 Oregon Temporary Effects

5.3.1 Hayden Island

Hayden Island residents would experience the most significant temporary effects during construction. Displacing 24 restaurants and the Safeway grocery store would eliminate a majority of the eating establishments on the island. Some groceries could be purchased at the Target store within the Jantzen Beach SuperCenter, and a few eating establishments will remain. Although restaurants and a grocery store may reestablish on the island once construction is complete, residents would have to travel off of the island, and through construction delays and detours, to purchase groceries and access a larger variety of eating establishments during construction.

Additionally, the loss of the pharmacy at Safeway would require residents to travel off of the island to obtain prescription medications. Construction delays and detours will complicate residents' ability to leave the island to reach this service elsewhere.

Residents of Hayden Island are likely to experience noise and vibration impacts due to construction equipment, vibratory compaction equipment, and pile driving during bridge construction. Air quality would be affected on Hayden Island by emissions from construction equipment. Residents living in floating homes would be susceptible to construction-related noise and air quality effects due to their close proximity to both the highway and transit alignments.

Construction activities for the highway and interchanges would result in traffic delays on I-5 during construction. These delays would have the greatest impact on Hayden Island residents as they have no route to bypass the construction activity. As a result, residents would experience increased travel times while construction activity is underway.

5.3.2 Bridgeton

The Bridgeton neighborhood would experience detours and delays due to construction on the Marine Drive Interchange. Bridgeton may also experience traffic spillovers due to motorists traveling along Marine Drive to the I-205 Bridge in order to avoid delays due to construction on the I-5 bridges. Residents in Bridgeton would not experience impacts from noise, vibration, or changes in air quality.

5.3.3 East Columbia

The East Columbia neighborhood may experience detours and delays due to construction on the Marine Drive Interchange. East Columbia may also experience traffic spillovers due to motorists traveling along Marine Drive to the I-205 Bridge in order to avoid delays due to construction on the I-5 bridges. Residents in East Columbia would not experience impacts from noise, vibration, or changes in air quality.

5.3.4 Kenton

The Kenton neighborhood may experience traffic spillovers and traffic detours and delays due to construction on the Marine Drive interchange. Residents in Kenton would not experience impacts from noise, vibration, or changes in air quality.

5.4 Washington Temporary Effects

5.4.1 West Minnehaha

Temporary effects are expected to be limited to the western border of the West Minnehaha neighborhood, as I-5 is its western boundary, and Leverich Park is in the southwest corner of the neighborhood. Temporary property acquisitions in West Minnehaha (temporary construction easements) may occur due to highway construction on I-5 and SR 500. The project would require temporary and permanent acquisition of property at the park entrance for construction of SR 500 eastbound to the I-5 northbound ramp. However, if construction of the northern legs of the SR 500 Interchange is deferred, there would be no property impacts to Leverich Park.

Residents are likely to experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the western portion of the neighborhood due to emissions from construction equipment. Construction activities for the transit and highway alignments would result in traffic delays and may create spillover traffic in other parts of the neighborhood.

5.4.2 Lincoln

Minor temporary property acquisitions (construction easements) would occur in the Lincoln neighborhood at the Kiggins Bowl property, due to construction of the highway alignment. Residents of Lincoln near the highway may experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the eastern portion of the neighborhood due to emissions from construction equipment.

5.4.3 Shumway

In Shumway, temporary effects would most likely be limited to the eastern boundary of the neighborhood. Minor temporary acquisitions would occur and a few residential properties due to construction of the highway alignment on I-5. Residents are likely to experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the eastern portion of the neighborhood due to emissions from construction equipment. Construction activities would result in traffic delays, meaning increased travel times for residents.

5.4.4 Rose Village

Temporary effects would be limited to the western border of the Rose Village neighborhood, as I-5 is its western boundary. Temporary property acquisitions (construction easements) would occur due to highway and transit construction on I-5 on nearly all the residential properties along I-5 between 33rd Street and Fourth Plain Boulevard. Residents in the western portion of the neighborhood would experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may also be affected in the western portion of the neighborhood due to emissions from construction equipment. Construction activities for the highway would result in traffic delays, meaning increased travel times for residents. Additionally, construction on I-5 may create spillover traffic in other parts of the neighborhood.

5.4.5 Hough

If the McLoughlin alignment is selected, minor temporary property acquisitions (construction easements) would occur in the southeast corner of the Hough neighborhood due to construction of the transit alignment. Residents near this area are likely to experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may also be affected in the neighborhood due to emissions from construction equipment. Construction activity for the transit guideway would result in traffic delays, meaning increased travel times for residents. Additionally, construction on Washington and McLoughlin would create spillover traffic in other parts of the neighborhood.

5.4.6 Arnada

Minor temporary property acquisitions (construction easements) from residential properties would occur in the Arnada neighborhood, due to construction of the transit alignment on McLoughlin Boulevard or 17th Street. Residents near McLoughlin and 17th are likely to experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may also be affected in the neighborhood due to emissions from construction equipment. Construction activity for the transit guideway would result in traffic delays, meaning increased travel times for residents. Additionally, construction on Broadway and McLoughlin or 17th Street would create spillover traffic in other parts of the neighborhood.

5.4.7 Central Park

There would be temporary property acquisitions at Marshall Community Park and Center and along the Clark College Recreation Fields within the Central Park neighborhood. The neighborhood may experience traffic spillovers, delays, and detours due to roadway and transit construction along I-5. Residents in the neighborhood would not experience impacts from noise, vibration, or changes in air quality because there are no homes in close proximity to the project construction.

5.4.8 Esther Short

Temporary property acquisitions (construction easements) would occur in the Esther Short neighborhood, due to construction of the transit alignment. The only identified community resource that would be affected by temporary acquisitions is the Regal Cinema adjacent to I-5. Temporary construction would impact resources at the back of the complex including landscaping and emergency exits. The emergency exits would be accommodated with circulation changes.

Residents within the neighborhood would experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the neighborhood due to emissions from construction equipment. Construction activities for the highway and transit alignments would result in traffic delays, meaning increased travel times for residents.

5.4.9 Hudson's Bay

The Hudson's Bay neighborhood may experience traffic spillovers and traffic delays and detours due to construction on I-5. Residents in the neighborhood would not experience impacts from noise, vibration, or changes in air quality.

5.4.10 Columbia Way

The Columbia Way neighborhood may experience traffic detours and delays due to construction on I-5, leading to increased travel times. The neighborhood would experience traffic spillovers as motorists may use SR 14 through Columbia Way to I-205 in order to avoid delays from construction on I-5. Residents in the neighborhood would not experience impacts from noise, vibration, or changes in air quality.

6. Proposed Mitigation for Adverse Effects

6.1 Proposed Mitigation for Long-term Adverse Effects

6.1.1 Oregon

The project would require the displacement of 32 floating homes in North Portland Harbor. Floating buildings that contain businesses and shelters for boat storage, some of which contain seasonal apartments, would also be displaced. Additionally, two businesses located on the on-land parcel associated with the Jantzen Beach Moorage would be displaced, and access at the east end of the property would be eliminated with the remaining access being at the far west end of the property.

The project team would evaluate a variety of mitigation options including relocating these floating homes and businesses to a nearby location or other areas on the river. All relocations would be in accordance with the Uniform Relocation Act. For more details on relocations, please refer to the Acquisitions Technical Report. Impacts to access from the shore to the floating homes for remaining Jantzen Beach Moorage residents would be mitigated through constructing new access points and connections to the floating homes.

All other displacements, including restaurants and the bank would be mitigated with relocation assistance in accordance with the Uniform Relocation Act.

Construction of the LPA would displace the Safeway grocery store on Hayden Island, which is the only grocery store and an important community resource on the island. Displacing Safeway would be a significant impact, as Hayden Island residents would have to leave the island to purchase groceries. The CRC project may suggest replacement sites for the relocation of Safeway, but it is entirely up to the store owners to choose their replacement location, if any. Officials representing the Jantzen Beach SuperCenter here initiated a site plan review with the City Portland. The SuperCenter plans a significant rebuilding effort that will include an expansion of the Target store. Early indications suggest the SuperCenter will include a pharmacy and drugstore in a new location.

The DOTs would work with TriMet to maintain the existing bus service that regularly connects Hayden Island with nearby grocery and other retail services. This may include additional routing on the island to provide greater transit access during construction. The DOTs would also work with TriMet to maintain paratransit service for qualifying, mobility impaired Hayden Island residents.

Although displacements in the Rockwood neighborhood for the Ruby Junction expansion must follow the Uniform Relocation Act, the nature of some of the displaced residences and businesses may require special consideration. Several of the properties being impacted house both an industrial type of business and a residence. This unique setting allows for small industrial business owners to live and work at the same location, which may not be possible after standard relocation to a new neighborhood. The project could provide commute assistance if no suitable site will allow for a similar home occupation, or support for development of a new home occupation where appropriate.

Hayden Island would undergo significant visual setting changes due to the expansion of the I-5 footprint and the addition of light rail tracks and stations. Visual impacts are more thoroughly discussed in the Visual and Aesthetic Resources Technical Report. Mitigation for visual impacts on Hayden Island may include design charrettes for residents to help design the light rail stations on the island. Residents could help design the stations to incorporate local art and reflect the character of the island. These charrettes could be held during the final design phase of the project.

No mitigation strategies are proposed within the Bridgeton or East Columbia Neighborhoods as no long-term impacts to neighborhood resources or cohesion are anticipated.

6.1.2 Washington

6.1.2.1 Arnada, Shumway, Esther Short, and Rose Village

The LPA would cause five residential displacements in the Arnada neighborhood, four residential displacements in the Shumway neighborhood and two residential displacements in the Esther Short neighborhood. All displacements will be mitigated through the Uniform Relocation Act. Please see the Acquisitions Technical Report for more information on this Act.

The project would acquire partial right-of-way from several residences in both the Shumway and Rose Village neighborhoods. The project may also indirectly affect these neighborhoods with noise, air quality, and visual impacts from noise walls, as the highway would be closer to these homes. However, such impacts would not have a major effect on neighborhood cohesion or on the neighborhood as a whole. Mitigation strategies for these impacts are fully discussed in the each of the Noise and Vibration, Air Quality, and Visual and Aesthetics technical reports.

6.1.2.2 Hough, Columbia Way, and Hudsons Bay

There are no proposed mitigation strategies for these neighborhoods as no long-term impacts to neighborhood resources or cohesion are anticipated.

6.1.2.3 Central Park

Long-term impacts to the Clark College Recreation Fields would be mitigated through several methods:

- Establishing a shared parking arrangement for use of the parking spaces in the new park and ride facility to compensate for lost parking;
- Constructing a pedestrian connection between the park and ride and the recreation fields; and
- Planting tall landscaping to visually screen views of the parking structure from the fields.

Similarly, as some parking is being removed from the Marshall Community Center and Park, parking mitigation would be necessary. For more information about mitigation plans at these parks, please refer to the Parks and Recreation Technical Report.

6.1.2.4 Lincoln

No displacements of community resources or residences would occur in the Lincoln neighborhood. For details on mitigation of the easement impacts to Discovery Middle School and Kiggins Bowl, please refer to the Parks and Recreation Technical Report. No other long-term mitigation is proposed.

6.1.2.5 West Minnehaha

No displacements of community resources or residences would occur in the West Minnehaha neighborhood. For details on mitigation of the easement impacts to Leverich Park, please refer to the Parks and Recreation Technical Report. No other long-term mitigation is proposed.

6.2 Proposed Mitigation for Adverse Effects during Construction

There would be a mitigation program to provide business and residential assistance during construction. Examples of program mitigation include:

- Construction activities may occur during nighttime hours to minimize traffic detours, delays and spillovers into the neighborhood, and would shield night-time lighting.
- The construction teams may hold pre-construction community meetings to inform residents of the construction timeline, relevant staging plans, ramp and road closures, and detour plans.
- The construction teams may install temporary signage to inform drivers of traffic delays because of construction and/or heavy equipment entering or leaving the highway.
- Local business assistance may include signage for continued operation and a hotline for project information.

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7. Permits and Approvals

Uniform Relocation and Real Property Acquisitions Policies Act of 1970 as amended (Uniform Act), as described in the Acquisitions Technical Report.

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