



**Oregon**

John A. Kitzhaber, MD, Governor

**Department of Transportation**

Office of the Director, MS 11

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Salem, OR 97301-3871

**DATE:** December 5, 2012

**TO:** Oregon Transportation Commission

**FROM:** Matthew L. Garrett  
Director

**SUBJECT:** **Agenda H** – Adoption of the Interstate 5: Broadway/Weidler Interchange Facility Plan

**Requested Action**

Request approval to adopt the Interstate 5: Broadway/Weidler Interchange Facility Plan and amend the 1999 Oregon Highway Plan. The Oregon Transportation Commission (OTC) adoption will establish policies for the interchange areas to guide Oregon Department of Transportation (ODOT) and local governments to manage the interchange facilities.

The City of Portland adopted a Resolution of Support (October 25, 2012) for the facility plan and will adopt it into the local comprehensive plans and transportation system plans.

**Background:**

The facility plan was prepared in coordination with the City of Portland as part of its North/Northeast Quadrant Plan. This Quadrant Plan is part of Central City 2035 (<http://www.portlandoregon.gov/bps/47907>), the City of Portland's effort to update the 1988 Central City Plan. ODOT worked with the city and Multnomah County to develop the facility plan to protect the function of the interchange and identify needed improvements.

OTC adoption of the facility plan will affirm its compatibility with local comprehensive plans, and will make the local actions already taken consistent with the state transportation plan. Adoption into the state plan also helps ensure local decisions are consistent with the Transportation Planning Rule (TPR), and requires local plans to be consistent with the state plan. Adoption by the OTC is the complementary action to support the legal proceedings and actions that local agencies have completed.

ODOT findings of fact that demonstrate compliance with the highway plan amendment process and the facility plan adoption process are attached as exhibit "B." Notification of this OTC action has been provided to the affected local jurisdictions and the Department of Land Conservation and Development.

**Attachments:**

- Project vicinity and location map
- PowerPoint presentation



The following attachments are available on the City of Portland's Project Page web site:  
<http://www.portlandoregon.gov/bps/article/422206>

- Exhibit A: Staff Report
- Exhibit B: Findings of Compliance with Applicable State Administrative Rules and Policies and Compatibility with Regional and Local Plans
- Exhibit C: Interstate 5 Broadway/Weidler Interchange Facility Plan
- Exhibit D: Interstate 5 Broadway/Weidler Interchange Report
- Exhibit E: City of Portland Resolution of Support

Copies to:

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# STIP PROJECT LOCATION

## ODOT REGION 1



- LEGEND**
- PROJECT LOCATION
  - STATE HIGHWAY CLASSIFICATION**
  - INTERSTATE
  - STATEWIDE
  - REGIONAL / DISTRICT
  - REGIONAL BOUNDARY
  - COUNTY BOUNDARY
  - ACT BOUNDARY

### I-5: BROADWAY/WEIDLER INTERCHANGE FACILITY PLAN KEY NO. 15462

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# **I-5: Broadway/Weidler Interchange Facility Plan**

November 2012

**Exhibit A**

**Staff Report**

**Exhibit A**  
**Staff Report:**  
I-5: Broadway/Weidler Interchange Facility Plan

## **OTC Briefing**

I-5: Broadway/Weidler Interchange Facility Plan

**December 2012**

### **Requested Action**

Region 1 requests that the OTC adopt the I-5: Broadway/Weidler Interchange Facility Plan to implement Policy 3C of the Oregon Highway Plan. On October 25, 2012, City Council voted unanimously to adopt the N/NE Quadrant Plan, a long-range plan for the Lower Albina and Lloyd Districts of the Central City, and the I-5 Broadway/Weidler Facility Plan, a concept plan for freeway and local street system improvements in the vicinity of the I-5 Broadway/Weidler interchange.

With local concurrence, ODOT staff developed findings documenting the Facility Plan consistency with the local plans.

### **Suggested Motion Language**

Move to adopt the I-5: Broadway/Weidler Interchange Facility Plan as an element of the Oregon Highway Plan and adopt the findings in support of this action.

### **Background**

In the summer of 2010, ODOT, City of Portland's Bureau of Transportation (PBOT) and Bureau of Planning and Sustainability (BPS) initiated a partnership to begin co-developing land use and transportation concepts for the North/Northeast quadrant of the central city (N/NE Quadrant) through an iterative process involving the public and area stakeholders. The project includes identifying specific improvements to the I-5 freeway within the overall project study area between I-84 and I-405 (at the Fremont Bridge), and improvements to the I-5 Broadway/Weidler Interchange area.

This joint effort represents a new land use-transportation approach in planning improvements to urban freeway interchanges. This approach combines the planning of local strategies for land use, urban design and local transportation improvements, typically a City responsibility, with the planning of interstate freeway improvements, which is an ODOT responsibility.

In August 2010, ODOT and the City officially created a Project Sponsor Chartering Document that each agreed to as the purpose, products and coordination guidelines for the project.

The project's approach for freeway improvements was to address long-demonstrated safety and operational issues that, if scaled according to community aspirations, would

## Exhibit A

### Staff Report:

#### I-5: Broadway/Weidler Interchange Facility Plan

contribute to the continued vitality of the Central City and the mobility needs of the region and state. Due to multiple constraints, freeway improvements were to focus on existing safety and reliability issues and not necessarily increase capacity to meet future travel demands.

Previous studies by ODOT and the City of Portland have attempted to address the considerable safety and operational issues of the I-5 freeway between I-84 and I-405 (Fremont Bridge). This segment of I-5 has not been improved since it was built in the 1960s and it remains one of the few sections of freeway in the region where there are only two through lanes in each direction. The safety and operational issues here derive largely from the close spacing of the I-84, Broadway/Weidler, I-405 and Greeley interchanges that occur within this short segment of I-5 and the high proportion of traffic volume entering onto and exiting from I-5 that create “weave” maneuvers between motorists entering and exiting the freeway.

As these studies were conducted and concept plans developed over the past 25 years, both ODOT and the City of Portland recognized that, although they addressed the safety and operational issues of the I-5 freeway between I-84 and I-405, the physical impacts of the solutions were greater than anyone desired. These previous efforts relied on the use of braided ramps to eliminate the weave conditions. While the traffic benefits of these solutions were demonstrated, concerns over their cost, the widened freeway footprint and the visual impacts of multiple new structures prevented their implementation.

### ***Purpose of the Facility Plan for the I-5 Broadway/Weidler Interchange***

State of Oregon agencies prepare facility plans for state-owned infrastructure so that they and decision-makers may effectively manage, maintain and prioritize potential additions to or expansion of this infrastructure. This Facility Plan will represent and confirm, if adopted by the OTC, the state’s long-range intent relative to this section of I-5 and the I-5 Broadway/Weidler Interchange.

### **Facility Function**

- I-5 is classified as an Interstate facility and is both a Freight Route and a Truck Route.
- I-84 is classified as an Interstate facility and is both a Freight Route and a Truck Route.
- I-405 is classified as an Interstate facility and is both a Freight Route and a Truck Route.

### **Interchange Function**

The I-5 Broadway/Weidler Interchange is located on I-5, in between I-405 to the north and I-84 to the south. The function of the I-5 Broadway/Weidler Interchange is to serve the Portland central city, which includes the industrial area of Lower Albina and the

commercial activity along the Broadway/Weidler corridor, regional attractions such as the Rose Garden Arena and the Lloyd Center mall, and the surrounding community.

## **Purpose**

The purpose of the I-5 Broadway/Weidler Interchange Improvement Plan is to improve the safety and operations on I-5 in the vicinity of the I-5 Broadway/Weidler Interchange.

## **Project Problem/Issues**

### **Congestion and Bottleneck**

In the context of the regional freeway network, the city's N/NE Quadrant sits at a crossroads of three regionally-significant freight and commuter routes. As a result, the freeway interchanges experience some of the highest traffic volumes in the state.

### **Highest Accident Rate in the State of Oregon**

Freeway vehicle collisions within the N/NE Quadrant are a major safety concern. Rear end collisions make up nearly three-quarters of all incidents on I-5, while sideswipe collisions comprise nearly one-fifth of incidents. While the severity of crashes, as indicated by the number of fatal accidents, is relatively low, incidents involving property damage and injury occur frequently within the quadrant and contribute to congestion on this segment of the freeway. This condition is exacerbated by the lack of emergency shoulders on this stretch of I-5.

The highest frequency of collisions occurred in the southbound direction south of the I-5 Broadway/Weidler Interchange (156 collisions). The highest frequency of accidents northbound also occurred south of the I-5 Broadway/Weidler Interchange (122 collisions). Overall the southbound direction had a higher level of collisions over this five-year time period with 292, compared to northbound with 180 collisions. I-5 in the project area experiences the highest crash rate in the state of Oregon.

The attributing factors to the high number of crashes and safety problems in the study area are:

- Heavy congestion
- Short weaving distances
- Lack of shoulders for accident/incident recovery

### **Weave Movements and Operational Issues**

Over its nearly two-mile course through the N/NE Quadrant study area, I-5 connects with five entrance and exit ramps northbound and six entrance and exit ramps southbound. As drivers enter and exit I-5 at these closely-spaced intervals and weave with each other in lane-changing maneuvers, "turbulence" or "friction" occurs and slows overall traffic.

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The turbulence in traffic flow caused by these weave maneuvers is especially acute in the N/NE Quadrant as drivers coming from entrance ramps or bound for exit ramps must make these lane changes within very short distances. This is especially true for the segment between the I-84 and I-405 interchanges as motorists use I-5 for overall through trips along I-5, for traveling between I-84 and I-405 and to access use the Broadway/Weidler Interchange for regional destinations like the Rose Garden Arena, the Veterans Memorial Coliseum, the Oregon Convention Center and the Lloyd Center mall.

The failing operations will be exacerbated in the future, with the most critical failure being the weave from I-5 Southbound from the Winning/Wheeler On-ramp to the I-84 Eastbound Off-ramp. This bottleneck will cause queuing that extends beyond the weaving section to the north and onto the Fremont Bridge.

### **The Process: The Stakeholder Advisory Committee and Public Outreach**

ODOT and the City undertook a comprehensive public process, complete with a diverse and inclusive Stakeholder Advisory Committee (SAC), a professional process facilitator, numerous outreach events in the community, study area tours and many briefings with potentially affected stakeholders and property owners.

An integral component of the process was the knowledge and input from the 30-member SAC; the committee members brought broad-ranging perspectives in the study area to advise the partner agencies at each step of the process. The SAC, which included members representing neighborhood, business, bicycle, pedestrian, transit, freight, rail, event facility and property owner interests, was one of the primary means of ensuring that the public had multiple opportunities to provide meaningful input into the planning process.

### **Coordination with Local Jurisdictions**

The N/NE Quadrant of the central city includes considerable multimodal infrastructure to support all types of travelers on all modes. In addition to the I-5 freeway and the local street network, four light rail transit (LRT) lines run through the area, converging on the Rose Quarter Transit Center next to the Rose Garden Arena. The City of Portland is constructing streetcar lines on Broadway/Weidler to connect with the Pearl District and the central east side of Portland. Eight TriMet bus lines also connect at the transit center.

The I-5 Broadway/Weidler Interchange Improvements Facility Plan proposes many new crosswalks that will improve pedestrian safety and connections to and from these major transit amenities. Two major bicycle commute routes run through the area: 1) the major east-west route along Broadway and Weidler, and 2) the major north-south route along Williams and Vancouver. The plan proposes a new east-west pedestrian and bicycle overcrossing at Clackamas Street to connect the Lloyd District with the Rose Quarter. The plan also includes a new Hancock/Dixon overcrossing structure and freeway lid that

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#### I-5: Broadway/Weidler Interchange Facility Plan

will allow for effective construction staging, improve viability of the PPS Blanchard site and provide a supplementary crossing to the north of “the Box” near the I-5 Broadway/Weidler Interchange.

The Lloyd Transportation Management Area (TMA) is one of the most successful TMAs in the Portland metropolitan region. The area is currently predominantly commercial and industrial. However, the proposed changes to land use designations in the N/NE Quadrant Plan will encourage a much greater mix of uses, especially in the central Lloyd District where significant density and mix of uses are anticipated.

The City of Portland and ODOT have jointly developed this freeway and local transportation plan, and have integrated the transportation and land use components. The transportation components were developed assuming existing zoning, except for changes at the Portland Public Schools (PPS) Blanchard site and some changes to allow more diverse uses in the central Lloyd District. The overall trip vehicle trip generation for the district is expected to be the same or lower than under previous zoning entitlements. The changes related to land use and the transportation recommended by this plan have been analyzed, and queues are not anticipated on the I-5 exit ramp deceleration areas.

### **Multimodal Mixed-use Area**

The I-5 Broadway/Weidler Interchange is within ¼-mile of an existing interchange. ODOT staff concurs that the Multimodal Mixed-use Area (MMA) designation is appropriate for the city’s companion N/NE Quadrant Plan and ODOT must be consulted prior to any future plan amendments within the MMA boundary and will remain in effect as long as progress is being made towards the implementation of project elements.

## **Recommended Concept and Elements**

The Recommended Concept, supported by a majority of the Stakeholder Advisory Committee (SAC) via a consensus-driven process, and its elements are based on technical assessments of bicycle and pedestrian operations, urban design/land use potential, traffic operations and safety. Figure 1 illustrate the extent of the improvements included in the Recommended Concept and Elements.

### **Facility Plan Elements**

- 1. Transportation System Management (TSM) and Transportation Demand Management (TDM) Strategies**, is designed to optimize the overall performance of the transportation system and to reduce vehicle demand, especially for commuter trips in the peak periods.

TSM measures are designed to make maximum use of existing transportation facilities, and include:

- Traffic engineering measures (e.g., such as signal timing changes, provision of turn lanes, turn restrictions and restriction of on-street parking to increase

I-5: Broadway/Weidler Interchange Facility Plan

the number of travel lanes without road widening) that improve the operations and efficiency of streets and intersections;

- System monitoring and traveler information systems (e.g., Intelligent Transportation Systems (ITS), variable message signs, etc.);
- Facility management systems (e.g., ramp meters, special use lanes, signal priority for special users such as transit); and
- Incident management systems (e.g., incident response and recovery teams).

Components of these TSM and TDM measures are in use today. The City of Portland and ODOT will continue to monitor, adjust and implement the strategies as needed.

**2. Construct Mainline Freeway Safety Elements**

- a. Extend auxiliary lanes in both directions.
- b. Add full-width shoulders in both directions.

**3. Re-construct Three Freeway Structures and Lid**

The Mainline Freeway Safety Elements require rebuilding the Weidler, Broadway and Williams structures over I-5; the new structures will be designed to meet seismic and clearance standards.

**4. Relocate I-5 Southbound On-Ramp to Weidler/Williams**

(from current location at Wheeler/Winning Way/Williams)

**5. Convert Williams to a Reverse Traffic-Flow Connection between Broadway and Weidler**

Includes a barrier-separated pedestrian/bicycle path in the middle.

**6. Construct Clackamas Pedestrian/Bicycle Overcrossing**

Establishes connection over I-5 from Winning Way to Clackamas.

**7. Re-construct the Vancouver Structure and Remove the Flint Structure;**

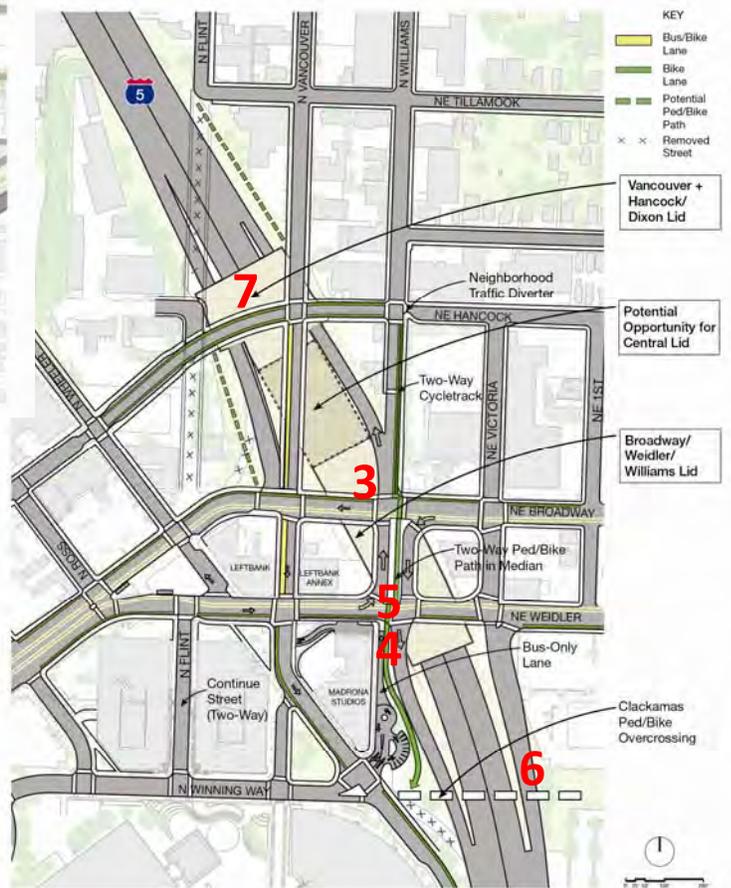
Reconfigure streets North of Broadway to include Hancock/Dixon Structure and Lid

Exhibit A  
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**Recommended Concept and Elements**  
 Figure 1



Overall Project Extent of the Recommended Concept

**Element 1 Transportation System Management (TSM) and Transportation Demand Management (TDM)**



Enlarged "Box" Area of the Recommended Concept

## **Project Monitors and Future Project Development**

The Facility Plan elements of the Recommended Concept are expected to significantly improve I-5 mainline operations and safety as well as improve interchange operations at the I-5 Broadway/Weidler Interchange. Once the Facility Plan elements are completed, ODOT and the City of Portland will continue to monitor the freeway operations in the I-5 Broadway/Weidler Interchange area.

If safety and operational issues remain on the freeway after construction of the Recommended Concept Facility Plan elements, ODOT will work with the City of Portland to initiate a public process to consider additional measures such as a southbound braided ramp from Broadway to I-84 or other options developed through a public process. A southbound braided ramp should not be precluded by the construction of the Recommended Concept Facility Plan elements.

## **Implementation Actions**

### **Project Development and Project Management**

1. Proceed with next phase of project development and complete Preliminary Engineering (PE) and environmental phases for federal funding.
2. Continue project management partnership between the City of Portland and ODOT.
  - Develop work scope and schedule.
  - Define environmental process
  - Develop intergovernmental agreement for completion of PE/environmental studies.
3. Develop public involvement process for PE/environmental phase and actions to resolve issues identified in the I-5 Broadway/Weidler Interchange Improvement Plan.
4. Special considerations will be discussed and identified during Preliminary Engineering and recommended as part of the Final Design/Engineering. These include:
  - Construction management strategies that can provide incentives to minimize construction periods, impacts, and costs;
  - Incentives for minority hiring; and
  - Strategies to support local businesses.

### **Preliminary Engineering**

The following are key products at the completion of Preliminary Engineering:

1. Complete PE level of engineering:
  - Develop project cost estimates.
  - Complete environmental documentation.
  - Identify potential construction phasing.

- If phasing is required, the City of Portland and ODOT will work together to match phases to the funding sources available.
2. Project agreements at the completion of PE:
    - Signals will continue to be timed so as to avoid queues backing up into the deceleration area of the I-5 Southbound exit ramp at Broadway.
    - Crosswalks will be provided at all signalized locations and should be provided at all safe and feasible locations.
    - The Rose Quarter Traffic Management Plan (TMP) should be updated with the participation of ODOT, City of Portland and the Rose Garden Arena prior to construction.
    - A preliminary construction mitigation plan will be developed that would include efforts to minimize impacts, support local businesses and support minority hiring.

### **Specific Design Coordination**

Property impacts are of great concern to the neighborhoods, businesses and agencies working in this area. The following are issues that will require further examination by ODOT and the City of Portland as part of Preliminary Engineering with community involvement:

1. Seek a viable single lid design solution over I-5 between Weidler and Hancock by exploring mitigation measures for freeway noise and vehicle emissions, and by addressing the need for open space and economic development.
2. Develop specific measures to address property and parking impacts to the Paramount Apartments, the Portland Public Schools Blanchard site and other sites related to the proposed Hancock/Dixon connection. The number of parking spaces should be the same or more than existing conditions at the Paramount Apartments, the Leftbank Building, the Leftbank Annex and the Madrona Studios.
3. Develop a network of alternative safe and convenient bicycle/pedestrian connections to include:
  - a. Enhanced facilities (including bicycle lanes, two-way cycle track, sidewalks and protected marked crossings) along Broadway, Weidler Street, Vancouver Avenue and Williams Avenue to include a wide, grade-separated multi-use path for Williams Avenue between Broadway and Weidler.
  - b. The development of a new pedestrian/bicycle connection between the Flint Avenue/Tillamook Street intersection to the proposed Hancock/Dixon overcrossing.
  - c. The development of a new pedestrian/bicycle connection from Hancock Street to Broadway while providing for potential parking mitigation, open space and redevelopment opportunities.

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4. Define appropriate Eliot neighborhood traffic mitigation measures for the recommended Hancock/Dixon connection between Vancouver Avenue and Dixon Street to discourage cut-through traffic.
5. Refine a street design and circulation plan for the area in the vicinity of the I-5 Broadway/Weidler Interchange. The refined street design and circulation plan should address the following issues:
  - a. Develop design elements that provide for safe and convenient access to the Leftbank Building and the Leftbank Annex.
  - b. Develop and evaluate circulation alternatives and design elements for the area north of Broadway, south of North Wheeler Place and west of I-5 to:
    1. Address the changes to access and circulation around the Paramount Apartments by investigating treatments for Wheeler Avenue, between Broadway and Hancock Street, in order to minimize cut through traffic at the west side of the Paramount but maintain access to the Lower Albina industrial district.
    2. Enhance bicycle access and safety to the proposed Hancock/Dixon connection over I-5 to the Broadway Bridge.
    3. Determine appropriate multimodal access and circulation to this area and Lower Albina.
  - c. Develop and evaluate circulation alternatives for Wheeler Avenue, Winning Way, Center Court, Flint Avenue and Williams Avenue to:
    1. Enhance circulation in the area for all modes.
    2. Provide flexibility to manage event ingress and egress.
    3. Open up opportunities for redevelopment and placemaking.
  - d. Develop design elements that address the changes to access and circulation to the Madrona Studios:
    1. Refine street design for Williams Avenue between Weidler Street and Wheeler Avenue to address access and circulation and on-street parking needs for the Madrona while also providing for bus, bike and pedestrian circulation.
    2. Provide for sufficient pedestrian and vehicle access to the Williams Avenue entrance to the Madrona Studios.
    3. Prepare an appropriate design treatment for the Weidler Street/Williams Avenue intersection for safe pedestrian and bicycle crossing.
    4. Visual or acoustic screening will be examined, designed and implemented between the Madrona Studios and the relocated on-ramp to I-5 at Weidler/Williams.
6. Develop design plans with TriMet for safe transit operation through the I-5 Broadway/Weidler Interchange.
7. Refine and finalize design for the Clackamas Overcrossing structure.
  - a. Coordinate design with future access connections east of I-5.
  - b. Coordinate design with future changes to traffic circulation west of I-5 and the relocation of the I-5 southbound on-ramp to Weidler/Williams.

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- c. Study and implement an event parking management plan for the Rose Quarter area, including the area adjacent to the future Clackamas Pedestrian/Bicycle Overcrossing on the east side of I-5. The exact boundaries and scope of the study will be determined at a later date.
8. Evaluate visual and environmental impacts of the proposed widening of the elevated segment of the I-5 freeway, including over the Rose Quarter Transit Center and near Peace Park, and identify mitigation measures as needed.

**Summary of Draft Findings**

ODOT's State Agency Coordination Agreement requires that the OTC adopt findings of fact when adopting facility plans (OAR 731-015-0065). Pursuant to these requirements, ODOT has developed findings to support the OTC adoption of the I-5: Broadway/Weidler Interchange Facility Plan. For all applicable policies, the IAMP has been found to be compatible with adopted state and local policies.

- Exhibit B Findings of Compliance for the IAMP is attached and address compliance with state and local plans, policies, and ordinances/statutes/rules.

# **I-5: Broadway/Weidler Interchange Facility Plan**

November 2012

## **Exhibit B**

**Findings of Compliance with Applicable State  
Administrative Rules and Policies and Compatibility with  
Regional and Local Plans**



# Findings of Compliance with Applicable State Administrative Rules and Policies and Compatibility with Regional and Local Plans

## Facility Plan

### I-5 Broadway/Weidler Interchange Improvements

#### **The Oregon Department of Transportation State Agency Coordination Program (Oregon Administrative Rule Chapter 731, Division 15)**

This section of the findings addresses compliance with applicable provisions of the Oregon Department of Transportation's (ODOT's) State Agency Coordination Program, which is Division 15 of Oregon Administrative Rule (OAR) Chapter 731. The purpose of ODOT's State Agency Coordination Program is to ensure that ODOT plans and projects "are carried out in compliance with the statewide planning goals and in a manner compatible with acknowledged comprehensive plans."<sup>1</sup> The provisions of ODOT's State Agency Coordination Program below apply to the Facility Plan for the I-5 Broadway/Weidler Interchange Improvements<sup>2</sup> (referred to in these findings as the Facility Plan).

ODOT adopted its State Agency Coordination Program to comply with Division 30 of OAR Chapter 660, issued by the Oregon Land Conservation and Development Commission (LCDC). Division 30 of OAR Chapter 660 implements LCDC's statutory duty to "coordinate planning efforts of state agencies to assure compliance with goals and compatibility with city and county comprehensive plans."<sup>3</sup> The section of these findings entitled "Statewide Planning Goals," which begins on page 4, below, further addresses the requirements of Division 30 of OAR Chapter 660.

#### **OAR 731-015-0065, Coordination Procedures for Adopting Final Facility Plans**

##### **OAR 731-015-0065(1)**

Except in the case of minor amendments, the Department shall involve DLCD [the Oregon Department of Land Conservation and Development] and affected metropolitan planning organizations, cities, counties, state and federal agencies, special districts and other interested parties in the development or amendment of a facility plan. This involvement may take the form of mailings, meetings or other means that the Department determines are appropriate for the circumstances. The Department shall hold at least one public meeting on the plan prior to adoption.

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<sup>1</sup> Oregon Administrative Rule (OAR) 731-015-0005.

<sup>2</sup> ODOT, I-5 Broadway/Weidler Interchange Improvements Facility Plan, Draft, October, 2012.

<sup>3</sup> Oregon Revised Statutes section 197.040(e).

### **Finding**

The development of the Facility Plan complied with OAR 731-015-0065(1) in the following ways. ODOT developed the Facility Plan in a process that combined development of the Facility Plan with development of the North/Northeast (N/NE) Quadrant Plan by the City of Portland. The N/NE Quadrant Plan is part of the City of Portland's Central City 2035 Plan, an update of its 1988 Central City Plan. The N/NE Quadrant Plan addresses land use, urban design, and transportation improvements in an area that includes the Facility Plan area.

The same committee, the Stakeholders Advisory Committee (SAC), advised on both plans and included representatives of Metro (the metropolitan planning organization) Portland Bureau of Planning and Sustainability, Portland Bureau of Transportation, Portland Development Commission, Port of Portland, TriMet (the transit agency), ODOT, and 29 other interested parties. By the time of adoption of the Facility Plan, the SAC will have met 19 times on the Facility Plan and N/NE Quadrant Plan. ODOT and the City of Portland have held four public information meetings on the Facility Plan and N/NE Quadrant Plan.

On October 25, 2012, City Council voted unanimously to adopt the [N/NE Quadrant Plan](#), a long-range plan for the Lower Albina and Lloyd Districts of the Central City, and the [I-5 Broadway/Weidler Facility Plan](#), a concept plan for freeway and local street system improvements in the vicinity of the I-5 Broadway/Weidler interchange. The City of Portland's Resolution of Support is available on their project web site:

[www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

On October 30, 2012, ODOT sent a draft of the proposed Facility Plan to DLCD requested that they identify any specific plan requirements which apply, any general plan requirements which apply and whether the draft facility plan is compatible with the acknowledged comprehensive plan.

### **OAR 731-015-0065(2)**

The Department shall provide a draft of the proposed facility plan to planning representatives of all affected cities, counties and metropolitan planning organization and shall request that they identify any specific plan requirements which apply, any general plan requirements which apply and whether the draft facility plan is compatible with the acknowledged comprehensive plan. If no reply is received from an affected city, county or metropolitan planning organization within 30 days of the Department's request for a compatibility determination, the Department shall deem that the draft plan is compatible with that jurisdiction's acknowledged comprehensive plan. The Department may extend the reply time if requested to do so by an affected city, county or metropolitan planning organization.

### **Finding**

On October 30, 2012, ODOT sent a draft of the proposed Facility Plan to the City of Portland, Multnomah County, Metro, and requested that they identify any specific plan requirements

which apply, any general plan requirements which apply and whether the draft facility plan is compatible with the acknowledged comprehensive plan.

The City of Portland's Resolution of Support is available on their project web site:

[www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

#### **OAR 731-015-0065(4)**

The Department shall evaluate and write draft findings of compatibility with acknowledged comprehensive plans of affected cities and counties, findings of compliance with any statewide planning goals which specifically apply as determined by OAR 660-030-0065(3)(d), and findings of compliance with all provisions of other statewide planning goals that can be clearly defined if the comprehensive plan of an affected city or county contains no conditions specifically applicable or any general provisions, purposes or objectives that would be substantially affected by the facility plan.

#### ***Finding***

These findings comply with OAR 731-015-0065(4) in the following ways. First, the findings beginning on page 27 address compatibility with the City of Portland's acknowledged comprehensive plan. The Facility Plan does not require an amendment to the City's Comprehensive Plan. Second, only OAR 660-012-0030, Determination of Transportation Needs, one of the rules that implement Statewide Planning Goal 12, specifically applies to the Facility Plan, as determined by OAR 660-030-0065(3)(d). These findings address compliance with OAR 660-012-0030 beginning on page 10. For the reasons stated beginning on page 10, neither Goal 12, itself, nor any sections of the administrative rules that implement Goal 12 other than OAR 660-012-0030, nor any other of the Statewide Planning Goals, apply to the Facility Plan. In addition, the Facility Plan is identified in the Metro RPT, Metro Project #10867 and is listed as a Federal Financially Constrained project.

#### **OAR 731-015-0065(5)**

The Department shall present to the Transportation Commission the draft plan, findings of compatibility with the acknowledged comprehensive plans of affecting cities and counties and findings of compliance with applicable statewide planning goals.

#### ***Finding***

ODOT has complied with OAR 731-015-0065(5) by submitting to the Oregon Transportation Commission (OTC) the draft Facility Plan and these findings.

#### **OAR 731-015-0065(6)**

The Transportation Commission shall adopt findings of compatibility with the acknowledged comprehensive plans of affected cities and counties and findings of

compliance with applicable statewide planning goals when it adopts the final facility plan.

**Finding**

The OTC has complied with OAR 731-015-0065(6) by adopting these findings.

**OAR 731-015-0065(7)**

The Department shall provide copies of the adopted final facility plan and findings to DLCD, to affected metropolitan planning organizations, cities, counties, state and federal agencies, special districts and to others who request to receive a copy.

**Finding**

ODOT will comply with OAR 731-015-0065(7) by sending copies of the Facility Plan to DLCD, Metro, the City of Portland, Multnomah County, the state and federal agencies listed in the finding of compliance with OAR 731-015-0065(1), above, and others who have requested to receive a copy.

**Statewide Planning Goals**

Findings of compliance with Statewide Planning Goals other than Goals 1 and 12 are not required because the City of Portland's comprehensive plan contains conditions specifically applicable to and general provisions, purposes and objectives that would be substantially affected by the Facility Plan. Section 2 of DLCD's OAR 660-030-0065, Agency Compliance With the Statewide Planning Goals, states:

Except as provided in section (3) of this rule [subsection d of which is quoted above], a state agency shall comply with the statewide goals by assuring that its land use program is compatible with the applicable acknowledged comprehensive plan(s) \* \* \*

**Goal 1: Citizen Involvement**

Goal 1, Citizen Involvement, ensures the opportunity for all citizens to be involved in all phases of the planning process. The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and for information that enables citizens to identify and understand the issues.

**Finding**

The Facility Plan was developed with the City of Portland's N/NE Quadrant Plan. The N/NE Quadrant Plan will update the City of Portland's Central City Plan. The Public Involvement Plan developed jointly by the City of Portland and ODOT outlines the planning process requires citizen involvement consistent with Goal 1. Appendix F: Public Involvement Summary describes the process, events and tools used for the project. Project committees for the Facility Plan guided the process and provided important policy, community, and technical feedback throughout the project. Interviews, public meetings, and briefings were held with neighbors,

business interests, and local community organizations. Informational materials—newsletters, the project website, and a press release—provided project updates to the general public.

### **Key Stakeholders and Project Advisory Committees**

The Oregon Department of Transportation, working with the other project partners the Bureau of Planning and Sustainability and the Portland Bureau of Transportation, involved a variety of stakeholders and interested parties in the N/NE Quadrant planning process. These stakeholders had varying levels of interest in the planning process, ranging from property owners who will be directly impacted by the plan outcomes to members of the general public who wanted to stay informed about what is happening in the Central City.

#### *Stakeholder Advisory Committee*

A Stakeholder Advisory Committee (SAC) was one of the primary means of ensuring that the public had opportunities to provide meaningful input into the planning process. SAC members were selected to represent key stakeholder interests and to create a balanced committee to guide the planning effort. All SAC members were appointed by the directors from the City of Portland and the Oregon Department of Transportation Region 1 Office. The SAC was made up of 30 voting members, representing area stakeholders, including business and neighborhood associations and property owners, as well as community interests such as affordable housing, cultural heritage, the environment, economic equity, labor, urban design and transportation. Local, regional and state public agencies were also represented on the committee as non-voting members. The SAC roster is available at the City of Portland's project web site:

[www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

The role of the SAC was to advise and direct project staff throughout the planning process and to make recommendations about the project to the Portland Planning and Sustainability Commission and the Oregon Transportation Commission. SAC members were expected to report back to and solicit input from their stakeholder groups and constituencies, represent the broader interests of those groups at meetings and promote public involvement in project events. Early in the process SAC members developed and adopted collaboration principles that governed decision making for the committee.

Subcommittees of the SAC met periodically to address specific issues, such as transportation, land use and urban design. Members of the public were invited to join the subcommittee to have more in-depth participation in the process.

In all, 19 full SAC meetings and 13 subcommittee meetings were held. All meetings were open to the public and included opportunities for public comment.

A complete listing of SAC meetings and other project activities can be found on the Project Web site: [www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

#### *Technical Advisory Committee*

A Technical Advisory Committee (TAC) representing public agencies with specialized expertise related to the plan and implementation served as a resource for the planning process. TAC members were responsible for reviewing project proposals, providing comments to project staff and reporting back to their agencies throughout the planning process. The TAC met six times, in addition to individual coordination meetings with City bureaus and other public agencies that occurred during the process.

## **Public Involvement Events and Tools**

### **Events**

**SAC Meetings:** SAC and its subcommittee meetings were held approximately monthly, and served as ongoing opportunities to share information and receive feedback from stakeholders and members of the general public. SAC meeting materials and minutes were posted on the project website. [www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

**Public Workshops/Charrettes:** Two design charrettes were held during the concept development phase of the project focused on land use/urban design and the I-5 Freeway improvements. Charrette participants, including technical experts, SAC members and the general public, discussed issues and opportunities in the quadrant and explored possible solutions. Approximately 65 people attended the charrettes. [www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

**Open Houses:** Four open houses were held at key points in the process to inform the public and get feedback. Staff presented recommendations, answered questions and took public comments. Approximately 450 people attended the open houses. [www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

**Community Walks:** Community walks were conducted during the existing conditions phase of the planning process in September 2010 and before the SAC was asked to endorse the recommended I-5 freeway concept in April 2012. Staff and community members shared their knowledge of the N/NE quadrant with the SAC and other members of the public, and the groups discussed potential issues and opportunities related to the concept proposals. Approximately 40 people attended the walks. [www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

**Community Group Meetings:** The project team attended meetings of existing community groups, such as neighborhood and business associations, advocacy groups and other organizations, to share information and get feedback throughout the process. In the summer of 2011, the project team made a significant effort to obtain feedback on plan proposals, attending 20 separate outreach meetings in less than 3 months.

**Commission Briefings and Public Hearings:** Project briefings were provided to the Portland Community Involvement Committee, Planning and Sustainability Commission, Historic Landmarks Commission and Design Commission during the process. The plan will undergo a formal public hearing process before the Portland Planning and Sustainability Commission and City Council prior to adoption.

In addition to the events outlined above, staff met with individual businesses, property owners and other interested stakeholders throughout the process. A complete list of events and meetings is outlined in Table F3: *N/NE Quadrant Project Outreach Log*.

All events are available on the Project web site:

[www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

### **Communication/Information Tools**

**Project Website:** The project website served as the primary source of information for the public and as a means to solicit and receive public feedback. The website included project information and regular updates, documents, a calendar of events, meeting agendas and minutes, links to other related planning efforts and staff contact information. The Project Web site is located at:

[www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

**Survey:** In the summer of 2011, an on-line survey was developed to get feedback on three concept alternatives developed by staff in coordination with SAC members. Survey responses helped inform development of a proposed concept, which was eventually endorsed by the SAC, and formed the basis for the goals, policies and implementation actions included in the quadrant plan. Approximately 140 survey responses were received.

**Mailings and Newsletters:** An electronic mailing list was used to provide frequent updates to interested parties regarding meetings, events and new products. Occasional articles and notices were distributed through the BPS bimonthly e-newsletter. A hard copy notice announcing the project and the first open house was mailed to businesses and residents within the N/NE Quadrant planning area and other interested parties.

**Media:** Announcements for key events and document releases were distributed to local media outlets (Oregonian, Daily Journal of Commerce, neighborhood newspapers and other outlets).

Therefore, the Facility Plan is consistent with Goal 1.

Compatibility with the City of Portland's acknowledged comprehensive plan for the following Goal 2, 5-11, and 13-15 are addressed on page 27.

These following goals were determined not to be applicable to the development of the Facility Plan within the City of Portland.

#### Goal 3: Agricultural Lands

This goal defines "agricultural lands." It then requires counties to inventory such lands and to "preserve and maintain" them through farm zoning.

The Facility Plan is within the Metro Boundary, there are no agricultural lands within the city boundary.

#### Goal 4: Forest Lands

Defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

The Facility Plan is within the Metro Boundary, there are no forest lands within the city boundary.

#### Goal 16: Estuarine Resources

This goal requires local governments to classify Oregon's 22 major estuaries in four categories: natural, conservation, shallow-draft development, and deep-draft development. It then describes types of land uses and activities that are permissible in those "management units."

The Facility Plan is within the Metro Boundary, there are no major estuaries areas within the city boundary.

#### Goal 17: Coastal Shorelands

The goal defines a planning area bounded by the ocean beaches on the west and the coast highway (State Route 101) on the east. It specifies how certain types of land and resources there are to be managed: major marshes, for example, are to be protected. Sites best suited for unique coastal land uses (port facilities, for example) are reserved for "water-dependent" or "water related" uses

The Facility Plan is not located near coastal shorelands.

#### Goal 18: Beaches and Dunes

Goal 18 sets planning standards for development on various types of dunes. It prohibits residential development on beaches and active fore dunes, but allows some other types of development if they meet key criteria. The goal also deals with dune grading, groundwater drawdown in dune aquifers, and the breaching of fore dunes.

The Facility Plan is not located near beaches or dunes areas.

#### Goal 19: Ocean Resources

Goal 19 aims "to conserve the long-term values, benefits, and natural resources of the near shore ocean and the continental shelf." It deals with matters such as dumping of dredge spoils and discharging of waste products into the open sea. Goal 19's main requirements are for state agencies rather than cities and counties.

The Facility Plan not located near the Pacific Ocean or shorelines.

### **OAR 660, Division 12: Transportation Planning Rule**

The purpose of the Transportation Planning Rule (TPR) is "to implement Statewide Planning Goal 12 (Transportation) and promote the development of safe, convenient and economic transportation systems that are designed to reduce reliance on the automobile so that the air pollution, traffic, and other livability problems faced by urban areas in other parts of the country may be avoided." A major purpose of the TPR is to promote more careful coordination of land use and transportation planning, to ensure that planned land uses are supported by and are consistent with planned transportation facilities and improvements. The TPR references OAR 731, Division 15, for ODOT coordination procedures related to adopting facility plans and plans for Class 1 and 3 projects.

### **Sections 660-012-005 through 660-012-0050**

*Sections 660-012-005 through 660-012-0050 of the TPR contain policies for preparing and implementing a transportation system plan.*

#### **Finding**

The I-5 Broadway/Weidler Interchange Facility Plan is consistent with the City's existing transportation system plan and other plans that set into place the transportation and land uses for the study area. Part 5 of Section 660-012-005 requires that cities update their TSPs and implement measures when a refinement plan has been completed. The City as part of this planning process is updating the City Comprehensive Plan and Transportation Element. The NNE Quadrant Plan has incorporated the elements of the Facility Plan as recommended improvements for the Quadrant. At the October 25, 2012 City of Portland City Council meeting voted unanimously to adopt the N/NE Quadrant Plan, a long-range plan for the Lower Albina and Lloyd Districts of the Central City, and the Broadway/Weidler Facility Plan, a concept plan for freeway and local street system improvements in the vicinity of the I-5 Broadway/Weidler interchange. Therefore, the Facility Plan is consistent with the City of Portland Comprehensive Plan and Transportation Element. There are not amendments or updates required.

### **Section 660-012-0060**

*Part 1 of Section 660-012-0060 requires that, where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government must put into place measures to assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility.*

#### **Finding**

When developing the I-5 Broadway/Weidler Interchange project and this Facility Plan, current and future planned land uses were considered and examined relative to the interchange's ability to support future land uses and traffic demands. The facility plan analyzed many different improvements and none of the improvements would meet mobility targets at the ramp terminals or on the mainline of I-5. The proposed project is meant to improve safety and operations on the freeway, not meet mobility targets, and also improve safety of users of all modes on the local street system. An MMA designation is recommended in the facility plan and will be implemented upon adoption by the Oregon Transportation Commission. Although this Facility Plan refines the OHP, it is not a plan amendment subject to this TPR element.

## Oregon Transportation Plan<sup>4</sup>

The Oregon Transportation Plan (OTP) is the overarching policy document among the plans that together form the state transportation system plan. The OTP considers all modes of Oregon's transportation system as a single system and addresses the future needs of Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation, and railroads through 2030. Findings of compliance with applicable provisions of the OTP follow.

### Policy 1.2 Equity, Efficiency and Travel Choices

It is the policy of the State of Oregon to promote a transportation system with multiple travel choices that are easy to use, reliable, cost-effective and accessible to all potential users, including the transportation disadvantaged.

#### *Finding*

The Facility Plan complies with Policy 1.2 by improving the operation of I-5 and the Broadway/Weidler Interchange for motor vehicle travel while also accommodating alternative travel modes and improving facilities for them. Extended auxiliary lanes and new full-width shoulders on I-5, relocation of the southbound entrance ramp, the addition of reverse flow lanes on Williams Avenue between Broadway and Weidler Street, and the addition of a street crossing of I-5 at Hancock Street will improve conditions for motor vehicles. Retention of the Broadway and Weidler Street crossings of I-5 accommodates the bus route and streetcar line that cross I-5 on Broadway and Weidler Street.<sup>5</sup> Improvements for alternative modes are widened sidewalks and improved bicycle lanes on all new or reconstructed freeway crossing structures, a two-way bicycle and pedestrian path in the median of Williams Avenue, a two-way "cycle track"<sup>6</sup> on Williams Avenue between Broadway and Hancock Street, and a bicycle and pedestrian overcrossing of I-5 at Clackamas Street. This plan addresses all modes of travel, and includes many improvements that increase the ability for the transportation disadvantaged to travel, especially pedestrian safety while accessing transit services provided by Tri-Met in the area.

### Policy 1.3 Relationship of Interurban and Urban Mobility

It is the policy of the State of Oregon to provide intercity mobility through and near urban areas in a manner which minimizes adverse effects on urban land use and travel patterns and provides for efficient long distance travel.

#### *Finding*

The Facility Plan complies with Policy 1.3 because the improvements to I-5 will improve the efficiency of long distance travel through Portland, while the improvements to the

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<sup>4</sup> ODOT, Oregon Transportation Plan, adopted September 20, 2006.

<sup>5</sup> These are TriMet Line 9, Broadway/Powell, and the Eastside Streetcar Loop.

<sup>6</sup> A cycle track is a bicycle lane that is separated from motor vehicle lanes by on-street parking or a physical barrier and is also separated from sidewalks.

transportation infrastructure at the Broadway/Weidler Interchange will minimize adverse impacts to land use in the Facility Plan area. In particular, the latter improvements include the bicycle and pedestrian facilities identified in the finding of compliance with OTP Policy 1.2, above, and proposed lids over I-5 in the interchange area. The proposed lids have the potential to provide open space and development opportunities. Minimizing adverse impacts on land use motivated the decision to develop the Facility Plan and the N/NE Quadrant Plan in collaboration with one another.

### **Policy 2.1 Capacity and Operational Efficiency**

It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long term benefit of people and goods movement.

#### ***Finding***

The Facility Plan complies with Policy 2.1. The extended auxiliary lanes and new full-width shoulders on I-5, relocation of the southbound entrance ramp, and the addition reverse traffic flow lanes on Williams Avenue between Broadway and Weidler Street will increase the safety and operational efficiency of the transportation system.

The proposed auxiliary lanes and shoulder widening on I-5 are to increase the safety and operations in this section of freeway from I-405 to I-84. The existing four-lane section with limited shoulders creates a bottleneck and congestion reducing the capacity and operational efficiency of the freeway. The freeway improves will increase the efficiency of the freeway.

The A two-way bicycle and pedestrian path in the median of Williams Avenue, the two-way “cycle track” on Williams Avenue between Broadway and Hancock Street, bicycle lanes on the new crossing of I-5 at Hancock Street, and the bicycle and pedestrian overcrossing of I-5 at Clackamas Street will increase the capacity and operational efficiency of bicycle and pedestrian transportation system.

### **Policy 3.1 An Integrated and Efficient Freight System**

It is the policy of the State of Oregon to promote an integrated, efficient and reliable freight system involving air, barges, pipelines, rail, ships and trucks to provide Oregon a competitive advantage by moving goods faster and more reliably to regional, national and international markets.

#### ***Finding***

The Facility Plan will comply with Policy 3.1 by increasing the capacity and operational efficiency of I-5 and the Broadway/Weidler Interchange, as described in the finding of compliance with Policy 2.1, above. I-5 is a designated freight route in the OHP. The improvements described in the facility plan will reduce the weaving on I-5 which reduces operational capacity through the provision of shoulders and the auxiliary lanes. These improvements will also reduce the number of accidents in the study area by 30-50%, which will increase the reliability through the corridor providing freight users a better ability to plan shipments and deliveries. A slight improvement

of speeds will also occur, providing less delay in the project area. This will enhance the efficiency and reliability of the freight system.

#### **Policy 4.1 Environmentally Responsible Transportation System**

It is the policy of the State of Oregon to provide a transportation system that is environmentally responsible and encourages conservation and protection of natural resources.

#### ***Finding***

The Facility Plan complies with Policy 4.1 in three ways. First, the replacement of the Broadway, Weidler Street, and Williams Avenue structures crossing I-5, the extension of auxiliary lanes, and adding shoulders would permit upgrading and improving storm water from I-5 in the project area. Second, the design and construction of these improvements would enable installation of landscaping that is more environmentally responsible consistent with the goal of providing bird friendly habitat in the NNE Quadrant. Third, the bicycle and pedestrian improvements would encourage bicycling, walking, and transit use, which conserve fossil fuels and reduce emissions of greenhouse gasses by reducing the affect of single occupancy vehicles. The project will also reduce idling in the project area, without accommodating more demand, so a minor benefit to air quality is anticipated.

#### **Policy 5.1 Safety**

It is the policy of the State of Oregon to continually improve the safety and security of all modes and transportation facilities for system users including operators, passengers, pedestrians, recipients of goods and services, and property owners.

#### ***Finding***

The Facility Plan complies with Policy 5.1 because it will improve safety on both the State Highway System and the local street system in the Facility Plan area. The crash rate on I-5 in the Facility Plan area is the highest in the State of Oregon.<sup>7</sup> The locations with the highest crash rates are: 1) the weave between traffic on the I-5 southbound entrance ramp from Wheeler Street and the exit ramp to I-84 east; 2) the weave between traffic on the I-5 northbound entrance ramp from I-84 westbound and the exit ramp to Weidler Street; and, 3) the weave between traffic on the I-5 northbound entrance ramp from Broadway Street and the exit ramp to I-405.

The Facility Plan's proposed extension of southbound and northbound auxiliary lanes will reduce crashes at these locations by providing more room for vehicles to maneuver. In addition, the Facility Plan's proposed two-way bicycle and pedestrian path in the median of Williams Avenue, two-way "cycle track"<sup>8</sup> on Williams Avenue between Broadway and Hancock Street, bicycle lanes on the new crossing of I-5 at Hancock Street, and bicycle and pedestrian

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<sup>7</sup> I-5 Broadway/Weidler Interchange Improvements Facility Plan, op. cit., p. 2.

<sup>8</sup> Footnote 6 defines a cycle track.

overcrossing of I-5 at Clackamas Street will improve safety for cyclists and pedestrians on the local street system.

### **Policy 7.3 Public Involvement and Consultation**

It is the policy of the State of Oregon to involve Oregonians to the fullest practical extent in transportation planning and implementation in order to deliver a transportation system that meets the diverse needs of the state.

#### **Strategy 7.3.1**

In all phases of decision-making, provide affected Oregonians early, open, continuous, and meaningful opportunity to influence decisions about proposed transportation activities. When preparing and adopting a multimodal transportation plan, modal/topic plan, facility plan or transportation improvement program, conduct and publicize a program for citizen, business, and tribal, local, state and federal government involvement. Clearly define the procedures by which these groups will be involved.

#### **Finding**

The Facility Plan complies with Policy 7.3 and Strategy 7.3.1 for the same reasons that it complies with OAR 731-015-0065(1), as described on page 2 and are incorporated here.

### **Policy 7.4 Environmental Justice**

It is the policy of the State of Oregon to provide all Oregonians, regardless of race, culture or income, equal access to transportation decision-making so all Oregonians may fairly share in benefits and burdens and enjoy the same degree of protection from disproportionate adverse impacts.

#### **Finding**

The Facility Plan process included public meetings held at times when stakeholders and community members could attend as part of the City of Portland's N/NE Quadrant Plan development. A description of the Public Involvement Plan is available on the project website.

<http://www.portlandoregon.gov/bps/article/313842>

To the extent that the Facility Plan improves safety and multi-modal travel, the Facility Plan also benefits all members of the community, including diverse populations such people with lower incomes and disabilities.

The Stakeholder Advisory Committee (SAC) contented several members that represented neighborhood associations and property owners, as well as community interests such as affordable housing, cultural heritage, the environment, economic equity, and labor that help asserted equal access to transportation decision-making process. The Facility Plan does not adversely impact poor or minority populations. No housing is being removed by the project described in the plan. A special survey was conducted to identify structures that have special

African-American historical significance, and none of the proposed improvements impact any resources identified through the research.

Therefore, the Facility Plan is complies with this policy.

## Oregon Highway Plan<sup>9</sup>

The 2011 OHP establishes policies and investment strategies for Oregon's state highway system over a 20-year period and refines the goals and policies found in the OTP. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

### Policy 1B. Land Use and Transportation

This policy recognizes the role of both State and local governments related to the state highway system:

- State and local government must work together to provide safe and efficient roads for livability and economic viability for all citizens.
- State and local government must share responsibility for the road system.
- State and local government must work collaboratively in planning and decision-making relating to transportation system management.

It is the policy of the State of Oregon to coordinate land use and transportation decisions to efficiently use public infrastructure investments to:

- Maintain the mobility and safety of the highway system;
- Foster compact development patterns in communities;
- Encourage the availability and use of transportation alternatives;
- Enhance livability and economic competitiveness; and
- Support acknowledged regional, city and county transportation system plans that are consistent with this Highway Plan.<sup>10</sup>

### Finding

The Facility Plan complies with Policy 1B and Action 1B.1 in the following ways. First, as stated above, ODOT developed the Facility Plan in a process that combined development of the Facility Plan with development of the North/Northeast (N/NE) Quadrant Plan by the City of

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<sup>9</sup> ODOT, Oregon Highway Plan, including amendments through March 2012.

<sup>10</sup> ODOT, OHP, op. cit., p. 55.

Portland. The N/NE Quadrant Plan addresses land use, urban design and transportation improvements in an area that includes the Facility Plan area. In this way, ODOT worked collaboratively with the City of Portland as the local government, worked to maintain the mobility and safety of the highway system, fostered compact development patterns, and encouraged the availability and use of transportation alternatives. The Facility Plan is consistent with the city of Portland comprehensive Quadrant Plan. On October 25, 2012, City Council voted unanimously to adopt the [N/NE Quadrant Plan](#), a long-range plan for the Lower Albina and Lloyd Districts of the Central City, and the [I-5 Broadway/Weidler Facility Plan](#), a concept plan for freeway and local street system improvements in the vicinity of the I-5 Broadway/Weidler interchange.

### Action 1B.1

Actively pursue the objectives and designations in the Background, Intent and Actions in Policy 1B, as appropriate, through:

\* \* \*

Facility and transportation system plans;

\* \* \*

Local planning and zoning amendments;

\* \* \*

### Finding

Relevant objectives in the Background and Intent section of Policy 1B are:

- “assure balanced, multi-modal accessibility to existing and new development within urban areas to achieve the state goal of compact, highly livable urban areas”<sup>11</sup>
- “connect land use and transportation in a way that achieves long-term objectives for the state highway and the local community”<sup>12</sup>
- “focusing growth in more compact development patterns.”<sup>13</sup>

The Facility Plan actively pursues these objectives in a number of ways. First, the auxiliary lane extensions and shoulders on I-5 will enhance motor vehicle access to the area. Second, accommodation of the bus line and streetcar line that cross I-5 on Broadway and Weidler Street and the bicycle and pedestrian improvements in the Plan will improve multi-modal accessibility to the Facility Plan area in a way that will foster livability and compact development. Third, development of the Facility Plan in conjunction with the N/NE Quadrant Plan helps achieve ODOT’s objectives for I-5 and the City of Portland’s objectives for the surrounding community. Fourth, the coordination between the Facility Plan and N/NE Quadrant Plan will permit more compact development in the Facility Plan area than would be otherwise allowed.

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<sup>11</sup> Ibid., p. 45.

<sup>12</sup> Ibid., p. 46.

<sup>13</sup> Ibid.

ODOT is not pursuing the designations defined in the Background and Intent section of Policy 1B, i.e., a special transportation area, urban business area, or commercial center. These designations permit the application of less restrictive mobility performance targets to state highways. However, the City of Portland intends that the N/NE Quadrant Plan qualify as a “multimodal mixed-use area” under OAR 660-012-0060(10). This is a provision of the TPR that allows less restrictive mobility performance targets to apply to adoption of the N/NE Quadrant Plan.

#### **Action 1B.4**

Work with local governments to obtain plans and zoning regulations that are consistent with the Transportation Planning Rule and this policy. . .

#### **Finding**

By developing the Facility Plan in conjunction with City of Portland development of the N/NE Quadrant Plan, as described beginning on page 2, ODOT has worked with the City to “obtain plans and zoning regulations that are consistent with the Transportation Planning Rule and this policy.” The N/NE Quadrant Plan is being formulated to be consistent with the TPR and will help achieve Policy 1B’s objectives of mobility, safety, compact development, and the use of transportation alternatives. On October 25, 2012, City Council voted unanimously to adopt the [N/NE Quadrant Plan](#), a long-range plan for the Lower Albina and Lloyd Districts of the Central City, and the [I-5 Broadway/Weidler Facility Plan](#), a concept plan for freeway and local street system improvements in the vicinity of the I-5 Broadway/Weidler interchange.

#### **Action 1B.5**

Develop and implement plans that support compact development, including but not limited to highway segment designations. Support plans, strategies and local ordinances that include:

- Parallel and interconnected local roadway networks to encourage local automobile trips off the state highway;
- Transit, bicycle and pedestrian facilities, including street amenities that support these modes;
- Design and orientation of buildings and amenities that accommodate pedestrian and bicycle use as well as automobile use;
- Provision of public and shared parking;
- Infill and redevelopment;
- Expansion of intensive urban development guided away from state highways rather than along state highways; and
- Other supporting public investments that encourage compact development and development within centers.

### **Finding**

The Facility Plan complies with Action 1B.5 because it will support compact development by facilitating multi-modal access to the Facility Plan area and by implementation in coordination with the N/NE Quadrant Plan. On October 25, 2012, City Council voted unanimously to adopt the [N/NE Quadrant Plan](#), a long-range plan for the Lower Albina and Lloyd Districts of the Central City, and the [I-5 Broadway/Weidler Facility Plan](#), a concept plan for freeway and local street system improvements in the vicinity of the I-5 Broadway/Weidler interchange. Both the Facility Plan the N/NE Quadrant Plan include “transit, bicycle and pedestrian facilities, including street amenities that support these modes,” such as lighting and landscaping. The Facility Plan includes lids over I-5, which will foster compact development by offering opportunities for open space and/or real estate development. A preliminary N/NE Quadrant Plan document includes proposals to increase development density, provide incentives for new development, and “potential changes to parking zoning code regulations for the Lloyd District to provide incentives for mixed use development and the redevelopment of surface parking lots through the provision of shared parking strategies, development agreements and other strategies.”<sup>14</sup>

### **Action 1B.9**

Develop facility and transportation system plans that protect existing limited access interchanges according to the following functional priorities:

- At existing limited access highway interchanges, provide safe egress from freeways and Expressways as the first priority.

\* \* \*

### **Finding**

The Facility Plan complies with Action 1B.9 because the forecasted queues are shorter than available storage capacity. The forecasted queue at the southbound I-5 exit ramp at Broadway is 500 feet, compared to available storage of 955 feet. The forecasted queue at the northbound exit ramp at Weidler Street is 350 feet, compared to available storage of 1,130 feet.<sup>15</sup>

### **Policy 1C State Highway Freight System**

It is the policy of the State of Oregon to balance the need for movement of goods with other uses of the highway system, and to recognize the importance of maintaining efficient through movement on major truck freight routes.

### **Action 1C.1**

Apply performance standards appropriate to the movement of freight on freight routes.

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<sup>14</sup> City of Portland Bureau of Planning and Sustainability, N/NE Quadrant Plan Draft Goals, Policies and Implementation Actions, April 4, 2012, p. 4. **UPDATE FOOTNOTE AND TEXT TO REFLECT REVISED VERSIONS AVAILABLE BEFORE COMPLETION OF THESE FINDINGS.**

<sup>15</sup> ODOT, Facility Plan, op. cit., p. 4.

### **Finding**

The Facility Plan complies with Policy 1 C and Action 1C.1. I-5 is a regionally-significant freight route. The Facility Plan addresses safety and operational problems on the Interstate and the surface streets surrounding the interchange. Due to the close proximity of I-84 and I-405 interchange connections, bottlenecks on those facilities affect travel in the area, and thusly, mobility targets cannot be achieved. However, this improvement will reduce delay and accidents and improve operations in the area. A recent FHWA freight study indicated that this was a major freight bottleneck in the region. The proposed mainline freeway safety elements which include auxiliary lanes in both directions and full-width shoulders will reduce the congestion and provide for more efficient through movement for freight. The SAC membership contented five freight groups that help guide the development of the Facility Plan.

### **Action 1C.4**

Consider the importance of timeliness in freight movements in developing and implementing plans and projects on freight routes.

### **Finding**

The Facility Plan complies with Action 1C.4 because one of the Plan's objectives is to "improve freight movement" within the interchange area. I-5 is a critical freight route in the Metro area and the interchange area is a bottleneck that slows freight traffic. The facility plan process examined over 70 different ideas to improve the timeliness of freight movements on the Interstate, and through a screening and evaluation process, refined to a preferred hybrid alternative. The auxiliary lane and improved shoulders in the Facility Plan address improving freight movement, and specifically improving the reliability of travel through this corridor, thus improving the ability of freight users to move goods in a timely manner.

### **Policy 1F: Highway Mobility Policy**

Policy 1F establishes mobility performance targets for state highways and provides for the adoption of alternative mobility targets in a facility plan where conditions do not permit meeting the OHP targets.<sup>16</sup> The targets are volume to capacity (v/c) ratios. The policy's mobility target for I-5, itself, in the Facility Plan area is 1.1 in the peak hour and .99 in the hour following the peak hour.<sup>17</sup> Policy 1F's target for ramp terminal intersections is .85.<sup>18</sup> The policy says that the main objective of this target is "to avoid the formation of traffic queues on exit ramps which back up into the portions of the ramps needed for safe deceleration from mainline speeds or onto the mainline itself." The target applies to the intersection of the I-5 northbound exit ramp with Weidler Street and the intersection of the I-5 southbound exit ramp with Broadway. The targets apply to v/c ratios at the end of a 20-year planning horizon. Action 1F.3 states:

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<sup>16</sup> Ibid., amended Policy 1F as adopted December 21, 2011, p. 7.

<sup>17</sup> Ibid., Table 7.

<sup>18</sup> Ibid., p. 8.

In the development of transportation system plans or ODOT facility plans, where it is infeasible or impractical to meet the mobility targets in Table 6 or Table 7, or those otherwise approved by the Oregon Transportation Commission, ODOT and local jurisdictions may explore different target levels, methodologies and measures for assessing mobility and consider adopting alternative mobility targets for the facility. While v/c remains the initial methodology to measure system performance, measures other than those based on v/c may be developed through a multi-modal transportation system planning process that seeks to balance overall transportation system efficiency with multiple objectives of the area being addressed.

Examples of where state mobility targets may not match local expectations for a specific facility or may not reflect the surrounding land use, environmental or financial conditions include:

- Metropolitan areas or portions thereof where mobility expectations cannot be achieved and where they are in conflict with an adopted integrated land use and transportation plan for promoting compact development, reducing the use of automobiles and increasing the use of other modes of transportation, promoting efficient use of transportation infrastructure, improving air quality, and supporting greenhouse gas reduction objectives;
- When financial considerations or limitations preclude the opportunity to provide a planned system improvement within the planning horizon;
- When other locally adopted policies must be balanced with vehicular mobility and it can be shown that these policies are consistent with the broader goals and objectives of OTP and OHP policy;

\* \* \*

Any proposed mobility target that deviates from the mobility targets in Table 6 or Table 7, or those otherwise approved by the Commission, shall be clear and objective and shall provide standardized procedures to ensure consistent application of the selected measure. The alternative mobility target(s) shall be adopted by the Oregon Transportation Commission as an amendment to the OHP. Consideration of alternative mobility targets shall be coordinated with other local jurisdictions in the affected corridor, consistent with OTC Policy 11- Public Involvement.

The Transportation Commission has sole authority to adopt mobility targets for state highways. It will be necessary for affected local jurisdictions to agree to the alternative mobility target for the state highway facility as part of a local transportation system plan and regional plan (MPO) as applicable. Findings shall demonstrate why the particular mobility target is necessary, including the finding that it is infeasible or impractical to meet the mobility targets in Table 6 or Table 7, or those otherwise approved by the Commission.

\* \* \*

Modifications to the mobility targets could include changing the hour measured from the 30th highest hour, using multiple hour measures, or considering weekday or seasonal adjustments. Development of corridor or area mobility targets is also allowed. ODOT's policy is to utilize a v/c based target and methodology as the initial measure, as this will standardize and simplify implementation issues throughout the state. Where v/c-based approaches may not meet all needs and objectives, developing alternative mobility targets using non v-c-based measures, may also be pursued.

In support of establishing the alternative mobility target, the plan shall include feasible actions for:

- Providing a network of local streets, collectors and arterials to relieve traffic demand on state highways and to provide convenient pedestrian and bicycle ways;
- Managing access and traffic operations to minimize traffic accidents, avoid traffic backups on ramps, accommodate freight vehicles and make the most efficient use of existing and planned highway capacity;
- Managing traffic demand and incorporating transportation system management tools and information, where feasible, to manage peak hour traffic loads on state highways;
- Providing and enhancing multiple modes of transportation; and
- Managing land use to limit vehicular demand on state highways consistent with Policy 1B (Land Use and Transportation Policy).

The plan shall include a financially feasible implementation program and shall demonstrate that the proposed mobility target(s) are consistent with and support locally adopted land use, economic development, and multimodal transportation policy and objectives. In addition, the plan shall demonstrate strong local commitment, through adopted policy and implementation strategies, to carry out the identified improvements and other actions.

ODOT understands that in certain areas of the state, achieving the established mobility targets will be difficult and that regional and local policies must be balanced with transportation system performance. ODOT is committed to work with MPOs and local jurisdictions on system-level analysis of alternative mobility targets and to participate in public policy-level discussions where balancing mobility and other regional and community objectives can be adequately addressed.

In developing and applying alternative mobility targets and methodologies for facilities throughout the state, ODOT will consider tools and methods that have been successfully used previously for a particular facility and/or within a specific metropolitan area or region. Specific mobility targets may vary from one community or area to another depending on local circumstances. It is the objective of this policy to maintain consistency in the selection and application of analysis and implementation methodologies over time as they are applied to a specific facility or to a system of related facilities within a defined community or region.

ODOT will provide guidance documents and will work with local jurisdictions and others to apply best practices that streamline development of alternative mobility targets.

### **Finding**

The Facility Plan complies with Policy 1F for the following reasons. First, the forecasted v/c ratio at the intersection of the I-5 northbound exit ramp with Weidler Street in 2035 is .84 and the forecasted v/c ratio in 2035 at intersection of the I-5 southbound exit ramp with Broadway is 0.64.<sup>19</sup> These meet the .85 target for ramp terminal intersections. Storage will be provided on the exit ramps so as to provide safe space for vehicles queued back from the ramp terminal.

Second, while the v/c ratio on I-5, itself, would be higher than the target stated above, the Facility Plan seeks to address safety and operational issues to reduce crashes and congestion. This section of I-5 is located in an existing urban environment. The City of Portland's N/NE Quadrant Plan is seeking to improve the mixed-use pedestrian-friendly environment to encourage more modal balance to reduce auto relate trips. The N/NE Quadrant has an existing transit system (light-rail, streetcar and bus) and a high level of bicycle commuter usage through the area. Therefore, the Facility Plan is not seeking alternative mobility targets for I-5.

ODOT and the City of Portland will monitor the performance of the completed project for addressing safety and operational goals. If safety and operational issues remain on the freeway after construction of the recommended alternative Facility Plan elements, ODOT will work with the City of Portland to initiate a public process to consider additional measures such as a southbound braided ramp from Broadway to I-84 or other options developed through a public process. A southbound braided ramp should not be precluded by the construction of the recommended alternative Facility Plan elements.

### **Policy 2D Public Involvement**

It is the policy of the State of Oregon to ensure that citizens, businesses, regional and local governments, state agencies, and tribal governments have opportunities to have input into decisions regarding proposed policies, plans, programs, and improvement projects that affect the state highway system.

### **Action 2D.1**

Conduct effective public involvement programs that create opportunities for citizens, businesses, regional and local governments, state agencies, and tribal governments to comment on proposed policies, plans, programs, and improvement projects.

### **Finding**

The Facility Plan complies with Action 2D.1 for the reasons stated in the finding of compliance with OAR 731-015-0065(1), which begins on page 1 and are incorporated as findings here.

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<sup>19</sup> DKS Associates, Intersection Level of Service Analysis, N/NE Quadrant and I-5 Broadway/Weidler Plan, March 19, 2012.

### Action 2D.3

Coordinate with local governments and other agencies to ensure that public involvement programs target affected citizens, businesses, neighborhoods, and communities, as well as the general public.

### Finding

The Facility Plan complies with Action 2D.3 because, in developing the Plan, ODOT coordinated with the City of Portland to secure the involvement of “affected citizens, businesses, neighborhoods, and communities, as well as the general public.” The SAC, referenced on page 2, included representatives of 11 business organizations and businesses<sup>20</sup> and four neighborhood associations.<sup>21</sup> It also included two “at-large” members.

The Project Web site is located at:

[www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

### Action 3A.1

Manage access to state highways based on highway classification, traffic volumes, speed, safety and operational needs to protect the function of each highway classification as explained below:

#### 1. Freeways (NHS) – Interstate and Non-Interstate

(Examples: Interstate 5, Interstate 84, and Oregon Route 217, US Route 26 from Interstate 405 west to Oregon Route 6 (Non-Interstate))

- Freeways are multi-lane highways that provide for the most efficient and safe high speed and high volume traffic movement.
- Interstate Freeways are subject to federal interstate standards as established by the Federal Highway Administration.
- Freeways are subject to ODOT’s Interchange Policy.
- ODOT owns the access rights and direct access is not allowed. Users may enter or exit the roadway only at interchanges.
- Preference is given to through traffic.
- Driveways are not allowed.
- Traffic signals are not allowed.
- Parking is prohibited.
- Opposing travel lanes are separated by a wide median or a physical barrier.
- Grade separated crossings that do not connect to the freeway are encouraged to meet local transportation needs and to enhance bicycle and pedestrian travel.

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<sup>20</sup> The Central Eastside Industrial Council, N/NE Business Association, Lower Albina Council, Lloyd Transportation Management Association, Oregon Trucking Association, UPS, Lloyd Center, Ashforth-Pacific, the Portland Trail Blazers, Alora Development, Union Pacific Railroad.

<sup>21</sup> The Lloyd Community Association, Sullivan’s Gulch Neighborhood Association, Elliot Neighborhood Association, and Irvington Neighborhood Association.

- The primary function is to provide connections and links to major cities, regions of the state, and other states.

### **Finding**

The Facility Plan complies with Action 3A.1 in that it allows access to I-5 only at the Broadway/Weidler Interchange; the proposed auxiliary lane extensions and shoulders will facilitate through traffic and serve the function of I-5 to connect to Vancouver and Washington State and regions south of the Portland metro area; the Plan does not provide for driveways, traffic signals, or parking; a physical barrier will continue to separate northbound and southbound lanes; and the crossings on Broadway and Weidler Street and the proposed crossings at Hancock and Clackamas Streets will meet local transportation needs and enhance bicycle and pedestrian travel. Therefore, the plan meets the criteria listed in Policy 3A.1.

### **Policy 3C: Interchange Access Management Areas**

It is the policy of the State of Oregon to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways.

### **Action 3C.1**

Develop interchange area management plans to protect the function of interchanges to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges.

### **Finding**

The Facility Plan complies with the intent of Action 3C.1 because the Interchange Function is clearly stated, and the plan addresses all aspects of protecting the users of all modes at and through the interchange. The plan states the interchange function as, “to serve the Portland Central City, which includes the industrial area of Lower Albina and the commercial activity along the Broadway/Weidler corridor, regional attractions such as the Rose Garden Arena and the Lloyd Center Mall and the surrounding community.” This facility plan protects that function by ensuring safe access to and from I-5 for many users in the area through the creation of an auxiliary lane, shoulders and new local street connections. These transportation improvements were also coordinated with the adoption of the N/NE Quadrant Plan by the City of Portland, so the potential changes in travel as a result of the land use changes in the area have been accounted for.

### **Action 3C.2**

To improve an existing interchange or construct a new interchange:

- The interchange access management spacing standards are shown in Appendix C;
- The standards do not apply retroactively to interchanges existing prior to adoption of this Oregon Highway Plan, except or until any redevelopment, change of use, or highway construction, reconstruction or modernization project affecting these existing interchanges occurs. It is the goal at that time to meet the appropriate

- spacing standards, if possible, but, at the very least, to improve the current conditions by moving in the direction of the spacing standards;
- Necessary supporting improvements, such as road networks, channelization, medians and access control in the interchange management area must be identified in the local comprehensive plan and committed with an identified funding source, or must be in place;
- Access to cross streets shall be consistent with established standards for a distance on either side of the ramp connections so as to reduce conflicts and manage ramp operations. The Interchange Access Management Spacing Standards supersede the Access Management Classification and Spacing Standards (Policy 3A), unless the latter distance standards are greater (see Appendix C);<sup>22</sup>
- Where possible, interchanges on Freeways and Expressways shall connect to state highways, or major or minor arterials;

\* \* \*

- The design of urban interchanges must consider the need for transit and park-and-ride facilities, along with the interchange's effect on pedestrian and bicycle traffic; and
- When possible, access control shall be purchased on crossroads for a 5 minimum distance of 1320 feet (400 meters) from a ramp intersection or the 6 end of a free flow ramp terminal merge lane taper.

### **Finding**

The Broadway/Weidler interchange is located in an existing urban environment in the city of Portland. The interchange was built in the 1960's before the current spacing standards were developed. To obtain the interchange access management spacing standards would require the complete removal of an existing urban fabric from the city. Therefore, the Facility Plan is to improve where appropriate the current conditions and move in the direction of the access standards.

The Facility Plan complies with Action 3C.2 for the following reasons. First, by proposing the removal of the intersection of Flint Avenue with Broadway, the Facility Plan will remove an approach that is closer to the intersection of the southbound I-5 exit ramp intersection with Broadway than the applicable standard of 750 feet. In addition, the southbound entrance ramp to I-5 has been relocated from Wheeler/Winning Way that are local city streets to Weidler a city arterial.

Second, the N/NE Quadrant Plan includes the Facility Plan, including the channelization and medians on Williams Avenue, so they are "identified in the local comprehensive plan."

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<sup>22</sup> Appendix A contains the relevant table from Appendix C.

### Action 3C.6

Plan for and operate traffic controls within the influence area of an interchange with the priority of moving traffic off the main highway, Freeway or Expressway and away from the interchange area. Within the Interchange Access Management Area, priority shall be given to operating signals for the safe and efficient operation of the interchange.

#### *Finding*

The Facility Plan complies with Action 3C.6 because the Plan's implementation actions call for an agreement with the City of Portland following preliminary engineering of interchange improvements under which, "Signals will continue to be timed so as to avoid queues backing up into the deceleration area of the I-5 SB exit ramp at Broadway."<sup>23</sup>

### Action 3C.7

Use grade-separated crossings without connecting ramps to provide crossing corridors that relieve traffic crossing demands through interchanges.

#### *Finding*

The Facility Plan complies with Action 3C.7 by proposing crossings of I-5 at Hancock and Clackamas Streets, which would reduce demand for bicyclists and pedestrians using the crossings on Broadway and Weidler Street. The proposed crossing at Hancock would reduce the amount of southbound traffic entering the interchange area at the intersection of Vancouver Avenue and Broadway.

## Oregon Bicycle and Pedestrian Plan

Goal: to provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking.

### Action 1

Provide bikeway and walkway systems that are integrated with other transportation systems.

#### Strategy 1A

Integrate bicycle and pedestrian facility needs into all planning, design, construction and maintenance activities of the Oregon Department of Transportation, local governments and other transportation providers.

Urban Bicycle and Pedestrian Improvement Methods: Urban bikeways and walkways will be provided. . . As part of road construction projects: ODOT will incorporate needed bicycle and pedestrian facilities on construction, reconstruction and relocation projects, subject to the provisions of ORS 366.514. Facilities may be provided on local streets that

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<sup>23</sup> Facility Plan, op. cit., p. 11.

provide a better alternative to the highway. Costs may be shared with local jurisdictions on a mutually agreed upon ratio.

\* \* \*

### **Finding**

The Facility Plan complies with Action 1 and Strategy 1A by integrating bicycle and pedestrian facilities into the Plan. These facilities include a two-way bicycle and pedestrian path in the median of Williams Avenue, a two-way “cycle track”<sup>24</sup> on Williams Avenue between Broadway and Hancock Street, bicycle lanes on the new crossing of I-5 at Hancock Street, and a bicycle and pedestrian overcrossing of I-5 at Clackamas Street will promote bicycling and walking as travel choices. The SAC included representative of groups that advocate for cyclists and pedestrians.<sup>25</sup>

### **Oregon Public Transportation Plan<sup>26</sup>**

The Oregon Public Transportation Plan does not contain policies applicable to ODOT highway facility plans.

### **ODOT Administrative Rules on Highway Approaches, Access Control, and Spacing Standards (OAR Chapter 734, Division 51)<sup>27</sup>**

One provision of OAR Chapter 734, Division 51, OAR 734-051-4020(8), applies to the Facility Plan. OAR 734-051-4020(8) establishes spacing standards for approaches to roads crossing freeways at interchanges, and so applies to Broadway and Weidler Street. The spacing standards are minimum distances between an “approach” (a public street or driveway) and a freeway entrance ramp or exit ramp.

### **Finding**

The I-5 Broadway/Weidler Interchange is located in a congested existing urban built environment. The Facility Plan moves in the direction of improving safety and operations for the freeway access. It contains a series of improvements to address improving access to and from the freeway and local improves to enhance the safety of other modes using the interchange area. These improvements are intended to improve the spacing of approaches in the area of the interchange.

All of the I-5 freeway ramps are being improved to enhance freeway access. The Williams Street reverse traffic-flow connection will simplify freeway ramp movements at the interchange. Access to the north and south bound entrances will be from left-turns to a one-way entrance. This allows for more efficient signing timing and improves bicycle and pedestrian connections through the interchange. The I-5 south bound entrance ramp is being relocated to

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<sup>24</sup> Defined in footnote 6.

<sup>25</sup> The Bicycle Advisory Committee, the Pedestrian Advisory Committee, and the Oregon Commission for the Blind.

<sup>26</sup> ODOT, Oregon Public Transportation Plan, 1997.

<sup>27</sup> Oregon Administrative Rules Chapter 734, Division 51, as amended May 3, 2012.

remove freeway traffic from local streets. This will allow direct access to the southbound entrance ramp from Broadway and Weilder streets. The freeway traffic will no longer have to mix with local traffic in the area of the interchange.

The I-5 south bound slip lane from the exit ramp is being closed to reduce the number of approach roads along Broadway. In addition, the removal of the intersection of Flint Avenue with Broadway, the Facility Plan would remove an approach that is closer to the intersection of the southbound I-5 exit ramp intersection with Broadway than the applicable standard of 750 feet.<sup>28</sup>

The local circulation system is being improved with the development of the Hancock/Dixon structure with a lid. This local circulation connection allows for a supplementary crossing to the north of the Broadway/Weidler interchange. Local traffic including bicycles and pedestrians will be able to cross the freeway without using Broadway or Weilder Streets. The construction of the Clackamas Pedestrian/Bicycle overcrossing will provide an alternative connection across the freeway to the south of the interchange.

### 2035 Metro Regional Transportation Plan

The Regional Transportation Plan includes a project for right-of-way acquisition for implementation of the Facility Plan. The I-5 project is Metro RTP project number project is 10884 and is a Federal Financially Constrained project. The description in the project list is “Acquire right-of-way to improve safety and operations on I-5, connection between I-84 and I-5, and access to the Lloyd District and Rose Quarter.” The time period is listed as 2018-2025.<sup>29</sup>

### City of Portland Comprehensive Plan

As quoted on page 3, section 731-015-0065(4) of ODOT’s State Agency Coordination Program requires ODOT to write “findings of compatibility with acknowledged comprehensive plans of affected cities and counties . . .” The Facility Plan is compatible with the City of Portland’s comprehensive plan. As described on page 2, ODOT developed the Facility Plan in a process that combined development of the Facility Plan with development of the N/NE Quadrant Plan by the City of Portland. On October 25, 2012, City Council voted unanimously to adopt the [N/NE Quadrant Plan](#), a long-range plan for the Lower Albina and Lloyd Districts of the Central City, and the [I-5 Broadway/Weidler Facility Plan](#), a concept plan for freeway and local street system improvements in the vicinity of the I-5 Broadway/Weidler interchange. The City of Portland’s Resolution of Support is available on their project web site:

[www.portlandoregon.gov/bps/cc2035/nneq](http://www.portlandoregon.gov/bps/cc2035/nneq)

Therefore, the Facility Plan is adopted as part of the N/NE Quadrant Plan it is compatible with the City of Portland’s comprehensive plan for the following Statewide Planning Goals:

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<sup>28</sup> Ibid., Table 8.

<sup>29</sup> Metro, 2035 Metro Regional Transportation Plan, June 2010, Appendix 1.1, Project List, p. 20, project number 10884.

#### Goal 2: Land Use Planning

Goal 2 outlines the basic procedures of Oregon's statewide planning program. It states that land use decisions are to be made in accordance with a comprehensive plan, and that suitable "implementation ordinances" to put the plan's policies into effect must be adopted. It requires that plans be based on "factual information"; that local plans and ordinances be coordinated with those of other jurisdictions and agencies; and that plans be reviewed periodically and amended as needed. Goal 2 also contains standards for taking exceptions to statewide goals. An exception may be taken when a statewide goal cannot or should not be applied to a particular area or situation.

#### Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces

Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated. If a resource or site is found to be significant, a local government has three policy choices: preserve the resource, allow proposed uses that conflict with it, or strike some sort of a balance between the resource and the uses that would conflict with it.

#### Goal 6: Air, Water and Land Resources Quality

This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

#### Goal 7: Areas Subject to Natural Hazards

Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

#### Goal 8: Recreational Needs

This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them. It also sets forth detailed standards for expedited siting of destination resorts.

#### Goal 9: Economic Development

Goal 9 calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and plan and zone enough land to meet those needs.

#### Goal 10: Housing

This goal specifies that each city must plan for and accommodate needed housing types, such as multifamily and manufactured housing. It requires each city to inventory its buildable residential lands, project future needs for such lands, and plan and zone enough buildable land

to meet those needs. It also prohibits local plans from discriminating against needed housing types.

#### Goal 11: Public Facilities and Services

Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central concept is that public services should to be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs.

#### Goal 13: Energy Conservation

Goal 13 declares that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."

#### Goal 14: Urbanization, and OAR 660, DIVISIONS 14 AND 22

This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs. It calls for each city to establish an "urban growth boundary" (UGB) to "identify and separate urbanizable land from rural land." It specifies seven factors that must be considered in drawing up a UGB. It also lists four criteria to be applied when undeveloped land within a UGB is to be converted to urban uses.

#### Goal 15: Willamette River Greenway

Goal 15 sets forth procedures for administering the 300 miles of greenway that protects the Willamette River.

The following goals were determined not to be applicable to the development of the Facility Plan within the City of Portland.

#### Goal 3: Agricultural Lands

This goal defines "agricultural lands." It then requires counties to inventory such lands and to "preserve and maintain" them through farm zoning.

#### Goal 4: Forest Lands

Defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

#### Goal 16: Estuarine Resources

This goal requires local governments to classify Oregon's 22 major estuaries in four categories; natural, conservation, shallow-draft development, and deep-draft development. It then describes types of land uses and activities that are permissible in those "management units."

#### Goal 17: Coastal Shorelands

The goal defines a planning area bounded by the ocean beaches on the west and the coast highway (State Route 101 ) on the east. It specifies how certain types of land and resources there are to be managed: major marshes, for example, are to be protected. Sites best suited for unique coastal land uses (port facilities, for example) are reserved for "water-dependent" or "water related" uses

#### Goal 18: Beaches and Dunes

Goal 18 sets planning standards for development on various types of dunes. It prohibits residential development on beaches and active fore dunes, but allows some other types of development if they meet key criteria. The goal also deals with dune grading, groundwater drawdown in dune aquifers, and the breaching of fore dunes.

#### Goal 19: Ocean Resources

Goal 19 aims "to conserve the long-term values, benefits, and natural resources of the near shore ocean and the continental shelf." It deals with matters such as dumping of dredge spoils and discharging of waste products into the open sea. Goal 19's main requirements are for state agencies rather than cities and counties.

### City of Portland Code

With the exception of requiring design review of some elements, Title 33, Planning and Zoning, of the City of Portland Code would not apply to improvements constructed pursuant to the Facility Plan. Improvements the Facility Plan calls for would be made in public right-of-way. Title 33 does not apply to public right-of-way, except within design districts and certain overlay zones.<sup>30</sup> Most of the Facility Plan area is within the Lloyd District design overlay district. As a consequence, improvements made under the Facility Plan would be subject to design review, if they fall within one of two categories. The first category includes non-standard improvements "such as street lights, street furniture, planters, public art, sidewalk and street paving materials, and landscaping" that the City Engineer has not approved. In the second category are instances when the "City Council requires design review of a proposal because it is considered to have major design significance to the City." ODOT would secure design approval of improvements that it constructs that are subject to design review.

Title 17, Public Improvements, of the City of Portland Code would apply to improvements made pursuant to the Facility Plan within public right-of-way other than public right-of-way owned by ODOT. If ODOT constructed improvements that altered public right-of-way under the City's jurisdiction, Title 17 would require ODOT to obtain a permit from the Bureau of Transportation.<sup>31</sup> ODOT would obtain such permits. Improvements within public right-of-way under the City's jurisdiction constructed by the Bureau of Transportation or under contract to the Bureau of Transportation would not require a permit.

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<sup>30</sup> City of Portland, Title 33, Planning and Zoning, section 33.10.030(B).

<sup>31</sup> City of Portland, Title 17, section 17.24.010(C).

I-5 Broadway/Weidler Interchange Improvements Facility Plan Findings of Compliance  
November 2012

**I-5: Broadway/Weidler Interchange Facility Plan**  
**November 2012**

**Exhibit C**

**I-5: Broadway/Weidler Interchange Facility Plan**



# N/NE Quadrant and I-5 Broadway/Weidler Plans

## I-5 Broadway/Weidler Interchange Improvements Report



**October 2012**

**Recommended Draft**



*The N/NE Quadrant and I-5 Broadway/Weidler Plans Project is a collaborative effort by the City of Portland and the Oregon Department of Transportation to integrate urban design and land use planning with freeway planning and concept-level engineering in the North/Northeast portion of the Central City, which includes Lower Albina and the Lloyd District.*

# I-5 Broadway/Weidler Interchange Improvements Report

**The overall project purpose is to...**  
Improve safety and operations on I-5  
in the vicinity of the Broadway/Weidler  
interchange.

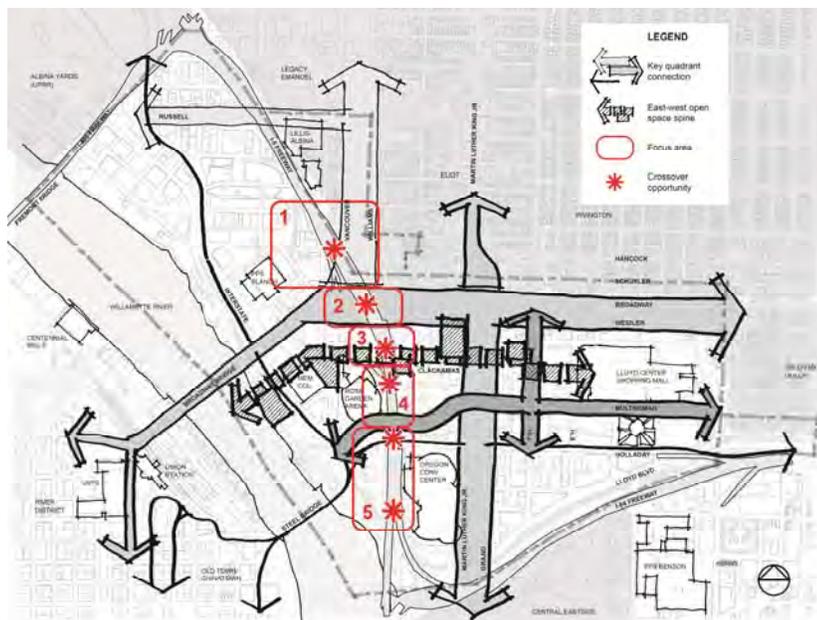
## OBJECTIVES

ODOT and the City, through the Stakeholder Advisory Committee (SAC) and extensive public outreach, explored and found solutions to meet the following objectives:

**EASE CONGESTION LEVELS AND IMPROVE SAFETY**

**ENHANCE PEDESTRIAN AND BICYCLE ROUTES**

**IMPROVE FREIGHT MOVEMENT**



Integration of Transportation and Land Use Concepts in the N/NE Quadrant Plan

Prepared by:  
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**Gary Eichman**, Portland Freight Committee, Co-Chair (past)

**Matt Arnold**, Bicycle Advisory Committee

**Wynn Avocette**, At-Large

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**Dean Gisvold**, Irvington  
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**Wade Lange**, Langley Investment Properties

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**Midge Purcell**, Urban League

**Paul Riggs**, Building trades (past)

**Owen Ronchelli**, Lloyd Transportation  
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**Wanda Rosenbarger**, Lloyd Center

**William Ruff**, Property owners/developers

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**Phil Selinger**, Willamette Pedestrian Coalition

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**Mike Warwick**, Eliot Neighborhood Association

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**Andrea Marquez-Horna**, Latino Network

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**Kelly Rodgers**, Coalition for a Livable Future

**Bob Russell**, Oregon Trucking Association

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## Acronyms and Abbreviations

BPS	Bureau of Planning and Sustainability, City of Portland
CoP	City of Portland
ODOT	Oregon Department of Transportation
PBOT	Portland Bureau of Transportation, City of Portland
ROW	Right-of-Way
SAC	Stakeholder Advisory Committee
TDM	Transportation Demand Management
TSM	Transportation System Management
TSP	Transportation System Plan
V/C	Volume-to-Capacity ratio

## Glossary of Related Planning Efforts

<p><b>Central City 2035</b></p>	<p>Central City 2035 (CC2035) is an update to the 1988 Central City Plan, which is the existing plan and policy for downtown and the central areas of Portland, Oregon. In coordination with the Portland Plan, this plan will address challenges and opportunities in the Central City to ensure that this unique economic, transportation, cultural and educational hub will be a vibrant resource for all Portlanders over the next 25 years. This effort will examine issues and opportunities within each of the Central City’s quadrants.</p>
<p><b>Facility Plan</b></p>	<p>A planning statement that Oregon state agencies prepare in order to better plan state facility needs and to comply with state law. The Oregon Department of Transportation (ODOT) prepares this type of document to inform decision makers, including the Oregon Transportation Commission, of its intent relative to the future development of its transportation infrastructure.</p>
<p><b>I-5 Broadway/Weidler Interchange Improvements Report</b></p>	<p>This overall document, which has been prepared to document the recommendations of the project’s SAC relative to transportation improvements that have been developed, analyzed and narrowed to the Recommended Concept described in Section 5.</p>
<p><b>N/NE Quadrant and I-5 Broadway/Weidler Plans</b></p>	<p>The combined efforts of ODOT and the City of Portland’s Bureau of Planning and Sustainability and Bureau of Transportation to plan land use, urban design and transportation improvements within the North/Northeast Quadrant of Portland’s Central City. The transportation improvements are planned for both the I-5 freeway and the local street network near the I-5 Broadway/Weidler Interchange.</p>
<p><b>N/NE Quadrant Plan</b></p>	<p>The North/Northeast Quadrant Plan (N/NE Quadrant Plan) is the first of the quadrant-level planning efforts associated with Central City 2035. This planning effort addressed challenges and opportunities related to land use, urban design, the Willamette River and multimodal transportation infrastructure.</p>
<p><b>Portland Plan</b></p>	<p>The Portland Plan is a strategic plan for the City of Portland that sets broad goals for improving equity, prosperity, educational outcomes and human and environmental health in Portland. The Comprehensive Plan will implement the Portland Plan policies that relate to state-mandated long-range planning that guide land use, transportation, conservation, and capital projects. CC2035 will be adopted as a district plan of the Comprehensive Plan. The North/Northeast Quadrant Plan will be part of the CC2035 Plan.</p>

## I-5 Broadway/Weidler Interchange Improvements

### Purpose of this Report — Relation to the Facility Plan

This report summarizes the process and steps that the Oregon Department of Transportation (ODOT) and two bureaus of the City of Portland, the Portland Bureau of Transportation (PBOT) and the Portland Bureau of Planning and Sustainability (BPS), have taken to date to address long-standing transportation issues in the North/Northeast Quadrant of Portland's Central City. In conjunction with the project's Stakeholder Advisory Committee (SAC) and an extensive public process that also examined potential land use changes and related opportunities in the North/Northeast Quadrant study area, the project team solicited, developed and evaluated a wide range of ideas and improvement concepts for both the Interstate 5 (I-5) freeway and local transportation issues in and around the I-5 Broadway/Weidler Interchange area.

This report provides an overview of this nearly two-year process as the project team, the SAC and numerous area stakeholders have contributed, shaped and narrowed the many improvement concepts. The result of this process, the project team's Recommended Concept, is described in Section 5 of this report. This document introduces and provides the background for a related document, called the **Facility Plan for the I-5 Broadway/Weidler Interchange**. This plan is a technical and state-required document that specifically outlines ODOT's intentions relative to this segment of the I-5 facility and the interchange.

### Purpose of the Facility Plan for the I-5 Broadway/Weidler Interchange

State of Oregon agencies prepare facility plans for state-owned infrastructure so that they and decision-makers may effectively manage, maintain and prioritize potential additions to or expansion of this infrastructure. The Facility Plan for the I-5 Broadway/Weidler Interchange represents a discussion draft of a facility plan that ODOT staff will present to the Oregon Transportation Commission (OTC) later this year regarding recommended improvements to I-5 in the area around the I-5 Broadway/Weidler Interchange between Interstate 84 (I-84) and Interstate 405 (I-405) at the Fremont Bridge. This Facility Plan will represent and confirm, if adopted by the OTC, the state's long-range intent relative to this section of I-5 and the I-5 Broadway/Weidler Interchange.

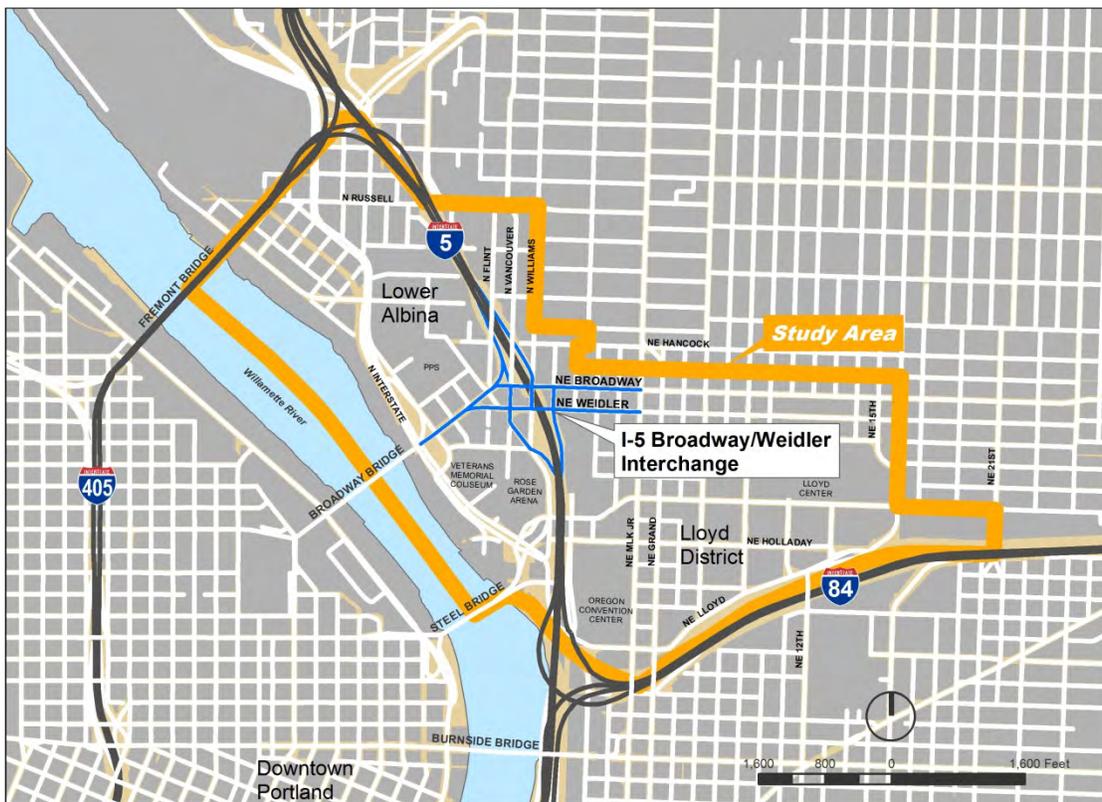


## 1. Introduction (The Story)

### Combining Land Use and Transportation Planning

Portland is nationally recognized for innovations linking land use and transportation planning. Portland's Downtown Plan, adopted in 1972, and the Central City Plan, adopted in 1987, established a framework for land use and transportation within the central city.

In the summer of 2010, ODOT, PBOT and BPS initiated a partnership to begin co-developing land use and transportation concepts for the North/Northeast quadrant of the central city (N/NE Quadrant) through an iterative process involving the public and area stakeholders. The project includes identifying specific improvements to the I-5 freeway within the overall project study area (see Figure 1), between I-84 and I-405 (at the Fremont Bridge), and improvements to the I-5 Broadway/Weidler Interchange area.

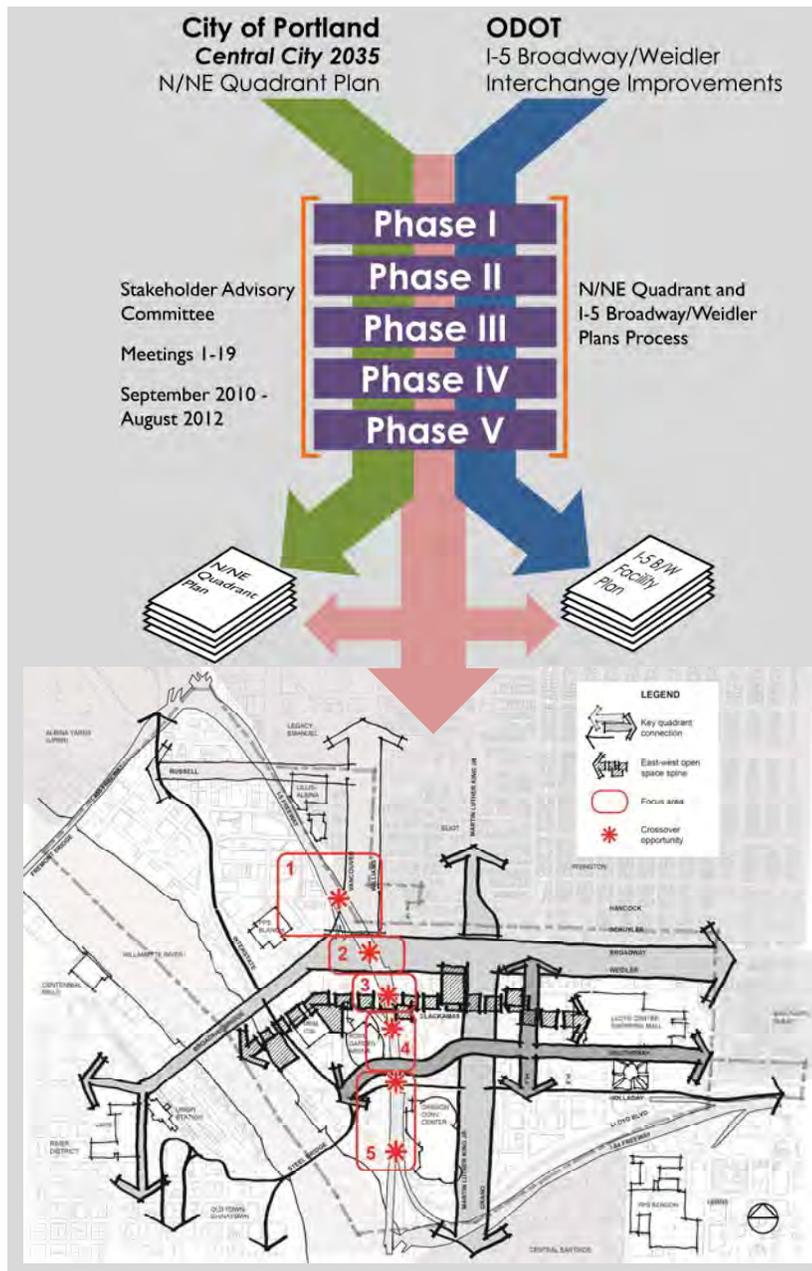


**Figure 1: Study Area for the N/NE Quadrant and I-5 Broadway/Weidler Plans Project**

This joint effort represents a new land use-transportation approach in planning improvements to urban freeway interchanges. This approach combines the planning of local strategies for land use, urban design and local transportation improvements, typically a City responsibility, with the planning of interstate freeway improvements, which is an ODOT responsibility. The project's approach for freeway improvements was to address long-demonstrated safety and operational issues that, if scaled according to community aspirations, would contribute to the continued vitality of the Central City and the mobility needs of the region and state. Due to multiple constraints, freeway improvements were to focus on existing safety and reliability issues and not necessarily increase capacity to meet future travel demands.

This collaborative approach between ODOT, the City and the North/Northeast Portland community, examined transportation and land use solutions concurrently over the course of a five-phase process (see Section 2: The Plan Development and Public Involvement Process). In the end, it resulted in land use and transportation changes in the quadrant that are mutually agreeable to both the City of Portland and to ODOT.

Though developed within the same process, the land use and transportation improvement plans resulted in two distinct groups of documents for the two partnering agencies as shown in Figure 2. The land use changes and urban design strategies for the City are documented in the North/Northeast Quadrant Plan (as part of the 2035 Central City Plan); the transportation changes are documented in this report and ODOT’s Facility Plan. The integrated plans most closely overlap in five focus areas near the I-5 freeway and the I-5 Broadway/Weidler Interchange. These focus areas are shown in Figure 2 where the freeway and local transportation improvements have the potential to directly support the proposed concept for the N/NE Quadrant Plan. The improvements in these five areas are discussed in Section 5 and detailed in Appendix S-G: Summary Urban Design Studies.



**Figure 2: Joint Effort for the N/NE Quadrant and I-5 Broadway/Weidler Plans Project: Examining Land Use and Transportation Elements Concurrently**

### Previous Studies of I-5 Freeway Issues between I-84 and I-405

Previous studies by ODOT and the City of Portland have attempted to address the considerable safety and operational issues of the I-5 freeway between I-84 and I-405 (Fremont Bridge). This segment of I-5 has not been improved since it was built in the 1960s and it remains one of the few sections of freeway in the region where there are only two through lanes in each direction. The safety and operational issues here derive largely from the close spacing of the I-84, Broadway/Weidler, I-405 and Greeley interchanges that occur within this short segment of I-5 and the high proportion of traffic volume entering onto and exiting from I-5 that create “weave” maneuvers between motorists entering and exiting the freeway.

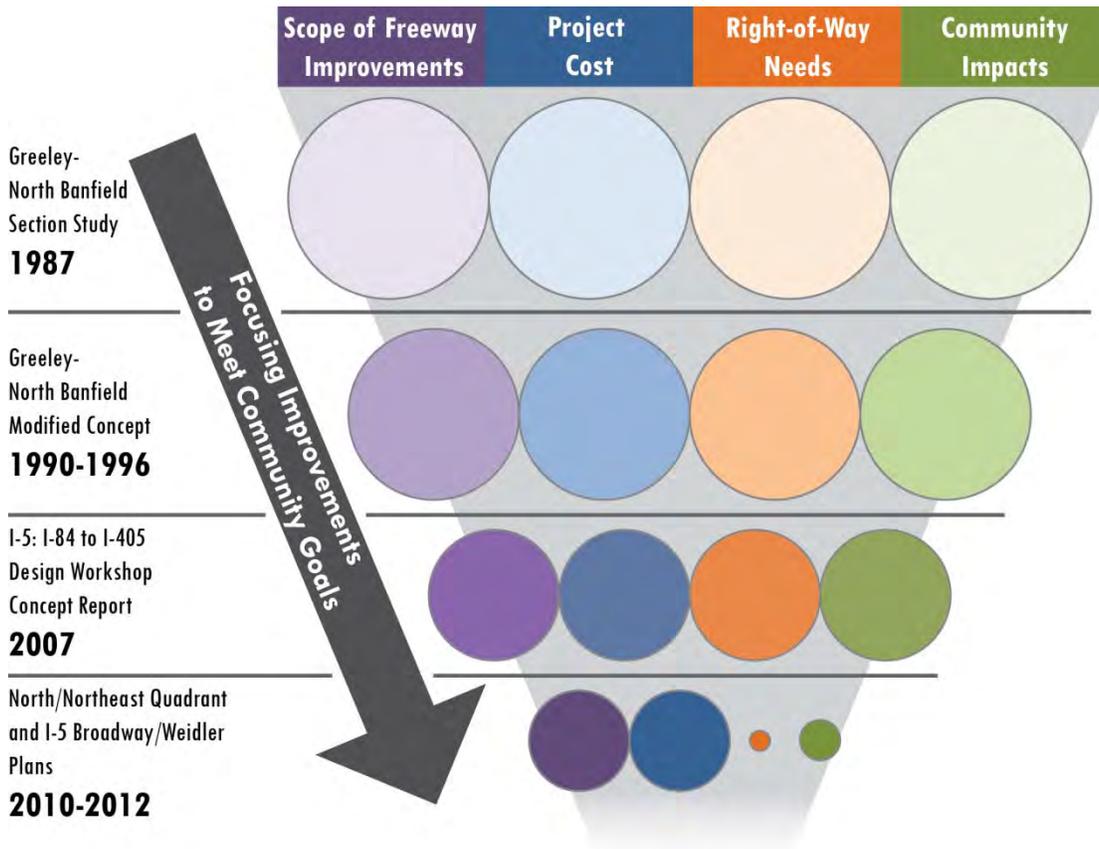
As these studies were conducted and concept plans developed over the past 25 years, both ODOT and the City of Portland recognized that, although they addressed the safety and operational issues of the I-5 freeway between I-84 and I-405, the physical impacts of the solutions were greater than anyone desired. These previous efforts relied on the use of braided ramps to eliminate the weave conditions. While the traffic benefits of these solutions were demonstrated, concerns over their cost, the widened freeway footprint and the visual impacts of multiple new structures prevented their implementation. Figure 3 shows the I-5: Greeley – N. Banfield Modified Concept from 1990-1996.



**Figure 3: I-5: Greeley – N. Banfield Modified Concept (1990-1996)**

As additional studies were undertaken, the extent of proposed freeway improvements, and the financial costs and community impacts associated with them, began to narrow. Yet even with the last major look at potential improvements to I-5 in the study area in 2007, the project costs, right-of-way (ROW) needs and the associated community impacts were found to be too great to move forward with implementation. These three factors resulted in improvement proposals that had little community support beyond the operational benefits to the freeway. See Appendix F: Building the System: I-5 between I-84 and I-405, History of Freeway Improvement Plans, for a summary of improvement plans for this segment of freeway over the last 25 years.

With the Recommended Concept as described in Section 5, the extent (or scope) of the freeway improvements, and the financial costs and community impacts associated with the concept, has been narrowed considerably. Freeway safety and operations have been demonstrated to improve and the project costs appear relatively manageable. The greatest proportional decrease in scale occurred by reducing the amount of additional ROW needed and the community impacts associated with the Recommended Concept. This narrowing of the scope of the project, and its related costs and impacts, is illustrated in Figure 4.



**Figure 4: Extent of Freeway Improvements, Costs and Community Impacts from Studied Improvements to I-5 between I-84 and I-405 over Time**

The result of the close collaboration between ODOT, the City, the project’s SAC and the public is that an appropriately-scaled set of improvements has been developed and evaluated that benefits the project partners and the community. This considerable narrowing, or focusing, of the extent of freeway improvements is critical for several reasons summarized below.

For the community and neighborhoods immediately surrounding the freeway, the reduction in community impacts means that the displacements experienced during the original construction of I-5 freeway in the area will not be repeated or exasperated.

For the project’s SAC, the reduction in impacts and the additional benefits of enhanced connectivity in the study area demonstrates that their work on project goals and objectives are now reflected in the resulting Recommended Concept (as described in Section 5).

For the City of Portland, the scale and nature of the project’s Recommended Concept can be seen to improve transportation elements in the North/Northeast Quadrant that facilitate the continued growth and evolution of the quadrant as a vital Central City district and to support the land use and urban design goals and elements of the City’s North/Northeast Quadrant Plan.

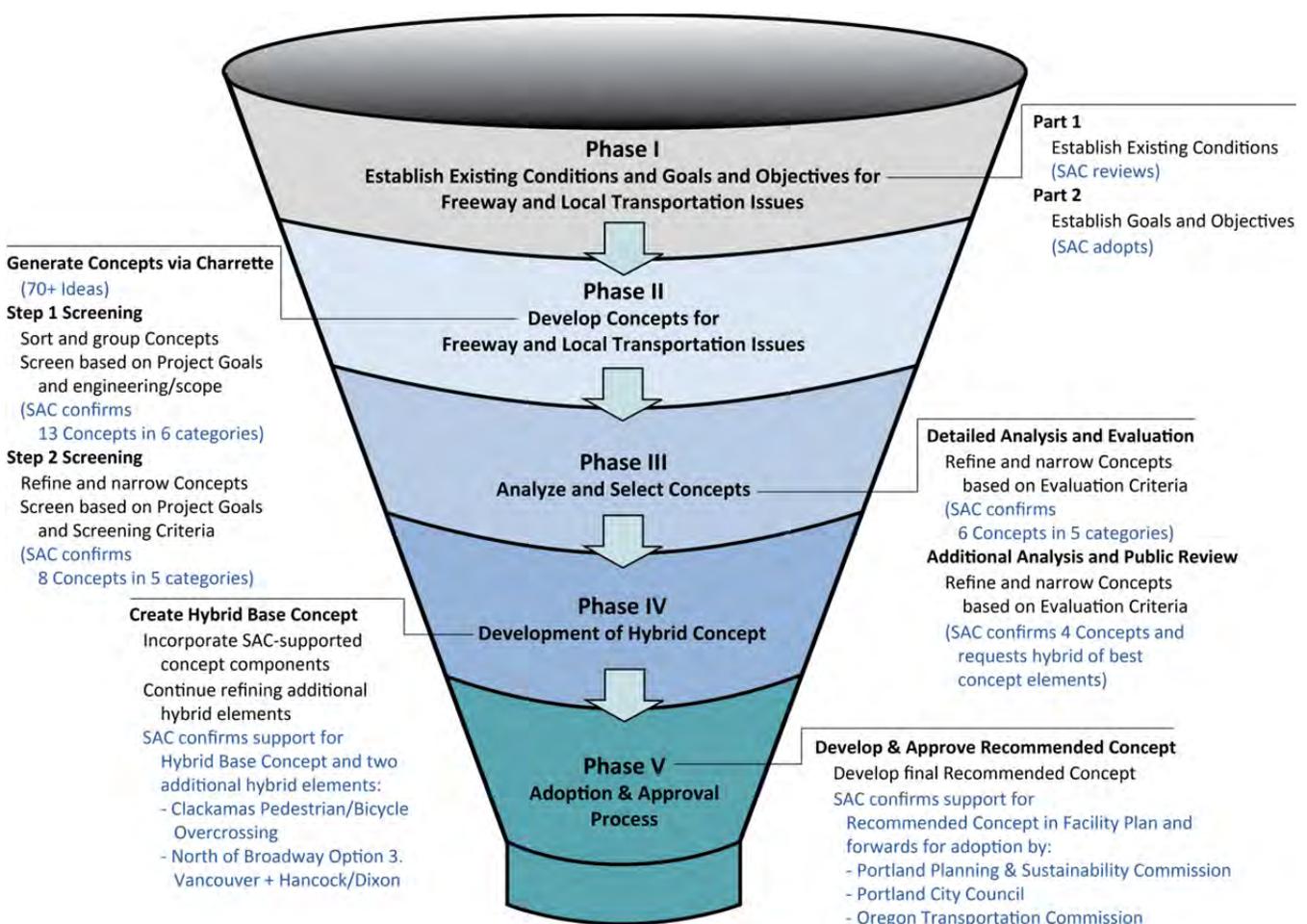
And for ODOT, the reduced scale of the project’s Recommended Concept demonstrates safety and operational improvements to the mainline of the I-5 freeway and yet the reduced costs, the greatly reduced ROW needs and greatly reduced community impacts mean that an implementable project is achievable for this critical segment of freeway.

## 2. The Plan Development and Public Involvement Process

### The Process: The Stakeholder Advisory Committee and Public Outreach

ODOT and the City undertook a comprehensive public process, complete with a diverse and inclusive Stakeholder Advisory Committee (SAC), a professional process facilitator, numerous outreach events in the community, study area tours and many briefings with potentially affected stakeholders and property owners.

An integral component of the process was the knowledge and input from the 30-member SAC; the committee members brought broad-ranging perspectives in the study area to advise the partner agencies at each step of the process. The SAC, which included members representing neighborhood, business, bicycle, pedestrian, transit, freight, rail, event facility and property owner interests, was one of the primary means of ensuring that the public had multiple opportunities to provide meaningful input into the planning process. The five step project process is shown in Figure 5 and includes each of the significant project milestones as supported by the SAC.



**Figure 5: The Five-Phase Project Process (Transportation Focus)**

The role of the SAC was to advise and direct project staff throughout the planning process and to make recommendations to the Portland City Council, the Portland Planning and Sustainability Commission and the Oregon Transportation Commission. SAC members were expected to solicit input from their stakeholder groups and constituencies, report back to the committee, represent the broader interests of those groups at meetings and promote public involvement in project events.

The SAC and its subcommittee meetings were held approximately monthly, and served as ongoing opportunities to share information and receive feedback from stakeholders and members of the general public. Subcommittees of the SAC met periodically to address specific issues, such as transportation, land use and urban design. Members of the public were invited to join the subcommittee to have more in-depth participation in the process. Project meetings and events were held within or near the study area. Event locations included the Rose Garden Arena, Calaroga Terrace, the Lloyd Center mall, the Leftbank Annex, the Metro Regional Center and ODOT Region One Headquarters (just across the Willamette River from the N/NE Quadrant study area).

In all, 19 full SAC meetings and 13 subcommittee meetings were held. All meetings were open to the public and included opportunities for public comment. A summary of the public events, which complemented the SAC and subcommittee meetings, is shown in Table 1.

**Table 1: Project Events Hosted by the N/NE Quadrant and I-5 Broadway/Weidler Plans Project**

<b>Event</b>	<b>Date</b>	<b>Approximate Attendance</b>
<b>Community Walks:</b> Lower Albina & Lloyd District	September 2010	10, 10 (2 days)
<b>Open House:</b> Central City 2035 (CC2035) & N/NE Quadrant & I-5 Broadway/Weidler Plans	October 2010	100
<b>Open House:</b> N/NE Quadrant Plans & Rose Quarter District Plan	November 2010	150
<b>Charrette: Land Use/Local Transportation</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	February 2011	17, 18 (2 days)
<b>Charrette: I-5 Freeway &amp; Local Transportation</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	April 2011	38, 14, 22 (3 days)
<b>Open House:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	June 2011	102
<b>Open House:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	February 2012	100
<b>Development Forum: Lloyd District</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	February 2012	14
<b>Community Walk:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	April 2012	17
<b>Stakeholder Meetings with Project Staff:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	Throughout Project Process	Varied

In addition to the SAC meetings and public events, the Bureau of Planning and Sustainability maintained a project website to serve as the primary source of information for the public and as a means to solicit and receive public feedback. The website included project information and regular updates, documents, a calendar of events, meeting agendas and minutes, links to other related planning efforts and staff contact information. The bureau also conducted a survey in the summer of 2011 and maintained an electronic mailing list to provide frequent updates to interested parties. See Appendix S-I: Summary Public Involvement Report for additional details of the public involvement efforts.

Project briefings were also provided to the Portland Planning and Sustainability Commission, the Historic Landmarks Commission and the Design Commission during the process. The project plans will undergo a formal public hearing process before the Portland Planning and Sustainability Commission, the Portland City Council and the Oregon Transportation Commission prior to adoption.

### 3. Existing Conditions: What We Started With

#### Phase I, Part 1: Establish Existing Conditions for Freeway and Local Transportation Issues

In order to understand, inventory and document the nature of transportation issues in the N/NE Quadrant during Phase I of the project, the project team undertook analysis of transportation facilities and conditions in the project area. This documentation included findings relative to all transportation modes using the I-5 freeway and local transportation network. This effort allowed the project team and the SAC to develop and evaluate potential solutions to address the issues and opportunities that were present. The findings of this effort were compiled in Appendix B: Transportation Existing Conditions Report. A summary of the findings is presented in this section.

#### Transportation Background: The Community

The varied landscape that today comprises the N/NE Quadrant is rooted in a vibrant history that spans over 150 years. Early development in this area focused on access to the Willamette River and included a river ferry linking downtown to Lower Albina at the foot of Russell Street as well as the extensive Albina railroad yards. What is now Lower Albina was incorporated as part of the City of Albina in 1887. That year also marked the opening of the original Morrison Bridge as the first Willamette River bridge crossing. The bridge spurred additional development along the east side of the river as a streetcar line was built running up Mississippi Avenue from the City of East Portland (incorporated in 1891). The riverfront in Lower Albina remains part of Portland's deep water port and remains industrial in character. Commercial development was located primarily along Russell Street and Williams Avenue. The southern portion of Albina was home to a vibrant jazz music scene focused along Williams Avenue.

Many of the fundamental characteristics of today's Lloyd District/Rose Quarter area came with the opening of the Lloyd Center mall and the Veterans Memorial Coliseum in 1960. The 1960s also brought the construction of the I-5 freeway cutting mostly north-south through the study area. The Lloyd Center mall and the redevelopment surrounding it has essentially created a second commercial and activity core within the Central City that was built at a more auto-oriented scale than downtown Portland.

The profound changes that construction of the Veterans Memorial Coliseum and I-5 freeway brought to the surrounding neighborhoods in the early 1960s understandably remain a sensitive issue. While the coliseum and freeway construction benefitted the desire for regional civic facilities and improved regional and state mobility, these improvements came with the displacement of residents and a commercial district that were the heart of Portland's African-American community. The impacts of these displacements continue to resonate with members of the community to this day and set an important context for any future improvements within the North/Northeast Quadrant.

#### Land-Use Context

Within the N/NE Quadrant, a number of broad primary use categories have been identified:

- Employment, office: 6-20 story development
- Mixed, commercial/residential: scale varies
- Residential: 2-6 story development
- Regional attraction: scale varies
- Employment, industrial: 1-3 story development

While the permissive Central Commercial (CX) zone pervades much of the N/NE Quadrant, roughly 32 acres of vacant or underutilized land currently exist. Figure 6 shows a considerable amount of underutilized land within the central Lloyd District area of the quadrant. Despite the relatively slow pace of development in the quadrant, some recent projects have leveraged the unique historic character of the quadrant and repurposed buildings that existed before freeway construction in the area. Figure 7 shows the Left Bank building where considerable private investment has rejuvenated one of the more significant buildings remaining from the period prior to construction of the coliseum and the freeway.



**Figure 6: Underutilized Land Remains Available for Development in the N/NE Quadrant**



**Figure 7: Recent Investment in the Quadrant Exemplified by the Leftbank Building Renovation**

## **Transportation Background**

The N/NE Quadrant includes a range of existing transportation facilities including three Willamette River bridges, four light rail transit lines, the Eastside Esplanade pedestrian/bicycle path and three major freeway interchanges along I-5.

### **Transportation – The Role and Function of I-5**

I-5 provides the main north-south through-route serving the west coast of the United States from Mexico to Canada and links population centers from Southern California, eastern portions of the Bay Area in Northern California, the Rogue Valley in Southern Oregon, the Willamette Valley, the Portland-Vancouver metropolitan area and the Puget Sound region. Within the N/NE Quadrant, I-5 connects with the western terminus of I-84, which is the east-west freeway for the state of Oregon. On the northern edge of the project study area, I-5 intersects with I-405 and the Fremont Bridge; I-405 acts as part of the downtown freeway loop on the western edge of downtown Portland.

I-5 is identified as part of the National Truck Network which designates highways (including most of the Interstate Highway System) for use by large trucks. In the Portland-Vancouver area, I-5 is the most critical component of this national network as it provides access to the transcontinental rail system, deep water shipping and barge traffic on the Columbia River, connections to the ports of Vancouver and Portland as well as the majority of the area's freight consolidation facilities and distribution terminals.

Freight volumes moved by truck to and from the region are projected to more than double over the next 25 years. Vehicle-hours of delay on truck routes in the Portland-Vancouver area are projected to increase by more than 90 percent over the next 20 years. Growing demand and congestion will result in increasing delay, costs and uncertainty for all businesses that rely on this corridor for freight movement.

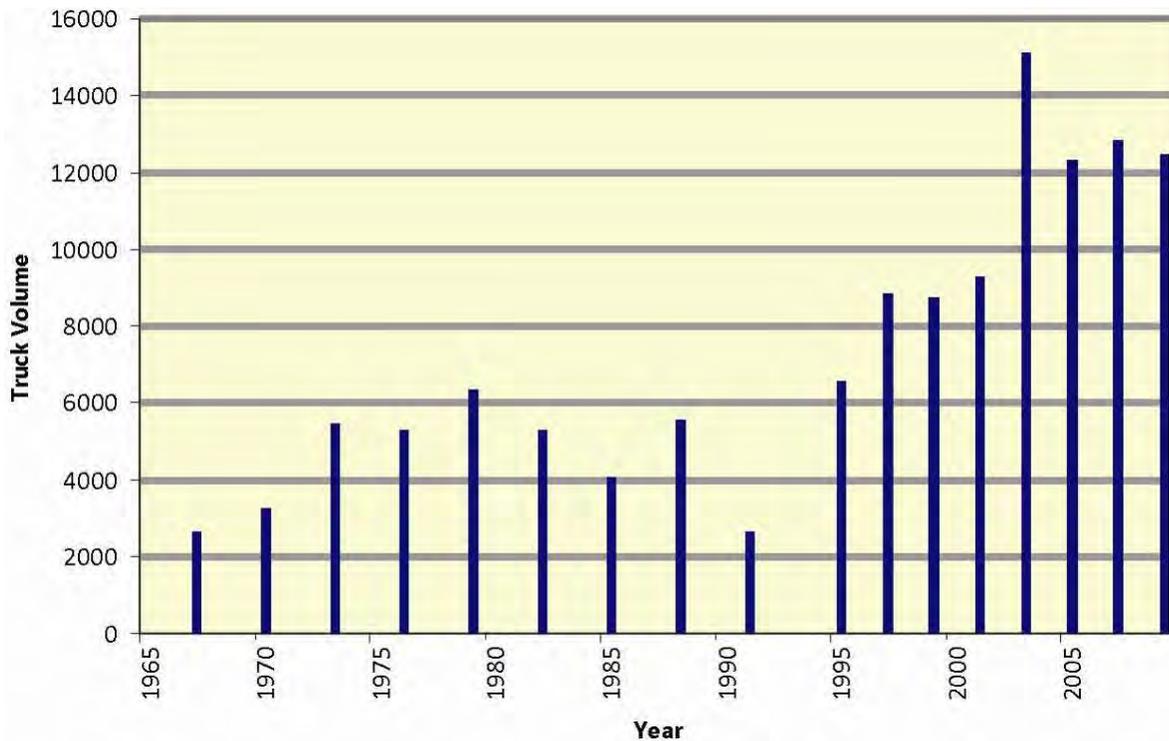
### **Historic Traffic Volumes on I-5**

Figure 8 shows historic traffic volumes on I-5 through central Portland spanning the time from when I-5 opened in 1966 through 2009. When I-5 opened in 1966 it carried an average of 60,000 vehicles per day in both directions. By the mid-1970s typical weekday traffic had increased to over 100,000 vehicles per day and to over 140,000 per day by the mid-1990s through the mid-2000s. Average daily volumes have been relatively flat for the past 15 years, with a recent decline to below 140,000 for 2008 and 2009. The decline in the past two years is likely attributable to reduced trips resulting from reduced economic activity. A similar reduction in average daily volumes can be seen during the recession years in the early- to mid-1980s.

Figure 9 shows that truck traffic on I-5 in Portland's Central City has increased at a higher rate than overall traffic. Daily truck volumes on I-5 at the Marquam Bridge averaged less than 6,000 per day from the late 1960s through the mid-1970s. During the 1990s truck volumes grew to nearly 10,000 per day and growth in the 2000s has increased average daily truck volumes to over 12,000 per day. The existing conditions analysis also revealed that a significant portion of I-5 and some local streets connecting with freeway ramp terminals were near capacity as indicated by volume-to-capacity ratios (V/C) between 0.81 and 0.99. A V/C ratio of 1.0 indicates that a transportation facility is at capacity for motor vehicles. Significant congestion typically occurs with the V/C ratios found on the freeway and local streets near the I-5 Broadway/Weidler Interchange.



**Figure 8: Historic Traffic Volumes on I-5 at Holladay Street (Average Daily Two-Way Traffic)**



**Figure 9: Historic Truck Volumes on I-5 at Marquam Bridge (Average Daily Two-Way Traffic)**

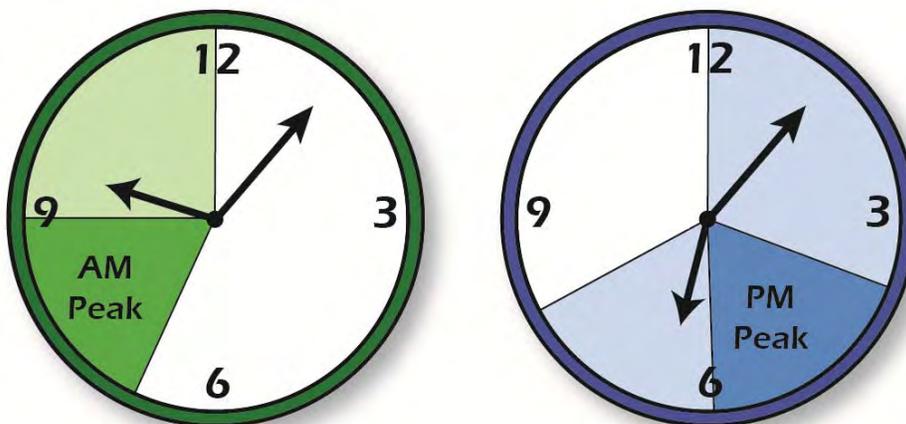
### I-5 Traffic Bottleneck and the Spreading of Peak Hour Congestion

In the context of the regional freeway network, the N/NE Quadrant sits at a crossroads of three regionally significant freight and commuter routes: I-5, I-84 to the south and I-405 to the north. As a result, the freeway interchanges within the N/NE Quadrant experience some of the highest traffic volumes found in the state. Table 2 shows the average daily traffic volumes entering and exiting I-5 over the two-mile segment within the N/NE Quadrant study area.

**Table 2: Average Daily Traffic Volumes Entering and Exiting I-5 in the Study Area**

I-5 Direction	Total Ramp Volumes Entering I-5	Total Ramp Volumes Exiting I-5
<b>Northbound</b>	29,970	37,530
	Includes entrance ramps from: <ul style="list-style-type: none"> <li>• I-84</li> <li>• Broadway/Williams Avenue</li> </ul>	Includes exit ramps to: <ul style="list-style-type: none"> <li>• Weidler Street/Victoria Avenue</li> <li>• I-405</li> <li>• Greeley Avenue</li> </ul>
<b>Southbound</b>	34,020	47,200
	Includes entrance ramps from: <ul style="list-style-type: none"> <li>• Greeley Avenue</li> <li>• I-405</li> <li>• Wheeler/Winning/Williams</li> </ul>	Includes exit ramps to: <ul style="list-style-type: none"> <li>• Broadway/Vancouver Avenue</li> <li>• I-84</li> <li>• Morrison Bridge/Hwy 99E</li> </ul>

Recent trends for I-5 traffic (no growth in daily traffic volumes and increasing truck traffic) are consistent with the volume data which indicate that the two through lanes for I-5 through central Portland are operating at capacity during peak hours. The congested conditions lead some users whose trips have flexibility to choose to travel earlier or later (which spreads congestion to both before and after typical peak traffic hours) or to use different travel routes. To the extent possible, major freight haulers in the area attempt to avoid operating on congested facilities in peak hours. Growth in peak period truck traffic on I-5 indicates that freight operations on I-5 during peak periods is required for various business reasons. Figure 10 represents traffic analysis that has shown that peak period congestion for I-5 in the N/NE Quadrant has been spreading beyond the typical peak traffic hours.

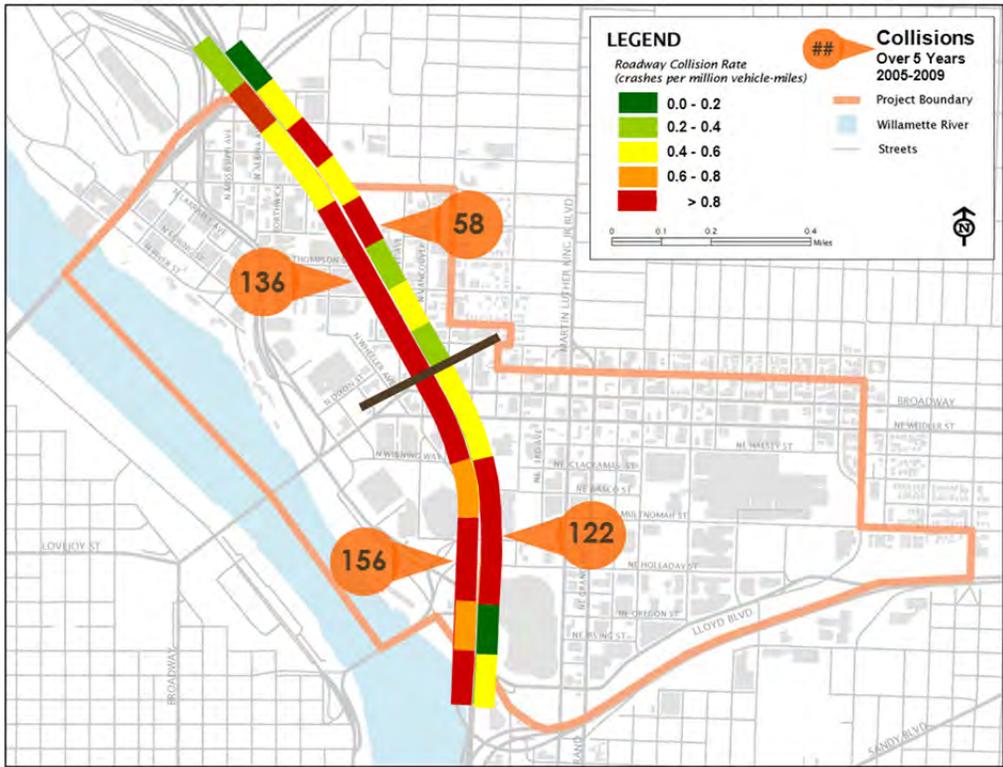


**Figure 10: Peak Period Congestion on I-5 Spreading beyond Typical Peak Hours**

### Freeway Safety and High Frequency of Collisions

Freeway vehicle collisions within the N/NE Quadrant continue to be a major safety concern. Rear end collisions make up nearly three-quarters of all incidents on I-5, while sideswipe collisions comprise nearly one-fifth of incidents. While the severity of crashes, as indicated by the number of fatal accidents, is relatively low, incidents involving property damage and injury occur frequently within the quadrant and contribute to congestion on this segment of the freeway. This condition is exacerbated by the lack of emergency shoulders on this stretch of I-5.

Figure 11 shows the number of collisions on I-5 in the project study area and the rate of collisions per one-tenth mile segments. The figure shows that the highest frequency of collisions occurred in the southbound direction south of the I-5 Broadway/Weidler Interchange (156 collisions). The highest frequency of accidents northbound also occurred south of the I-5 Broadway/Weidler Interchange (122 collisions). Overall the southbound direction had a higher level of collisions over this five-year time period with 292, compared to northbound with 180 collisions. I-5 in the project area experiences the highest crash rate in the state of Oregon.



**Figure 11: Freeway Collision Rate and Frequency**

**Weave Movements and Operational Issues**

Over its nearly two-mile course through the N/NE Quadrant study area, I-5 connects with five entrance and exit ramps northbound and six entrance and exit ramps southbound. As drivers enter and exit I-5 at these closely-spaced intervals and weave with each other in lane-changing maneuvers, “turbulence” or “friction” occurs and slows overall traffic. Figure 12 illustrates the weave movements for vehicles entering and exiting the freeway.



**Figure 12: Weave Maneuvers from Entering and Exiting Traffic in Close Proximity**

The turbulence in traffic flow caused by these weave maneuvers is especially acute in the N/NE Quadrant as drivers coming from entrance ramps or bound for exit ramps must make these lane changes within very short distances. This is especially true for the segment between the I-84 and I-405 interchanges as motorists use I-5 for overall through trips along I-5, for traveling between I-84 and I-405 and to access use the Broadway/Weidler Interchange for regional destinations like the Rose Garden Arena, the Veterans Memorial Coliseum, the Oregon Convention Center and the Lloyd Center mall.

Table 3 shows the distances between entrance and exit ramps on I-5 between interchanges where these weaves occur. Each of the distances noted for these weave transitions is well below current freeway design standards. In the shortest weave section, only 1,075 feet is available for drivers to merge onto I-5 from Broadway northbound in the same area where drivers are exiting from I-5 onto I-405 and the Fremont Bridge.

While the northbound Broadway to I-405 weave section is the shortest, it has the fewest accidents of the four weave sections associated with the interchange. This is due in part to this weave section having lower volumes and allowing two lanes the opportunity to access the I-405 exit ramp. The southbound Wheeler/Winning Way to I-84 weave section is somewhat longer at 1,300 feet, but it has the highest rate of crashes. This is due to higher overall volumes, higher volumes of vehicles making the conflicting weave movements and that all I-5 southbound traffic destined for I-84 must weave over into the single, outermost auxiliary lane.

**Table 3: Weave Distances between Entrance and Exit Ramps in the Study Area**

I-5 Direction	Weave Section	Weave Distance
<b>Northbound</b>		
	I-84 to Weidler	1,360 feet
	Broadway to I-405	1,075 feet
<b>Southbound</b>		
	I-405 to Broadway	2,060 feet
	Wheeler/Winning to I-84	1,300 feet

The slowing not only impacts the outer through traffic lane, where the weave movements are occurring for vehicles entering and exiting the freeway in this short section. As other drivers attempt to avoid the slowing in the outer through lane, they often attempt to move over to the second (and only other) through traffic lane. Drivers attempting to access the second lane to avoid the weave-related congestion, they encounter higher speed traffic. This significantly contributes to the high collision rates noted earlier and shown in Figure 11.

### Transportation – The Local Street Network

The N/NE Quadrant contains a number of auto, transit, bicycle, pedestrian and freight connections of local and regional significance. The major city traffic streets serving the N/NE Quadrant include Broadway, Weidler Street, Grand Avenue, Martin Luther King Jr. Boulevard, Lloyd Boulevard and Interstate Avenue.

### Bicycle Network Cross-Roads

As a major crossroads for bicycle traffic, the N/NE Quadrant was found to include some of the highest bicycle ridership in the city. Both the Broadway Bridge and the Steel Bridge provide critical routes for bicyclists into and out of the north downtown area. These bridge approaches concentrate traffic for all modes crossing the Willamette River including bicycle trips. Major east-west bicycle facilities extend east of the Broadway Bridge via Broadway and Weidler and east of the Steel Bridge via Multnomah and Lloyd Boulevard. Major north-south bicycle facilities extend north of the bridges via Wheeler, Flint, Vancouver and Williams. In 2011, the two highest-volume bicycle count locations in Portland were at the intersections of Vancouver and Russell (4,105) and Interstate Avenue and Lloyd Boulevard just east of the Steel Bridge (3,995).

Bicycle facilities within the N/NE Quadrant fall into the following City of Portland functional classifications:

- City Bikeways – Serve the Central City, regional and town centers, station communities, and other employment commercial, institutional, recreational destinations
- Off-Street Paths – Serve as transportation corridors and recreational routes
- Local Service Bikeways – Serve local circulation needs and access to adjacent properties

The designated City Bikeways within the study area include Interstate Avenue, Broadway, Weidler Street, Vancouver Avenue, Williams Avenue, Martin Luther King Jr. Boulevard, Grand Avenue, Multnomah Street and Lloyd Boulevard. Off-Street Paths are provided on the Eastside Esplanade along the east side of the Willamette River and across the Broadway and Steel Bridges; two planned trail projects were noted along the north side of I-84 and along the eastern edge of the Willamette River extending north of Veterans Memorial Coliseum area. The remaining streets are designated as Local Service Bikeways.

### Bicycle-Vehicle Collisions

The data for bicycle-vehicle collisions in the study area showed that they occurred at multiple locations but at a relatively low frequency for the three years surveyed. The frequency of these collisions was found to be generally three or fewer incidents at any one location. The four locations with the highest frequency all occurred along Broadway, and the two highest-frequency locations were west of I-5 where bicycle activity was typically the highest. The two locations with the highest frequency bicycle-vehicle collisions were at Broadway/Wheeler and at Broadway/Williams (at the intersection with the I-5 northbound entrance ramp). There were no identified fatalities for bicycle-vehicle collisions in the study area during the three years surveyed. Figure 13 shows the major bicycle corridor movements nearest the I-5 Broadway/Weidler Interchange area.

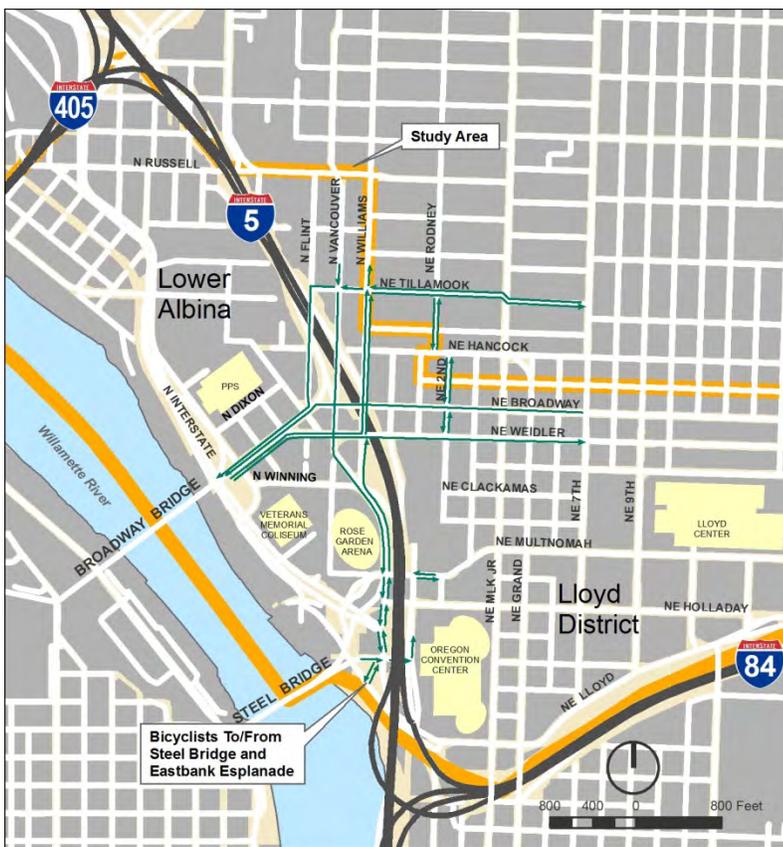


Figure 13: Major Bicycle Movements near I-5 Broadway/Weidler Interchange

## Pedestrian Network and Safety

As an urban Central City area with multiple commercial and regional facilities, the N/NE Quadrant has a significant amount of pedestrian activity and yet it also faces a number of existing pedestrian mobility issues. Streets with high volumes of both vehicles and pedestrians, especially before and after events at the Rose Garden Arena, the Veterans Memorial Coliseum and the Oregon Convention Center, provide only minimal accommodations for pedestrians. Barriers, both physical and perceptual, created by the constrained or infrequent crossings of the freeway and high-traffic local streets, largely impede walking activity except when large events dictate no other choices for pedestrians.

A large volume of spectators accessing Rose Quarter events on the west side of I-5 park on the east side of the freeway and walk to the Rose Garden Arena and the Veterans Memorial Coliseum. The combination of large volumes of pedestrians, accessing and exiting the venues over a compressed time period, and the minimal pedestrian facilities available to them at the existing freeway crossings constitutes a significant safety hazard. These conditions are most acute on the Broadway and Weidler Street overcrossing structures built in the 1960s.

## Pedestrian-Vehicle Collisions

The highest rates of pedestrian-vehicle collisions were found to occur east of I-5 focused along Multnomah Street, Grand Avenue and the Broadway/Weidler Street/15th Avenue area. The majority of the incidents occurred east of Martin Luther King Jr. Boulevard in the vicinity of the Lloyd Center mall.

Of the two pedestrian fatalities within the study area during the study period, the one in closest proximity to the interchange area was located at the high pedestrian activity intersection of Multnomah Street/Wheeler Street. Pedestrian use is heavy here due to its proximity to the Rose Garden Transit Center, the Rose Garden Arena, the Veterans Memorial Coliseum, and close access to the Steel Bridge and the Eastbank Esplanade.



**Figure 14: Major Pedestrian Movements**

Pedestrian facilities within the N/NE Quadrant included the following functional classifications:

- Pedestrian Districts – Give priority to pedestrian access in areas of high pedestrian activity
- Pedestrian-Transit Streets – Create a strong and visible relationship between pedestrians and transit
- City Walkways – Provide safe, convenient, and attractive pedestrian access to activities along major streets; provide connections between neighborhoods; and provide access to transit
- Off-Street Paths – Serve recreational and other walking trips
- Local service Walkways – Serve local circulation needs for pedestrians

The majority of the streets within the study area are within designated Pedestrian Districts. The Steel Bridge, Interstate Avenue, and Holladay Street are designated as Pedestrian-Transit Streets; the Broadway Bridge, Broadway, Weidler Street, Martin Luther King Jr. Boulevard, Multnomah Street, 7th Avenue and 9th Avenue are designated as City Walkways. Finally, the Eastbank Esplanade along the east side of the Willamette River is designated as an Off-Street Path. Figure 14 shows the major pedestrian movements nearest the interchange area.

### **Access to Lower Albina and Freight Uses**

Within the N/NE Quadrant, Lower Albina is a designated Freight District bounded by River Street, Knott Street, Interstate Avenue, and Albina Avenue. Mainly zoned for industrial uses, Lower Albina supports a wide range of both new and older industrial businesses.

Freight facilities within the N/NE Quadrant fall within the following functional classifications:

- Freight Districts – Provide safe and convenient truck mobility and access in industrial and employment areas
- Regional Truckways – Facilitate interregional movement of freight
- Priority Truck Streets – Serve as the primary route for access and circulation in Freight Districts, and between Freight Districts and Regional Truckways
- Major Truck Streets – Serve as principle routes for trucks in a Transportation District
- Truck Access Streets – Serve as access and circulation routes for delivery of goods and services to commercial and employment neighborhoods
- Local Service Truck Streets – Serve local truck circulation and access
- Railroad Main Lines – Transport freight cargo and passengers over long distances
- Railroad Branch Lines – Transport freight cargo over short distances on local rail lines

Regional Truckways are designated along the Fremont Bridge, I-405, I-5, and I-84. Priority Truck Streets are designated along Interstate Avenue and Tillamook Street near the Lower Albina Freight District. Major Truck Streets include Interstate Avenue and Larrabee Avenue between Tillamook Street and the Steel Bridge; along Broadway and Weidler from the Steel Bridge to Grand Avenue; and along Martin Luther King Jr Boulevard and Grand Avenue. The majority of the remaining street network is designated as Truck Access Streets and Local Service Truck Streets.

### Local Street Conditions for Motor Vehicles

Similar to the freeway data collection, daily volumes were collected on specific corridors within the study area to get a better understanding of the flow of motor vehicles over the course of a day. This helped to identify the more heavily utilized corridors in the study area, as well as when peak periods might occur on those corridors.

The Broadway/Weidler street couplet in the study area serves multiple functions to connect east-west with the Broadway Bridge, to provide access to the Broadway/Weidler commercial corridor near the Lloyd Center, to provide access to multiple regional destinations in the study area and to distribute vehicles to and from the I-5 Broadway/Weidler Interchange. It is not surprising then that analysis of traffic volumes found that the highest level of activity on study area corridors occurred at Broadway and near I-5 with approximately 30,800 daily trips. Though smaller in volumes, the Vancouver/Williams couplet forms a critical north-south link within the study area. And both of these couplets converge at the I-5 Broadway/Weidler Interchange.

The intersection of these high traffic streets occurs within the interchange area at six intersections known to transportation engineers and planners as “the Box” (shown in Figure 15). The top three ranked collision intersections in the N/NE Quadrant are all located in the Box. They are:

- Weidler Street at Vancouver Avenue
- Broadway at Vancouver Avenue
- Broadway at Williams Avenue

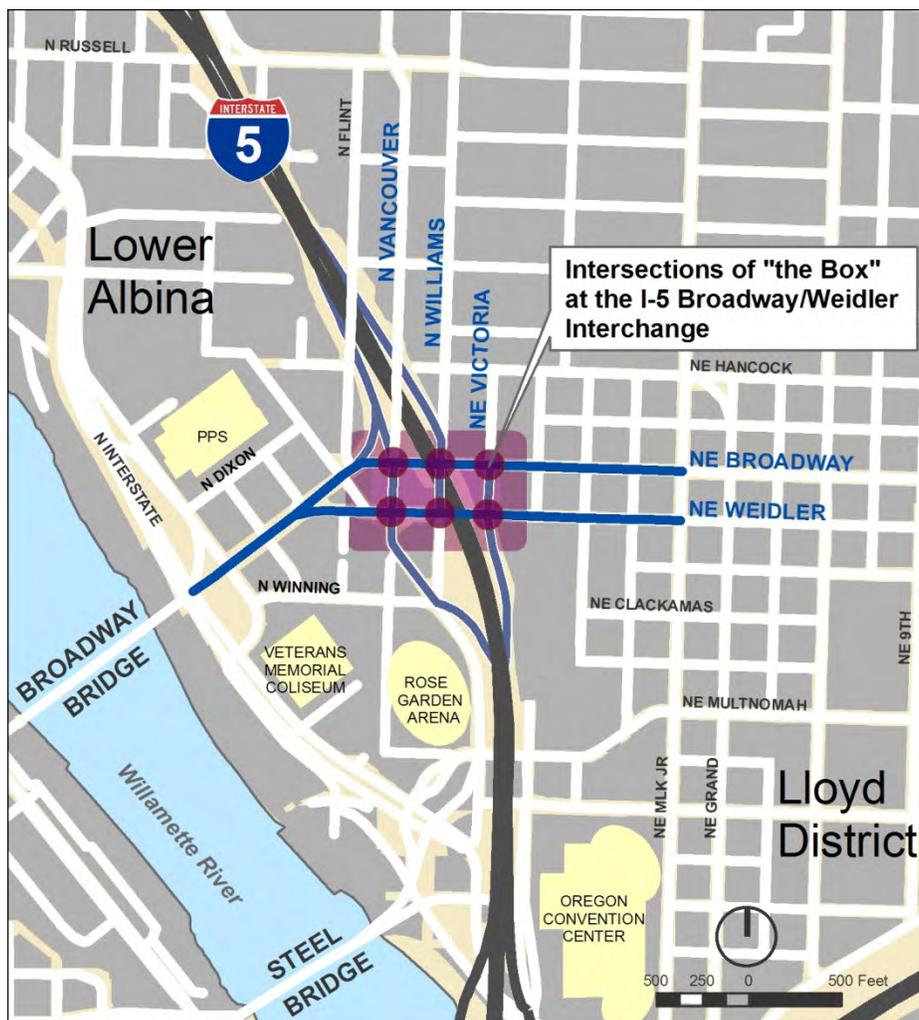


Figure 15: Constrained Intersections in the Area Known as “the Box”

## Regional Destinations

The N/NE Quadrant with its mix of residential, industrial, office, and event space, draws visitors from around the Portland region. Regional destinations in the N/NE Quadrant include the Rose Garden Arena and the Veterans Memorial Coliseum, the Oregon Convention Center, the Lloyd Center mall, the Lower Albina Industrial District, government centers along Lloyd Boulevard (Metro, State of Oregon and Bonneville Power Administration offices) and commercial office towers along 7th and 9th Avenues. Figure 16 highlights the regional destinations within the study area.



Figure 16: Major Regional Destinations

## **Transit**

The N/NE Quadrant is well-served by transit and the distribution of the routes provides sufficient geographic coverage so that many users in the quadrant walk relatively short distances (typically less than 500 feet) to access a transit line.

Transit service is provided in the N/NE Quadrant via ten bus routes and four MAX light rail lines: the Red, Blue, Green and Yellow lines. Transit is focused along the major corridors serving Broadway, Weidler Street, Martin Luther King Jr. Boulevard, Multnomah Street, Interstate Avenue, Vancouver Avenue, Williams Avenue, 9th Avenue and 15th Avenue. Within this immediate area, the following bus lines access the study area:

- Route 4 – Division/Fessenden
- Route 6 – Martin Luther King Jr Blvd
- Route 8 – Jackson Park/NE 15th
- Route 9 – Powell/Broadway
- Route 35 – Macadam/Greeley
- Route 44 – Capitol Hwy/Mocks Crest
- Route 70 – 12th Ave
- Route 73 – NE 33rd Ave
- Route 77 – Broadway/Halsey
- Route 85 – Swan Island

Corridors with the heaviest transit on/off patronage are along the MAX lines with the east/west corridor along Holladay Street (due to three MAX routes serving this corridor). Bus on/off patronage is highest in the study area along the Martin Luther King Jr. Boulevard/Grand Avenue couplet, the Broadway/Weidler couplet, and on Multnomah Street near the Lloyd Center.

In the area around the Box, existing bus routes use Broadway and Weidler Street for east-west operations and use Vancouver Avenue and Williams Avenue for north-south operations. The extension of the Portland Streetcar from northwest Portland across the Broadway Bridge to the Lloyd District, the Oregon Convention Center and down to the Oregon Museum of Science and Industry will operate along Broadway and Weidler Street beginning in September 2012. For the community, the City and other key stakeholders like TriMet, direct access to and from the Rose Quarter Transit Center (Rose Quarter TC) added emphasis on ensuring that north-south connectivity on the Vancouver/Williams couplet was maintained.

## **Connectivity**

Although the City and the community wish to see additional development and improved urban design characteristics in the study area as it evolves toward becoming a more vibrant Central City complement to downtown Portland, it lacks frequent and welcoming connections across the I-5 freeway. For nearly a mile (0.8 mile) between Multnomah Street and Russell Street, the only connections across the freeway, in a critical area of the Rose Quarter and the Lloyd District, are the streets of the Box area (via Broadway, Weidler Street and Williams Avenue). In addition to the constrained sidewalks and bicycle facilities, these streets, especially Broadway and Weidler Street, further discourage non-vehicular travel due to their heavy traffic volumes associated with both arterial traffic and freeway interchange traffic. Figure 17 notes the limited opportunities to cross the freeway between Multnomah Street and Russell Street except within the constrained Box area.



Figure 17: Limited Number of Existing Crossings of the I-5 Freeway

## The Environment and Cultural Resources

An Environmental Baseline Report (Appendix I) was prepared to provide an inventory of physical and cultural environmental features that should be considered during the development of interchange improvement concepts. This assessment did not consider the potential for site specific impacts but rather it identified the environmental conditions and constraints to consider when developing and evaluating the improvement concepts. The report also identified certain environmental elements that should be pursued further during the next study phase which will include completing an analysis that addresses compliance with the National Environmental Policy Act (NEPA).

The following summarizes the findings from the Environmental Baseline Report and describes issues to be considered during subsequent analyses.

- **Air Quality** – The traffic analysis prepared for both the freeway mainline and the local street system indicates that queuing is likely to be reduced compared with existing conditions and would likely not have a negative air quality impact. Some intersections will likely require a “hot spot” analysis during the NEPA phase to measure potential CO impacts.
- **Archaeology** – Background research found limited information on archaeological resources in the project area. However, the project location near the Willamette River indicates that a cultural resources investigation would likely be required during the NEPA phase.
- **Biology** – The assessment did not identify any biological resources directly at risk. However, construction noise and vibration could be a source of disturbance for certain bird species in the general area and should be addressed during the NEPA phase.
- **Hazardous Materials** – There are potentially hazardous sites in the vicinity of the reconfigured I-5 Broadway/Weidler Interchange that may require soil testing prior to excavation.
- **Historic** – The Bekins Building (407 N Broadway) and the Veterans Memorial Coliseum are on the Federal Register of Historic Places. Two other buildings in the immediate interchange study area (the Leftbank Building and the Paramount Apartments) have previously been determined to be eligible for the Federal Register. Additional historic analysis will be required during the NEPA phase. In addition to the assessment of the Federal Register status, the Environmental Baseline Report included structures identified in the Bosco-Milligan Foundation’s *Cornerstones of Community: Building of Portland’s African American History*.
- **Noise** – The Environmental Baseline Report included an inventory of potential noise sensitive facilities. A noise analysis will be conducted during the NEPA phase and the potential for noise mitigation through design will be considered.
- **Water Quality and Hydrology** – The majority of the I-5 facility in this area drains to a separated storm sewer, while the local streets in the area drain to a combined sewer overflow. Stormwater improvements associated with a project in this area would represent an improvement over existing conditions and would comply with current regulatory standards.
- **Wetlands** – No wetlands were identified in the immediate area of the interchange improvements.
- **Geology** – No specific geological issues were identified in the study area.
- **Socio-Economic and Environmental Justice** – The study area has a slightly higher percentage of individuals below the poverty level than the city as a whole and has a median income slightly lower than the city overall. I-5 currently bisects neighborhoods in this area and provides only a limited number of existing crossing facilities. The Broadway/Weidler couplet provides the only east-west crossing of the freeway between Multnomah Street and Russell Street.

The Environmental Baseline Report did not identify any environmental issues that would clearly limit the ability to design and implement interchange improvement concepts. However, there are several issues that merit the additional, detailed analysis that will be completed as part of the NEPA phase.

## 4. Developing and Narrowing the Concepts

### Phase I, Part 2: Establish Project Goals and Objectives

### Phase II: Develop Concepts for Freeway and Local Transportation Issues

#### **The Concepts: from Project Goals and 70+ Ideas to a Recommended Concept**

In order to address the freeway and local transportation issues in the Rose Quarter, the project team undertook establishing the existing conditions and issues for the freeway and local transportation network in the Rose Quarter as noted in Section 3. Based on these understandings, the project team and the SAC established the project purpose and goals for the project at the SAC meeting in January 2011. The project purpose, the transportation needs for the project and the project goals are documented below.

#### **Project Purpose**

The purpose of the transportation elements of this project is to address the need to improve safety and operations on I-5 in the vicinity of the I-5 Broadway/Weidler Interchange, support the goals of the N/NE Quadrant and serve the mobility needs of the region and state in a manner consistent with the overall goals and policies of the city, region and state.

The aim of the overall project is to integrate land use, urban design, and transportation strategies, policies and plans for the N/NE Quadrant and the I-5 Broadway/Weidler Interchange that balance, complement, enhance, protect, respect, revitalize, support, and sustain economic, environmental, and social interests.

## **Transportation Issues to Address**

The identified transportation issues for the project to address and improve, specifically from the freeway and local transportation improvements perspective, are demonstrated by the following deficiencies.

### **Safety Issues on I-5 Freeway**

- I-5 in the project area experiences the highest crash rate in the state of Oregon.
- In the project area, I-5 lacks standard safety shoulders in both northbound and southbound directions.
- In the project area, the distances between interchanges are far below standards.
- In the project area, the distances provided for weave movements are far below standards.

### **Congestion on I-5 Freeway**

- In the project area, congestion and delays to motorists and freight commerce occur on the most critical north-south link in the region and the state.
- In the project area, the effects of congestion are spreading from morning and afternoon peak hours to off-peak hours throughout the day

### **Substandard Interface between I-5 Freeway and Local Streets**

- The I-5 Broadway/Weidler Interchange configuration is not typical interchange layout and therefore can be difficult to navigate for motorists unfamiliar with the interchange area.
- The congested and substandard Broadway/Weidler overcrossings of the I-5 freeway currently provide the only east-west multimodal connections for 4,150 feet (0.8 mile) from Multnomah Boulevard to the south and Russell Street to the north within a growing urban district of the central city.

### **Substandard Local Street Network Connecting near the Freeway Interchange Area**

- All transportation users, regardless of mode, along Broadway/Weidler and the surrounding interchange area suffer from the concentration of traffic in the area often referred to as “the Box” (i.e., the six intersections along Broadway and Weidler where all the primary east-west traffic they carry in the district intersect with the significant north-south traffic of Vancouver and Williams and all the traffic coming from or accessing the I-5 Broadway/Weidler Interchange).

## **Significant Additional Benefits of the Project**

Several significant additional benefits are expected to be gained as a result of the project but were not necessarily considered the primary rationale for it. The following significant additional benefits are expected to be realized from the I-5 Broadway/Weidler Interchange Plan as noted below.

### **Seismic Upgrades to the Overcrossing Structures of I-5**

- Reconstruction of the crossing structures over I-5 in the Rose Quarter (i.e., the Broadway, Weidler, Williams and Vancouver structures) would bring these overcrossings up to current seismic design standards. These structures provide access to two major bridges (the Broadway and Steel Bridges) and to the regional freeway network of I-5, I-405 and I-84.

### **Multimodal Upgrades to Broadway/Weidler/Williams/Vancouver**

- Reconstruction of the crossing structures over I-5 in the Rose Quarter (i.e., the Broadway, Weidler, Williams and Vancouver structures) would facilitate upgrading the pedestrian and bicycle facilities on these critical overcrossings. These structures provide the primary north-south and east-west circulation for pedestrians, bicyclists and transit to traverse the freeway and the primary multimodal connection between the Lloyd District to the east and the Rose Quarter to the west.

### **Improved Freeway Facilities and Local Transportation Improvements Support the Land Use and Urban Design Elements of the N/NE Quadrant Plan**

- In addition to facilitating rerouting of existing traffic movements during project construction, the incorporation of a “lid” structure over the freeway in the Broadway/Weidler/Williams area would provide opportunities for development or open space once construction concluded. These opportunities were identified as part of the land use/urban design analysis.
- By moving some of the freeway-bound traffic from existing bottlenecks in the “box” area, traffic volumes could be better balanced on the local street network.
- Reconstruction of the crossing structures over I-5, and the resulting improvements to pedestrian and bicycle facilities, also better facilitate the land uses and urban design characteristics envisioned by the City’s N/NE Quadrant Plan. This plan, with its aspirations for a greater mix of land uses, greater intensity of development and fewer per capita auto trips, relies on the improved connectivity that the Recommended Concept provides.
- New overcrossings at Hancock/Dixon (pedestrians, bicycles and autos) and at Clackamas (pedestrians and bicycles only) would provide greater access and route alternatives to the now-congested “box” area of Broadway/Weidler between Flint Avenue and Victoria Avenue.

## Goals and Objectives

In part because the I-5 Broadway/Weidler Interchange Plan is part of a larger, joint effort with City of Portland to also develop a land use and urban design plan for the N/NE Quadrant (the N/NE Quadrant Plan of the 2035 Central City), the goals and objectives for the overall project go beyond those typical for a transportation project. The overall project goals and objectives, as developed and approved by the SAC, that were used to develop, analyze and prioritize elements of the plan are described below.

### **1. A diverse mix of commercial, cultural, entertainment, industrial, recreational and residential uses, including affordable housing:**

- a. Provide opportunities for a variety of desired land uses in the quadrant and its subdistricts.
- b. Foster distinct and complementary subarea identities within the quadrant.
- c. Encourage uses that complement regional facilities including the Rose Garden, the Veterans Memorial Coliseum, the Oregon Convention Center and the Lloyd Center, while seeking to balance the episodic nature of these attractions with additional activities.
- d. Increase residential density and improve jobs to housing ratio in the quadrant.
- e. Increase affordable housing close to multimodal transportation systems and other appropriate locations.
- f. Preserve existing housing in the quadrant.
  - Consider the impacts of proposed freeway interchange improvements on nearby residential dwelling-including land use and zoning impacts.
- g. Provide open space, parks and recreation opportunities.
- h. Provide access and highlight the quadrant's relationship to the Willamette River

### **2. Economic development that supports existing and new business opportunities and more job creation, especially those paying family wages:**

- a. Create opportunities for new employment and a variety of employment types and levels.
- b. Maintain or increase development potential where appropriate, e.g. through zoning, infrastructure and creation of new parcels.
- c. Foster increase in future high density commercial development in appropriate locations while supporting and encouraging industrial activities in current industrial areas.
- d. Retain and support existing and local businesses in the quadrant.
- e. Support and strengthen the retail environment.

### **3. Enhanced fish and wildlife habitat, increased access to nature, and a sustainable built environment:**

- a. Create opportunities for new strategically located parks and open space.
- b. Maintain and create new access points to the river.
- c. Enhance and create new fish and wildlife habitat, tree canopy, and green infrastructure in appropriate locations.
- d. Support sustainable development goals and practices, including understanding and impacts of the Lloyd Eco-District.

### **4. Infrastructure for healthy, livable, safe and vibrant communities (e.g. open space and parks, river access, schools, etc.) that respects and complements adjacent neighborhoods:**

- a. Create sensitive transitions between the more highly urban Central City and adjacent residential neighborhoods.
- b. Foster concepts that support high-density development in the Lloyd District in appropriate locations and minimize their impacts on adjacent neighborhoods-Eliot, Irvington, and Sullivan's Gulch.
- c. Provide for amenities and services, such as parks, schools and connections, at a level appropriate to support the type and intensity of development proposed.

**5. A full multimodal transportation system that addresses present and future transportation access and needs, both locally and on the freeway system:**

- a. Improve multimodal transportation accessibility and connectivity within and through the quadrant (e.g. via new or improved connections across freeway and in the district)
- b. Encourage the use of transportation modes other than single occupancy vehicles to reduce auto emissions and vehicle miles traveled.
- c. Improve circulation for all modes in the Rose Quarter Transit Center.
- d. Accommodate present and future multimodal access needs of the quadrant
- e. Improve freight access from freeway and railroads to industrial areas and major destinations.
- f. Increase safety within the quadrant for all modes.
- g. Provide a street hierarchy system that supports the quadrant's desired urban form, land use and livability goals.
- h. Provide parking and transportation demand management strategies that better support the needs of the quadrant.
- i. Support the ODOT High Speed Rail study, including analysis of alternative routes and station locations from existing rail facilities.

**6. Improve the local circulation system for safe access for all transportation modes within the quadrant and at freeway interchanges:**

- a. Provide affordable, reliable, time saving and effective range of multimodal transportation solutions.
- b. Connect regional trail system via local pedestrian and bicycle network.
- c. Improve freeway operations for transit (C-TRAN), freight and auto.
- d. Improve local access across freeways and rail crossings via improved, safer crossings and additional separated facilities for cars, pedestrians and cyclists.
- e. Improve access to transit for residents, employees and visitors.
- f. Seek to significantly reduce accident potential.
- g. Minimize local land use impacts of transportation infrastructure.
- h. Improve rail operations for freight and passengers.

**7. Equitable access to community amenities and economic opportunities:**

- a. Avoid/minimize/mitigate involuntary displacement of quadrant residents, businesses and jobs.
- b. Provide for a broad array of employment types and encourage living-wage jobs.
- c. Provide for diversity of housing types that meets the needs of all income-levels and a variety of household types and lifestyles.
- d. Provide for amenities and services, such as parks, natural areas, schools and connections, at a level appropriate to support the type and intensity of development proposed.
- e. Increase the capacity of existing residents and business owners to share in the benefits from growth in the quadrant.
- f. Ensure that the plan compliments economic development and housing strategies to build capacity for existing area residents and businesses.
- g. Ensure that infrastructure improvement do not have disproportionate public health impacts.
- h. Ensure that plan proposals address the needs of local residents and businesses while recognizing the importance of the quadrant's region-serving facilities and infrastructure.
- i. Ensure the plan broadly supports the equity objectives established through the Portland Plan process.

**8. Protection and enhancement of the cultural heritage of the area and its sub-districts:**

- a. Preserve, enhance and celebrate historic and cultural resources.
- b. Avoid/minimize/mitigate demolition of historic and cultural resources.
- c. Avoid or minimize adverse impacts on cultural or high priority community sites.

## 9. Develop an implementable improvement plan:

- a. Ensure plan proposals are reasonable and implementable.
- b. Ensure capital costs are within project limits.
- c. Ensure plan proposals are consistent with relevant adopted local, regional and state land use and transportation goals and policies.
- d. Ensure plan concepts and proposals are consistent with relevant goals and objectives of the Portland Plan and Central City 2035 processes.

## 10. Improve urban design conditions:

- a. Ensure that the freeway and local street improvements support the urban design objectives of the overall N/NE Quadrant Plan.

The project considered how each of the transportation concepts developed and analyzed would accomplish the above goals. Specific freeway and local transportation evaluation criteria and measures were developed where applicable and are listed in the following subsection, Evaluation Criteria.

### Evaluation Criteria

After the goals and objectives were established, project staff and the SAC worked to develop corresponding evaluation criteria to measure how well various concepts were addressing the goals. The following evaluation criteria were considered by the SAC at its meeting on July 28, 2011. The SAC largely supported the staff-recommended evaluation criteria at this meeting but additional fine tuning on the criteria occurred via additional correspondence with SAC members in August 2011. Table 4 summarizes the final evaluation criteria that were used in Phase III for evaluating the transportation concepts.

The column on the right contains evaluation criteria specific to the freeway interchange and related local transportation interface elements of the project. Each evaluation criterion is tied to one or more goal or objective. They are generally more specific or quantitative than the objectives and are tailored to the infrastructure project characteristics of the freeway planning elements.

Please see Appendix O: Phase III Evaluation Criteria for a detailed list of the corresponding evaluation measures that were used to analyze the concepts in Phase III. The results of this analysis are shown in Appendix P: Phase III Evaluation Worksheet and Supporting Documents.

**Table 4: Evaluation Criteria for Evaluating Interchange Improvement Concepts in Phase III**

Project Goals	Evaluation Criteria for Interchange Improvements
1. A diverse mix of commercial, cultural, entertainment, industrial, recreational and residential uses, including affordable housing.	<ul style="list-style-type: none"> <li>• Minimize the need to purchase property for right-of-way.</li> <li>• Minimize residential units displaced and impacts to existing residential development.</li> </ul>
2. Economic development that supports existing and new business opportunities and more job creation, especially those paying family wages.	<ul style="list-style-type: none"> <li>• Minimize businesses displaced and impacts to existing businesses.</li> </ul>
3. Enhanced fish and wildlife habitat, increased access to nature, and a sustainable built environment.	<ul style="list-style-type: none"> <li>• Improve local connectivity.</li> <li>• Enhance the street tree canopy.</li> <li>• Reduce storm water run-off and energy use.</li> </ul>
4. Infrastructure for healthy, livable, safe and vibrant communities (e.g. open space and parks, river access, schools, etc.) that respects and complements adjacent neighborhoods.	(Covered by other criteria relative to Goals 5 and 6.)
5. A full multimodal transportation system that addresses present and future transportation access and needs, both locally and on the freeway system	<ul style="list-style-type: none"> <li>• Improve pedestrian and bicycle infrastructure and minimize pedestrian and bicycle conflicts with motor vehicles.</li> <li>• Identify and address system-wide transportation impacts of proposed interchange improvements on traffic diversion, local access and circulation, transit operations, freight movement and on land uses.</li> <li>• Reduce auto use and emissions.</li> <li>• Improve freeway safety.</li> </ul>
6. Improve the local circulation system for safe access for all transportation modes within the quadrant and at freeway interchanges.	<ul style="list-style-type: none"> <li>• Improve local circulation and freeway crossing opportunities.</li> <li>• Improve weaving conditions and through-traffic performance on the freeway near the I-5 Broadway/Weidler Interchange.</li> <li>• Lower likelihood of collisions on I-5 between Broadway and I-84.</li> <li>• Minimize construction impacts on land uses and transportation network and transit operations.</li> </ul>
7. Equitable access to community amenities and economic opportunities.	<ul style="list-style-type: none"> <li>• Minimize negative impacts to access, circulation and parking for major destinations/facilities and events.</li> </ul>
8. Protection and enhancement of the cultural heritage of the area and its sub-districts.	<ul style="list-style-type: none"> <li>• Minimize impacts to existing historic and culturally significant structures and high-priority community sites.</li> <li>• Minimize negative traffic pattern changes in residential neighborhoods.</li> </ul>
9. Develop an implementable improvement plan.	<ul style="list-style-type: none"> <li>• Estimate costs of improvements to the I-5 Broadway/Weidler Interchange and related local transportation improvements.</li> </ul>
10. Improve urban design conditions.	<ul style="list-style-type: none"> <li>• Improve connections between complementary land uses and major destinations.</li> <li>• Optimize development and open space opportunities.</li> </ul>

## 70+ Concepts and Ideas – Identifying Concepts

In conjunction with the project’s Stakeholder Advisory Committee (SAC), the city hosted a land use, local transportation and urban design charrette in February 2011. This charrette process resulted in ideas for an evolving land use, urban design vision for the N/NE Quadrant.

In April 2011, ODOT hosted a charrette that focused on transportation improvements to I-5 and the surrounding local transportation system. Since this charrette was focused on specific ideas for improving freeway operations and safety and the local street network, it had a more technical tone than the prior land use/urban design charrette which had resulted in ideas for a broad vision. Similar to the earlier charrette, the transportation charrette was implemented in conjunction with the SAC and included the following steps:

- March 30, 2011 – SAC work session that provided context and elicited ideas on freeway operations, ramp locations, interchange function, overcrossings and a range of other local and freeway transportation improvements.
- April 11, 2011 – Public work session, similar to the March 30th SAC work session, which generated additional ideas on a range of improvements.
- April 12, 2011 – Staff work session which processed ideas received from the earlier sessions. Included a midday public check-in period.
- April 13, 2011 – Additional staff work session which further refined 6 specific concepts for freeway improvements and reported to a public open house that evening.

## Phase II

### Develop Concepts

70+

**Ideas Generated**

**Freeway/Local Transportation  
Interface Charrette**

More than 70 overall concepts and concept elements (individual components of an overall concept) were received from the SAC and the public during the transportation charrette process. Each of these concepts and elements were compiled and organized in a master matrix so that they could be grouped and sorted according to similar elements and so their characteristics could be noted. See Appendix G: Freeway Charrette Concepts Matrix for the details of the concepts generated. Figure 18 shows charrette participants sorting through the transportation issues and developing concepts while Figure 19 shows some of the early charrette sketches.

### Concepts and Elements

In order to manage and describe the various components included in the wide range of ideas received during the transportation charrette, terminology was developed to provide consistency. Two key terms used were “concepts” and “elements.” *Concepts* referred to ideas that included a group of ideas that defined all of the key elements that were needed to make an idea work for the freeway and local transportation system. *Elements* referred to the individual building block ideas that comprised overall or complete concepts. Elements included things such as specific ramp and crossing locations, interchange location, interchange type, braided ramps, etc. One concept would have likely included several different elements.

### Concepts for Further Study

Since many of the more than 70 concepts and ideas included common or very similar elements, the concepts were grouped and sorted by major common elements so that they could be evaluated for addressing the project goals and objectives and by their performance, costs, impacts, etc.

### Range of Concepts

The broad array of concepts ranged from doing nothing (2035 No-Build) to operational improvements on the freeway (such as adding safety shoulders, braiding exit and entrance ramps, and extending auxiliary lanes) to new interchange types that would be new to the Portland area (such as a roundabout-controlled diamond interchange or a diverging-diamond interchange). Some concepts also included de-coupling either the Broadway/Weidler or Vancouver/Williams couplets in order to simplify the interchange configuration.



**Figure 18: Participants Developing Improvement Concepts at the Freeway/Local Transportation Interface Charrette (April 2011)**



**Figure 19: Early Concept Sketches from the Freeway/Local Transportation Interface Charrette**

Table 5 shows how the concepts were grouped into categories with similar concepts and elements so that they could be analyzed for addressing the project goals and objectives and by their performance, costs and impacts. This process and the concept categories were supported by the SAC at its meeting on May 26, 2011. After the May SAC meeting, project staff recommended including a sixth category of Concepts for Further Study: Transportation System Management (TSM)/Transportation Demand Management (TDM)/Operations Management. The SAC supported adding the TSM/TDM/Operations Management category in June.

**Table 5: Concept Categories for Further Study from the Freeway/Local Transportation Interface Charrette (April - June 2011)**

Concept Categories	Attributes or Notes
<b>1. 2035 No-Build</b>	Allows for a baseline comparison
<b>2. Mainline Operational Improvements to Freeway</b>	This category of operational improvements was intended to avoid replacing the five main structures over the freeway
<b>3. Rebuild the Structures over the Freeway</b>	This category would include operational improvements that would require replacing the five main structures over the freeway
<b>4. Enhance the Broadway/Weidler Interchange</b>	
<b>5. New Concepts for the Broadway/Weidler Interchange</b>	
<b>6. Transportation System Management/ Transportation Demand Management</b>	The TSM/TDM/Operations Management category was added by the project team and approved by the SAC in June 2011

There were many consistent improvement elements that were generated by or submitted subsequent to the charrette work sessions. Table 6 summarizes the major individual elements recommended to be considered for inclusion in the complete concepts.

**Table 6: Major Elements for Further Study from the Freeway/Local Transportation Interface Charrette (April 2011)**

Area	Major Elements for Further Study	Element Options
<b>Freeway</b>	<b>1. Add Freeway Crossings</b>	<ul style="list-style-type: none"> <li>• Pedestrian/bicycle only</li> <li>• Pedestrian/bicycle/vehicle</li> </ul>
	<b>2. Remove Freeway Crossings</b>	
	<b>3. Add Collection/Distributor (C/D) Roads</b>	
	<b>4. Add Braided Ramps</b>	
	<b>5. Change Ramp Layouts or Locations</b>	
<b>Local Transportation</b>	<b>6. De-Couple Existing Couplets</b>	<ul style="list-style-type: none"> <li>• Broadway/Weidler</li> <li>• Vancouver/Williams</li> </ul>
	<b>7. Local Street Changes</b>	
	<b>8. Pedestrian/Bicycle Changes</b>	

### Elements Not Recommended for Further Analysis in Phase II, Step 1 Screen

Certain elements that were included in the submitted concepts were not recommended to be studied further because they were either out of the adopted project scope and purpose, would reduce the lengths of the weaving sections on I-5 or they required heroic engineering that would not be feasible or would be very costly. Table 7 provides a summary of the elements that were not recommended to be studied further.

**Table 7: Elements Dropped from Further Study after Phase II Screening, Step 1 (May 2011)**

<b>Element Dropped from Further Study</b>	<b>Rationale for Not Studying Further</b>
<b>1. Remove I-5</b>	<ul style="list-style-type: none"><li>• Beyond the scope of this project</li></ul>
<b>2. Move Interchange North</b>	<ul style="list-style-type: none"><li>• Beyond the scope of this project</li><li>• Would significantly reduce lengths of weaving distances on I-5</li></ul>
<b>3. Move Interchange South</b>	<ul style="list-style-type: none"><li>• Beyond scope of this project</li><li>• Would significantly reduce lengths of weaving distances on I-5</li></ul>
<b>4. Double Deck I-5 through Quadrant</b>	<ul style="list-style-type: none"><li>• Beyond the scope of this project</li></ul>
<b>5. Initiate New Water Taxi/Ferry Service</b>	<ul style="list-style-type: none"><li>• Beyond the scope of this project</li></ul>
<b>6. Build New Bridge over Willamette River</b>	<ul style="list-style-type: none"><li>• Beyond the scope of this project</li></ul>
<b>7. Build Braided Ramps North of Broadway/Weidler Interchange</b>	<ul style="list-style-type: none"><li>• Not suggested in charrette</li></ul>
<b>8. Widen I-405 Freeway</b>	<ul style="list-style-type: none"><li>• Beyond the scope of this project</li></ul>
<b>9. Make Changes to I-5/I-405 Freeway Loop</b>	<ul style="list-style-type: none"><li>• Beyond the scope of this project</li></ul>

Appendix H: Freeway/Local Transportation Interface: Charrette Summary includes a summary of the outcomes of the charrette. The charrette summary also included one-page descriptions of the proposed concepts that included transportation elements that were dropped from further consideration. The concepts or elements that were dropped in this screening did not address the project goals and objectives adopted by the SAC, were beyond the scope of this project or were not feasible due to significant engineering or cost constraints.

Table 8 expands on concept categories from Table 5 to show specific complete concepts within the categories. A total of 13 full concepts were developed and analyzed using the project goals and objectives. Narrowing the complete concepts to 13 (with additional sub-options) within the six categories was supported by the SAC at its meeting on June 16, 2011. The concepts were illustrated and described in Appendix J: Freeway/Local Transportation Interface: Concepts for Further Study. One example concept, Concept 4b – Folded Diamond, is shown in Figure 20.



Figure 20: Example Concept (4b. Folded Diamond) for Phase II Analysis

Table 8: 13 Concepts for Further Study, Phase II Step 1 Screening (June 2011)

Concepts by Category	Overall Concept Count
<b>1. 2035 No-Build</b>	1
<b>2. Mainline Operational Improvements</b> (which eliminate or shift weave movements off mainline of freeway)	
2a. Braided Ramps	2
2b. Collector-Distributor (C-D) Roads	3
<b>3. Rebuild the Structures with Mainline Operational Improvements</b> (which may include extending auxiliary lanes and adding shoulders but may not necessarily include eliminating or shifting weaves off mainline)	4
<b>4. Enhance the Broadway/Weidler Interchange</b> with Mainline Operational Improvements (including extending auxiliary lanes and adding shoulders in all options)	
4a. Split Diamond Interchange	5
4b. Folded Diamond Interchange	6
4c. Three-Point Interchange (maintain Broadway/Weidler couplet)	7
<b>5. New Concepts for the Broadway/Weidler Interchange</b> with Mainline Operational Improvements (including extending auxiliary lanes and adding shoulders in all options)	
5a. Standard-Diamond Interchange (de-couple Broadway/Weidler)	8
5b. Single-Point Urban Interchange (SPUI; de-couple)	9
5c. Diverging Diamond Interchange (DDI)	10
5d. Roundabout-Controlled Diamond Interchange	11
5e. Three-Point Interchange (de-couple Broadway/Weidler)	12
<b>6. TSM/TDM/Operations Management</b>	13

## Phase II Step 2 Narrowing: from 13 to 8 Concepts

At the July 28, 2011, SAC meeting, the project team recommended that of the 13 concepts, Concepts 5b, 5c, 5d and 5e be dropped from further consideration based on the Phase II screening factors (see Table 9: Summary Evaluation Matrix for Phase II Screening). This recommendation was based on the following findings for each of the concepts:

### Concept 5b – Single-Point Urban Interchange (SPUI; de-couple)

- Pedestrian and bicycle safety concerns
- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

### Concept 5c – Diverging Diamond Interchange (DDI)

- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

### Concept 5d – Roundabout-Controlled Diamond Interchange

- Pedestrian and bicycle safety concerns
- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

### Concept 5e – Three-Point Interchange (de-couple)

- Pedestrian and bicycle safety concerns
- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

**The project team recommended these concepts be dropped from further consideration: 5b, 5c, 5d and 5e**

**The SAC agreed and also recommended that Concept 5a be dropped from further consideration.**

After discussion of the evaluation results at the July meeting, the SAC supported dropping those four concepts from further study. Additionally, the SAC found that Concept 5a – Standard-Diamond Interchange (de-couple Broadway/Weidler), had performed similarly to the other concepts within Category 5 (New Concepts for the Broadway/Weidler Interchange) and should be dropped from further study for the following reasons:

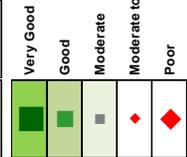
### Concept 5a – Standard-Diamond Interchange (de-couple Broadway/Weidler)

- Risk of exit ramp queues spilling back onto freeway
- Created wide (7 lane) combined arterial with degradation of operations occurring at multiple intersections
- North/south connectivity shifted mostly to Wheeler and Flint
- Would impact private properties due to acquisition or access or parking changes

This action left eight concepts for further evaluation in Phase III of the study. See also Appendix N1: The 8 Concepts. In addition to narrowing the remaining concepts and approving the Phase III evaluation criteria, the SAC also supported allowing project staff to optimize and potentially combine design elements of the remaining concepts as performance evaluations in Phase III warranted.

**Table 9: Summary Evaluation Matrix for Phase II Screening, Step 2 (July 2011)**

2011 Existing Conditions	2011 Existing Conditions	1. 2035 No-Build	2. Mainline Operational Improvements		3. Rebuild the Structures with Mainline Operational Improvements	4. Enhance the Broadway/Weidler Interchange with Mainline Operational Improvements			5. New Concepts for the Broadway/Weidler Interchange with Mainline Operational Improvements						6. TSM/TDM Operations Management	
			1. 2035 No-Build	2a. Braided Ramps		2b. Collector/Distributor (CID) Roads	3. Rebuild the Structures	4a. Split Diamond Interchange	4b. Folded Diamond Interchange	4c. Three-Point Interchange (couplet)	5a. Standard Diamond Interchange (de-couple Broadway/Weidler)	5b. Single-Point Urban Interchange (SPUI; de-couple Broadway/Weidler)	5c. Diverging Diamond Interchange (DDI)	5d. Roundabout-Controlled Diamond Interchange		5e. Three-Point Interchange (de-couple Broadway/Weidler)
2011 Existing Conditions	2011 Existing Conditions	1. 2035 No-Build	Option 1	Option 2	Option 1	Option 2	Option 3	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	6. TSM/TDM Operations Management
Freeway/Local Transportation Interface Concepts Summary Evaluation Matrix - 07/28/11																
Phase II Screening Factors	2011 Existing Conditions	2011 Existing Conditions														
1. A full multimodal transportation system that addresses present and future transportation access and needs, both locally and on the freeway system	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
a. Improve multimodal transportation accessibility and connectivity within and through the quadrant	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
b. Increase safety for all modes	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
c. Improve freight access from freeway to industrial areas and major destinations	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2. Safe traffic operations and freight mobility on I-5 and locally, with improved interface between the freeway and local street systems, and increased local connectivity to adjacent land uses	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
a. Improve freeway operations for freight and auto	◆	◆	■	■	■	■	■	■	■	■	■	■	■	■	■	◆
b. Improve freeway safety	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
c. Improve local circulation system for safe access for all modes in the quadrant and freeway interchange	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3. Equitable access to community amenities and economic opportunities																
a. Avoid/minimize/mitigate involuntary displacement of quadrant residents and jobs	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4. Protection and enhancement of the cultural heritage of the area and its sub-districts	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
a. Avoid/minimize/mitigate demolition of historic and cultural resources	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
b. Avoid/minimize/mitigate impacts to parks and schools	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
5. Urban design																
a. Improve freeway edge conditions	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
b. Urban redevelopment opportunities	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
c. Improve continuity of urban uses across the district	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■



## Phase III: Analyze and Select Concepts

### Phase III Analysis: from 8 Concepts to 6

The evaluation of the eight remaining concepts in Phase III proceeded from the summer 2011 through December. During the analysis, the project team discovered several items. First, in addressing the two weave conditions south of the I-5 Broadway/Weidler Interchange, the team found that:

- braided exit and entrance ramps southbound between Weidler and I-84 had the greatest improvement to freeway operations
- a C/D road northbound between I-84 and Weidler had the best chance of improving freeway operations

Therefore, the project team recommended to the SAC transportation subcommittee meeting on October 12, 2011, to combine Concepts 2a – Braided Ramps, and 2b – C/D Roads, into one concept, 2 – Braided Ramp/CD Road. This combined concept featured the braided ramps southbound and the C/D road northbound between the I-5 Broadway/Weidler Interchange and I-84. As project engineers more closely examined the physical layout requirements of this option, they found that, with the braided ramp/CD road concept, freeway improvements would affect three structures over the freeway at Broadway, Weidler and Williams. Therefore these structures would need to be replaced in this concept. .

The project team also found that a stand-alone TSM/TDM concept (Concept 6), which included even more aggressive TSM/TDM measures than those already contained in regional transportation plans, would not be enough to address the existing safety and operational issues found on the freeway and the connecting surface streets. Therefore the project team recommended that the more aggressive TSM/TDM measures found in Concept 6 be added to each of the remaining five “build” concepts. This recommendation was also supported by the SAC transportation subcommittee at its October meeting. This resulted in five “build” concepts and the 2035 No-Build concept (six total) left to analyze in the remainder of Phase III.

See Appendix N2: The 6 Concepts

### Results of Phase III Analysis: Narrowing the 6 Concepts to 4 and Moving toward a Hybrid

The results of the Phase III analysis were presented to the SAC transportation subcommittee on December 8, 2011. The project team presented these results via a summary table of overall findings (see Figure 21: Overall Findings of Phase III Analysis). This figure represents a composite of the scoring from the Phase III analysis found in Appendix P: Phase III Freeway Interchange/Local Transportation Interface Worksheet.

From these results, the subcommittee recommended the following:

- Discontinue work on Concept 4a – Split Diamond, and Concept 4b – Folded Diamond.
- Work to identify the best elements of each of the three remaining “build” concepts:
  - 2 – Braided Ramp/CD Road,
  - 3 – Rebuild the Structures, and
  - 4c – Three-Point Interchangeand include the identified elements in a hybrid concept.

The subcommittee’s recommendation to drop concepts 4a and 4b was based on the following findings for each of the concepts:

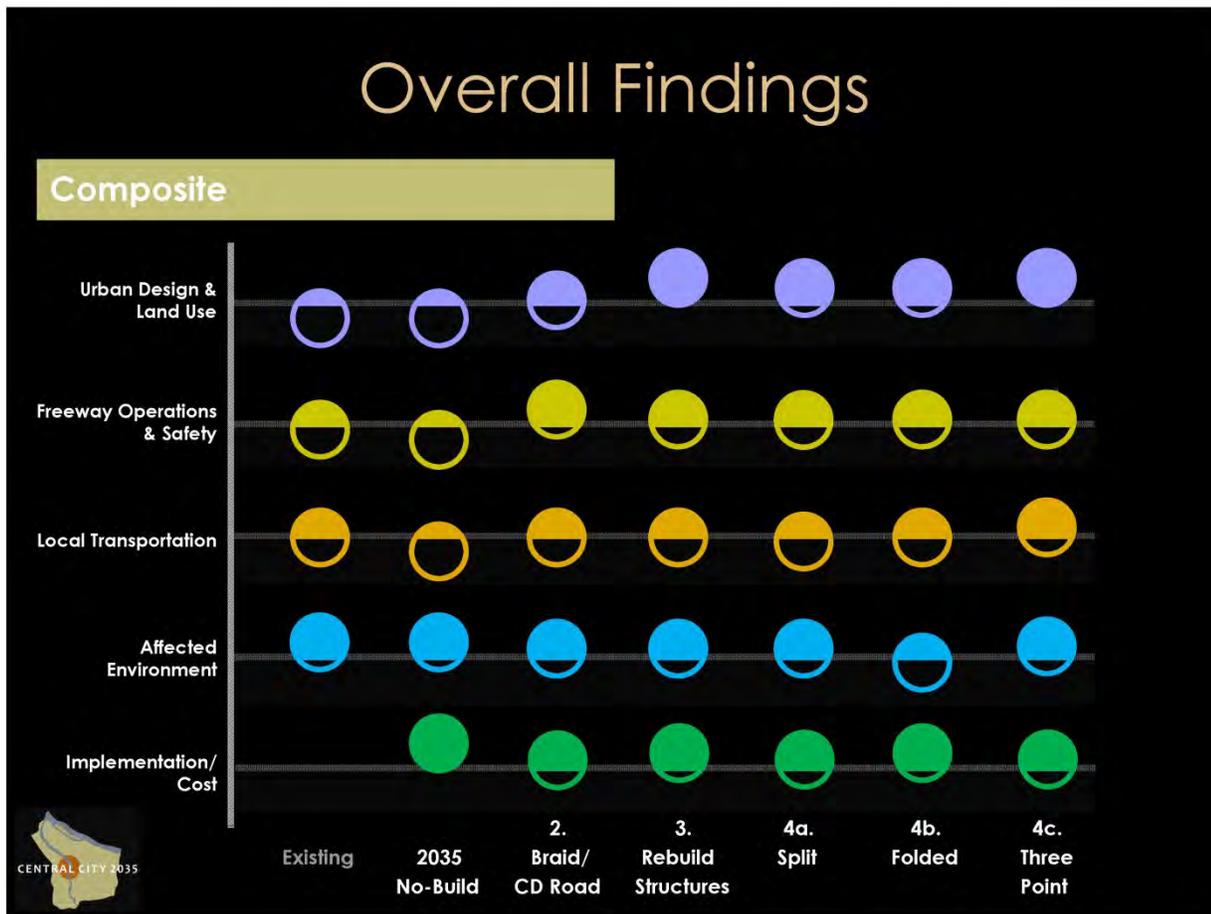
**Concept 4a – Split Diamond**

- Similar in many ways to 4c – Three-Point Interchange but not as good for urban design or local transportation
- Increased traffic volumes adjacent to important community properties (e.g., Leftbank Building, Paramount Apartments)
- Traffic queuing issues and increase in “box” area average intersection delay
- Impacts to bike, transit and freight connections, including increased out-of-direction travel

**Concept 4b – Folded Diamond**

- Largest overall project footprint relative to other concepts
- Most impacts to businesses and residences near the loop ramps, including the Leftbank Building, the Paramount Apartments and the Crowne Plaza Hotel

This subcommittee recommendation was unanimously supported by the SAC at its meeting on January 19, 2011. The SAC also directed project staff to weigh SAC-identified benefits and concerns regarding proposed hybrid concept elements the remaining three concepts as discussed at the January meeting.



Note: Concepts that scored higher in the Phase III analysis have circles that are higher respective to the five baselines.

**Figure 21: Overall Findings of the Phase III Analysis**

## Forming a Hybrid Base Concept

At its February 2012 meeting, the SAC was presented with a Hybrid Base Concept that incorporated elements of the three build concepts that remained after the Phase III analysis. At the time, the Hybrid Base Concept (illustrated in Figure 22) included:

1. Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies.
2. Mainline Freeway Safety Elements including:
  - a. Extending auxiliary lanes in both directions.
  - b. Adding full-width shoulders in both directions.
3. Re-building of the five structures over I-5 (Weidler, Broadway, Williams, Vancouver and Flint) to provide the clearance necessary for the Mainline Freeway Safety Elements. The Weidler, Broadway and Williams structures would be rebuilt to include a lid over portions of the freeway. Opportunities to reconfigure the Vancouver and Flint structures to improve neighborhood connectivity were to be considered. All enhanced structures over I-5 would include improved facilities (wider sidewalks, bicycle lanes, etc.) for all modes.
4. A move the southbound on-ramp from Wheeler/Winning Way to Weidler (at Williams).
5. Reverse traffic flow on Williams between Broadway and Weidler with a two-way bicycle/pedestrian facility in the median.

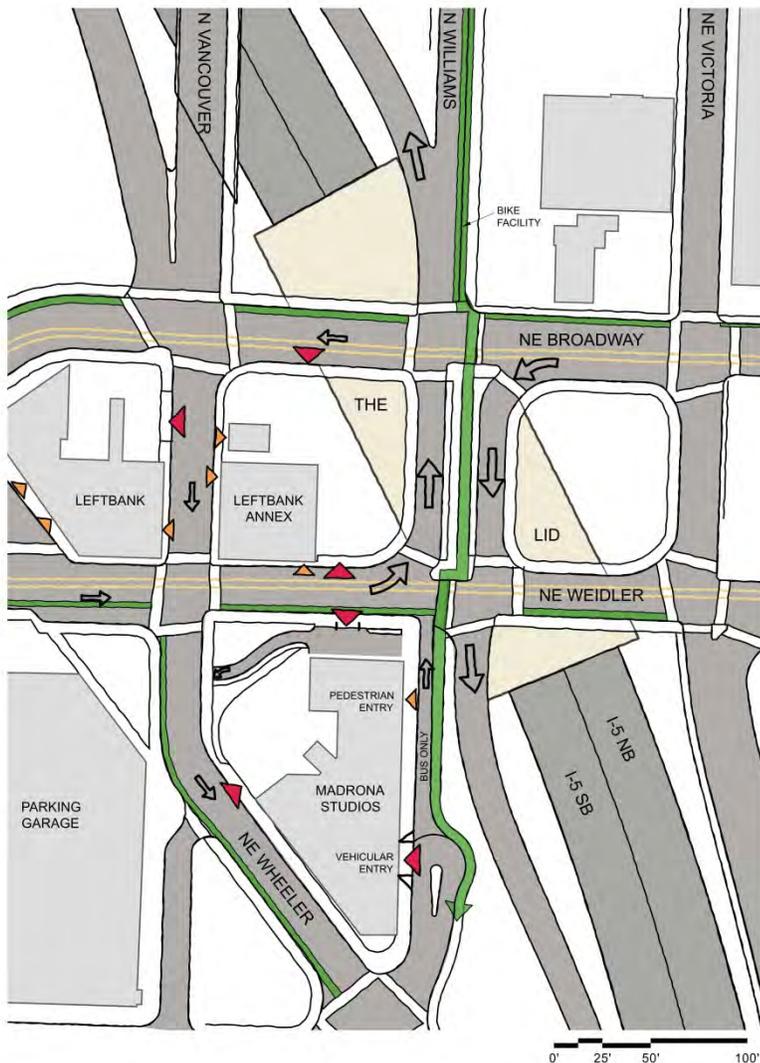


Figure 22: Hybrid Base Concept (illustrative concept drawing, February 2012)

The rationale for the specific elements of the Hybrid Base Concept was noted as follows:

1. TSM and TDM measures represent low cost strategies for managing traffic operations and minimizing demand. While local, regional and state policies call for extensive use of these strategies, this recommendation will help to ensure that ODOT and the City of Portland fully commit to maximizing TSM and TDM strategies in the N/NE Quadrant and on I-5.
2. An auxiliary lane with widened shoulders will improve traffic operations and safety.
3. Rebuilding structures would be required to add the auxiliary lane and would provide improved bicycle and pedestrian facilities. The rebuilding of these structures would provide an opportunity to build a lid over the freeway that would facilitate traffic movements during construction and could include usable public space or development opportunities afterward.
4. Moving the I-5 southbound entrance ramp from Wheeler/Williams/Winning Way to Weidler (at Williams) would reduce traffic on Wheeler south of Weidler.
5. Operating Williams with reverse traffic flow and a two-way bicycle/pedestrian facility in the median for the block between Broadway and Weidler would allow westbound traffic destined for I-5 south to turn south one block to the east of where they currently turn. It would therefore reduce traffic on Vancouver. In addition the two-way bicycle/pedestrian facility in the median would allow for bicycles and pedestrians to continue north from the Eastbank Esplanade and Rose Quarter to Williams Avenue.

The Hybrid Base Concept also included four elements that required further refinement based on technical assessments of bicycle and pedestrian operations, urban design/land use potential, traffic operations and safety. These additional four elements were:

1. I-5/I-84 Southbound Braided Ramp
2. A multi-use path (MUP) connecting the Eastbank Esplanade to NE Broadway along the east side of I-5
3. Clackamas Pedestrian/Bicycle Overcrossing
4. Two "North of Broadway" options for rebuilding the Vancouver and Flint overpasses:
  - a. Keep Vancouver and Flint at their current locations
  - b. Realign Vancouver west to align with Flint or DixonInclude a freeway lid where feasible when rebuilding Vancouver and Flint overpasses

The SAC supported the joint staff recommendation to move forward with the Hybrid Base Concept and directed staff to continue to analyze the four elements that required additional study.

### **Opportunity to Create Supplementary Crossings**

As early as the Freeway and Local Transportation Charrette in April 2011, a number of concepts and ideas had identified opportunities for and benefits of adding east-west crossings of the freeway. The potential for adding a Clackamas Pedestrian/Bicycle Overcrossing and the options for rebuilding the Vancouver and Flint overpasses (items three and four in the list above) were seen as chances to create a supplementary freeway crossing both south and north of the Box. Such a scenario would provide alternative routes for transportation users so they could avoid the Box area, and its interchange traffic, entirely. The supplementary crossing locations are shown in Figure 23.



**Figure 23: Potential Supplementary Routes for Crossing I-5**

#### Phase IV: Final Development of the Hybrid Concept

##### Two Refinement Elements Dropped

At the March 15, 2012, SAC meeting, project staff presented the following joint staff recommendations regarding the four hybrid bridge concept elements that required additional assessment:

- Discontinue refinement of the Southbound Braided Ramps.
- Discontinue refinement of a multi-use path (MUP) immediately east of I-5 between Multnomah and Weidler was not recommended to be included in the project.
- Continue work to ensure that a Clackamas Pedestrian/Bicycle Overcrossing could be integrated with a proposed development plan on the east side of the freeway.
- Continue to refine and evaluate the North of Broadway options.

The SAC supported these joint staff recommendations, supported the project team to move forward with the Hybrid Base Concept and directed staff to continue to analyze and refine the North of Broadway options. The rationale for each of these joint staff recommendations is summarized below.

### Rationale for Dropping Southbound Braided Ramps from the Hybrid Base Concept

Braided ramps, which eliminate weave movements, have been shown to be an effective strategy to improve the safety and operations of an urban freeway. However, the Southbound Braided Ramps were not recommended for further refinement as part of the Hybrid Base Concept for the following reasons:

- Many of the safety and operational benefits could be achieved with the auxiliary lane extensions included in the Hybrid Base Concept.
- Concerns about potential visual impacts of the braided ramp structures, which would be located beyond the existing footprint of I-5 and would require new support columns along Wheeler Avenue in the vicinity of the Rose Garden Arena and the Rose Quarter TC, remained.
- Braided ramps were estimated to add an additional \$150 million to the capital cost of the Hybrid Base Concept.

If after base improvements are implemented and safety and operational issues remain, the Southbound Braided Ramps would receive additional consideration since they show promise for further improving safety and operations within the project area. Project staff further recommended that other elements of the Hybrid Base Concept should not preclude the ability to implement the Southbound Braided Ramps, if needed, at some point in the future. Figures 24 and 25 are illustrations that were developed to show how the braided ramp structures might have looked from below. Opportunities were identified to utilize landscaping, walls, water, lighting and other techniques to enhance the look and feel of areas near the freeway.

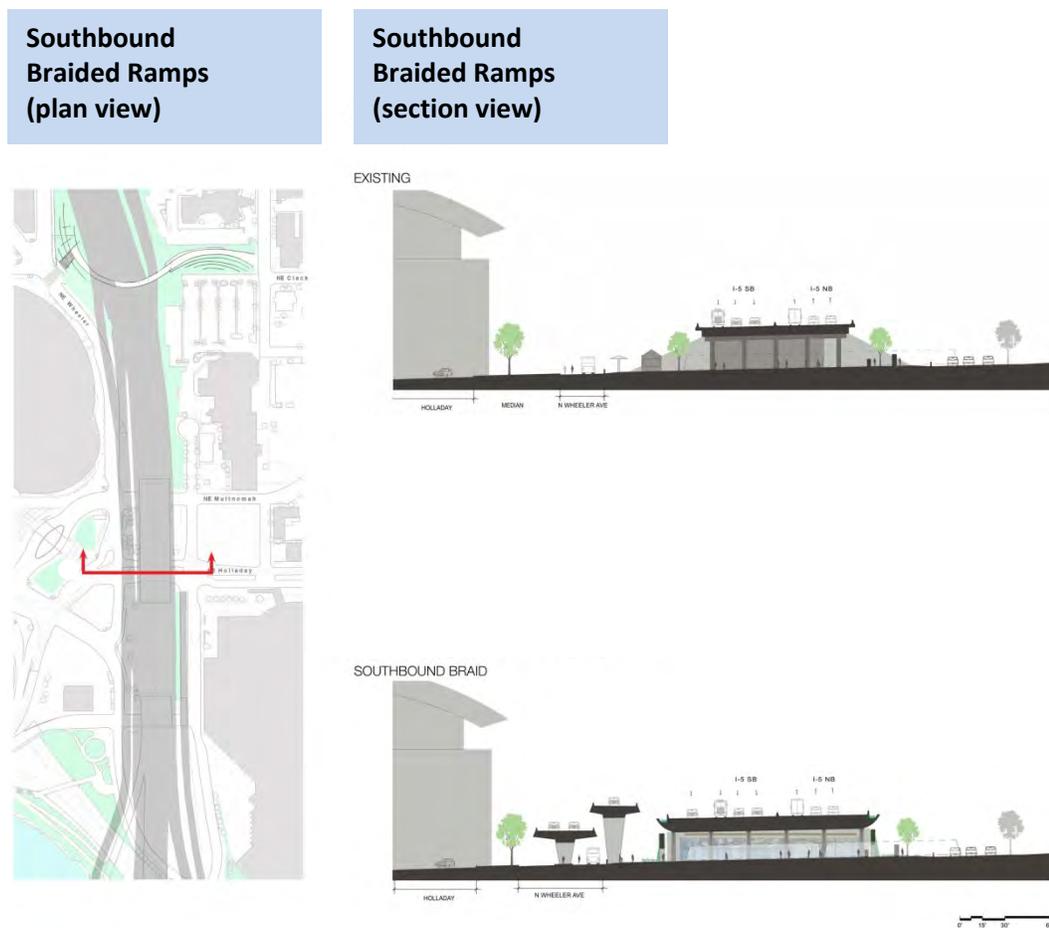
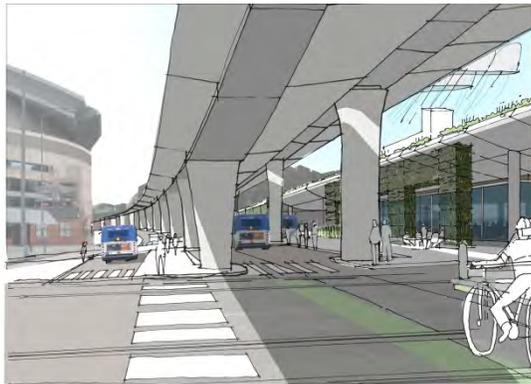


Figure 24: Southbound Braided Ramps (illustrative concept drawings, March 2012)



Existing



With Southbound Braided Ramps

**Figure 25: Southbound Braided Ramps (illustrative concept drawings, March 2012)**

**Rationale for Dropping the Eastside Multi-Use Path (MUP) from the Hybrid Base Concept**

The analysis in Phase III had identified a range of potential benefits and impacts associated with creating a multi-use path (MUP) along the east side of I-5. However, the MUP was not recommended for inclusion as part of the Hybrid Base Concept for the following reasons:

- The mitigation for impaired north-south pedestrian and bicycle access, associated with earlier interchange concepts, was no longer necessary. The Hybrid Base Concept provided for reasonable north-south bicycle and pedestrian connections west of I-5 using Wheeler, Williams and Vancouver Avenues.
- The east side multi-use path would create a difficult crossing at the eastern edge of the I-5 northbound exit-ramp to Weidler.
- The east side MUP would require additional property acquisition and would displace approximately 25 off-street parking spaces.
- The MUP was estimated to add an additional \$2 - \$4 million to the capital cost of the Hybrid Base Concept.

## Clackamas Pedestrian/Bicycle Overcrossing

Throughout the concept development and analysis phases, project staff and the SAC had thought it highly desirable to provide a pedestrian and bicycle crossing of I-5 connecting from the vicinity of Winning Way, Wheeler Avenue and Williams Avenue (on the west side of I-5) to the vicinity of Clackamas Street at 2nd Avenue (on the east side of the freeway). This overcrossing would improve pedestrian and bicycle access to the Rose Garden Arena, the Veterans Memorial Coliseum and potential future Rose Quarter development.

Concepts were prepared that depicted a potential overcrossing and described some of the challenges of providing good physical connections on both sides of the freeway (see Figure 26).

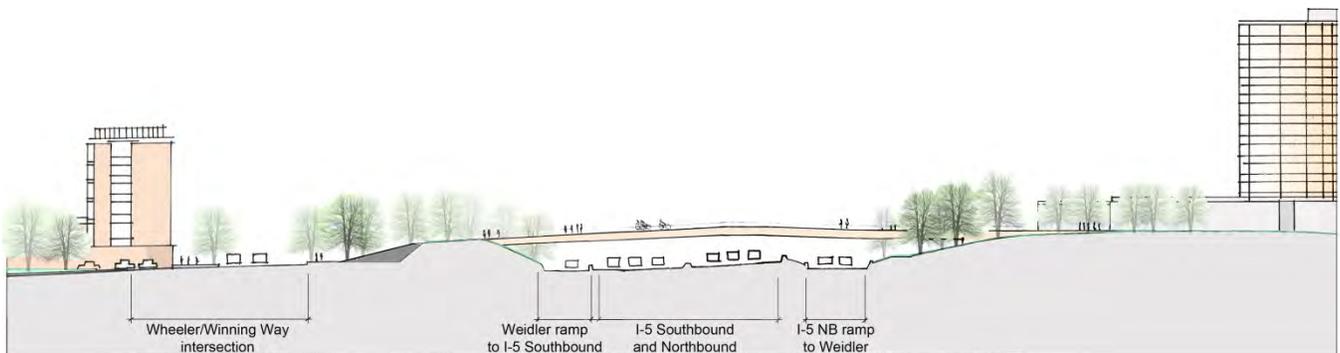
### Benefits

- Would improve pedestrian and bicycle access to the Rose Quarter.
- Would support redevelopment opportunities at the Rose Quarter and on the east side of I-5.
- Would improve pedestrian safety by shifting some event-based pedestrian activity from Weidler Street and the Box area to the new overcrossing.
- Could be designed to allow for southbound braided ramps if those are desired in the future.

### Issues

- Potential development on the east side of I-5
- Capital cost estimated at \$15 - \$20 million.

The Clackamas Pedestrian/Bicycle Overcrossing was recommended to be included as part of the Hybrid Base Concept. The City and ODOT agreed to continue to work with the proposed development on the east side of the freeway to ensure that the overcrossing could be accommodated with the proposed development.



**Figure 26: Clackamas Pedestrian/Bicycle Overcrossing, Cross Section (illustrative concept drawing, March 2012)**

## **North of Broadway Options**

The I-5 Broadway/Weidler Interchange project presented a unique opportunity to improve the local street system just north of Broadway in addition to overall operational improvements to the transportation network. Because the existing Flint and Vancouver structures over the freeway must be rebuilt as part of the Hybrid Base Concept, they could be built in a configuration different than their current layout. This opportunity also presented a number of challenges since no option was without impacts. Several concepts were developed and deemed worthy of serious consideration, in addition to the option of rebuilding the structures in their current locations. All options considered would work with the other major elements of the Hybrid Base Concept. All new structures would meet current design standards for seismic safety, sidewalks and bike lanes where applicable.

### **Initial North of Broadway Options Considered through March 8, 2012 (see Figure 27):**

#### **1. Rebuild**

This option would have removed and rebuilt the existing freeway overcrossings in their current locations. Although the replacement structures would meet current design standards, this option would not have eliminated the five-legged intersection at Vancouver & Broadway. Removing the Vancouver leg from the intersection would have reduced accident potential and improved driver expectations within the interchange area.

#### **2. Align Vancouver with Flint (Flint)**

This option would have replaced the existing Flint and Vancouver freeway overcrossings with a single, new overcrossing connecting Vancouver to Flint. The new Vancouver/Flint overcrossing would have provided for a local street connection with Hancock to the east and a local street connection to the west. The intersection of Flint and Broadway would have been signalized, the existing access to Wheeler from Broadway would have been closed and access to Wheeler would have been provided via Dixon. Flint would have been connected south of Broadway, across Weidler, and continue as a through-street connection to Winning Way between the two city parking structures.

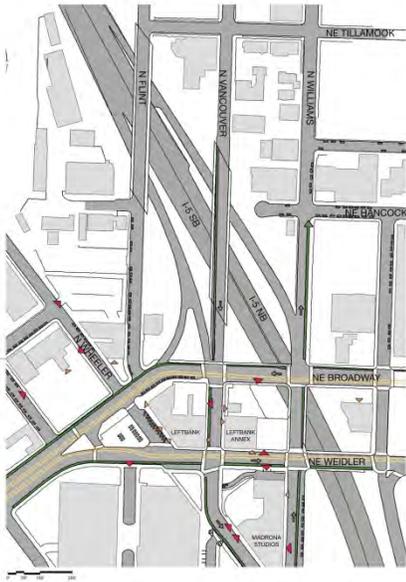
#### **3. Align Vancouver with Dixon (Dixon)**

This option would have replaced the existing and Vancouver freeway overcrossings with a single, new overcrossing connecting Vancouver to Dixon at Wheeler. The new Vancouver/Dixon overcrossing would have provided for a local street connection with Hancock to the east and a local street connection to the west. Wheeler would have been connected as a two-way street to a signalized intersection at Broadway and Flint would have been closed at Broadway. The south leg of the Wheeler /Broadway intersection would have been a new, north/south through-street connection across Weidler to Winning Way between the two city parking structures.

#### **4. Align Vancouver with Dixon and Form Couplet (Dixon Couplet)**

This option would have replaced the existing and Vancouver freeway overcrossings with a single, new overcrossing connecting Vancouver to Dixon at Wheeler. The new Vancouver/Dixon overcrossing would have provided for a local street connection with Hancock to the east and a local street connection to the west. Wheeler would have been paired with Ross as a one-way couplet with northbound traffic on Wheeler and southbound traffic on Ross.

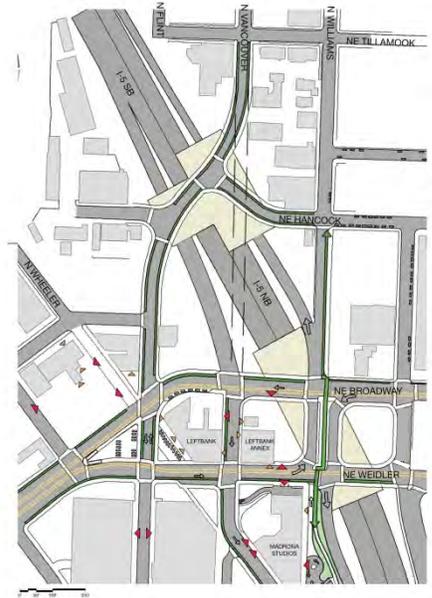
**Existing Conditions**



**Option 1. Rebuild**



**Option 2. Align Vancouver with Flint**



**Option 3. Align Vancouver with Dixon**



**Option 4. Align Vancouver with Dixon and Form Couplet**

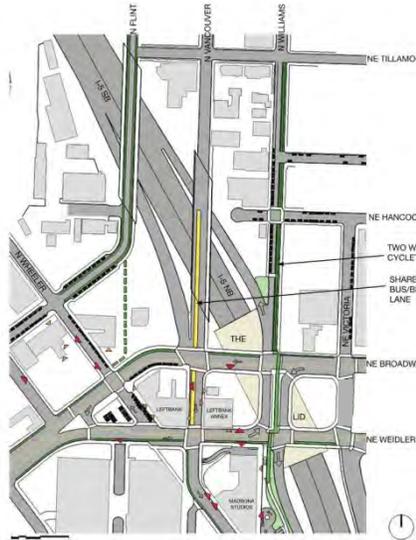


**Figure 27: Initial Options North of Broadway (illustrative concept drawings, March 2012)**

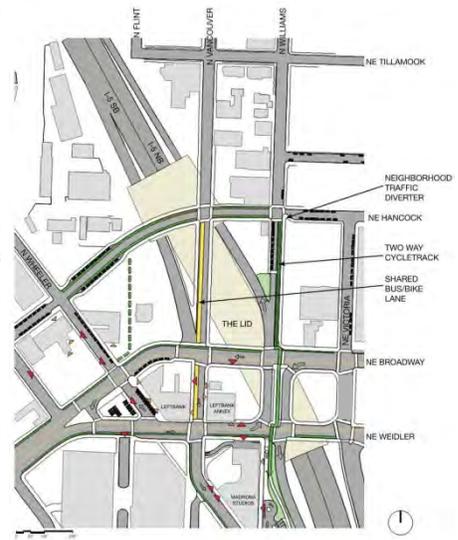
### Option 1. Rebuild



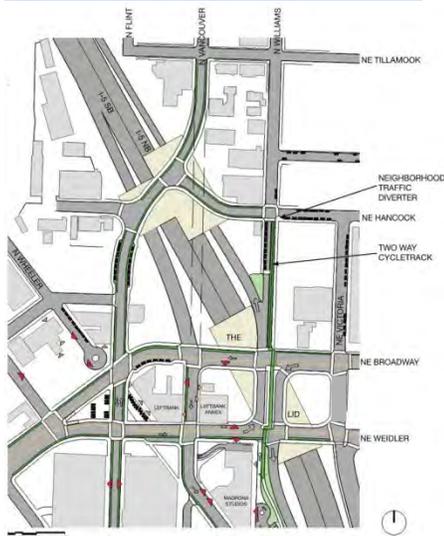
### Option 2. Optimized Rebuild



### Option 3. Vancouver + Hancock/Dixon



### Option 4. Flint



### Option 5. Dixon



**Figure 28: Refined Options North of Broadway (illustrative concept drawings, April 2012)**

After an SAC work session on March 20, 2012, where the four North of Broadway options of early March were examined in greater detail, project staff presented additional refinements on a total of five modified options to the SAC on April 10, 2012. The SAC discussed the pros and cons related to each of the then five options, shown in Figure 28, in order to prepare for their May recommendation.

### **The North of Broadway Recommendation**

The SAC recommended Option 3 Vancouver + Hancock/Dixon that included replacing the existing Vancouver structure in its current location and replacing the existing Flint structure with a new east-west structure connecting Hancock Street on the east side of the freeway with Dixon Street on the west side. The recommendation also included extending Flint Avenue as a through-street between the two parking structures on Weidler Street near the Veterans Memorial Coliseum and adding two short bicycle/pedestrian pathways (one connecting Flint Avenue/Tillamook Street to Williams Avenue and one connecting the Hancock /Dixon overcrossing to Broadway).

The rationale for this recommendation included:

- Providing improved an improved east-west connection
- Maximizing street connectivity for all modes
- Maintaining a direct north-south route for transit, pedestrians and bicycles
- Supporting redevelopment of the area west of I-5 and north of Broadway
- Providing a greater opportunity for an additional freeway lid

## 5. Description of the Recommended Concept

Previous sections describe the collaborative study process that provided an opportunity for local neighborhoods, local businesses, the SAC, ODOT, and the City of Portland to understand each other's goals, objectives and concerns and to prepare together a consensus recommendation for freeway operations and safety improvements and improved multi-modal safety, access and mobility on the local street system. Section 4 describes range of ideas and options that were collected and evaluated and it presents a brief summary of the technical analysis and rationale that led to narrowing over 70 general concepts to a consensus recommended concept that includes both freeway and local street improvements.

The Recommended Concept represents a true consensus, in that each party did not get everything they wanted, yet they recognized the need to compromise in order to significantly improve operations and safety for all transportation modes, to narrow the impacts to the surrounding community and to support the goals of the complementary land use plans. This section provides a description of the recommended freeway and local street concept elements.

In addition to the physical description included in this section, ODOT's Facility Plan for the I-5 Broadway/Weidler Interchange Improvements, a separate but related document, provides a summary of key elements of this report including the project purpose, the land use/transportation connection and the recommended plan elements.

### Elements of the Recommended Concept

The consensus elements included in the Recommended Concept are organized into four subsections of the study area:

- I-5 Broadway/Weidler Interchange area (including the freeway mainline and shown in Figure 29: Overall Project Extent)
- North of Broadway area (shown in Figure 30: Enlarged "Box" Area)
- South of Weidler Street area (also shown in Figure 30: Enlarged "Box" Area)
- Freeway Mainline Improvements near the Rose Quarter TC (shown in Figure 31)

The following describes the consensus elements included in the Recommended Concept.

### The I-5 Broadway/Weidler Interchange Area

The I-5 Broadway/Weidler Interchange Area refers to project elements related to the freeway mainline, exit and entrance ramps and other traffic operations elements in the vicinity of the freeway ramps.

### Transportation System Management (TSM) and Transportation Demand Management (TDM) Strategies

- Major freeway projects in the metropolitan area typically utilize TSM techniques to manage freeway traffic using methods such as ramp meters and variable message signs. ODOT will explore the role that emerging, state-of-the-art TSM techniques such as variable speed limits could have in improving traffic operations.
- TDM refers to strategies aimed at reducing the number of motor vehicle trips using roadway and highway facilities. Trip reductions are typically achieved by incentives that make carpooling or alternative modes (e.g. walking, bikes, transit) more attractive. TDM strategies and policies are identified in Portland's Transportation System Plan (TSP), the Regional Transportation Plan (RTP), the Oregon Transportation Plan (OTP) and the Oregon Highway Plan (OHP). ODOT and the City of Portland will explore ways to cost-effectively maximize the ability of TDM measures to reduce motor vehicle trips in the vicinity of the interchange.



**Figure 29: Overall Project Extent of the Recommended Concept**

### **Mainline Freeway Safety Elements**

The Recommended Concept would modify the mainline of I-5 by adding several key safety and operational improvements (see Figure 29). It would extend the existing auxiliary lanes approximately 4,300 feet in both northbound southbound directions and add full-width shoulders (both inside and outside) in both directions in most of the areas where the auxiliary lane would be extended. The northbound auxiliary lane would extend the existing auxiliary lane that enters I-5 northbound from the I-84 westbound entrance ramp. This lane currently ends at the exit ramp to Weidler Street, but with the project, the lane would be extended as a continuous lane to the Greeley Avenue exit ramp.

The southbound auxiliary lane would extend the existing auxiliary lane that enters I-5 southbound from the Greeley Avenue entrance ramp. This lane currently ends in the vicinity of the Broadway overcrossing structure. With the project, the lane would be extended as a continuous lane to the exit ramp to the Morrison Bridge and southeast Portland/OMSI.

The addition of full-width shoulders between the Greeley Avenue entrance ramp and the Morrison Bridge would increase safety and reduce traffic congestion related to vehicle breakdowns and crashes in this constrained portion of I-5.

### **Three Rebuilt Freeway Structures and the Broadway/Weidler/Williams Lid**

The existing Broadway, Weidler and Williams structures over I-5 would be replaced in order to accommodate the auxiliary lane extension and widened shoulders. In addition, a lid over the freeway would be included from immediately south of Weidler to immediately north of Broadway. The lid would connect with uses on both sides of the freeway and would provide a complete cover of the freeway in this vicinity. No specific uses have been proposed for the lid, but uses could include public space (park or plaza) or commercial development or a combination of both.

### **I-5 Broadway/Weidler Interchange Improvements**

The replacement structures will include widened sidewalks, bicycle lanes, improved lighting, improved stormwater treatment and opportunities for landscaping improvements.

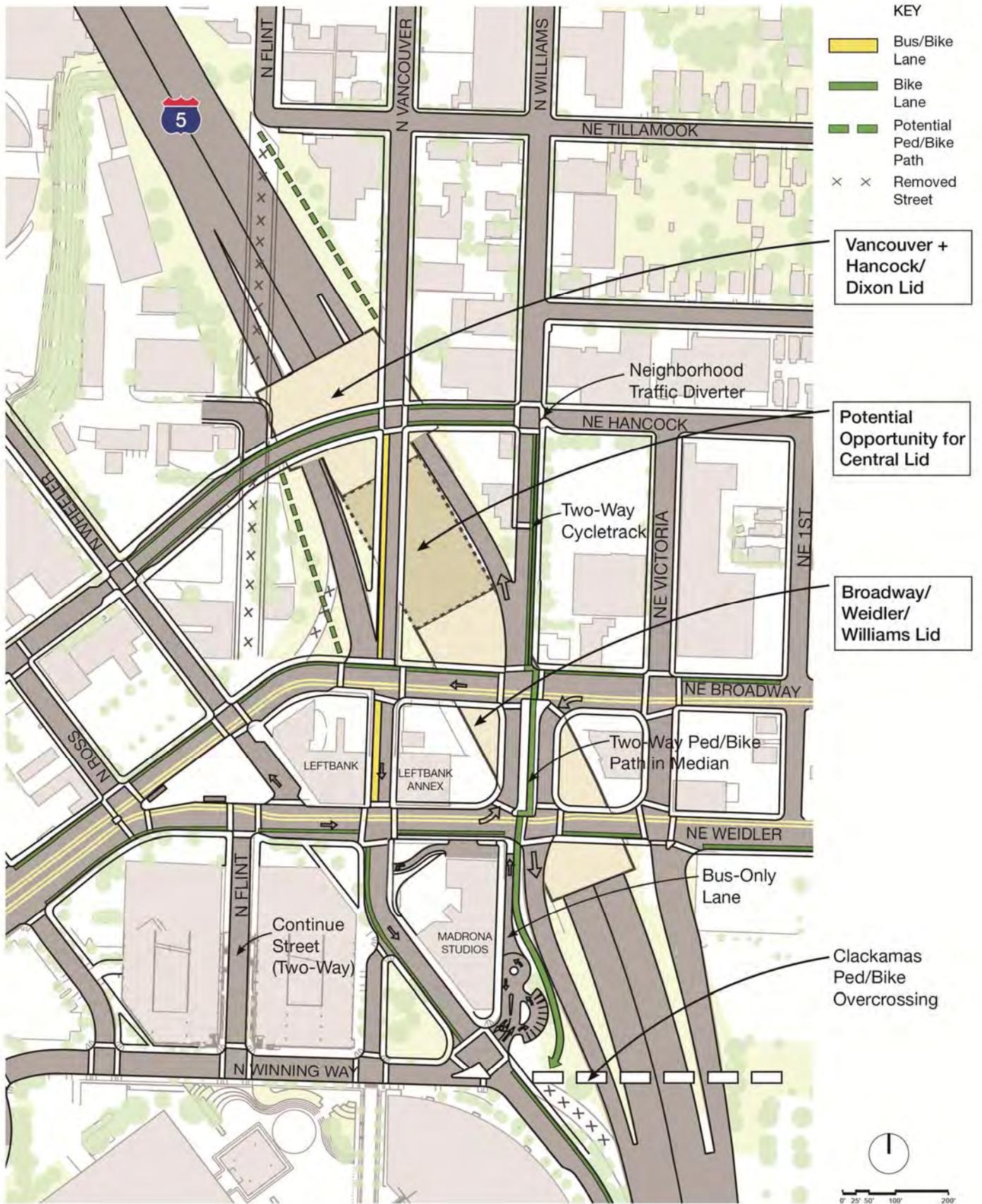
- **Relocation of Southbound I-5 Entrance Ramp to Weidler/Williams**

The southbound I-5 entrance ramp is currently located one block south of Weidler near where Williams, Winning Way and Wheeler come together at the north end of the Rose Garden Arena. The recommended alternative would move the entrance-ramp north to Weidler. This would require limiting through travel northbound on Williams. Some motor vehicle access would be permitted on Williams north of Winning Way in order to maintain access to facilities at the Madrona Studios, but through-travel on Williams Avenue between Winning Way and Weidler Street would only be permitted for bicycles, pedestrians and buses.

- **Reverse Traffic Flow on Williams**

Williams Avenue between Weidler Street and Broadway would be a non-traditional street that would have three distinct features.

- Two northbound lanes along the western edge of the block. The westernmost lane would have the option of heading straight to the I-5 northbound entrance ramp or turning west onto Broadway. The adjacent lane would provide a choice between the I-5 northbound ramp or northbound on Williams Avenue.
- A wide center median that would include a two-directional, multi-use path and landscaping on both the east and west sides that would be dense enough to limit the visual connection between the northbound and southbound traffic lanes.
- Two southbound lanes along the eastern edge of the block. The easternmost lane would have the option of heading straight to the I-5 southbound entrance ramp or turning east onto Weidler Street. The adjacent lane would travel directly onto the I-5 southbound ramp.



**Figure 30: Enlarged “Box” Area of the Recommended Concept**

### **North of Broadway Area - North of Broadway Option 3. Vancouver + Hancock/Dixon**

The North of Broadway area refers to the local street system north of Broadway and connections between the local street system and Broadway and Weidler Street. Several local street configurations were considered to improve connectivity and facilitate transit, bicycle and pedestrian movements. Option 3. Vancouver + Hancock/Dixon was selected as the preferred street configuration due to its ability to maintain important existing connections and enhance east-west accessibility across the freeway (see Figure 30).

Major elements in the north of Broadway area include:

- **Rebuild Vancouver in current location**
  - The Vancouver Avenue overcrossing would be removed and replaced in its current location in order to provide adequate width for the auxiliary lane extension and widened shoulders. This would maintain the existing 5-legged intersection at Broadway where Vancouver Avenue alternates the southbound traffic signal with the southbound exit ramp from I-5.
- **Remove Flint south of Tillamook and replace with new pedestrian/bike paths**
  - The existing Flint Avenue overcrossing would be removed and Flint Avenue south of Russell Street would terminate at Tillamook Street. The portion of Flint Avenue between the existing overcrossing and Broadway would be closed as a through street but access would be maintained to provide local access.
- **Add Hancock/Dixon Overcrossing and Hancock/Vancouver Lid**
  - A new overcrossing would be constructed extending Hancock Street west across I-5 connecting with Dixon Street. Traffic calming or diversion measures would be included on the eastern leg of the intersection of Hancock Street and Williams Avenue to ensure that Hancock Street is not used by through traffic. A freeway lid would be included that would encompass the area immediately north and immediately south of the overcrossing.
- **Possible Freeway Lid Connecting Hancock Overcrossing to the Broadway/Weidler Structures**
  - In addition to the freeway lids at Hancock and at the Broadway/Weidler structures, the project will study an additional section of freeway lid that could connect the Hancock Lid with the Broadway/Weidler Lid which could then operate as a single large lid covering the freeway from immediately south of Weidler Street to immediately north of Hancock Street. The assessment of a connecting lid will consider costs, right-of-way impacts, constructability and other elements.

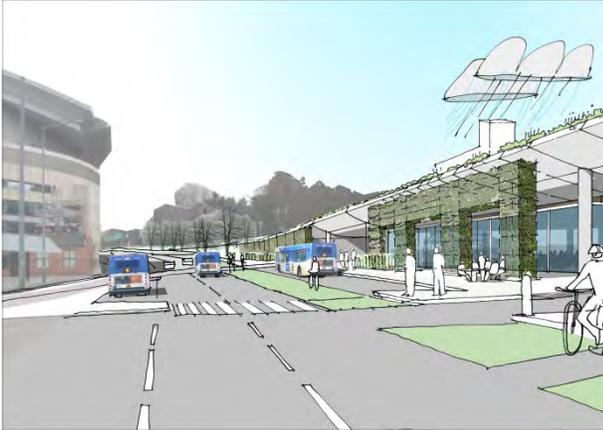
### **South of Weidler Street Area**

The South of Weidler Street area refers to the local street system south of Weidler Street (shown in Figure 30). Two elements south of Weidler Street were included in the recommended concept as described below.

- **Clackamas Pedestrian/Bike Overcrossing**
  - A new pedestrian and bicycle overcrossing would be included connecting from approximately the intersection of Williams Avenue, Winning Way and Wheeler Avenue to Clackamas Street in the vicinity of 2nd Avenue. The overcrossing would be designed to meet Americans with Disability Act (ADA) requirements and provide for smooth bicycle connections at both ends.
- **Continue Flint between Parking Structures**
  - The two city-owned parking structures at the north end of the Rose Quarter front onto Weidler Street. There are currently two separated parking accesses between the two structures: one is accessed from Weidler Street and the other is accessed from Winning Way. The project would include reconstructing the existing accesses into a single roadway that would allow for through travel between the parking structures. This would provide for direct circulation between Weidler Street and Winning Way.

### Freeway Mainline Improvements near the Rose Quarter TC

As shown in the plan view of the mainline improvements to I-5 in Figure 29, extension of the auxiliary lanes both northbound and southbound and provision of full safety shoulders extend to the area adjacent to and above the Rose Quarter TC. Figure 31 provides several early illustrations of how the mainline improvements to I-5 could appear adjacent to and above the transit center. The changes to I-5 provide an opportunity to enhance the aesthetic appearance of the freeway structures by wrapping them with new materials designed to maximize natural light and to provide a more cohesive environment for the transit center.



View of Extended Auxiliary Lanes shown at Rose Quarter TC



View of Extended Auxiliary Lanes shown at MAX platform

**Figure 31: Mainline Freeway Improvements near Rose Quarter TC (illustrative concept drawings, March 2012)**

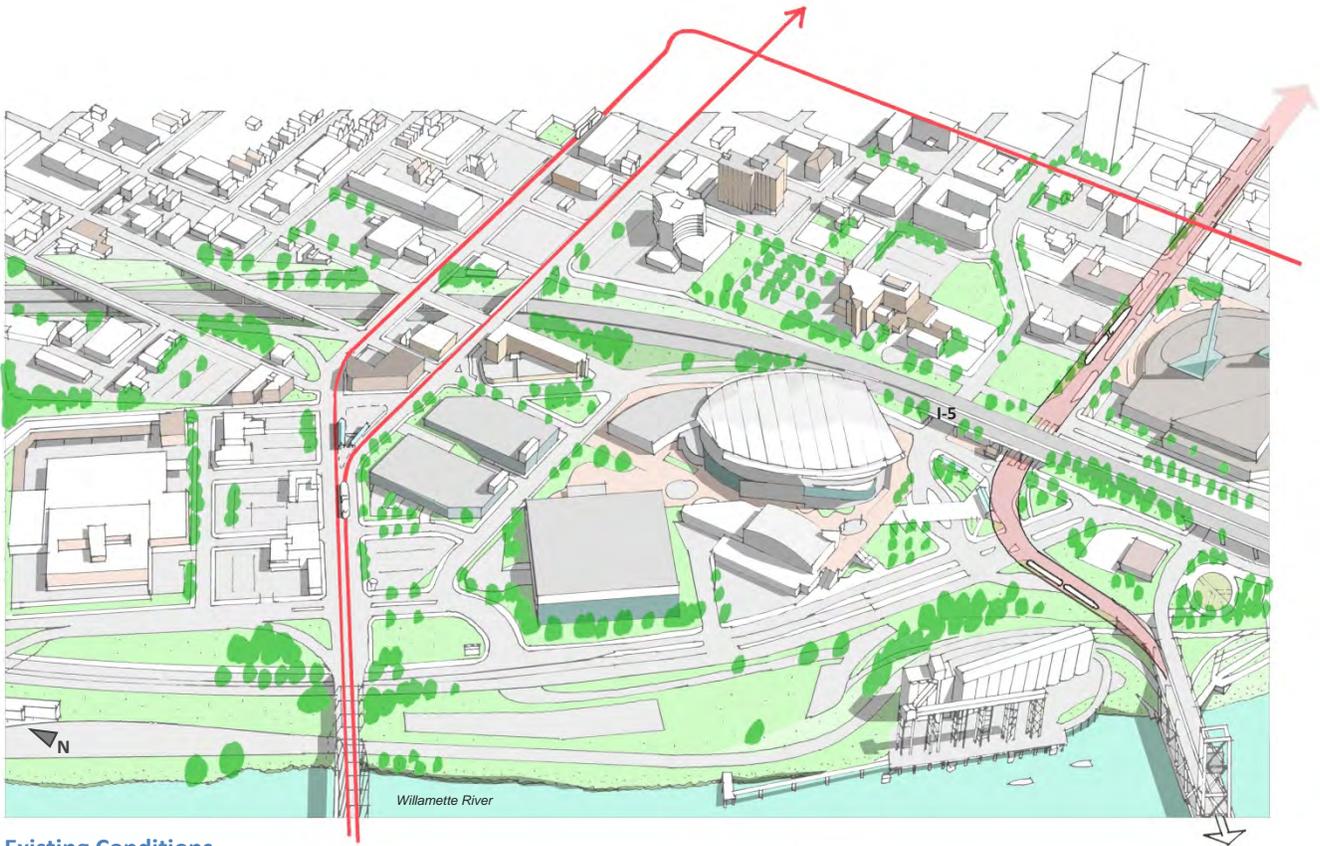
### Elements Not Included in the Recommended Concept

Several potential project elements were considered and dismissed (see Section 4). These include interchange, roadway and freeway lane configurations. The concept for a southbound braided ramp was not included in the recommended project due to cost and visual impacts. However, if the recommended project does not improve freeway safety and operations, the southbound braided ramp could be evaluated further to determine if it could address safety and operations problems and if the impacts that were noted could be mitigated.

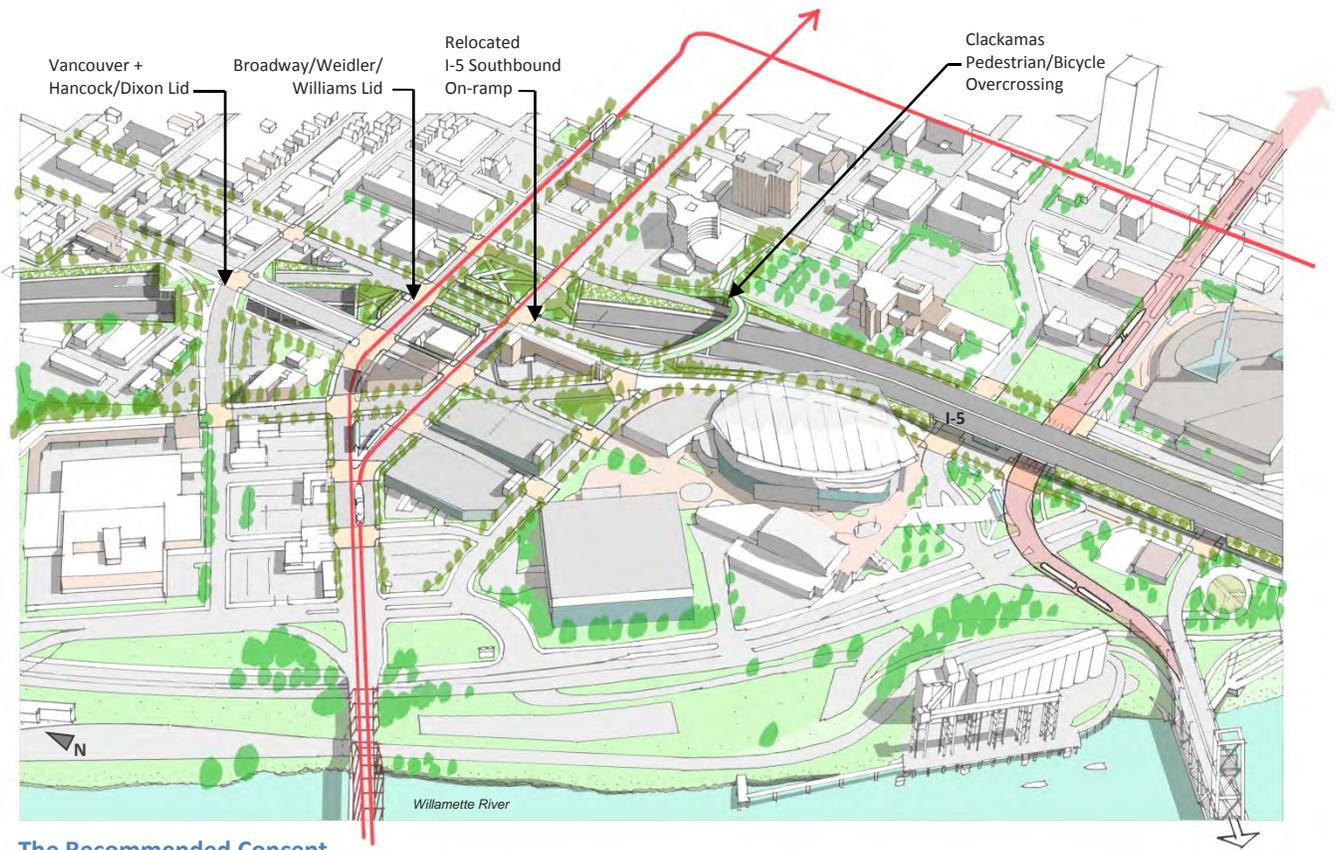
### **The Facility Plan**

An accompanying document to this *I-5 Broadway/Weidler Interchange Improvements Report* is the Facility Plan. ODOT has prepared the *Facility Plan for the I-5 Broadway/Weidler Interchange* to further summarize the transportation needs associated with the freeway and the I-5 Broadway/Weidler Interchange in the project study area, the technical justification for the improvement elements of the Recommended Concept and other factors that ODOT needs to present to decision-makers to confirm the agency's intent relative to this facility in the future.

Figure 32 shows aerial perspectives of the existing conditions in the Rose Quarter and how the area would look with the improvements included in the Facility Plan's Recommended Concept.



Existing Conditions



The Recommended Concept

Figure 32: Aerial Perspectives of Existing Conditions and the Recommended Concept

# **I-5: Broadway/Weidler Interchange Facility Plan**

November 2012

## **Exhibit D**

### **I-5: Broadway/Weidler Interchange Report**



# N/NE Quadrant and I-5 Broadway/Weidler Plans

## I-5 Broadway/Weidler Interchange Improvements Report



**August 28, 2012**

**Revised Draft: Reference Only**

**Informational/Discussion  
DRAFT**



*The N/NE Quadrant and I-5 Broadway/Weidler Plans Project is a collaborative effort by the City of Portland and the Oregon Department of Transportation to integrate urban design and land use planning with freeway planning and concept-level engineering in the North/Northeast portion of the Central City, which includes Lower Albina and the Lloyd District.*

## I-5 Broadway/Weidler Interchange Improvements Report

**The overall project purpose is to...**

Improve safety and operations on I-5 in the vicinity of the Broadway/Weidler interchange.

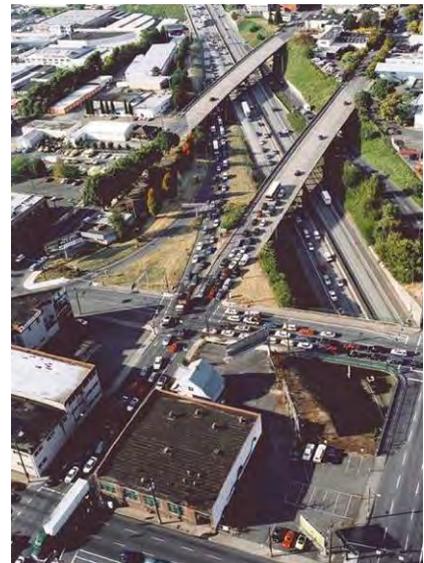
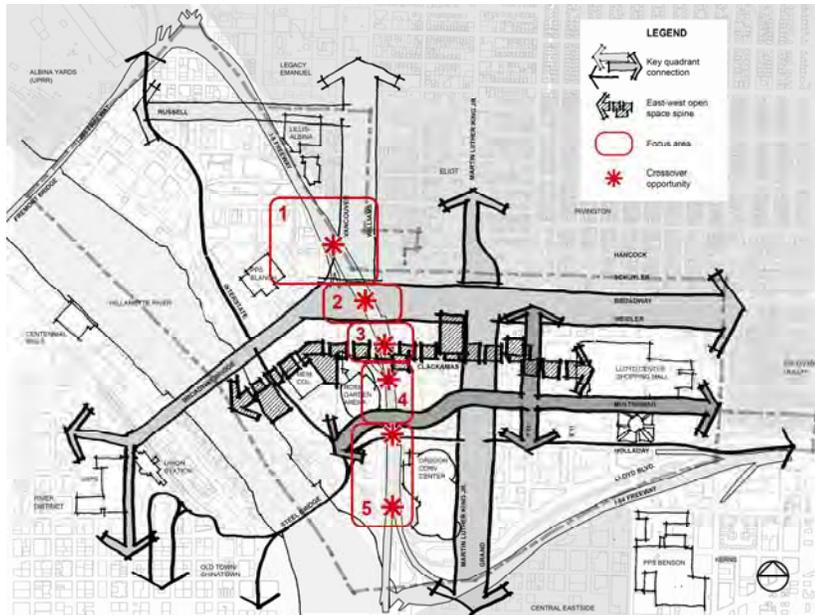
### OBJECTIVES

ODOT and the City, through the Stakeholder Advisory Committee (SAC) and extensive public outreach, explored and found solutions to meet the following objectives:

EASE CONGESTION LEVELS AND IMPROVE SAFETY

ENHANCE PEDESTRIAN AND BICYCLE ROUTES

IMPROVE FREIGHT MOVEMENT



Integration of Transportation and Land Use Concepts in the N/NE Quadrant Plan

## Acknowledgments

### Oregon Transportation Commission (OTC)

**Pat Egan**, Chair

**Tammy Baney**, Commissioner

**Mark Frohnmayr**, Commissioner

**David Lohman**, Commissioner

**Mary Olson**, Commissioner

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## Acronyms and Abbreviations

BPS	Bureau of Planning and Sustainability, City of Portland
CoP	City of Portland
ODOT	Oregon Department of Transportation
PBOT	Portland Bureau of Transportation, City of Portland
ROW	Right-of-Way
SAC	Stakeholder Advisory Committee
TDM	Transportation Demand Management
TSM	Transportation System Management
TSP	Transportation System Plan
V/C	Volume-to-Capacity ratio

## Glossary of Related Planning Efforts

<p><b>Central City 2035</b></p>	<p>Central City 2035 (CC2035) is an update to the 1988 Central City Plan, which is the existing plan and policy for downtown and the central areas of Portland, Oregon. In coordination with the Portland Plan, this plan will address challenges and opportunities in the Central City to ensure that this unique economic, transportation, cultural and educational hub will be a vibrant resource for all Portlanders over the next 25 years. This effort will examine issues and opportunities within each of the Central City’s quadrants.</p>
<p><b>Facility Plan</b></p>	<p>A planning statement that Oregon state agencies prepare in order to better plan state facility needs and to comply with state law. The Oregon Department of Transportation (ODOT) prepares this type of document to inform decision makers, including the Oregon Transportation Commission, of its intent relative to the future development of its transportation infrastructure.</p>
<p><b>I-5 Broadway/Weidler Interchange Improvements Report</b></p>	<p>This overall document, which has been prepared to document the recommendations of the project’s SAC relative to transportation improvements that have been developed, analyzed and narrowed to the Recommended Concept described in Section 5.</p>
<p><b>N/NE Quadrant and I-5 Broadway/Weidler Plans</b></p>	<p>The combined efforts of ODOT and the City of Portland’s Bureau of Planning and Sustainability and Bureau of Transportation to plan land use, urban design and transportation improvements within the North/Northeast Quadrant of Portland’s Central City. The transportation improvements are planned for both the I-5 freeway and the local street network near the I-5 Broadway/Weidler Interchange.</p>
<p><b>N/NE Quadrant Plan</b></p>	<p>The North/Northeast Quadrant Plan (N/NE Quadrant Plan) is the first of the quadrant-level planning efforts associated with Central City 2035. This planning effort addressed challenges and opportunities related to land use, urban design, the Willamette River and multimodal transportation infrastructure.</p>
<p><b>Portland Plan</b></p>	<p>The Portland Plan is a strategic plan for the City of Portland that sets broad goals for improving equity, prosperity, educational outcomes and human and environmental health in Portland. The Comprehensive Plan will implement the Portland Plan policies that relate to state-mandated long-range planning that guide land use, transportation, conservation, and capital projects. CC2035 will be adopted as a district plan of the Comprehensive Plan. The North/Northeast Quadrant Plan will be part of the CC2035 Plan.</p>





## I-5 Broadway/Weidler Interchange Improvements

### Purpose of this Report — Relation to the Facility Plan

This report summarizes the process and steps that the Oregon Department of Transportation (ODOT) and two bureaus of the City of Portland, the Portland Bureau of Transportation (PBOT) and the Portland Bureau of Planning and Sustainability (BPS), have taken to date to address long-standing transportation issues in the North/Northeast Quadrant of Portland's Central City. In conjunction with the project's Stakeholder Advisory Committee (SAC) and an extensive public process that also examined potential land use changes and related opportunities in the North/Northeast Quadrant study area, the project team solicited, developed and evaluated a wide range of ideas and improvement concepts for both the Interstate 5 (I-5) freeway and local transportation issues in and around the I-5 Broadway/Weidler Interchange area.

This report provides an overview of this nearly two-year process as the project team, the SAC and numerous area stakeholders have contributed, shaped and narrowed the many improvement concepts. The result of this process, the project team's Recommended Concept, is described in Section 5 of this report. This document introduces and provides the background for a related document, called the **Facility Plan for the I-5 Broadway/Weidler Interchange**. This plan is a technical and state-required document that specifically outlines ODOT's intentions relative to this segment of the I-5 facility and the interchange.

### Purpose of the Facility Plan for the I-5 Broadway/Weidler Interchange

State of Oregon agencies prepare facility plans for state-owned infrastructure so that they and decision-makers may effectively manage, maintain and prioritize potential additions to or expansion of this infrastructure. The Facility Plan for the I-5 Broadway/Weidler Interchange represents a discussion draft of a facility plan that ODOT staff will present to the Oregon Transportation Commission (OTC) later this year regarding recommended improvements to I-5 in the area around the I-5 Broadway/Weidler Interchange between Interstate 84 (I-84) and Interstate 405 (I-405) at the Fremont Bridge. This Facility Plan will represent and confirm, if adopted by the OTC, the state's long-range intent relative to this section of I-5 and the I-5 Broadway/Weidler Interchange.

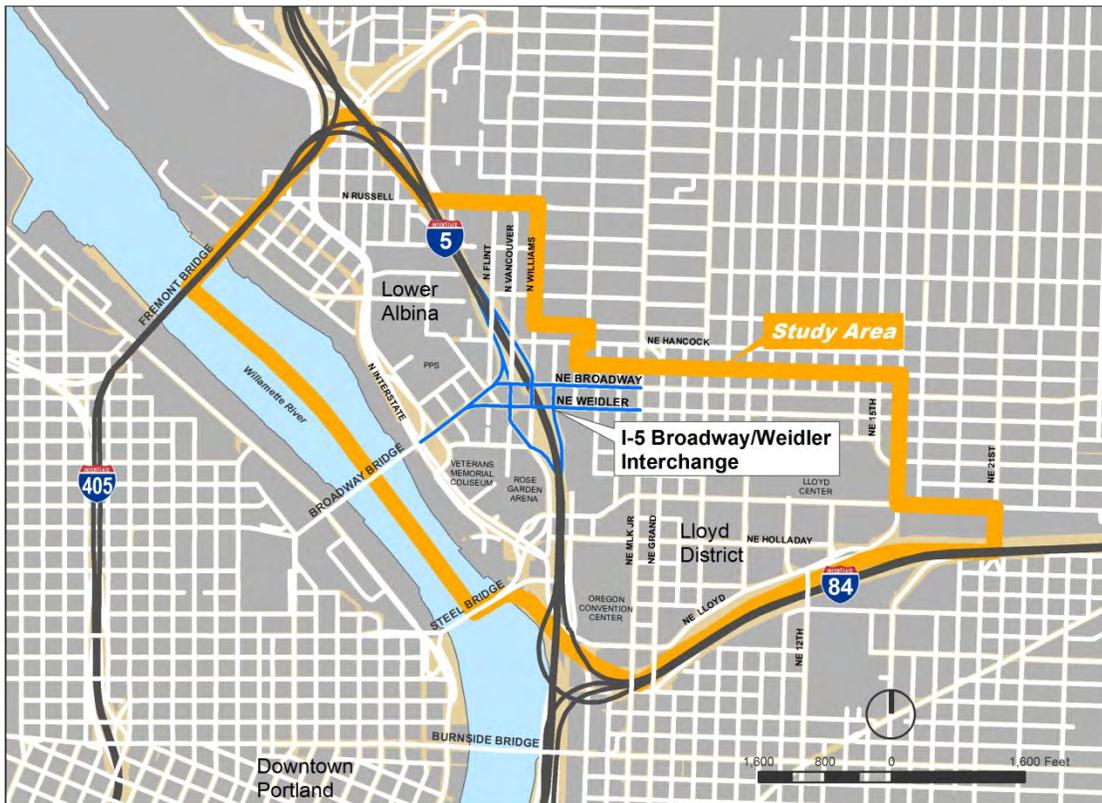


# 1. Introduction (The Story)

## Combining Land Use and Transportation Planning

Portland is nationally recognized for innovations linking land use and transportation planning. Portland’s Downtown Plan, adopted in 1972, and the Central City Plan, adopted in 1987, established a framework for land use and transportation within the central city.

In the summer of 2010, ODOT, PBOT and BPS initiated a partnership to begin co-developing land use and transportation concepts for the North/Northeast quadrant of the central city (N/NE Quadrant) through an iterative process involving the public and area stakeholders. The project includes identifying specific improvements to the I-5 freeway within the overall project study area (see Figure 1), between I-84 and I-405 (at the Fremont Bridge), and improvements to the I-5 Broadway/Weidler Interchange area.

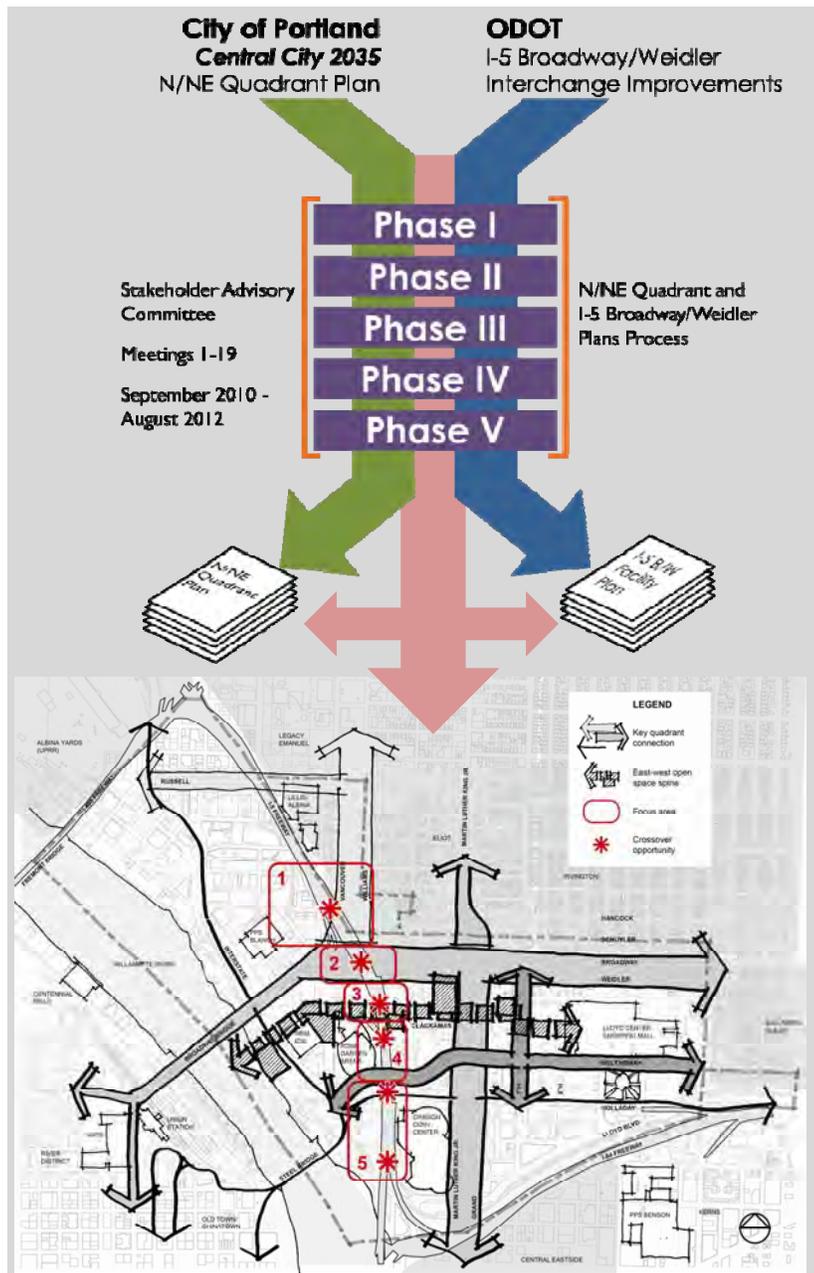


**Figure 1: Study Area for the N/NE Quadrant and I-5 Broadway/Weidler Plans Project**

This joint effort represents a new land use-transportation approach in planning improvements to urban freeway interchanges. This approach combines the planning of local strategies for land use, urban design and local transportation improvements, typically a City responsibility, with the planning of interstate freeway improvements, which is an ODOT responsibility. The project’s approach for freeway improvements was to address long-demonstrated safety and operational issues that, if scaled according to community aspirations, would contribute to the continued vitality of the Central City and the mobility needs of the region and state. Due to multiple constraints, freeway improvements were to focus on existing safety and reliability issues and not necessarily increase capacity to meet future travel demands.

This collaborative approach between ODOT, the City and the North/Northeast Portland community, examined transportation and land use solutions concurrently over the course of a five-phase process (see Section 2: The Plan Development and Public Involvement Process). In the end, it resulted in land use and transportation changes in the quadrant that are mutually agreeable to both the City of Portland and to ODOT.

Though developed within the same process, the land use and transportation improvement plans resulted in two distinct groups of documents for the two partnering agencies as shown in Figure 2. The land use changes and urban design strategies for the City are documented in the North/Northeast Quadrant Plan (as part of the 2035 Central City Plan); the transportation changes are documented in this report and ODOT’s Facility Plan. The integrated plans most closely overlap in five focus areas near the I-5 freeway and the I-5 Broadway/Weidler Interchange. These focus areas are shown in Figure 2 where the freeway and local transportation improvements have the potential to directly support the proposed concept for the N/NE Quadrant Plan. The improvements in these five areas are discussed in Section 5 and detailed in Appendix S-G: Summary Urban Design Studies.



**Figure 2: Joint Effort for the N/NE Quadrant and I-5 Broadway/Weidler Plans Project: Examining Land Use and Transportation Elements Concurrently**

### Previous Studies of I-5 Freeway Issues between I-84 and I-405

Previous studies by ODOT and the City of Portland have attempted to address the considerable safety and operational issues of the I-5 freeway between I-84 and I-405 (Fremont Bridge). This segment of I-5 has not been improved since it was built in the 1960s and it remains one of the few sections of freeway in the region where there are only two through lanes in each direction. The safety and operational issues here derive largely from the close spacing of the I-84, Broadway/Weidler, I-405 and Greeley interchanges that occur within this short segment of I-5 and the high proportion of traffic volume entering onto and exiting from I-5 that create “weave” maneuvers between motorists entering and exiting the freeway.

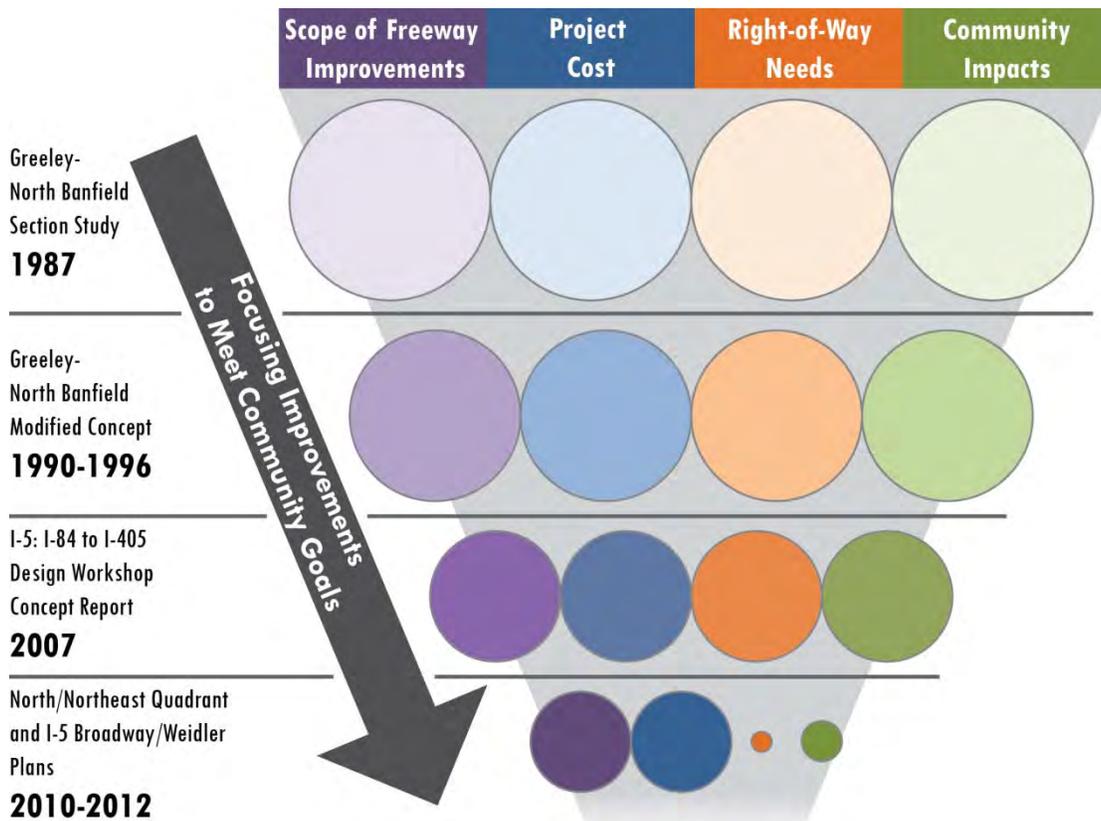
As these studies were conducted and concept plans developed over the past 25 years, both ODOT and the City of Portland recognized that, although they addressed the safety and operational issues of the I-5 freeway between I-84 and I-405, the physical impacts of the solutions were greater than anyone desired. These previous efforts relied on the use of braided ramps to eliminate the weave conditions. While the traffic benefits of these solutions were demonstrated, concerns over their cost, the widened freeway footprint and the visual impacts of multiple new structures prevented their implementation. Figure 3 shows the I-5: Greeley – N. Banfield Modified Concept from 1990-1996.



**Figure 3: I-5: Greeley – N. Banfield Modified Concept (1990-1996)**

As additional studies were undertaken, the extent of proposed freeway improvements, and the financial costs and community impacts associated with them, began to narrow. Yet even with the last major look at potential improvements to I-5 in the study area in 2007, the project costs, right-of-way (ROW) needs and the associated community impacts were found to be too great to move forward with implementation. These three factors resulted in improvement proposals that had little community support beyond the operational benefits to the freeway. See Appendix F: Building the System: I-5 between I-84 and I-405, History of Freeway Improvement Plans, for a summary of improvement plans for this segment of freeway over the last 25 years.

With the Recommended Concept as described in Section 5, the extent (or scope) of the freeway improvements, and the financial costs and community impacts associated with the concept, has been narrowed considerably. Freeway safety and operations have been demonstrated to improve and the project costs appear relatively manageable. The greatest proportional decrease in scale occurred by reducing the amount of additional ROW needed and the community impacts associated with the Recommended Concept. This narrowing of the scope of the project, and its related costs and impacts, is illustrated in Figure 4.



**Figure 4: Extent of Freeway Improvements, Costs and Community Impacts from Studied Improvements to I-5 between I-84 and I-405 over Time**

The result of the close collaboration between ODOT, the City, the project’s SAC and the public is that an appropriately-scaled set of improvements has been developed and evaluated that benefits the project partners and the community. This considerable narrowing, or focusing, of the extent of freeway improvements is critical for several reasons summarized below.

For the community and neighborhoods immediately surrounding the freeway, the reduction in community impacts means that the displacements experienced during the original construction of I-5 freeway in the area will not be repeated or exasperated.

For the project’s SAC, the reduction in impacts and the additional benefits of enhanced connectivity in the study area demonstrates that their work on project goals and objectives are now reflected in the resulting Recommended Concept (as described in Section 5).

For the City of Portland, the scale and nature of the project’s Recommended Concept can be seen to improve transportation elements in the North/Northeast Quadrant that facilitate the continued growth and evolution of the quadrant as a vital Central City district and to support the land use and urban design goals and elements of the City’s North/Northeast Quadrant Plan.

And for ODOT, the reduced scale of the project’s Recommended Concept demonstrates safety and operational improvements to the mainline of the I-5 freeway and yet the reduced costs, the greatly reduced ROW needs and greatly reduced community impacts mean that an implementable project is achievable for this critical segment of freeway.

## 2. The Plan Development and Public Involvement Process

### The Process: The Stakeholder Advisory Committee and Public Outreach

ODOT and the City undertook a comprehensive public process, complete with a diverse and inclusive Stakeholder Advisory Committee (SAC), a professional process facilitator, numerous outreach events in the community, study area tours and many briefings with potentially affected stakeholders and property owners.

An integral component of the process was the knowledge and input from the 30-member SAC; the committee members brought broad-ranging perspectives in the study area to advise the partner agencies at each step of the process. The SAC, which included members representing neighborhood, business, bicycle, pedestrian, transit, freight, rail, event facility and property owner interests, was one of the primary means of ensuring that the public had multiple opportunities to provide meaningful input into the planning process. The five step project process is shown in Figure 5 and includes each of the significant project milestones as supported by the SAC.

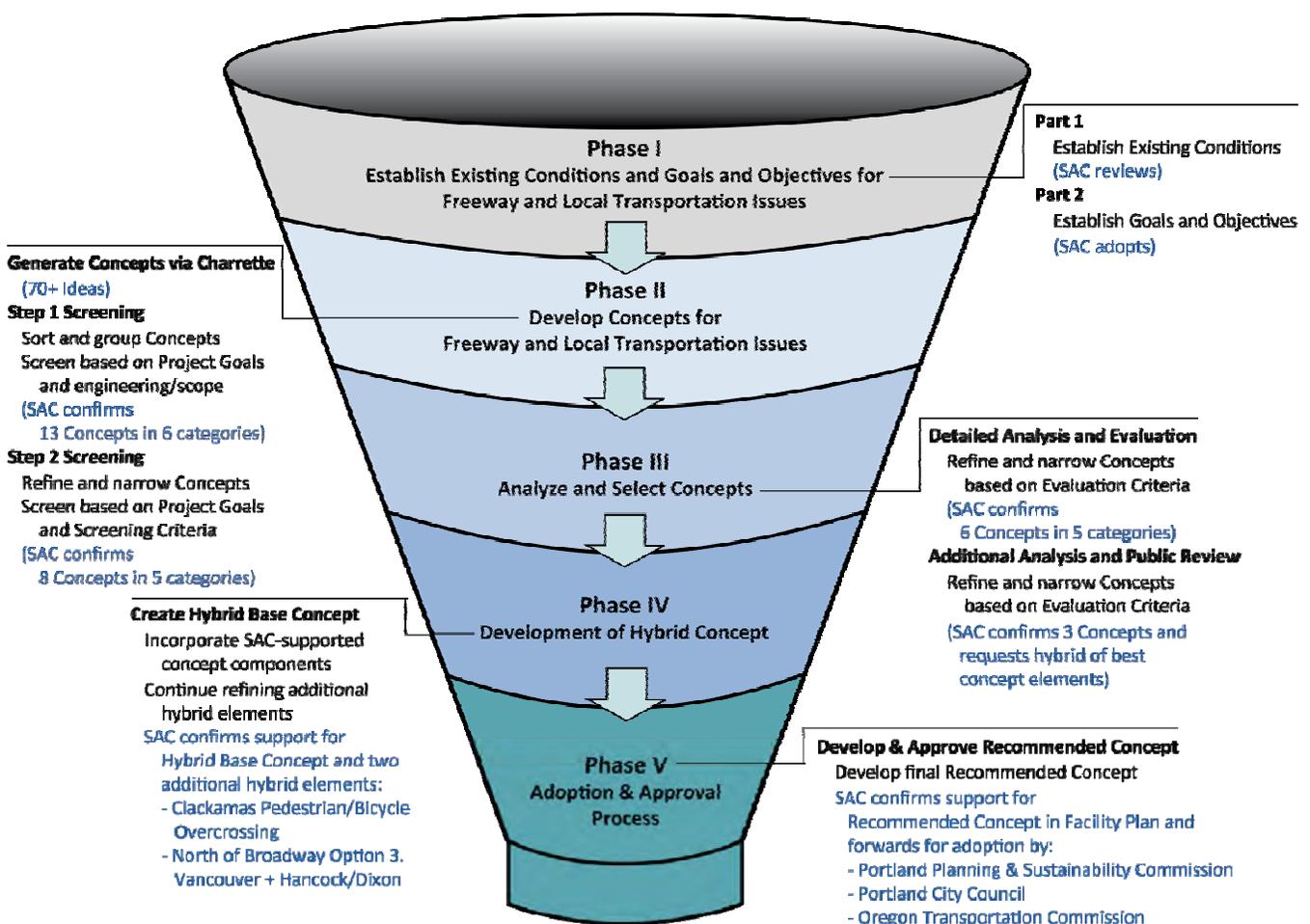


Figure 5: The Five-Phase Project Process (Transportation Focus)

The role of the SAC was to advise and direct project staff throughout the planning process and to make recommendations to the Portland City Council, the Portland Planning and Sustainability Commission and the Oregon Transportation Commission. SAC members were expected to solicit input from their stakeholder groups and constituencies, report back to the committee, represent the broader interests of those groups at meetings and promote public involvement in project events.

The SAC and its subcommittee meetings were held approximately monthly, and served as ongoing opportunities to share information and receive feedback from stakeholders and members of the general public. Subcommittees of the SAC met periodically to address specific issues, such as transportation, land use and urban design. Members of the public were invited to join the subcommittee to have more in-depth participation in the process. Project meetings and events were held within or near the study area. Event locations included the Rose Garden Arena, Calaroga Terrace, the Lloyd Center mall, the Leftbank Annex, the Metro Regional Center and ODOT Region One Headquarters (just across the Willamette River from the N/NE Quadrant study area).

In all, 19 full SAC meetings and 13 subcommittee meetings were held. All meetings were open to the public and included opportunities for public comment. A summary of the public events, which complemented the SAC and subcommittee meetings, is shown in Table 1.

**Table 1: Project Events Hosted by the N/NE Quadrant and I-5 Broadway/Weidler Plans Project**

<b>Event</b>	<b>Date</b>	<b>Approximate Attendance</b>
<b>Community Walks:</b> Lower Albina & Lloyd District	September 2010	10, 10 (2 days)
<b>Open House:</b> Central City 2035 (CC2035) & N/NE Quadrant & I-5 Broadway/Weidler Plans	October 2010	100
<b>Open House:</b> N/NE Quadrant Plans & Rose Quarter District Plan	November 2010	150
<b>Charrette: Land Use/Local Transportation</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	February 2011	17, 18 (2 days)
<b>Charrette: I-5 Freeway &amp; Local Transportation</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	April 2011	38, 14, 22 (3 days)
<b>Open House:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	June 2011	102
<b>Open House:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	February 2012	100
<b>Development Forum: Lloyd District</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	February 2012	14
<b>Community Walk:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	April 2012	17
<b>Stakeholder Meetings with Project Staff:</b> N/NE Quadrant & I-5 Broadway/Weidler Plans	Throughout Project Process	Varied

In addition to the SAC meetings and public events, the Bureau of Planning and Sustainability maintained a project website to serve as the primary source of information for the public and as a means to solicit and receive public feedback. The website included project information and regular updates, documents, a calendar of events, meeting agendas and minutes, links to other related planning efforts and staff contact information. The bureau also conducted a survey in the summer of 2011 and maintained an electronic mailing list to provide frequent updates to interested parties. See Appendix S-H: Summary Public Involvement Report for additional details of the public involvement efforts.

Project briefings were also provided to the Portland Planning and Sustainability Commission, the Historic Landmarks Commission and the Design Commission during the process. The project plans will undergo a formal public hearing process before the Portland Planning and Sustainability Commission, the Portland City Council and the Oregon Transportation Commission prior to adoption.

### 3. Existing Conditions: What We Started With

#### Phase I, Part 1: Establish Existing Conditions for Freeway and Local Transportation Issues

In order to understand, inventory and document the nature of transportation issues in the N/NE Quadrant during Phase I of the project, the project team undertook analysis of transportation facilities and conditions in the project area. This documentation included findings relative to all transportation modes using the I-5 freeway and local transportation network. This effort allowed the project team and the SAC to develop and evaluate potential solutions to address the issues and opportunities that were present. The findings of this effort were compiled in Appendix B: Transportation Existing Conditions Report. A summary of the findings is presented in this section.

#### Transportation Background: The Community

The varied landscape that today comprises the N/NE Quadrant is rooted in a vibrant history that spans over 150 years. Early development in this area focused on access to the Willamette River and included a river ferry linking downtown to Lower Albina at the foot of Russell Street as well as the extensive Albina railroad yards. What is now Lower Albina was incorporated as part of the City of Albina in 1887. That year also marked the opening of the original Morrison Bridge as the first Willamette River bridge crossing. The bridge spurred additional development along the east side of the river as a streetcar line was built running up Mississippi Avenue from the City of East Portland (incorporated in 1891). The riverfront in Lower Albina remains part of Portland's deep water port and remains industrial in character. Commercial development was located primarily along Russell Street and Williams Avenue. The southern portion of Albina was home to a vibrant jazz music scene focused along Williams Avenue.

Many of the fundamental characteristics of today's Lloyd District/Rose Quarter area came with the opening of the Lloyd Center mall and the Veterans Memorial Coliseum in 1960. The 1960s also brought the construction of the I-5 freeway cutting mostly north-south through the study area. The Lloyd Center mall and the redevelopment surrounding it has essentially created a second commercial and activity core within the Central City that was built at a more auto-oriented scale than downtown Portland.

The profound changes that construction of the Veterans Memorial Coliseum and I-5 freeway brought to the surrounding neighborhoods in the early 1960s understandably remain a sensitive issue. While the coliseum and freeway construction benefitted the desire for regional civic facilities and improved regional and state mobility, these improvements came with the displacement of residents and a commercial district that were the heart of Portland's African-American community. The impacts of these displacements continue to resonate with members of the community to this day and set an important context for any future improvements within the North/Northeast Quadrant.

#### Land-Use Context

Within the N/NE Quadrant, a number of broad primary use categories have been identified:

- Employment, office: 6-20 story development
- Mixed, commercial/residential: scale varies
- Residential: 2-6 story development
- Regional attraction: scale varies
- Employment, industrial: 1-3 story development

While the permissive Central Commercial (CX) zone pervades much of the N/NE Quadrant, roughly 32 acres of vacant or underutilized land currently exist. Figure 6 shows a considerable amount of underutilized land within the central Lloyd District area of the quadrant. Despite the relatively slow pace of development in the quadrant, some recent projects have leveraged the unique historic character of the quadrant and repurposed buildings that existed before freeway construction in the area. Figure 7 shows the Left Bank building where considerable private investment has rejuvenated one of the more significant buildings remaining from the period prior to construction of the coliseum and the freeway.



**Figure 6: Underutilized Land Remains Available for Development in the N/NE Quadrant**



**Figure 7: Recent Investment in the Quadrant Exemplified by the Leftbank Building Renovation**

## **Transportation Background**

The N/NE Quadrant includes a range of existing transportation facilities including three Willamette River bridges, four light rail transit lines, the Eastside Esplanade pedestrian/bicycle path and three major freeway interchanges along I-5.

### **Transportation – The Role and Function of I-5**

I-5 provides the main north-south through-route serving the west coast of the United States from Mexico to Canada and links population centers from Southern California, eastern portions of the Bay Area in Northern California, the Rogue Valley in Southern Oregon, the Willamette Valley, the Portland-Vancouver metropolitan area and the Puget Sound region. Within the N/NE Quadrant, I-5 connects with the western terminus of I-84, which is the east-west freeway for the state of Oregon. On the northern edge of the project study area, I-5 intersects with I-405 and the Fremont Bridge; I-405 acts as part of the downtown freeway loop on the western edge of downtown Portland.

I-5 is identified as part of the National Truck Network which designates highways (including most of the Interstate Highway System) for use by large trucks. In the Portland-Vancouver area, I-5 is the most critical component of this national network as it provides access to the transcontinental rail system, deep water shipping and barge traffic on the Columbia River, connections to the ports of Vancouver and Portland as well as the majority of the area's freight consolidation facilities and distribution terminals.

Freight volumes moved by truck to and from the region are projected to more than double over the next 25 years. Vehicle-hours of delay on truck routes in the Portland-Vancouver area are projected to increase by more than 90 percent over the next 20 years. Growing demand and congestion will result in increasing delay, costs and uncertainty for all businesses that rely on this corridor for freight movement.

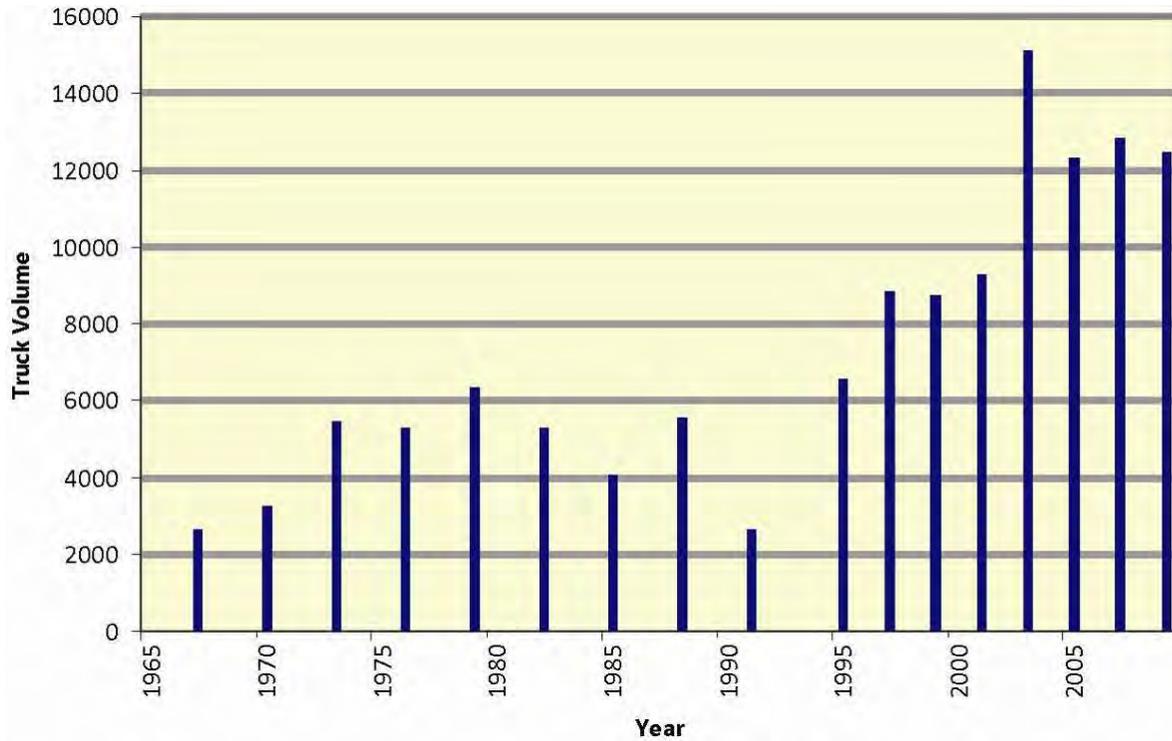
### **Historic Traffic Volumes on I-5**

Figure 8 shows historic traffic volumes on I-5 through central Portland spanning the time from when I-5 opened in 1966 through 2009. When I-5 opened in 1966 it carried an average of 60,000 vehicles per day in both directions. By the mid-1970s typical weekday traffic had increased to over 100,000 vehicles per day and to over 140,000 per day by the mid-1990s through the mid-2000s. Average daily volumes have been relatively flat for the past 15 years, with a recent decline to below 140,000 for 2008 and 2009. The decline in the past two years is likely attributable to reduced trips resulting from reduced economic activity. A similar reduction in average daily volumes can be seen during the recession years in the early- to mid-1980s.

Figure 9 shows that truck traffic on I-5 in Portland's Central City has increased at a higher rate than overall traffic. Daily truck volumes on I-5 at the Marquam Bridge averaged less than 6,000 per day from the late 1960s through the mid-1970s. During the 1990s truck volumes grew to nearly 10,000 per day and growth in the 2000s has increased average daily truck volumes to over 12,000 per day. The existing conditions analysis also revealed that a significant portion of I-5 and some local streets connecting with freeway ramp terminals were near capacity as indicated by volume-to-capacity ratios (V/C) between 0.81 and 0.99. A V/C ratio of 1.0 indicates that a transportation facility is at capacity for motor vehicles. Significant congestion typically occurs with the V/C ratios found on the freeway and local streets near the I-5 Broadway/Weidler Interchange.



**Figure 8: Historic Traffic Volumes on I-5 at Holladay Street (Average Daily Two-Way Traffic)**



**Figure 9: Historic Truck Volumes on I-5 at Marquam Bridge (Average Daily Two-Way Traffic)**

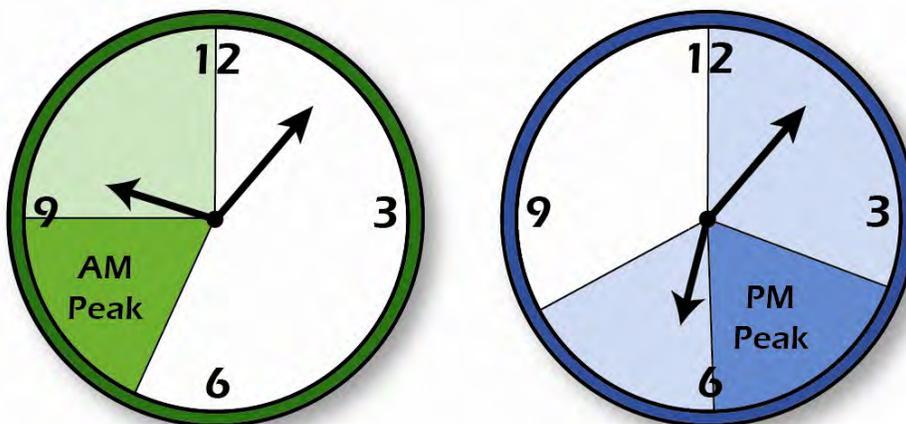
### I-5 Traffic Bottleneck and the Spreading of Peak Hour Congestion

In the context of the regional freeway network, the N/NE Quadrant sits at a crossroads of three regionally significant freight and commuter routes: I-5, I-84 to the south and I-405 to the north. As a result, the freeway interchanges within the N/NE Quadrant experience some of the highest traffic volumes found in the state. Table 2 shows the average daily traffic volumes entering and exiting I-5 over the two-mile segment within the N/NE Quadrant study area.

**Table 2: Average Daily Traffic Volumes Entering and Exiting I-5 in the Study Area**

I-5 Direction	Total Ramp Volumes Entering I-5	Total Ramp Volumes Exiting I-5
<b>Northbound</b>	29,970	37,530
	Includes entrance ramps from: <ul style="list-style-type: none"> <li>• I-84</li> <li>• Broadway/Williams Avenue</li> </ul>	Includes exit ramps to: <ul style="list-style-type: none"> <li>• Weidler Street/Victoria Avenue</li> <li>• I-405</li> <li>• Greeley Avenue</li> </ul>
<b>Southbound</b>	34,020	47,200
	Includes entrance ramps from: <ul style="list-style-type: none"> <li>• Greeley Avenue</li> <li>• I-405</li> <li>• Wheeler/Winning/Williams</li> </ul>	Includes exit ramps to: <ul style="list-style-type: none"> <li>• Broadway/Vancouver Avenue</li> <li>• I-84</li> <li>• Morrison Bridge/Hwy 99E</li> </ul>

Recent trends for I-5 traffic (no growth in daily traffic volumes and increasing truck traffic) are consistent with the volume data which indicate that the two through lanes for I-5 through central Portland are operating at capacity during peak hours. The congested conditions lead some users whose trips have flexibility to choose to travel earlier or later (which spreads congestion to both before and after typical peak traffic hours) or to use different travel routes. To the extent possible, major freight haulers in the area attempt to avoid operating on congested facilities in peak hours. Growth in peak period truck traffic on I-5 indicates that freight operations on I-5 during peak periods is required for various business reasons. Figure 10 represents traffic analysis that has shown that peak period congestion for I-5 in the N/NE Quadrant has been spreading beyond the typical peak traffic hours.

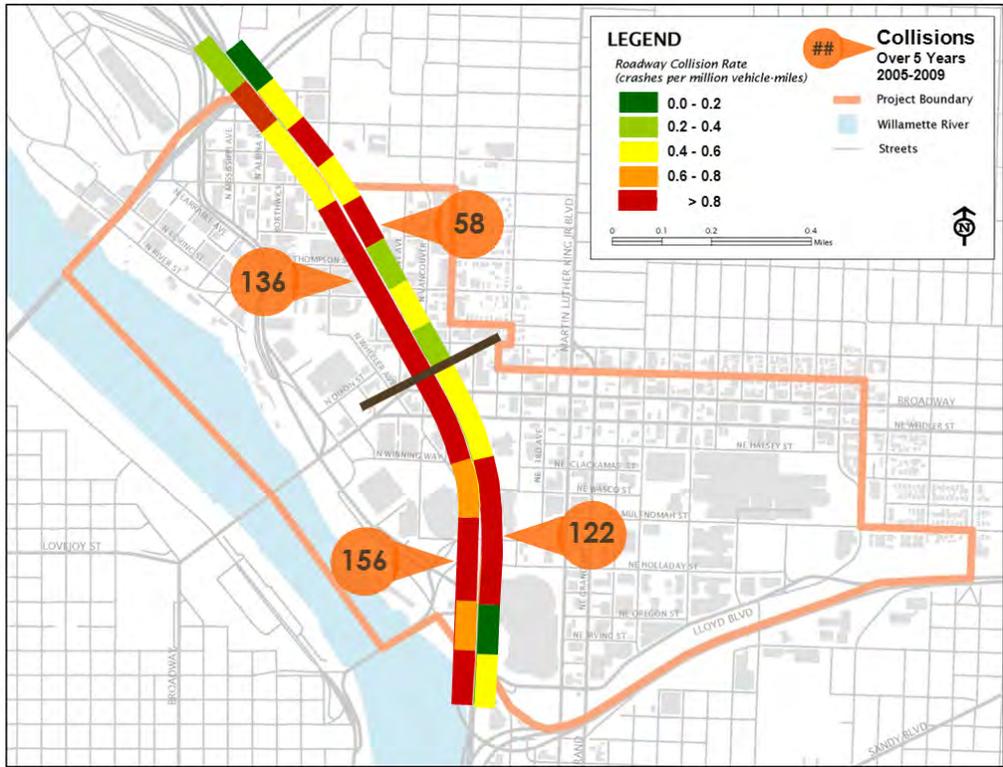


**Figure 10: Peak Period Congestion on I-5 Spreading beyond Typical Peak Hours**

### Freeway Safety and High Frequency of Collisions

Freeway vehicle collisions within the N/NE Quadrant continue to be a major safety concern. Rear end collisions make up nearly three-quarters of all incidents on I-5, while sideswipe collisions comprise nearly one-fifth of incidents. While the severity of crashes, as indicated by the number of fatal accidents, is relatively low, incidents involving property damage and injury occur frequently within the quadrant and contribute to congestion on this segment of the freeway. This condition is exacerbated by the lack of emergency shoulders on this stretch of I-5.

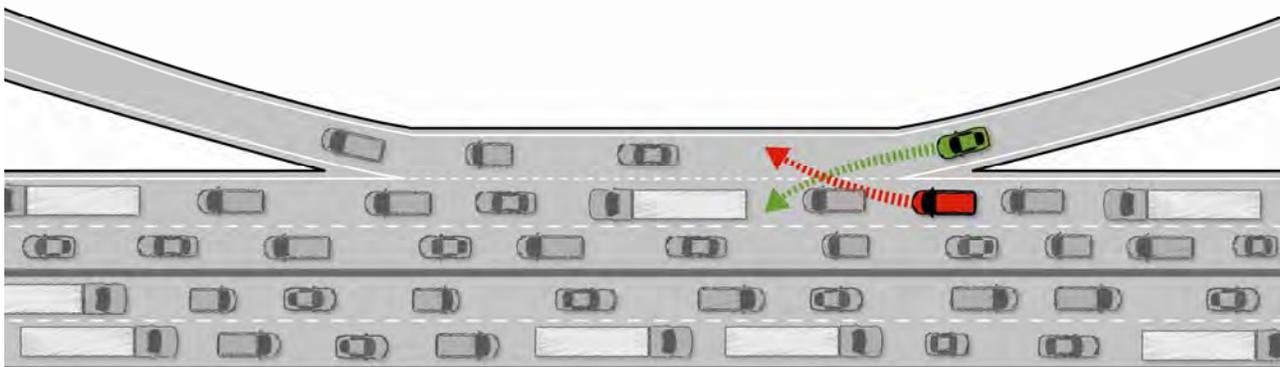
Figure 11 shows the number of collisions on I-5 in the project study area and the rate of collisions per one-tenth mile segments. The figure shows that the highest frequency of collisions occurred in the southbound direction south of the I-5 Broadway/Weidler Interchange (156 collisions). The highest frequency of accidents northbound also occurred south of the I-5 Broadway/Weidler Interchange (122 collisions). Overall the southbound direction had a higher level of collisions over this five-year time period with 292, compared to northbound with 180 collisions. I-5 in the project area experiences the highest crash rate in the state of Oregon.



**Figure 11: Freeway Collision Rate and Frequency**

**Weave Movements and Operational Issues**

Over its nearly two-mile course through the N/NE Quadrant study area, I-5 connects with five entrance and exit ramps northbound and six entrance and exit ramps southbound. As drivers enter and exit I-5 at these closely-spaced intervals and weave with each other in lane-changing maneuvers, “turbulence” or “friction” occurs and slows overall traffic. Figure 12 illustrates the weave movements for vehicles entering and exiting the freeway.



**Figure 12: Weave Maneuvers from Entering and Exiting Traffic in Close Proximity**

The turbulence in traffic flow caused by these weave maneuvers is especially acute in the N/NE Quadrant as drivers coming from entrance ramps or bound for exit ramps must make these lane changes within very short distances. This is especially true for the segment between the I-84 and I-405 interchanges as motorists use I-5 for overall through trips along I-5, for traveling between I-84 and I-405 and to access use the Broadway/Weidler Interchange for regional destinations like the Rose Garden Arena, the Veterans Memorial Coliseum, the Oregon Convention Center and the Lloyd Center mall.

Table 3 shows the distances between entrance and exit ramps on I-5 between interchanges where these weaves occur. Each of the distances noted for these weave transitions is well below current freeway design standards. In the shortest weave section, only 1,075 feet is available for drivers to merge onto I-5 from Broadway northbound in the same area where drivers are exiting from I-5 onto I-405 and the Fremont Bridge.

While the northbound Broadway to I-405 weave section is the shortest, it has the fewest accidents of the four weave sections associated with the interchange. This is due in part to this weave section having lower volumes and allowing two lanes the opportunity to access the I-405 exit ramp. The southbound Wheeler/Winning Way to I-84 weave section is somewhat longer at 1,300 feet, but it has the highest rate of crashes. This is due to higher overall volumes, higher volumes of vehicles making the conflicting weave movements and that all I-5 southbound traffic destined for I-84 must weave over into the single, outermost auxiliary lane.

**Table 3: Weave Distances between Entrance and Exit Ramps in the Study Area**

I-5 Direction	Weave Section	Weave Distance
<b>Northbound</b>		
	I-84 to Weidler	1,360 feet
	Broadway to I-405	1,075 feet
<b>Southbound</b>		
	I-405 to Broadway	2,060 feet
	Wheeler/Winning to I-84	1,300 feet

The slowing not only impacts the outer through traffic lane, where the weave movements are occurring for vehicles entering and exiting the freeway in this short section. As other drivers attempt to avoid the slowing in the outer through lane, they often attempt to move over to the second (and only other) through traffic lane. Drivers attempting to access the second lane to avoid the weave-related congestion, they encounter higher speed traffic. This significantly contributes to the high collision rates noted earlier and shown in Figure 11.

### Transportation – The Local Street Network

The N/NE Quadrant contains a number of auto, transit, bicycle, pedestrian and freight connections of local and regional significance. The major city traffic streets serving the N/NE Quadrant include Broadway, Weidler Street, Grand Avenue, Martin Luther King Jr. Boulevard, Lloyd Boulevard and Interstate Avenue.

### Bicycle Network Cross-Roads

As a major crossroads for bicycle traffic, the N/NE Quadrant was found to include some of the highest bicycle ridership in the city. Both the Broadway Bridge and the Steel Bridge provide critical routes for bicyclists into and out of the north downtown area. These bridge approaches concentrate traffic for all modes crossing the Willamette River including bicycle trips. Major east-west bicycle facilities extend east of the Broadway Bridge via Broadway and Weidler and east of the Steel Bridge via Multnomah and Lloyd Boulevard. Major north-south bicycle facilities extend north of the bridges via Wheeler, Flint, Vancouver and Williams. In 2011, the two highest-volume bicycle count locations in Portland were at the intersections of Vancouver and Russell (4,105) and Interstate Avenue and Lloyd Boulevard just east of the Steel Bridge (3,995).

Bicycle facilities within the N/NE Quadrant fall into the following City of Portland functional classifications:

- City Bikeways – Serve the Central City, regional and town centers, station communities, and other employment commercial, institutional, recreational destinations
- Off-Street Paths – Serve as transportation corridors and recreational routes
- Local Service Bikeways – Serve local circulation needs and access to adjacent properties

The designated City Bikeways within the study area include Interstate Avenue, Broadway, Weidler Street, Vancouver Avenue, Williams Avenue, Martin Luther King Jr. Boulevard, Grand Avenue, Multnomah Street and Lloyd Boulevard. Off-Street Paths are provided on the Eastside Esplanade along the east side of the Willamette River and across the Broadway and Steel Bridges; two planned trail projects were noted along the north side of I-84 and along the eastern edge of the Willamette River extending north of Veterans Memorial Coliseum area. The remaining streets are designated as Local Service Bikeways.

### Bicycle-Vehicle Collisions

The data for bicycle-vehicle collisions in the study area showed that they occurred at multiple locations but at a relatively low frequency for the three years surveyed. The frequency of these collisions was found to be generally three or fewer incidents at any one location. The four locations with the highest frequency all occurred along Broadway, and the two highest-frequency locations were west of I-5 where bicycle activity was typically the highest. The two locations with the highest frequency bicycle-vehicle collisions were at Broadway/Wheeler and at Broadway/Williams (at the intersection with the I-5 northbound entrance ramp). There were no identified fatalities for bicycle-vehicle collisions in the study area during the three years surveyed. Figure 13 shows the major bicycle corridor movements nearest the I-5 Broadway/Weidler Interchange area.

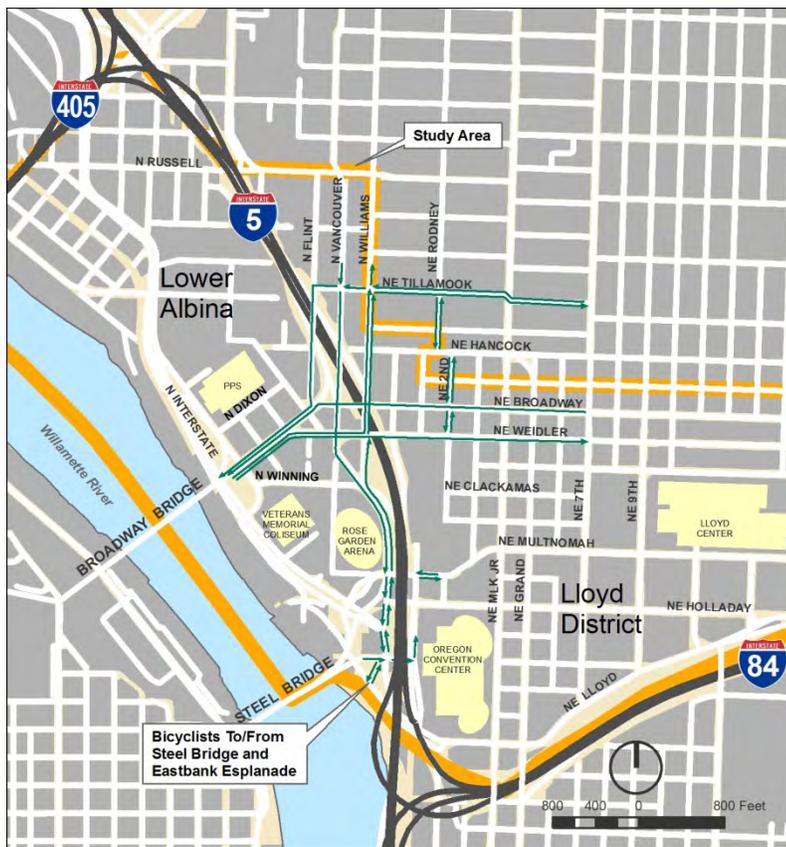


Figure 13: Major Bicycle Movements near I-5 Broadway/Weidler Interchange

## Pedestrian Network and Safety

As an urban Central City area with multiple commercial and regional facilities, the N/NE Quadrant has a significant amount of pedestrian activity and yet it also faces a number of existing pedestrian mobility issues. Streets with high volumes of both vehicles and pedestrians, especially before and after events at the Rose Garden Arena, the Veterans Memorial Coliseum and the Oregon Convention Center, provide only minimal accommodations for pedestrians. Barriers, both physical and perceptual, created by the constrained or infrequent crossings of the freeway and high-traffic local streets, largely impede walking activity except when large events dictate no other choices for pedestrians.

A large volume of spectators accessing Rose Quarter events on the west side of I-5 park on the east side of the freeway and walk to the Rose Garden Arena and the Veterans Memorial Coliseum. The combination of large volumes of pedestrians, accessing and exiting the venues over a compressed time period, and the minimal pedestrian facilities available to them at the existing freeway crossings constitutes a significant safety hazard. These conditions are most acute on the Broadway and Weidler Street overcrossing structures built in the 1960s.

## Pedestrian-Vehicle Collisions

The highest rates of pedestrian-vehicle collisions were found to occur east of I-5 focused along Multnomah Street, Grand Avenue and the Broadway/Weidler Street/15th Avenue area. The majority of the incidents occurred east of Martin Luther King Jr. Boulevard in the vicinity of the Lloyd Center mall.

Of the two pedestrian fatalities within the study area during the study period, the one in closest proximity to the interchange area was located at the high pedestrian activity intersection of Multnomah Street/Wheeler Street. Pedestrian use is heavy here due to its proximity to the Rose Garden Transit Center, the Rose Garden Arena, the Veterans Memorial Coliseum, and close access to the Steel Bridge and the Eastbank Esplanade.



Figure 14: Major Pedestrian Movements

Pedestrian facilities within the N/NE Quadrant included the following functional classifications:

- Pedestrian Districts – Give priority to pedestrian access in areas of high pedestrian activity
- Pedestrian-Transit Streets – Create a strong and visible relationship between pedestrians and transit
- City Walkways – Provide safe, convenient, and attractive pedestrian access to activities along major streets; provide connections between neighborhoods; and provide access to transit
- Off-Street Paths – Serve recreational and other walking trips
- Local service Walkways – Serve local circulation needs for pedestrians

The majority of the streets within the study area are within designated Pedestrian Districts. The Steel Bridge, Interstate Avenue, and Holladay Street are designated as Pedestrian-Transit Streets; the Broadway Bridge, Broadway, Weidler Street, Martin Luther King Jr. Boulevard, Multnomah Street, 7th Avenue and 9th Avenue are designated as City Walkways. Finally, the Eastbank Esplanade along the east side of the Willamette River is designated as an Off-Street Path. Figure 14 shows the major pedestrian movements nearest the interchange area.

### **Access to Lower Albina and Freight Uses**

Within the N/NE Quadrant, Lower Albina is a designated Freight District bounded by River Street, Knott Street, Interstate Avenue, and Albina Avenue. Mainly zoned for industrial uses, Lower Albina supports a wide range of both new and older industrial businesses.

Freight facilities within the N/NE Quadrant fall within the following functional classifications:

- Freight Districts – Provide safe and convenient truck mobility and access in industrial and employment areas
- Regional Truckways – Facilitate interregional movement of freight
- Priority Truck Streets – Serve as the primary route for access and circulation in Freight Districts, and between Freight Districts and Regional Truckways
- Major Truck Streets – Serve as principle routes for trucks in a Transportation District
- Truck Access Streets – Serve as access and circulation routes for delivery of goods and services to commercial and employment neighborhoods
- Local Service Truck Streets – Serve local truck circulation and access
- Railroad Main Lines – Transport freight cargo and passengers over long distances
- Railroad Branch Lines – Transport freight cargo over short distances on local rail lines

Regional Truckways are designated along the Fremont Bridge, I-405, I-5, and I-84. Priority Truck Streets are designated along Interstate Avenue and Tillamook Street near the Lower Albina Freight District. Major Truck Streets include Interstate Avenue and Larrabee Avenue between Tillamook Street and the Steel Bridge; along Broadway and Weidler from the Steel Bridge to Grand Avenue; and along Martin Luther King Jr Boulevard and Grand Avenue. The majority of the remaining street network is designated as Truck Access Streets and Local Service Truck Streets.

### Local Street Conditions for Motor Vehicles

Similar to the freeway data collection, daily volumes were collected on specific corridors within the study area to get a better understanding of the flow of motor vehicles over the course of a day. This helped to identify the more heavily utilized corridors in the study area, as well as when peak periods might occur on those corridors.

The Broadway/Weidler street couplet in the study area serves multiple functions to connect east-west with the Broadway Bridge, to provide access to the Broadway/Weidler commercial corridor near the Lloyd Center, to provide access to multiple regional destinations in the study area and to distribute vehicles to and from the I-5 Broadway/Weidler Interchange. It is not surprising then that analysis of traffic volumes found that the highest level of activity on study area corridors occurred at Broadway and near I-5 with approximately 30,800 daily trips. Though smaller in volumes, the Vancouver/Williams couplet forms a critical north-south link within the study area. And both of these couplets converge at the I-5 Broadway/Weidler Interchange.

The intersection of these high traffic streets occurs within the interchange area at six intersections known to transportation engineers and planners as “the Box” (shown in Figure 15). The top three ranked collision intersections in the N/NE Quadrant are all located in the Box. They are:

- Weidler Street at Vancouver Avenue
- Broadway at Vancouver Avenue
- Broadway at Williams Avenue

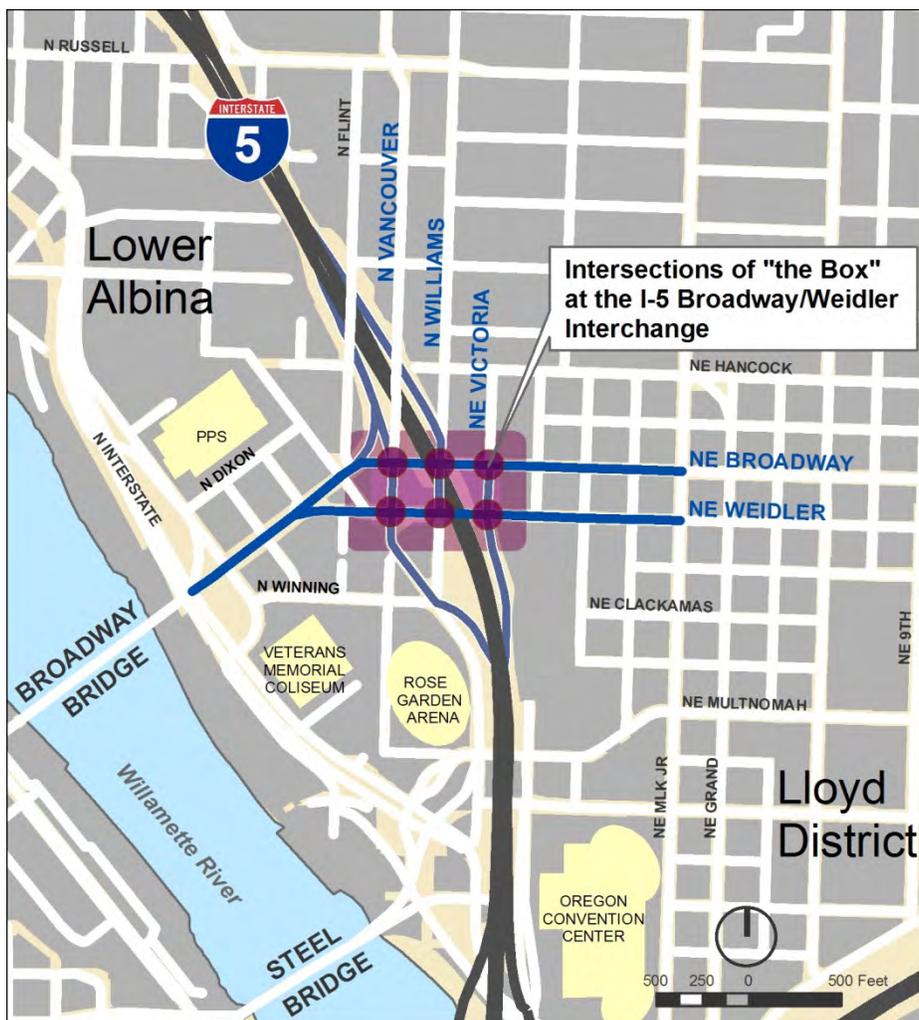


Figure 15: Constrained Intersections in the Area Known as “the Box”

### Regional Destinations

The N/NE Quadrant with its mix of residential, industrial, office, and event space, draws visitors from around the Portland region. Regional destinations in the N/NE Quadrant include the Rose Garden Arena and the Veterans Memorial Coliseum, the Oregon Convention Center, the Lloyd Center mall, the Lower Albina Industrial District, government centers along Lloyd Boulevard (Metro, State of Oregon and Bonneville Power Administration offices) and commercial office towers along 7th and 9th Avenues. Figure 16 highlights the regional destinations within the study area.



Figure 16: Major Regional Destinations

## **Transit**

The N/NE Quadrant is well-served by transit and the distribution of the routes provides sufficient geographic coverage so that many users in the quadrant walk relatively short distances (typically less than 500 feet) to access a transit line.

Transit service is provided in the N/NE Quadrant via ten bus routes and four MAX light rail lines: the Red, Blue, Green and Yellow lines. Transit is focused along the major corridors serving Broadway, Weidler Street, Martin Luther King Jr. Boulevard, Multnomah Street, Interstate Avenue, Vancouver Avenue, Williams Avenue, 9th Avenue and 15th Avenue. Within this immediate area, the following bus lines access the study area:

- Route 4 – Division/Fessenden
- Route 6 – Martin Luther King Jr Blvd
- Route 8 – Jackson Park/NE 15th
- Route 9 – Powell/Broadway
- Route 35 – Macadam/Greeley
- Route 44 – Capitol Hwy/Mocks Crest
- Route 70 – 12th Ave
- Route 73 – NE 33rd Ave
- Route 77 – Broadway/Halsey
- Route 85 – Swan Island

Corridors with the heaviest transit on/off patronage are along the MAX lines with the east/west corridor along Holladay Street (due to three MAX routes serving this corridor). Bus on/off patronage is highest in the study area along the Martin Luther King Jr. Boulevard/Grand Avenue couplet, the Broadway/Weidler couplet, and on Multnomah Street near the Lloyd Center.

In the area around the Box, existing bus routes use Broadway and Weidler Street for east-west operations and use Vancouver Avenue and Williams Avenue for north-south operations. The extension of the Portland Streetcar from northwest Portland across the Broadway Bridge to the Lloyd District, the Oregon Convention Center and down to the Oregon Museum of Science and Industry will operate along Broadway and Weidler Street beginning in September 2012. For the community, the City and other key stakeholders like TriMet, direct access to and from the Rose Quarter Transit Center (Rose Quarter TC) added emphasis on ensuring that north-south connectivity on the Vancouver/Williams couplet was maintained.

## **Connectivity**

Although the City and the community wish to see additional development and improved urban design characteristics in the study area as it evolves toward becoming a more vibrant Central City complement to downtown Portland, it lacks frequent and welcoming connections across the I-5 freeway. For nearly a mile (0.8 mile) between Multnomah Street and Russell Street, the only connections across the freeway, in a critical area of the Rose Quarter and the Lloyd District, are the streets of the Box area (via Broadway, Weidler Street and Williams Avenue). In addition to the constrained sidewalks and bicycle facilities, these streets, especially Broadway and Weidler Street, further discourage non-vehicular travel due to their heavy traffic volumes associated with both arterial traffic and freeway interchange traffic. Figure 17 notes the limited opportunities to cross the freeway between Multnomah Street and Russell Street except within the constrained Box area.



Figure 17: Limited Number of Existing Crossings of the I-5 Freeway

## The Environment and Cultural Resources

An Environmental Baseline Report (Appendix I) was prepared to provide an inventory of physical and cultural environmental features that should be considered during the development of interchange improvement concepts. This assessment did not consider the potential for site specific impacts but rather it identified the environmental conditions and constraints to consider when developing and evaluating the improvement concepts. The report also identified certain environmental elements that should be pursued further during the next study phase which will include completing an analysis that addresses compliance with the National Environmental Policy Act (NEPA).

The following summarizes the findings from the Environmental Baseline Report and describes issues to be considered during subsequent analyses.

- **Air Quality** – The traffic analysis prepared for both the freeway mainline and the local street system indicates that queuing is likely to be reduced compared with existing conditions and would likely not have a negative air quality impact. Some intersections will likely require a “hot spot” analysis during the NEPA phase to measure potential CO impacts.
- **Archaeology** – Background research found limited information on archaeological resources in the project area. However, the project location near the Willamette River indicates that a cultural resources investigation would likely be required during the NEPA phase.
- **Biology** – The assessment did not identify any biological resources directly at risk. However, construction noise and vibration could be a source of disturbance for certain bird species in the general area and should be addressed during the NEPA phase.
- **Hazardous Materials** – There are potentially hazardous sites in the vicinity of the reconfigured I-5 Broadway/Weidler Interchange that may require soil testing prior to excavation.
- **Historic** – The Bekins Building (407 N Broadway) and the Veterans Memorial Coliseum are on the Federal Register of Historic Places. Two other buildings in the immediate interchange study area (the Leftbank Building and the Paramount Apartments) have previously been determined to be eligible for the Federal Register. Additional historic analysis will be required during the NEPA phase. In addition to the assessment of the Federal Register status, the Environmental Baseline Report included structures identified in the Bosco-Milligan Foundation’s *Cornerstones of Community: Building of Portland’s African American History*.
- **Noise** – The Environmental Baseline Report included an inventory of potential noise sensitive facilities. A noise analysis will be conducted during the NEPA phase and the potential for noise mitigation through design will be considered.
- **Water Quality and Hydrology** – The majority of the I-5 facility in this area drains to a separated storm sewer, while the local streets in the area drain to a combined sewer overflow. Stormwater improvements associated with a project in this area would represent an improvement over existing conditions and would comply with current regulatory standards.
- **Wetlands** – No wetlands were identified in the immediate area of the interchange improvements.
- **Geology** – No specific geological issues were identified in the study area.
- **Socio-Economic and Environmental Justice** – The study area has a slightly higher percentage of individuals below the poverty level than the city as a whole and has a median income slightly lower than the city overall. I-5 currently bisects neighborhoods in this area and provides only a limited number of existing crossing facilities. The Broadway/Weidler couplet provides the only east-west crossing of the freeway between Multnomah Street and Russell Street.

The Environmental Baseline Report did not identify any environmental issues that would clearly limit the ability to design and implement interchange improvement concepts. However, there are several issues that merit the additional, detailed analysis that will be completed as part of the NEPA phase.

## 4. Developing and Narrowing the Concepts

### Phase I, Part 2: Establish Project Goals and Objectives

### Phase II: Develop Concepts for Freeway and Local Transportation Issues

#### **The Concepts: from Project Goals and 70+ Ideas to a Recommended Concept**

In order to address the freeway and local transportation issues in the Rose Quarter, the project team undertook establishing the existing conditions and issues for the freeway and local transportation network in the Rose Quarter as noted in Section 3. Based on these understandings, the project team and the SAC established the project purpose and goals for the project at the SAC meeting in January 2011. The project purpose, the transportation needs for the project and the project goals are documented below.

#### **Project Purpose**

The purpose of the transportation elements of this project is to address the need to improve safety and operations on I-5 in the vicinity of the I-5 Broadway/Weidler Interchange, support the goals of the N/NE Quadrant and serve the mobility needs of the region and state in a manner consistent with the overall goals and policies of the city, region and state.

The aim of the overall project is to integrate land use, urban design, and transportation strategies, policies and plans for the N/NE Quadrant and the I-5 Broadway/Weidler Interchange that balance, complement, enhance, protect, respect, revitalize, support, and sustain economic, environmental, and social interests.

## **Transportation Issues to Address**

The identified transportation issues for the project to address and improve, specifically from the freeway and local transportation improvements perspective, are demonstrated by the following deficiencies.

### **Safety Issues on I-5 Freeway**

- I-5 in the project area experiences the highest crash rate in the state of Oregon.
- In the project area, I-5 lacks standard safety shoulders in both northbound and southbound directions.
- In the project area, the distances between interchanges are far below standards.
- In the project area, the distances provided for weave movements are far below standards.

### **Congestion on I-5 Freeway**

- In the project area, congestion and delays to motorists and freight commerce occur on the most critical north-south link in the region and the state.
- In the project area, the effects of congestion are spreading from morning and afternoon peak hours to off-peak hours throughout the day

### **Substandard Interface between I-5 Freeway and Local Streets**

- The I-5 Broadway/Weidler Interchange configuration is not typical interchange layout and therefore can be difficult to navigate for motorists unfamiliar with the interchange area.
- The congested and substandard Broadway/Weidler overcrossings of the I-5 freeway currently provide the only east-west multimodal connections for 4,150 feet (0.8 mile) from Multnomah Boulevard to the south and Russell Street to the north within a growing urban district of the central city.

### **Substandard Local Street Network Connecting near the Freeway Interchange Area**

- All transportation users, regardless of mode, along Broadway/Weidler and the surrounding interchange area suffer from the concentration of traffic in the area often referred to as “the Box” (i.e., the six intersections along Broadway and Weidler where all the primary east-west traffic they carry in the district intersect with the significant north-south traffic of Vancouver and Williams and all the traffic coming from or accessing the I-5 Broadway/Weidler Interchange).

## **Significant Additional Benefits of the Project**

Several significant additional benefits are expected to be gained as a result of the project but were not necessarily considered the primary rationale for it. The following significant additional benefits are expected to be realized from the I-5 Broadway/Weidler Interchange Plan as noted below.

### **Seismic Upgrades to the Overcrossing Structures of I-5**

- Reconstruction of the crossing structures over I-5 in the Rose Quarter (i.e., the Broadway, Weidler, Williams and Vancouver structures) would bring these overcrossings up to current seismic design standards. These structures provide access to two major bridges (the Broadway and Steel Bridges) and to the regional freeway network of I-5, I-405 and I-84.

### **Multimodal Upgrades to Broadway/Weidler/Williams/Vancouver**

- Reconstruction of the crossing structures over I-5 in the Rose Quarter (i.e., the Broadway, Weidler, Williams and Vancouver structures) would facilitate upgrading the pedestrian and bicycle facilities on these critical overcrossings. These structures provide the primary north-south and east-west circulation for pedestrians, bicyclists and transit to traverse the freeway and the primary multimodal connection between the Lloyd District to the east and the Rose Quarter to the west.

### **Improved Freeway Facilities and Local Transportation Improvements Support the Land Use and Urban Design Elements of the N/NE Quadrant Plan**

- In addition to facilitating rerouting of existing traffic movements during project construction, the incorporation of a “lid” structure over the freeway in the Broadway/Weidler/Williams area would provide opportunities for development or open space once construction concluded. These opportunities were identified as part of the land use/urban design analysis.
- By moving some of the freeway-bound traffic from existing bottlenecks in the “box” area, traffic volumes could be better balanced on the local street network.
- Reconstruction of the crossing structures over I-5, and the resulting improvements to pedestrian and bicycle facilities, also better facilitate the land uses and urban design characteristics envisioned by the City’s N/NE Quadrant Plan. This plan, with its aspirations for a greater mix of land uses, greater intensity of development and fewer per capita auto trips, relies on the improved connectivity that the Recommended Concept provides.
- New overcrossings at Hancock/Dixon (pedestrians, bicycles and autos) and at Clackamas (pedestrians and bicycles only) would provide greater access and route alternatives to the now-congested “box” area of Broadway/Weidler between Flint Avenue and Victoria Avenue.

## Goals and Objectives

In part because the I-5 Broadway/Weidler Interchange Plan is part of a larger, joint effort with City of Portland to also develop a land use and urban design plan for the N/NE Quadrant (the N/NE Quadrant Plan of the 2035 Central City), the goals and objectives for the overall project go beyond those typical for a transportation project. The overall project goals and objectives, as developed and approved by the SAC, that were used to develop, analyze and prioritize elements of the plan are described below.

### **1. A diverse mix of commercial, cultural, entertainment, industrial, recreational and residential uses, including affordable housing:**

- a. Provide opportunities for a variety of desired land uses in the quadrant and its subdistricts.
- b. Foster distinct and complementary subarea identities within the quadrant.
- c. Encourage uses that complement regional facilities including the Rose Garden, the Veterans Memorial Coliseum, the Oregon Convention Center and the Lloyd Center, while seeking to balance the episodic nature of these attractions with additional activities.
- d. Increase residential density and improve jobs to housing ratio in the quadrant.
- e. Increase affordable housing close to multimodal transportation systems and other appropriate locations.
- f. Preserve existing housing in the quadrant.
  - Consider the impacts of proposed freeway interchange improvements on nearby residential dwelling-including land use and zoning impacts.
- g. Provide open space, parks and recreation opportunities.
- h. Provide access and highlight the quadrant's relationship to the Willamette River

### **2. Economic development that supports existing and new business opportunities and more job creation, especially those paying family wages:**

- a. Create opportunities for new employment and a variety of employment types and levels.
- b. Maintain or increase development potential where appropriate, e.g. through zoning, infrastructure and creation of new parcels.
- c. Foster increase in future high density commercial development in appropriate locations while supporting and encouraging industrial activities in current industrial areas.
- d. Retain and support existing and local businesses in the quadrant.
- e. Support and strengthen the retail environment.

### **3. Enhanced fish and wildlife habitat, increased access to nature, and a sustainable built environment:**

- a. Create opportunities for new strategically located parks and open space.
- b. Maintain and create new access points to the river.
- c. Enhance and create new fish and wildlife habitat, tree canopy, and green infrastructure in appropriate locations.
- d. Support sustainable development goals and practices, including understanding and impacts of the Lloyd Eco-District.

### **4. Infrastructure for healthy, livable, safe and vibrant communities (e.g. open space and parks, river access, schools, etc.) that respects and complements adjacent neighborhoods:**

- a. Create sensitive transitions between the more highly urban Central City and adjacent residential neighborhoods.
- b. Foster concepts that support high-density development in the Lloyd District in appropriate locations and minimize their impacts on adjacent neighborhoods-Eliot, Irvington, and Sullivan's Gulch.
- c. Provide for amenities and services, such as parks, schools and connections, at a level appropriate to support the type and intensity of development proposed.

**5. A full multimodal transportation system that addresses present and future transportation access and needs, both locally and on the freeway system:**

- a. Improve multi-modal transportation accessibility and connectivity within and through the quadrant (e.g. via new or improved connections across freeway and in the district)
- b. Encourage the use of transportation modes other than single occupancy vehicles to reduce auto emissions and vehicle miles traveled.
- c. Improve circulation for all modes in the Rose Quarter Transit Center.
- d. Accommodate present and future multimodal access needs of the quadrant
- e. Improve freight access from freeway and railroads to industrial areas and major destinations.
- f. Increase safety within the quadrant for all modes.
- g. Provide a street hierarchy system that supports the quadrant's desired urban form, land use and livability goals.
- h. Provide parking and transportation demand management strategies that better support the needs of the quadrant.
- i. Support the ODOT High Speed Rail study, including analysis of alternative routes and station locations from existing rail facilities.

**6. Improve the local circulation system for safe access for all transportation modes within the quadrant and at freeway interchanges:**

- a. Provide affordable, reliable, time saving and effective range of multimodal transportation solutions.
- b. Connect regional trail system via local pedestrian and bicycle network.
- c. Improve freeway operations for transit (C-TRAN), freight and auto.
- d. Improve local access across freeways and rail crossings via improved, safer crossings and additional separated facilities for cars, pedestrians and cyclists.
- e. Improve access to transit for residents, employees and visitors.
- f. Seek to significantly reduce accident potential.
- g. Minimize local land use impacts of transportation infrastructure.
- h. Improve rail operations for freight and passengers.

**7. Equitable access to community amenities and economic opportunities:**

- a. Avoid/minimize/mitigate involuntary displacement of quadrant residents, businesses and jobs.
- b. Provide for a broad array of employment types and encourage living-wage jobs.
- c. Provide for diversity of housing types that meets the needs of all income-levels and a variety of household types and lifestyles.
- d. Provide for amenities and services, such as parks, natural areas, schools and connections, at a level appropriate to support the type and intensity of development proposed.
- e. Increase the capacity of existing residents and business owners to share in the benefits from growth in the quadrant.
- f. Ensure that the plan compliments economic development and housing strategies to build capacity for existing area residents and businesses.
- g. Ensure that infrastructure improvement do not have disproportionate public health impacts.
- h. Ensure that plan proposals address the needs of local residents and businesses while recognizing the importance of the quadrant's region-serving facilities and infrastructure.
- i. Ensure the plan broadly supports the equity objectives established through the Portland Plan process.

**8. Protection and enhancement of the cultural heritage of the area and its sub-districts:**

- a. Preserve, enhance and celebrate historic and cultural resources.
- b. Avoid/minimize/mitigate demolition of historic and cultural resources.
- c. Avoid or minimize adverse impacts on cultural or high priority community sites.

## 9. Develop an implementable improvement plan:

- a. Ensure plan proposals are reasonable and implementable.
- b. Ensure capital costs are within project limits.
- c. Ensure plan proposals are consistent with relevant adopted local, regional and state land use and transportation goals and policies.
- d. Ensure plan concepts and proposals are consistent with relevant goals and objectives of the Portland Plan and Central City 2035 processes.

## 10. Improve urban design conditions:

- a. Ensure that the freeway and local street improvements support the urban design objectives of the overall N/NE Quadrant Plan.

The project considered how each of the transportation concepts developed and analyzed would accomplish the above goals. Specific freeway and local transportation evaluation criteria and measures were developed where applicable and are listed in the following subsection, Evaluation Criteria.

### Evaluation Criteria

After the goals and objectives were established, project staff and the SAC worked to develop corresponding evaluation criteria to measure how well various concepts were addressing the goals. The following evaluation criteria were considered by the SAC at its meeting on July 28, 2011. The SAC largely supported the staff-recommended evaluation criteria at this meeting but additional fine tuning on the criteria occurred via additional correspondence with SAC members in August 2011. Table 4 summarizes the final evaluation criteria that were used in Phase III for evaluating the transportation concepts.

The column on the right contains evaluation criteria specific to the freeway interchange and related local transportation interface elements of the project. Each evaluation criterion is tied to one or more goal or objective. They are generally more specific or quantitative than the objectives and are tailored to the infrastructure project characteristics of the freeway planning elements.

Please see Appendix O: Phase III Evaluation Criteria for a detailed list of the corresponding evaluation measures that were used to analyze the concepts in Phase III. The results of this analysis are shown in Appendix P: Phase III Evaluation Worksheet and Supporting Documents.

**Table 4: Evaluation Criteria for Evaluating Interchange Improvement Concepts in Phase III**

Project Goals	Evaluation Criteria for Interchange Improvements
1. A diverse mix of commercial, cultural, entertainment, industrial, recreational and residential uses, including affordable housing.	<ul style="list-style-type: none"> <li>• Minimize the need to purchase property for right-of-way.</li> <li>• Minimize residential units displaced and impacts to existing residential development.</li> </ul>
2. Economic development that supports existing and new business opportunities and more job creation, especially those paying family wages.	<ul style="list-style-type: none"> <li>• Minimize businesses displaced and impacts to existing businesses.</li> </ul>
3. Enhanced fish and wildlife habitat, increased access to nature, and a sustainable built environment.	<ul style="list-style-type: none"> <li>• Improve local connectivity.</li> <li>• Enhance the street tree canopy.</li> <li>• Reduce storm water run-off and energy use.</li> </ul>
4. Infrastructure for healthy, livable, safe and vibrant communities (e.g. open space and parks, river access, schools, etc.) that respects and complements adjacent neighborhoods.	(Covered by other criteria relative to Goals 5 and 6.)
5. A full multimodal transportation system that addresses present and future transportation access and needs, both locally and on the freeway system	<ul style="list-style-type: none"> <li>• Improve pedestrian and bicycle infrastructure and minimize pedestrian and bicycle conflicts with motor vehicles.</li> <li>• Identify and address system-wide transportation impacts of proposed interchange improvements on traffic diversion, local access and circulation, transit operations, freight movement and on land uses.</li> <li>• Reduce auto use and emissions.</li> <li>• Improve freeway safety.</li> </ul>
6. Improve the local circulation system for safe access for all transportation modes within the quadrant and at freeway interchanges.	<ul style="list-style-type: none"> <li>• Improve local circulation and freeway crossing opportunities.</li> <li>• Improve weaving conditions and through-traffic performance on the freeway near the I-5 Broadway/Weidler Interchange.</li> <li>• Lower likelihood of collisions on I-5 between Broadway and I-84.</li> <li>• Minimize construction impacts on land uses and transportation network and transit operations.</li> </ul>
7. Equitable access to community amenities and economic opportunities.	<ul style="list-style-type: none"> <li>• Minimize negative impacts to access, circulation and parking for major destinations/facilities and events.</li> </ul>
8. Protection and enhancement of the cultural heritage of the area and its sub-districts.	<ul style="list-style-type: none"> <li>• Minimize impacts to existing historic and culturally significant structures and high-priority community sites.</li> <li>• Minimize negative traffic pattern changes in residential neighborhoods.</li> </ul>
9. Develop an implementable improvement plan.	<ul style="list-style-type: none"> <li>• Estimate costs of improvements to the I-5 Broadway/Weidler Interchange and related local transportation improvements.</li> </ul>
10. Improve urban design conditions.	<ul style="list-style-type: none"> <li>• Improve connections between complementary land uses and major destinations.</li> <li>• Optimize development and open space opportunities.</li> </ul>

## 70+ Concepts and Ideas – Identifying Concepts

In conjunction with the project’s Stakeholder Advisory Committee (SAC), the city hosted a land use, local transportation and urban design charrette in February 2011. This charrette process resulted in ideas for an evolving land use, urban design vision for the N/NE Quadrant.

In April 2011, ODOT hosted a charrette that focused on transportation improvements to I-5 and the surrounding local transportation system. Since this charrette was focused on specific ideas for improving freeway operations and safety and the local street network, it had a more technical tone than the prior land use/urban design charrette which had resulted in ideas for a broad vision. Similar to the earlier charrette, the transportation charrette was implemented in conjunction with the SAC and included the following steps:

- March 30, 2011 – SAC work session that provided context and elicited ideas on freeway operations, ramp locations, interchange function, overcrossings and a range of other local and freeway transportation improvements.
- April 11, 2011 – Public work session, similar to the March 30th SAC work session, which generated additional ideas on a range of improvements.
- April 12, 2011 – Staff work session which processed ideas received from the earlier sessions. Included a midday public check-in period.
- April 13, 2011 – Additional staff work session which further refined 6 specific concepts for freeway improvements and reported to a public open house that evening.

## Phase II

### Develop Concepts

70+

**Ideas Generated**

**Freeway/Local Transportation  
Interface Charrette**

More than 70 overall concepts and concept elements (individual components of an overall concept) were received from the SAC and the public during the transportation charrette process. Each of these concepts and elements were compiled and organized in a master matrix so that they could be grouped and sorted according to similar elements and so their characteristics could be noted. See Appendix G: Freeway Charrette Concepts Matrix for the details of the concepts generated. Figure 18 shows charrette participants sorting through the transportation issues and developing concepts while Figure 19 shows some of the early charrette sketches.

### Concepts and Elements

In order to manage and describe the various components included in the wide range of ideas received during the transportation charrette, terminology was developed to provide consistency. Two key terms used were “concepts” and “elements.” *Concepts* referred to ideas that included a group of ideas that defined all of the key elements that were needed to make an idea work for the freeway and local transportation system. *Elements* referred to the individual building block ideas that comprised overall or complete concepts. Elements included things such as specific ramp and crossing locations, interchange location, interchange type, braided ramps, etc. One concept would have likely included several different elements.

### Concepts for Further Study

Since many of the more than 70 concepts and ideas included common or very similar elements, the concepts were grouped and sorted by major common elements so that they could be evaluated for addressing the project goals and objectives and by their performance, costs, impacts, etc.

### Range of Concepts

The broad array of concepts ranged from doing nothing (2035 No-Build) to operational improvements on the freeway (such as adding safety shoulders, braiding exit and entrance ramps, and extending auxiliary lanes) to new interchange types that would be new to the Portland area (such as a roundabout-controlled diamond interchange or a diverging-diamond interchange). Some concepts also included de-coupling either the Broadway/Weidler or Vancouver/Williams couplets in order to simplify the interchange configuration.



Figure 18: Participants Developing Improvement Concepts at the Freeway/Local Transportation Interface Charrette (April 2011)



Figure 19: Early Concept Sketches from the Freeway/Local Transportation Interface Charrette

Table 5 shows how the concepts were grouped into categories with similar concepts and elements so that they could be analyzed for addressing the project goals and objectives and by their performance, costs and impacts. This process and the concept categories were supported by the SAC at its meeting on May 26, 2011. After the May SAC meeting, project staff recommended including a sixth category of Concepts for Further Study: Transportation System Management (TSM)/Transportation Demand Management (TDM)/Operations Management. The SAC supported adding the TSM/TDM/Operations Management category in June.

**Table 5: Concept Categories for Further Study from the Freeway/Local Transportation Interface Charrette (April - June 2011)**

Concept Categories	Attributes or Notes
1. 2035 No-Build	Allows for a baseline comparison
2. Mainline Operational Improvements to Freeway	This category of operational improvements was intended to avoid replacing the five main structures over the freeway
3. Rebuild Structures over the Freeway	This category would include operational improvements that would require replacing the five main structures over the freeway
4. Enhance the Broadway/Weidler Interchange	
5. New Concepts for the Broadway/Weidler Interchange	
6. Transportation System Management/ Transportation Demand Management	The TSM/TDM/Operations Management category was added by the project team and approved by the SAC in June 2011

There were many consistent improvement elements that were generated by or submitted subsequent to the charrette work sessions. Table 6 summarizes the major individual elements recommended to be considered for inclusion in the complete concepts.

**Table 6: Major Elements for Further Study from the Freeway/Local Transportation Interface Charrette (April 2011)**

Area	Major Elements for Further Study	Element Options
Freeway	1. Add Freeway Crossings	<ul style="list-style-type: none"> <li>• Pedestrian/bicycle only</li> <li>• Pedestrian/bicycle/vehicle</li> </ul>
	2. Remove Freeway Crossings	
	3. Add Collection/Distributor (C/D) Roads	
	4. Add Braided Ramps	
	5. Change Ramp Layouts or Locations	
Local Transportation	6. De-Couple Existing Couplets	<ul style="list-style-type: none"> <li>• Broadway/Weidler</li> <li>• Vancouver/Williams</li> </ul>
	7. Local Street Changes	
	8. Pedestrian/Bicycle Changes	

### Elements Not Recommended for Further Analysis in Phase II, Step 1 Screen

Certain elements that were included in the submitted concepts were not recommended to be studied further because they were either out of the adopted project scope and purpose, would reduce the lengths of the weaving sections on I-5 or they required heroic engineering that would not be feasible or would be very costly. Table 7 provides a summary of the elements that were not recommended to be studied further.

**Table 7: Elements Dropped from Further Study after Phase II Screening, Step 1 (May 2011)**

<b>Element Dropped from Further Study</b>	<b>Rationale for Not Studying Further</b>
<b>1. Remove I-5</b>	<ul style="list-style-type: none"> <li>Beyond the scope of this project</li> </ul>
<b>2. Move Interchange North</b>	<ul style="list-style-type: none"> <li>Beyond the scope of this project</li> <li>Would significantly reduce lengths of weaving distances on I-5</li> </ul>
<b>3. Move Interchange South</b>	<ul style="list-style-type: none"> <li>Beyond scope of this project</li> <li>Would significantly reduce lengths of weaving distances on I-5</li> </ul>
<b>4. Double Deck I-5 through Quadrant</b>	<ul style="list-style-type: none"> <li>Beyond the scope of this project</li> </ul>
<b>5. Initiate New Water Taxi/Ferry Service</b>	<ul style="list-style-type: none"> <li>Beyond the scope of this project</li> </ul>
<b>6. Build New Bridge over Willamette River</b>	<ul style="list-style-type: none"> <li>Beyond the scope of this project</li> </ul>
<b>7. Build Braided Ramps North of Broadway/Weidler Interchange</b>	<ul style="list-style-type: none"> <li>Not suggested in charrette</li> </ul>
<b>8. Widen I-405 Freeway</b>	<ul style="list-style-type: none"> <li>Beyond the scope of this project</li> </ul>
<b>9. Make Changes to I-5/I-405 Freeway Loop</b>	<ul style="list-style-type: none"> <li>Beyond the scope of this project</li> </ul>

Appendix H: Freeway/Local Transportation Interface: Charrette Summary includes a summary of the outcomes of the charrette. The charrette summary also included one-page descriptions of the proposed concepts that included transportation elements that were dropped from further consideration. The concepts or elements that were dropped in this screening did not address the project goals and objectives adopted by the SAC, were beyond the scope of this project or were not feasible due to significant engineering or cost constraints.

Table 8 expands on concept categories from Table 5 to show specific complete concepts within the categories. A total of 13 full concepts were developed and analyzed using the project goals and objectives. Narrowing the complete concepts to 13 (with additional sub-options) within the six categories was supported by the SAC at its meeting on June 16, 2011. The concepts were illustrated and described in Appendix J: Freeway/Local Transportation Interface: Concepts for Further Study. One example concept, Concept 4b – Folded Diamond, is shown in Figure 20.



Figure 20: Example Concept (4b. Folded Diamond) for Phase II Analysis

Table 8: 13 Concepts for Further Study, Phase II Step 1 Screening (June 2011)

Concepts by Category	Overall Concept Count
<b>1. 2035 No-Build</b>	1
<b>2. Mainline Operational Improvements</b> (which eliminate or shift weave movements off mainline of freeway)	
2a. Braided Ramps	2
2b. Collector/Distributor (C/D) Roads	3
<b>3. Rebuild the Structures with Mainline Operational Improvements</b> (which may include extending auxiliary lanes and adding shoulders but may not necessarily include eliminating or shifting weaves off mainline)	4
<b>4. Enhance the Broadway/Weidler Interchange</b> with Mainline Operational Improvements (including extending auxiliary lanes and adding shoulders in all options)	
4a. Split Diamond Interchange	5
4b. Folded Diamond Interchange	6
4c. Three-Point Interchange (maintain Broadway/Weidler couplet)	7
<b>5. New Concepts for the Broadway/Weidler Interchange</b> with Mainline Operational Improvements (including extending auxiliary lanes and adding shoulders in all options)	
5a. Standard-Diamond Interchange (de-couple Broadway/Weidler)	8
5b. Single-Point Urban Interchange (SPUI; de-couple)	9
5c. Diverging Diamond Interchange (DDI)	10
5d. Roundabout-Controlled Diamond Interchange	11
5e. Three-Point Interchange (de-couple Broadway/Weidler)	12
<b>6. TSM/TDM/Operations Management</b>	13

## Phase II Step 2 Narrowing: from 13 to 8 Concepts

At the July 28, 2011, SAC meeting, the project team recommended that of the 13 concepts, Concepts 5b, 5c, 5d and 5e be dropped from further consideration based on the Phase II screening factors (see Table 9: Summary Evaluation Matrix for Phase II Screening). This recommendation was based on the following findings for each of the concepts:

### Concept 5b – Single-Point Urban Interchange (SPUI; de-couple)

- Pedestrian and bicycle safety concerns
- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

### Concept 5c – Diverging Diamond Interchange (DDI)

- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

### Concept 5d – Roundabout-Controlled Diamond Interchange

- Pedestrian and bicycle safety concerns
- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

### Concept 5e – Three-Point Interchange (de-couple)

- Pedestrian and bicycle safety concerns
- Poor north/south connectivity
- Large overall project footprint
- Limited developable parcels

**The project team recommended these concepts be dropped from further consideration:**  
**5b, 5c, 5d and 5e**

**The SAC agreed and also recommended that **Concept 5a** be dropped from further consideration.**

After discussion of the evaluation results at the July meeting, the SAC supported dropping those four concepts from further study. Additionally, the SAC found that Concept 5a – Standard-Diamond Interchange (de-couple Broadway/Weidler), had performed similarly to the other concepts within Category 5 (New Concepts for the Broadway/Weidler Interchange) and should be dropped from further study for the following reasons:

### Concept 5a – Standard-Diamond Interchange (de-couple Broadway/Weidler)

- Risk of exit ramp queues spilling back onto freeway
- Created wide (7 lane) combined arterial with degradation of operations occurring at multiple intersections
- North/south connectivity shifted mostly to Wheeler and Flint
- Would impact private properties due to acquisition or access or parking changes

This action left eight concepts for further evaluation in Phase III of the study. See also Appendix X: The 8 Concepts. In addition to narrowing the remaining concepts and approving the Phase III evaluation criteria, the SAC also supported allowing project staff to optimize and potentially combine design elements of the remaining concepts as performance evaluations in Phase III warranted.



## Phase III: Analyze and Select Concepts

### Phase III Analysis: from 8 Concepts to 6

The evaluation of the eight remaining concepts in Phase III proceeded from the summer 2011 through December. During the analysis, the project team discovered several items. First, in addressing the two weave conditions south of the I-5 Broadway/Weidler Interchange, the team found that:

- braided exit and entrance ramps southbound between Weidler and I-84 had the greatest improvement to freeway operations
- a C/D road northbound between I-84 and Weidler had the best chance of improving freeway operations

Therefore, the project team recommended to the SAC transportation subcommittee meeting on October 12, 2011, to combine Concepts 2a – Braided Ramps, and 2b – C/D Roads, into one concept, 2 – Braided Ramp/CD Road. This combined concept featured the braided ramps southbound and the C/D road northbound between the I-5 Broadway/Weidler Interchange and I-84. As project engineers more closely examined the physical layout requirements of this option, they found that, with the braided ramp/CD road concept, freeway improvements would affect three structures over the freeway at Broadway, Weidler and Williams. Therefore these structures would need to be replaced in this concept.

The project team also found that a stand-alone TSM/TDM concept (Concept 6), which included even more aggressive TSM/TDM measures than those already contained in regional transportation plans, would not be enough to address the existing safety and operational issues found on the freeway and the connecting surface streets. Therefore the project team recommended that the more aggressive TSM/TDM measures found in Concept 6 be added to each of the remaining five “build” concepts. This recommendation was also supported by the SAC transportation subcommittee at its October meeting. This resulted in five “build” concepts and the 2035 No-Build concept (six total) left to analyze in the remainder of Phase III.

See Appendix X: The 6 Concepts

### Results of Phase III Analysis: Narrowing the 6 Concepts to 3 and Moving toward a Hybrid

The results of the Phase III analysis were presented to the SAC transportation subcommittee on December 8, 2011. The project team presented these results via a summary table of overall findings (see Figure 21: Overall Findings of Phase III Analysis). This figure represents a composite of the scoring from the Phase III analysis found in Appendix P: Phase III Freeway Interchange/Local Transportation Interface Worksheet.

From these results, the subcommittee recommended the following:

- Discontinue work on Concept 4a – Split Diamond, and Concept 4b – Folded Diamond.
- Work to identify the best elements of each of the remaining concepts:
  - 2 – Braided Ramp/CD Road,
  - 3 – Rebuild the Structures, and
  - 4c – Three-Point Interchangeand include the identified elements in a hybrid concept.

The subcommittee’s recommendation to drop concepts 4a and 4b was based on the following findings for each of the concepts:

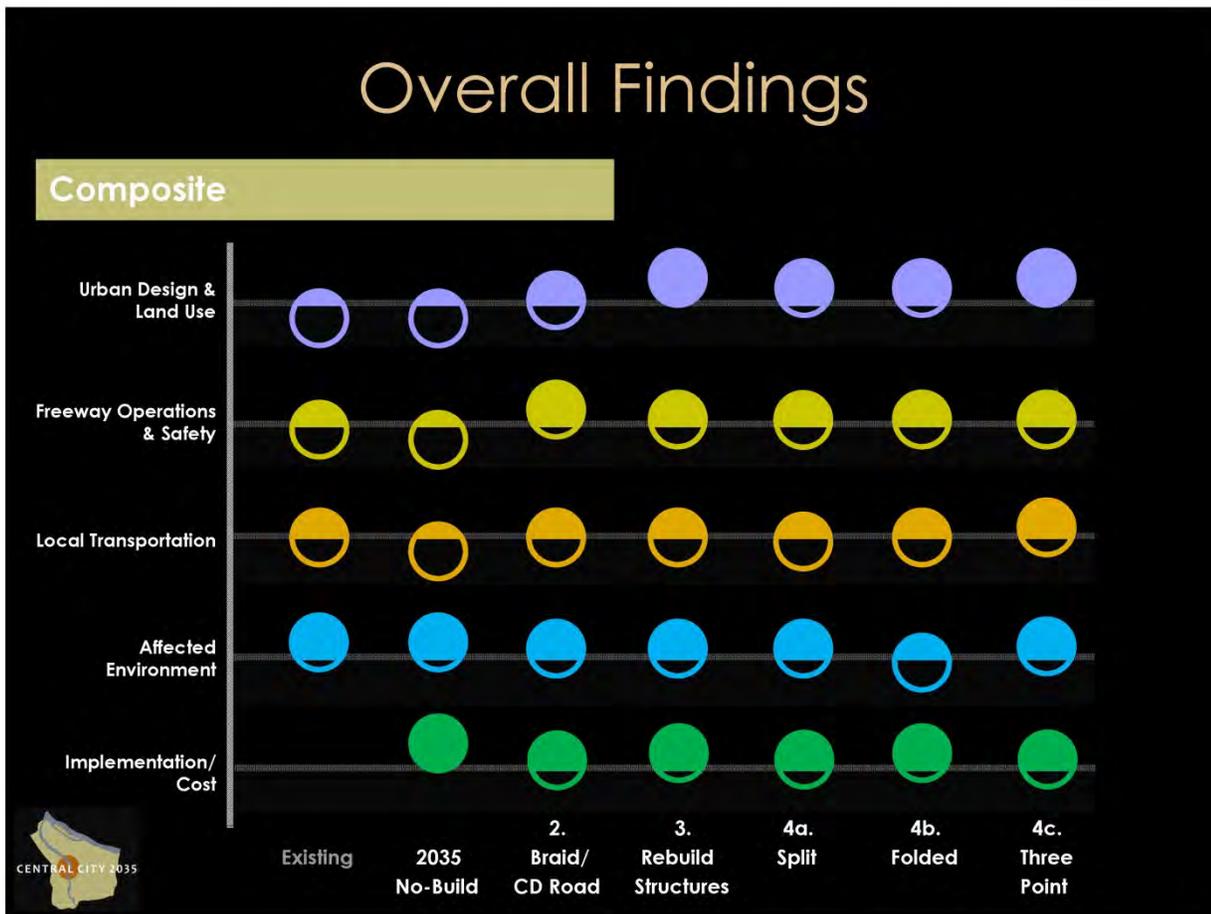
**Concept 4a – Split Diamond**

- Similar in many ways to 4c – Three-Point Interchange but not as good for urban design or local transportation
- Increased traffic volumes adjacent to important community properties (e.g., Leftbank Building, Paramount Apartments)
- Traffic queuing issues and increase in “box” area average intersection delay
- Impacts to bike, transit and freight connections, including increased out-of-direction travel

**Concept 4b – Folded Diamond**

- Largest overall project footprint relative to other concepts
- Most impacts to businesses and residences near the loop ramps, including the Leftbank Building, the Paramount Apartments and the Crowne Plaza Hotel

This subcommittee recommendation was unanimously supported by the SAC at its meeting on January 19, 2011. The SAC also directed project staff to weigh SAC-identified benefits and concerns regarding proposed hybrid concept elements the remaining three concepts as discussed at the January meeting.



Note: Concepts that scored higher in the Phase III analysis have circles that are higher respective to the five baselines.

**Figure 21: Overall Findings of the Phase III Analysis**

### Forming a Hybrid Base Concept

At its February 2012 meeting, the SAC was presented with a Hybrid Base Concept that incorporated elements of the three concepts that remained after the Phase III analysis. At the time, the Hybrid Base Concept (illustrated in Figure 22) included:

1. Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies.
2. Mainline Freeway Safety Elements including:
  - a. Extending auxiliary lanes in both directions.
  - b. Adding full-width shoulders in both directions.
3. Re-building of the five structures over I-5 (Weidler, Broadway, Williams, Vancouver and Flint) to provide the clearance necessary for the Mainline Freeway Safety Elements. The Weidler, Broadway and Williams structures would be rebuilt to include a lid over portions of the freeway. Opportunities to reconfigure the Vancouver and Flint structures to improve neighborhood connectivity were to be considered. All enhanced structures over I-5 would include improved facilities (wider sidewalks, bicycle lanes, etc.) for all modes.
4. A move the southbound on-ramp from Wheeler/Winning Way to Weidler (at Williams).
5. Reverse traffic flow on Williams between Broadway and Weidler with a two-way bicycle/pedestrian facility in the median.

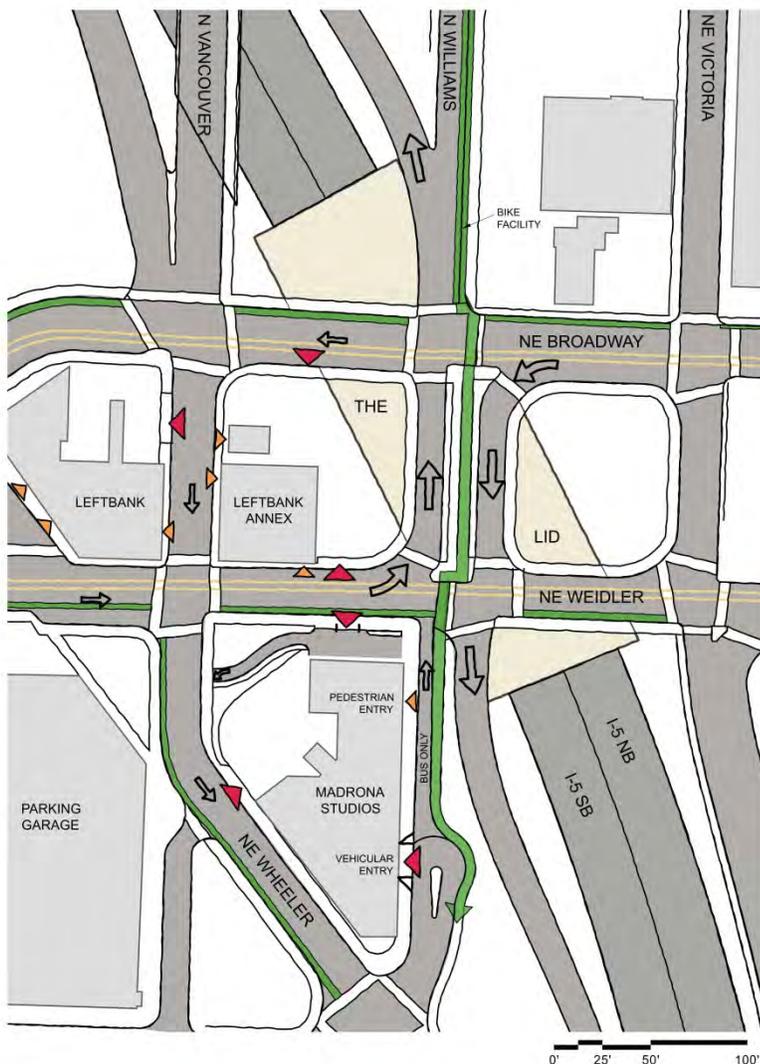


Figure 22: Hybrid Base Concept (illustrative concept drawing, February 2012)

The rationale for the specific elements of the Hybrid Base Concept was noted as follows:

1. TSM and TDM measures represent low cost strategies for managing traffic operations and minimizing demand. While local, regional and state policies call for extensive use of these strategies, this recommendation will help to ensure that ODOT and the City of Portland fully commit to maximizing TSM and TDM strategies in the N/NE Quadrant and on I-5.
2. An auxiliary lane with widened shoulders will improve traffic operations and safety.
3. Rebuilding structures would be required to add the auxiliary lane and would provide improved bicycle and pedestrian facilities. The rebuilding of these structures would provide an opportunity to build a lid over the freeway that would facilitate traffic movements during construction and could include usable public space or development opportunities afterward.
4. Moving the I-5 southbound entrance ramp from Wheeler/Williams/Winning Way to Weidler (at Williams) would reduce traffic on Wheeler south of Weidler.
5. Operating Williams with reverse traffic flow and a two-way bicycle/pedestrian facility in the median for the block between Broadway and Weidler would allow westbound traffic destined for I-5 south to turn south one block to the east of where they currently turn. It would therefore reduce traffic on Vancouver. In addition the two-way bicycle/pedestrian facility in the median would allow for bicycles and pedestrians to continue north from the Eastbank Esplanade and Rose Quarter to Williams Avenue.

The Hybrid Base Concept also included four elements that required further refinement based on technical assessments of bicycle and pedestrian operations, urban design/land use potential, traffic operations and safety. These additional four elements were:

1. I-5/I-84 Southbound Braided Ramp
2. A multi-use path (MUP) connecting the Eastbank Esplanade to NE Broadway along the east side of I-5
3. Clackamas Pedestrian/Bicycle Overcrossing
4. Two "North of Broadway" options for rebuilding the Vancouver and Flint overpasses:
  - a. Keep Vancouver and Flint at their current locations
  - b. Realign Vancouver west to align with Flint or DixonInclude a freeway lid where feasible when rebuilding Vancouver and Flint overpasses

The SAC supported the joint staff recommendation to move forward with the Hybrid Base Concept and directed staff to continue to analyze the four elements that required additional study.

### **Opportunity to Create Supplementary Crossings**

As early as the Freeway and Local Transportation Charrette in April 2011, a number of concepts and ideas had identified opportunities for and benefits of adding east-west crossings of the freeway. The potential for adding a Clackamas Pedestrian/Bicycle Overcrossing and the options for rebuilding the Vancouver and Flint overpasses (items three and four in the list above) were seen as chances to create a supplementary freeway crossing both south and north of the Box. Such a scenario would provide alternative routes for transportation users so they could avoid the Box area, and its interchange traffic, entirely. The supplementary crossing locations are shown in Figure 23.



**Figure 23: Potential Supplementary Routes for Crossing I-5**

#### Phase IV: Final Development of the Hybrid Concept

##### Two Refinement Elements Dropped

At the March 15, 2012, SAC meeting, project staff presented the following joint staff recommendations regarding the four hybrid concept elements that required additional assessment:

- Discontinue refinement of the Southbound Braided Ramps.
- Discontinue refinement of a multi-use path (MUP) immediately east of I-5 between Multnomah and Weidler was not recommended to be included in the project.
- Continue work to ensure that a Clackamas Pedestrian/Bicycle Overcrossing could be integrated with a proposed development plan on the east side of the freeway.
- Continue to refine and evaluate the North of Broadway options.

The SAC supported these joint staff recommendations, supported the project team to move forward with the Hybrid Base Concept and directed staff to continue to analyze and refine the North of Broadway options. The rationale for each of these joint staff recommendations is summarized below.

### Rationale for Dropping Southbound Braided Ramps from the Hybrid Base Concept

Braided ramps, which eliminate weave movements, have been shown to be an effective strategy to improve the safety and operations of an urban freeway. However, the Southbound Braided Ramps were not recommended for further refinement as part of the Hybrid Base Concept for the following reasons:

- Many of the safety and operational benefits could be achieved with the auxiliary lane extensions included in the Hybrid Base Concept.
- Concerns about potential visual impacts of the braided ramp structures, which would be located beyond the existing footprint of I-5 and would require new support columns along Wheeler Avenue in the vicinity of the Rose Garden Arena and the Rose Quarter TC, remained.
- Braided ramps were estimated to add an additional \$150 million to the capital cost of the Hybrid Base Concept.

If after base improvements are implemented and safety and operational issues remain, the Southbound Braided Ramps would receive additional consideration since they show promise for further improving safety and operations within the project area. Project staff further recommended that other elements of the Hybrid Base Concept should not preclude the ability to implement the Southbound Braided Ramps, if needed, at some point in the future. Figures 24 and 25 are illustrations that were developed to show how the braided ramp structures might have looked from below. Opportunities were identified to utilize landscaping, walls, water, lighting and other techniques to enhance the look and feel of areas near the freeway.

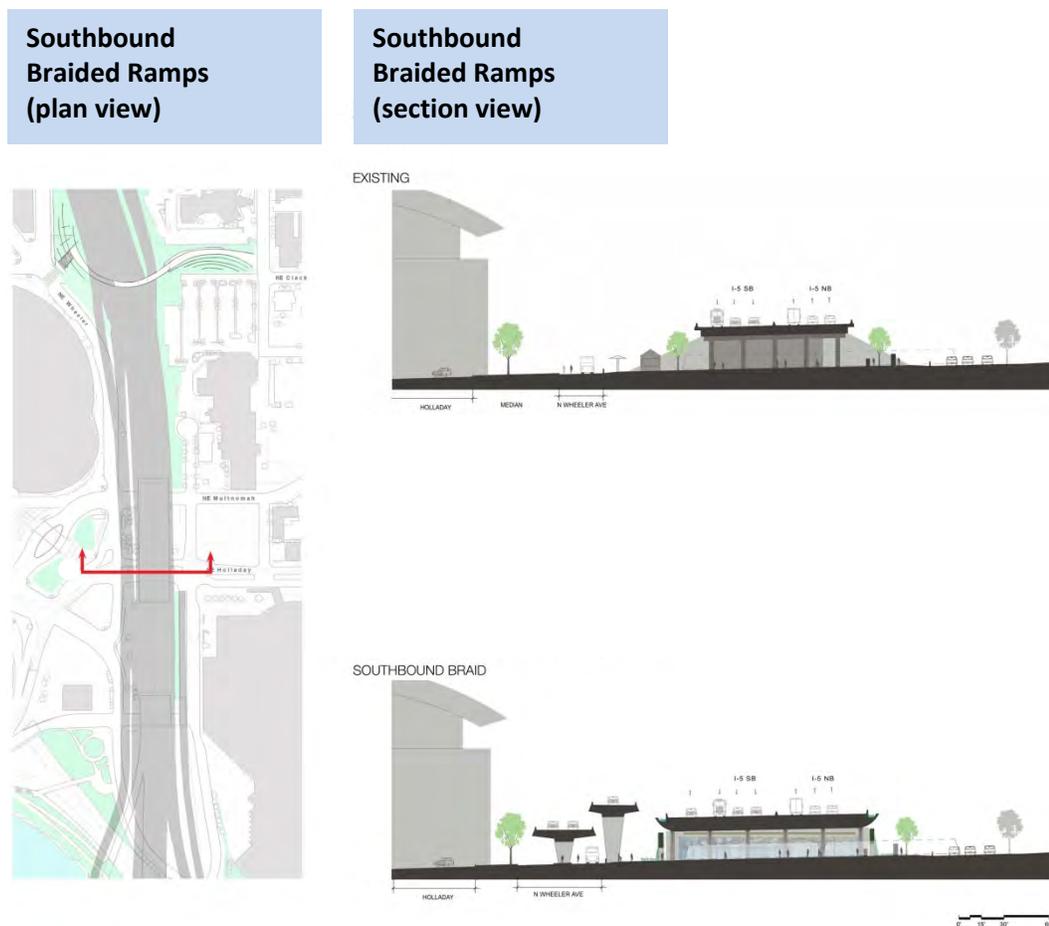
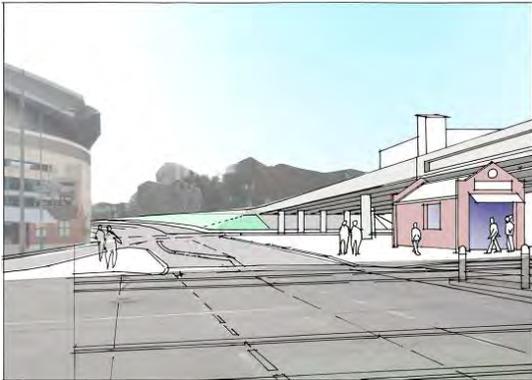
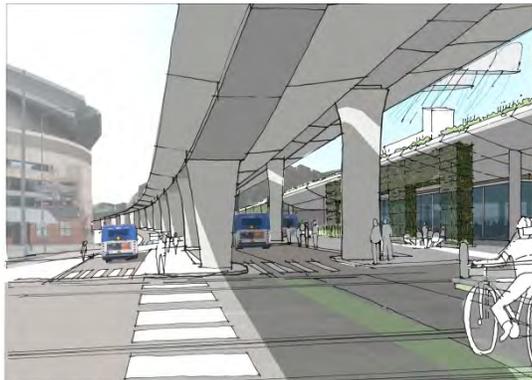


Figure 24: Southbound Braided Ramps (illustrative concept drawings, March 2012)



Existing



With Southbound Braided Ramps

**Figure 25: Southbound Braided Ramps (illustrative concept drawings, March 2012)**

### **Rationale for Dropping the Eastside Multi-Use Path (MUP) from the Hybrid Base Concept**

The analysis in Phase III had identified a range of potential benefits and impacts associated with creating a multi-use path (MUP) along the east side of I-5. However, the MUP was not recommended for inclusion as part of the Hybrid Base Concept for the following reasons:

- The mitigation for impaired north-south pedestrian and bicycle access, associated with earlier interchange concepts, was no longer necessary. The Hybrid Base Concept provided for reasonable north-south bicycle and pedestrian connections west of I-5 using Wheeler, Williams and Vancouver Avenues.
- The east side multi-use path would create a difficult crossing at the eastern edge of the I-5 northbound exit-ramp to Weidler.
- The east side MUP would require additional property acquisition and would displace approximately 25 off-street parking spaces.
- The MUP was estimated to add an additional \$2 - \$4 million to the capital cost of the Hybrid Base Concept.

## Clackamas Pedestrian/Bicycle Overcrossing

Throughout the concept development and analysis phases, project staff and the SAC had thought it highly desirable to provide a pedestrian and bicycle crossing of I-5 connecting from the vicinity of Winning Way, Wheeler Avenue and Williams Avenue (on the west side of I-5) to the vicinity of Clackamas Street at 2nd Avenue (on the east side of the freeway). This overcrossing would improve pedestrian and bicycle access to the Rose Garden Arena, the Veterans Memorial Coliseum and potential future Rose Quarter development.

Concepts were prepared that depicted a potential overcrossing and described some of the challenges of providing good physical connections on both sides of the freeway (see Figure 26).

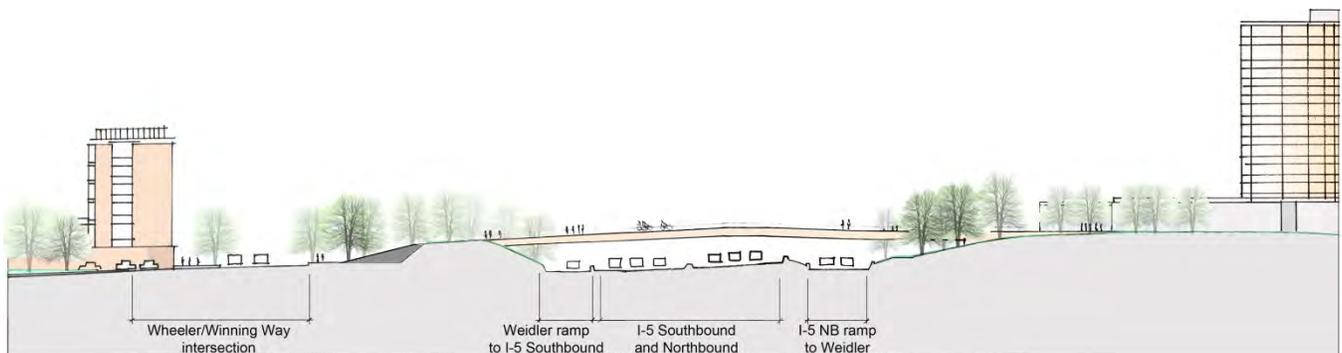
### Benefits

- Would improve pedestrian and bicycle access to the Rose Quarter.
- Would support redevelopment opportunities at the Rose Quarter and on the east side of I-5.
- Would improve pedestrian safety by shifting some event-based pedestrian activity from Weidler Street and the Box area to the new overcrossing.
- Could be designed to allow for southbound braided ramps if those are desired in the future.

### Issues

- Potential development on the east side of I-5
- Capital cost estimated at \$15 - \$20 million.

The Clackamas Pedestrian/Bicycle Overcrossing was recommended to be included as part of the Hybrid Base Concept. The City and ODOT agreed to continue to work with the proposed development on the east side of the freeway to ensure that the overcrossing could be accommodated with the proposed development.



**Figure 26: Clackamas Pedestrian/Bicycle Overcrossing, Cross Section (illustrative concept drawing, March 2012)**

## North of Broadway Options

The I-5 Broadway/Weidler Interchange project presented a unique opportunity to improve the local street system just north of Broadway in addition to overall operational improvements to the transportation network. Because the existing Flint and Vancouver structures over the freeway must be rebuilt as part of the Hybrid Base Concept, they could be built in a configuration different than their current layout. This opportunity also presented a number of challenges since no option was without impacts. Several concepts were developed and deemed worthy of serious consideration, in addition to the option of rebuilding the structures in their current locations. All options considered would work with the other major elements of the Hybrid Base Concept. All new structures would meet current design standards for seismic safety, sidewalks and bike lanes where applicable.

### Initial North of Broadway Options Considered through March 8, 2012 (see Figure 27):

#### 1. Rebuild

This option would have removed and rebuilt the existing freeway overcrossings in their current locations. Although the replacement structures would meet current design standards, this option would not have eliminated the five-legged intersection at Vancouver & Broadway. Removing the Vancouver leg from the intersection would have reduced accident potential and improved driver expectations within the interchange area.

#### 2. Align Vancouver with Flint (Flint)

This option would have replaced the existing Flint and Vancouver freeway overcrossings with a single, new overcrossing connecting Vancouver to Flint. The new Vancouver/Flint overcrossing would have provided for a local street connection with Hancock to the east and a local street connection to the west. The intersection of Flint and Broadway would have been signalized, the existing access to Wheeler from Broadway would have been closed and access to Wheeler would have been provided via Dixon. Flint would have been connected south of Broadway, across Weidler, and continue as a through-street connection to Winning Way between the two city parking structures.

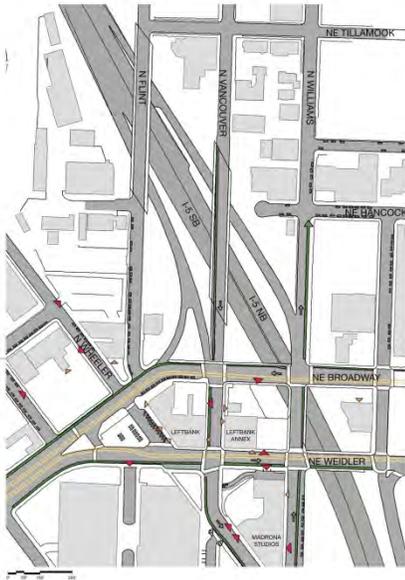
#### 3. Align Vancouver with Dixon (Dixon)

This option would have replaced the existing and Vancouver freeway overcrossings with a single, new overcrossing connecting Vancouver to Dixon at Wheeler. The new Vancouver/Dixon overcrossing would have provided for a local street connection with Hancock to the east and a local street connection to the west. Wheeler would have been connected as a two-way street to a signalized intersection at Broadway and Flint would have been closed at Broadway. The south leg of the Wheeler /Broadway intersection would have been a new, north/south through-street connection across Weidler to Winning Way between the two city parking structures.

#### 4. Align Vancouver with Dixon and Form Couplet (Dixon Couplet)

This option would have replaced the existing and Vancouver freeway overcrossings with a single, new overcrossing connecting Vancouver to Dixon at Wheeler. The new Vancouver/Dixon overcrossing would have provided for a local street connection with Hancock to the east and a local street connection to the west. Wheeler would have been paired with Ross as a one-way couplet with northbound traffic on Wheeler and southbound traffic on Ross.

**Existing Conditions**



**Option 1. Rebuild**



**Option 2. Align Vancouver with Flint**



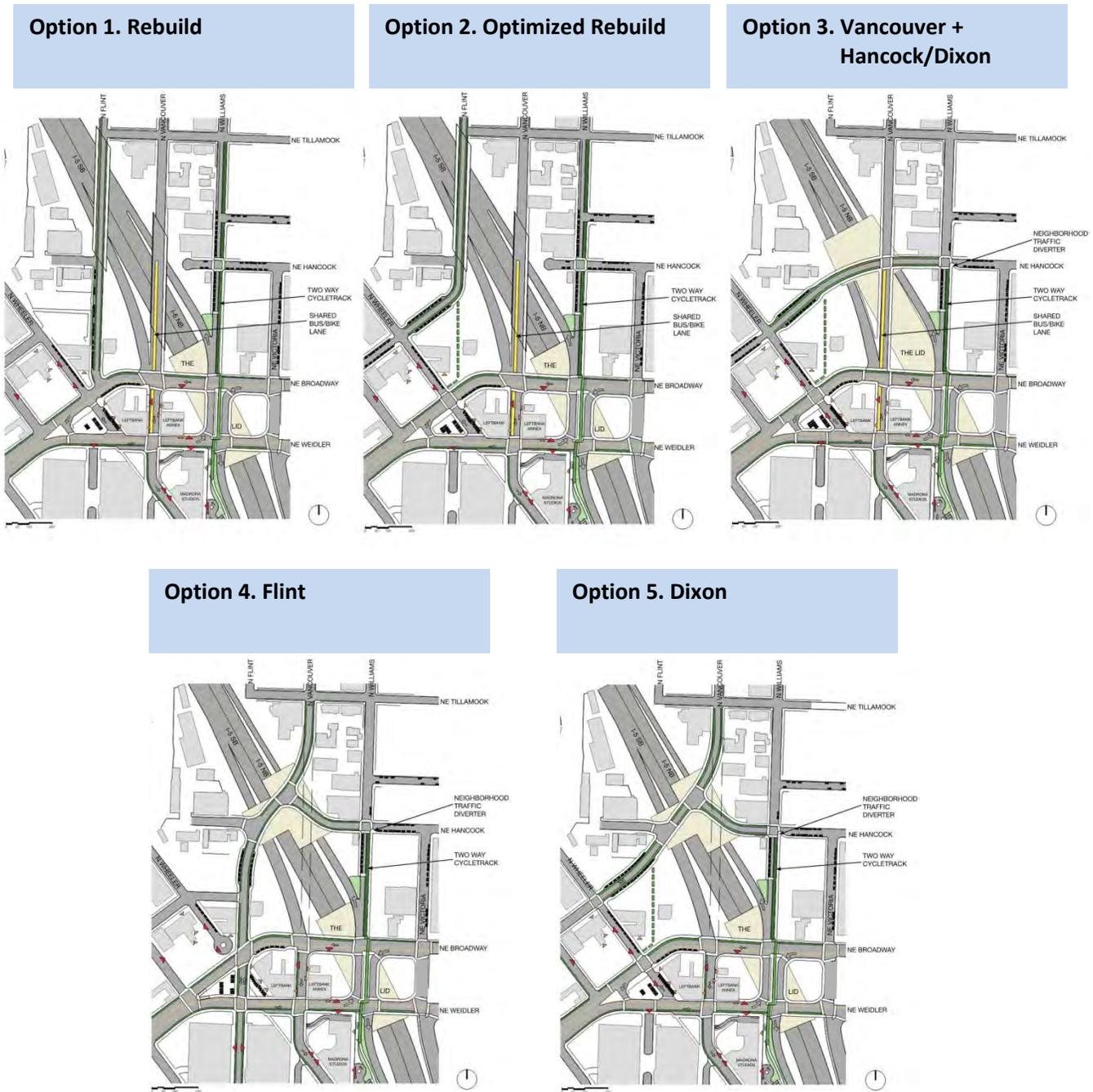
**Option 3. Align Vancouver with Dixon**



**Option 4. Align Vancouver with Dixon and Form Couplet**



**Figure 27: Initial Options North of Broadway, (illustrative concept drawings, March 2012)**



**Figure 28: Refined Options North of Broadway, (illustrative concept drawings, April 2012)**

After an SAC work session on March 20, 2012, where the four North of Broadway options of early March were examined in greater detail, project staff presented additional refinements on a total of five modified options to the SAC on April 10, 2012. The SAC discussed the pros and cons related to each of the then five options, shown in Figure 28, in order to prepare for their May recommendation.

### **The North of Broadway Recommendation**

The SAC recommended Option 3 Vancouver + Hancock/Dixon that included replacing the existing Vancouver structure in its current location and replacing the existing Flint structure with a new east-west structure connecting Hancock Street on the east side of the freeway with Dixon Street on the west side. The recommendation also included extending Flint Avenue as a through-street between the two parking structures on Weidler Street near the Veterans Memorial Coliseum and adding two short bicycle/pedestrian pathways (one connecting Flint Avenue/Tillamook Street to Williams Avenue and one connecting the Hancock /Dixon overcrossing to Broadway).

The rationale for this recommendation included:

- Providing improved an improved east-west connection
- Maximizing street connectivity for all modes
- Maintaining a direct north-south route for transit, pedestrians and bicycles
- Supporting redevelopment of the area west of I-5 and north of Broadway
- Providing a greater opportunity for an additional freeway lid

## 5. Description of the Recommended Concept

Previous sections describe the collaborative study process that provided an opportunity for local neighborhoods, local businesses, the SAC, ODOT, and the City of Portland to understand each other's goals, objectives and concerns and to prepare together a consensus recommendation for freeway operations and safety improvements and improved multi-modal safety, access and mobility on the local street system. Section 4 describes range of ideas and options that were collected and evaluated and it presents a brief summary of the technical analysis and rationale that led to narrowing over 70 general concepts to a consensus recommended concept that includes both freeway and local street improvements.

The Recommended Concept represents a true consensus, in that each party did not get everything they wanted, yet they recognized the need to compromise in order to significantly improve operations and safety for all transportation modes, to narrow the impacts to the surrounding community and to support the goals of the complementary land use plans. This section provides a description of the recommended freeway and local street concept elements.

In addition to the physical description included in this section, ODOT's Facility Plan for the I-5 Broadway/Weidler Interchange Improvements, a separate but related document, provides a summary of key elements of this report including the project purpose, the land use/transportation connection and the recommended plan elements.

### Elements of the Recommended Concept

The consensus elements included in the Recommended Concept are organized into four subsections of the study area:

- I-5 Broadway/Weidler Interchange area (including the freeway mainline and shown in Figure 29: Overall Project Extent)
- North of Broadway area (shown in Figure 30: Enlarged "Box" Area)
- South of Weidler Street area (also shown in Figure 30: Enlarged "Box" Area)
- Freeway Mainline Improvements near the Rose Quarter TC (shown in Figure 31)

The following describes the consensus elements included in the Recommended Concept.

### The I-5 Broadway/Weidler Interchange Area

The I-5 Broadway/Weidler Interchange Area refers to project elements related to the freeway mainline, exit and entrance ramps and other traffic operations elements in the vicinity of the freeway ramps.

### Transportation System Management (TSM) and Transportation Demand Management (TDM) Strategies

- Major freeway projects in the metropolitan area typically utilize TSM techniques to manage freeway traffic using methods such as ramp meters and variable message signs. ODOT will explore the role that emerging, state-of-the-art TSM techniques such as variable speed limits could have in improving traffic operations.
- TDM refers to strategies aimed at reducing the number of motor vehicle trips using roadway and highway facilities. Trip reductions are typically achieved by incentives that make carpooling or alternative modes (e.g. walking, bikes, transit) more attractive. TDM strategies and policies are identified in Portland's Transportation System Plan (TSP), the Regional Transportation Plan (RTP), the Oregon Transportation Plan (OTP) and the Oregon Highway Plan (OHP). ODOT and the City of Portland will explore ways to cost-effectively maximize the ability of TDM measures to reduce motor vehicle trips in the vicinity of the interchange.



## Figure 29: Overall Project Extent of the Recommended Concept

### Mainline Freeway Safety Elements

The Recommended Concept would modify the mainline of I-5 by adding several key safety and operational improvements (see Figure 29). It would extend the existing auxiliary lanes approximately 4,300 feet in both northbound southbound directions and add full-width shoulders (both inside and outside) in both directions in most of the areas where the auxiliary lane would be extended. The northbound auxiliary lane would extend the existing auxiliary lane that enters I-5 northbound from the I-84 westbound entrance ramp. This lane currently ends at the exit ramp to Weidler Street, but with the project, the lane would be extended as a continuous lane to the Greeley Avenue exit ramp.

The southbound auxiliary lane would extend the existing auxiliary lane that enters I-5 southbound from the Greeley Avenue entrance ramp. This lane currently ends in the vicinity of the Broadway overcrossing structure. With the project, the lane would be extended as a continuous lane to the exit ramp to the Morrison Bridge and southeast Portland/OMSI.

The addition of full-width shoulders between the Greeley Avenue entrance ramp and the Morrison Bridge would increase safety and reduce traffic congestion related to vehicle breakdowns and crashes in this constrained portion of I-5.

### Three Rebuilt Freeway Structures and the Broadway/Weidler/Williams Lid

The existing Broadway, Weidler and Williams structures over I-5 would be replaced in order to accommodate the auxiliary lane extension and widened shoulders. In addition, a lid over the freeway would be included from immediately south of Weidler to immediately north of Broadway. The lid would connect with uses on both sides of the freeway and would provide a complete cover of the freeway in this vicinity. No specific uses have been proposed for the lid, but uses could include public space (park or plaza) or commercial development or a combination of both.

### I-5 Broadway/Weidler Interchange Improvements

The replacement structures will include widened sidewalks, bicycle lanes, improved lighting, improved stormwater treatment and opportunities for landscaping improvements.

- **Relocation of Southbound I-5 Entrance Ramp to Weidler/Williams**

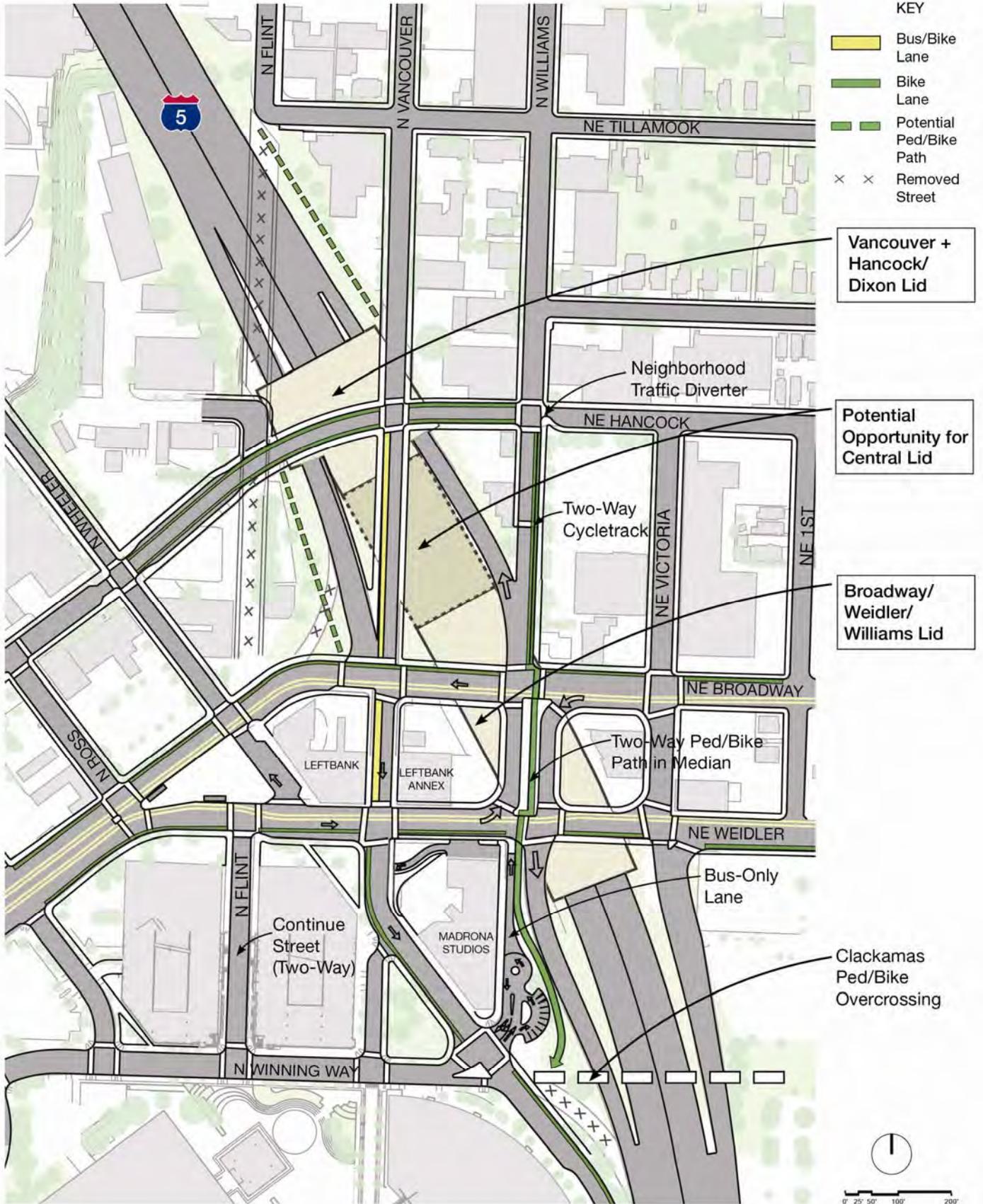
The southbound I-5 entrance ramp is currently located one block south of Weidler near where Williams, Winning Way and Wheeler come together at the north end of the Rose Garden Arena. The recommended alternative would move the entrance-ramp north to Weidler. This would require limiting through travel northbound on Williams. Some motor vehicle access would be permitted on Williams north of Winning Way in order to maintain access to facilities at the Madrona Studios, but through-travel on Williams Avenue between Winning Way and Weidler Street would only be permitted for bicycles, pedestrians and buses.

- **Reverse Traffic Flow on Williams**

Williams Avenue between Weidler Street and Broadway would be a non-traditional street that would have three distinct features.

- Two northbound lanes along the western edge of the block. The westernmost lane would have the option of heading straight to the I-5 northbound entrance ramp or turning west onto Broadway. The adjacent lane would provide a choice between the I-5 northbound ramp or northbound on Williams Avenue.
- A wide center median that would include a two-directional, multi-use path and landscaping on both the east and west sides that would be dense enough to limit the visual connection between the northbound and southbound traffic lanes.

- Two southbound lanes along the eastern edge of the block. The easternmost lane would have the option of heading straight to the I-5 southbound entrance ramp or turning east onto Weidler Street. The adjacent lane would travel directly onto the I-5 southbound ramp.



**Figure 30: Enlarged “Box” Area of the Recommended Concept**

### **North of Broadway Area - North of Broadway Option 3. Vancouver + Hancock/Dixon**

The North of Broadway area refers to the local street system north of Broadway and connections between the local street system and Broadway and Weidler Street. Several local street configurations were considered to improve connectivity and facilitate transit, bicycle and pedestrian movements. Option 3. Vancouver + Hancock/Dixon was selected as the preferred street configuration due to its ability to maintain important existing connections and enhance east-west accessibility across the freeway (see Figure 30).

Major elements in the north of Broadway area include:

- **Rebuild Vancouver in current location**
  - The Vancouver Avenue overcrossing would be removed and replaced in its current location in order to provide adequate width for the auxiliary lane extension and widened shoulders. This would maintain the existing 5-legged intersection at Broadway where Vancouver Avenue alternates the southbound traffic signal with the southbound exit ramp from I-5.
- **Remove Flint south of Tillamook and replace with new pedestrian/bike paths**
  - The existing Flint Avenue overcrossing would be removed and Flint Avenue south of Russell Street would terminate at Tillamook Street. The portion of Flint Avenue between the existing overcrossing and Broadway would be closed as a through street but access would be maintained to provide local access.
- **Add Hancock/Dixon Overcrossing and Hancock/Vancouver Lid**
  - A new overcrossing would be constructed extending Hancock Street west across I-5 connecting with Dixon Street. Traffic calming or diversion measures would be included on the eastern leg of the intersection of Hancock Street and Williams Avenue to ensure that Hancock Street is not used by through traffic. A freeway lid would be included that would encompass the area immediately north and immediately south of the overcrossing.
- **Possible Freeway Lid Connecting Hancock Overcrossing to the Broadway/Weidler Structures**
  - In addition to the freeway lids at Hancock and at the Broadway/Weidler structures, the project will study an additional section of freeway lid that could connect the Hancock Lid with the Broadway/Weidler Lid which could then operate as a single large lid covering the freeway from immediately south of Weidler Street to immediately north of Hancock Street. The assessment of a connecting lid will consider costs, right-of-way impacts, constructability and other elements.

### **South of Weidler Street Area**

The South of Weidler Street area refers to the local street system south of Weidler Street (shown in Figure 30). Two elements south of Weidler Street were included in the recommended concept as described below.

- **Clackamas Pedestrian/Bike Overcrossing**
  - A new pedestrian and bicycle overcrossing would be included connecting from approximately the intersection of Williams Avenue, Winning Way and Wheeler Avenue to Clackamas Street in the vicinity of 2nd Avenue. The overcrossing would be designed to meet Americans with Disability Act (ADA) requirements and provide for smooth bicycle connections at both ends.
- **Continue Flint between Parking Structures**
  - The two city-owned parking structures at the north end of the Rose Quarter front onto Weidler Street. There are currently two separated parking accesses between the two structures: one is accessed from Weidler Street and the other is accessed from Winning Way. The project would include reconstructing the existing accesses into a single roadway that would allow for through travel between the parking structures. This would provide for direct circulation between Weidler Street and Winning Way.

### Freeway Mainline Improvements near the Rose Quarter TC

As shown in the plan view of the mainline improvements to I-5 in Figure 29, extension of the auxiliary lanes both northbound and southbound and provision of full safety shoulders extend to the area adjacent to and above the Rose Quarter TC. Figure 31 provides several early illustrations of how the mainline improvements to I-5 could appear adjacent to and above the transit center. The changes to I-5 provide an opportunity to enhance the aesthetic appearance of the freeway structures by wrapping them with new materials designed to maximize natural light and to provide a more cohesive environment for the transit center.



View of Extended Auxiliary Lanes shown at Rose Quarter TC



View of Extended Auxiliary Lanes shown at MAX platform

**Figure 31: Mainline Freeway Improvements near Rose Quarter TC (illustrative concept drawings, March 2012)**

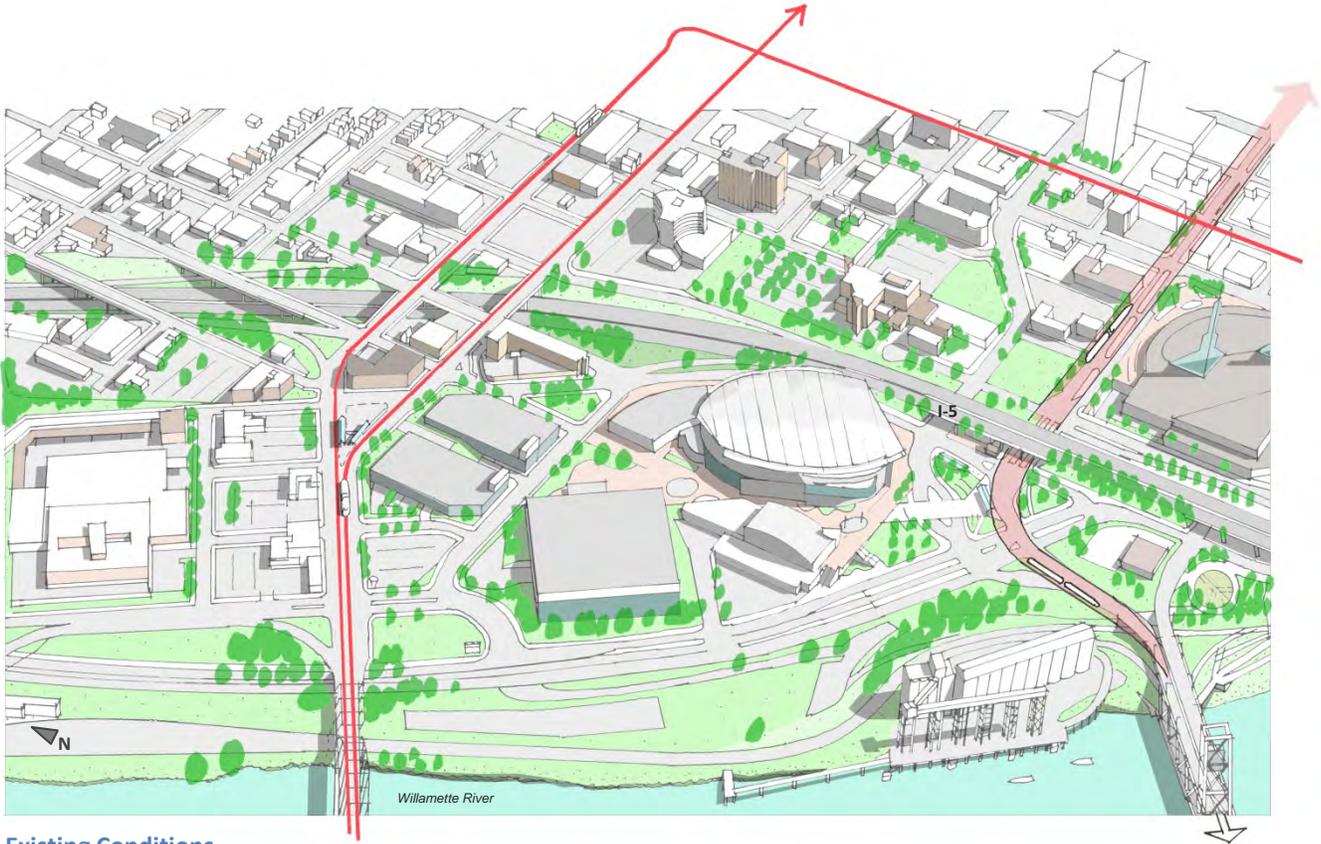
### Elements Not Included in the Recommended Concept

Several potential project elements were considered and dismissed (see Section 4). These include interchange, roadway and freeway lane configurations. The concept for a southbound braided ramp was not included in the recommended project due to cost and visual impacts. However, if the recommended project does not improve freeway safety and operations, the southbound braided ramp could be evaluated further to determine if it could address safety and operations problems and if the impacts that were noted could be mitigated.

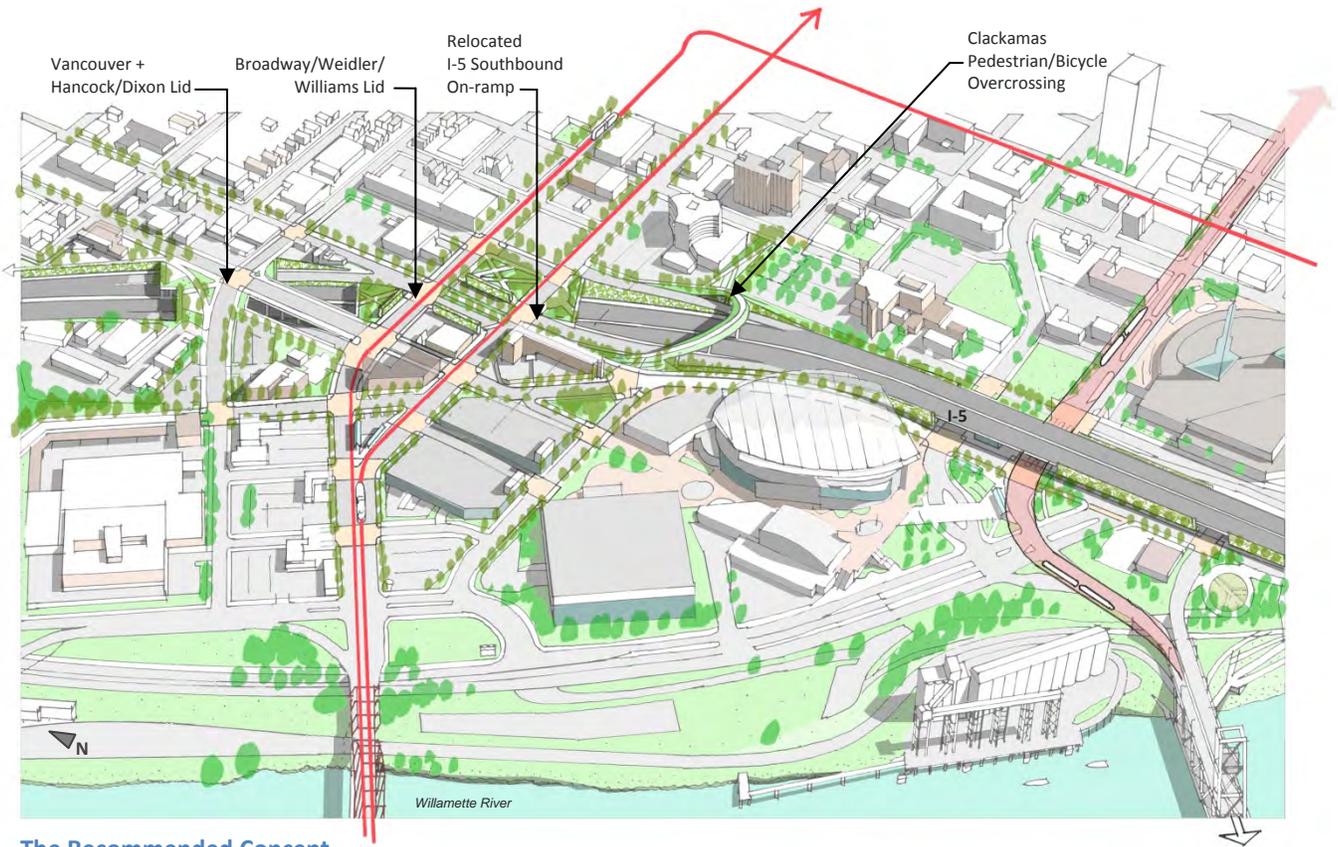
### **The Facility Plan**

An accompanying document to this *I-5 Broadway/Weidler Interchange Improvements Report* is the Facility Plan. ODOT has prepared the *Facility Plan for the I-5 Broadway/Weidler Interchange* to further summarize the transportation needs associated with the freeway and the I-5 Broadway/Weidler Interchange in the project study area, the technical justification for the improvement elements of the Recommended Concept and other factors that ODOT needs to present to decision-makers to confirm the agency's intent relative to this facility in the future.

Figure 32 shows aerial perspectives of the existing conditions in the Rose Quarter and how the area would look with the improvements included in the Facility Plan's Recommended Concept.



Existing Conditions



The Recommended Concept

Figure 32: Aerial Perspectives of Existing Conditions and the Recommended Concept



# **I-5: Broadway/Weidler Interchange Facility Plan**

November 2012

## **Exhibit E**

**City of Portland**

**Resolution of Support**



**RESOLUTION No. 36972 As Amended**

Adopt the N/NE Quadrant Plan and the I-5 Broadway-Weidler Facility Plan (Resolution)

WHEREAS, the Central City is the economic, cultural, and transportation hub of the Portland metropolitan region; and

WHEREAS, the Central City plays a critical role in fulfilling the vision of the Portland Plan for a prosperous, educated, healthy and equitable city; and

WHEREAS, the Central City Plan, adopted by City Council Ordinance No. 160606 and Resolution No. 34417 on March 24, 1988, is the guiding City policy document for the Central City; and

WHEREAS, the City of Portland is undertaking a needed update of the Central City Plan through a project called Central City 2035, part of the update of the City's Comprehensive Plan; and

WHEREAS, the Central City 2035 project includes the CC2035 Concept Plan and specific plans for the four quadrant of the Central City, and the N/NE Quadrant Plan is the first of these quadrant plans to be completed, and these integrated components will serve as the basis for updating the Central City Plan through future amendments to the City of Portland Comprehensive Plan and Map, and Zoning Code and zoning maps; and

WHEREAS, there is a history of gentrification and displacement in the N/NE Quadrant area; and

WHEREAS, Interstate 5 is a critical component of the Interstate Freeway System and plays a vital role in the local, regional, state and national economies; and

WHEREAS, the section of Interstate 5 in the N/NE Quadrant is a documented high-crash corridor, with the highest crash rate in the state, and the Broadway/Weidler interchange area has high pedestrian and bicycle utilization and is also a documented high-risk area for bicycle-car and pedestrian-car conflicts; and

WHEREAS, the I-5/405 Freeway Loop Advisory Group Final Report, accepted by City Council Resolution No. 36448 on October 19, 2006, with participation from the State of Oregon and the City of Portland, identified urgent long- and short-term capacity, operations and safety issues in the I-5/405 Freeway Loop and recognized the need to improve operations and safety on Interstate 5 between the Fremont Bridge and Interstate 84 as a short-term priority; and

WHEREAS, the N/NE Quadrant and I-5 Broadway/Weidler Plans project represents a unique collaboration between the State of Oregon and the City of Portland to integrate long-range land use, urban design and local transportation planning for the N/NE

Quadrant of the Central City with planning for freeway improvements that address safety and operational issues on Interstate 5; and

WHEREAS, the N/NE Quadrant and I-5 Broadway/Weidler Plans project included the development of the N/NE Quadrant Plan and the I-5 Broadway/Weidler Facility Plan as two integrated and mutually supportive plans that together provide a vision for the future of the N/NE Quadrant of the Central City; and

WHEREAS, the N/NE Quadrant Plan, attached as Exhibit A, contains specific goals, policies, urban design diagrams and implementation actions to guide future decision-making, physical development, and public and private investment within the Lloyd District and Lower Albina; and

WHEREAS, the I-5 Broadway/Weidler Facility Plan, attached as Appendix C to Exhibit A, contains a planning-level concept for improvements to Interstate 5 between the Fremont Bridge and Interstate 84, including the Broadway/Weidler interchange, which will improve freeway operations and safety while also improving safety and connectivity for all transportation modes, including bicycles and pedestrians, using the freeway over- and under-crossings and surface streets in the area; and

WHEREAS, land use and transportation analyses conducted jointly by the City of Portland and the Oregon Department of Transportation as part of the N/NE Quadrant and I-5 Broadway/Weidler Plans has produced sufficient technical information to determine whether the N/NE Quadrant area meets the characteristics of a Multimodal Mixed-Use Area (MMA) as defined in the State Transportation Planning Rule in OAR 660-012-0060; and

WHEREAS, the I-5 Broadway-Weidler Facility Plan identifies implementation actions for the next phase of project development, including a public process led by the City and State for addressing community design issues, phasing, construction, and financing; and

WHEREAS, the N/NE Quadrant and I-5 Broadway/Weidler Plans Stakeholder Advisory Committee, with representation from a diversity of neighborhood, citywide and regional interest groups, met on 19 occasions and held 14 subcommittee meetings to discuss planning issues, develop alternatives and make recommendations; and

WHEREAS, public involvement and outreach to residents, property owners, business owners, community organizations and concerned stakeholders included: public walks; workshops and charrettes; public surveys; open houses; community group and stakeholder meetings; public commission briefings and hearings; opportunities for public comment at Stakeholder Advisory Committee meetings; a project web site; postal and electronic mailings; and newsletters; and

WHEREAS, the N/NE Quadrant and I-5 Broadway/Weidler Plans Stakeholder Advisory Committee recommends the adoption of the N/NE Quadrant Plan and the I-5

Broadway/Weidler Facility Plan as an integrated package, as described in the Stakeholder Advisory Committee Recommendations, attached as Exhibit B; and

WHEREAS, the Portland Planning and Sustainability Commission held a public hearing on September 11, 2012 and recommended on September 25, 2012 that the City Council adopt the N/NE Quadrant Plan and that the Oregon Transportation Commission adopt the I-5 Broadway/Weidler Facility Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City Council adopts the N/NE Quadrant Plan and its appendices, attached as Exhibit A, as Non-Binding City Policy; and

BE IT FURTHER RESOLVED, that the recommendations of the N/NE Quadrant Plan will be implemented following the completion of the additional quadrant planning work outlined in the Central City 2035 Concept Plan, as part of the final Central City 2035 Plan package, which is anticipated to be completed in 2015; and

BE IT FURTHER RESOLVED, that the Bureau of Planning and Sustainability will evaluate whether requirements as well as bonus incentives should be applied when intensification in zoning designations or height map changes are made, so that all new residential development will include a range of housing affordability; and

BE IT FURTHER RESOLVED, that the City Council supports the proposed improvements to Interstate 5 and related freeway crossings and surface streets in the vicinity of the Broadway/Weidler interchange described in the I-5 Broadway/Weidler Facility Plan, and recommends that the Oregon Transportation Commission adopt the facility plan; and

BE IT FURTHER RESOLVED, that the Bureau of Transportation is directed to work with the Oregon Department of Transportation to secure funding to implement the I-5 Broadway/Weidler Facility Plan and, as funds become available, to allocate resources between improvements to freeway operations and to local circulation projects, including bicycle and pedestrian improvements; and

BE IT FURTHER RESOLVED, that the Bureau of Transportation is directed to work with the Oregon Department of Transportation and with property owners and stakeholders to refine the freeway improvement concept through preliminary engineering and a mutually agreeable phasing strategy, and to address remaining issues and potential property impacts identified in the facility plan; and

BE IT FURTHER RESOLVED, that the Bureau of Transportation is directed to work with the Oregon Department of Transportation, property owners and the public to fund and implement, as a first phase, near-term safety-enhancing improvements to surface streets in the vicinity of the Broadway/Weidler interchange to improve safety and connectivity for all transportation modes, such as closing the off ramp slip lane onto N

Broadway, adding new traffic signals, closing N Flint Avenue at Broadway and adding a new connection across I-5 to N Dixon Street and a new pedestrian/bicycle path; and

BE IT FURTHER RESOLVED, that the Bureau of Transportation is directed to report to Council on progress toward near-term safety-enhancing improvements in the vicinity of the interchange and towards developing a phasing strategy and securing funding to implement the I-5 Broadway/Weidler Facility Plan; and

BE IT FURTHER RESOLVED, that the Bureau of Transportation and the Bureau of Planning and Sustainability are directed to prepare a report with required findings and recommended amendments to the Transportation System Plan (TSP) as part of the next TSP update process to designate the N/NE Quadrant as a Multimodal Mixed-Use Area (MMA) consistent with the State Transportation Planning Rule in OAR 660-012-0060; and

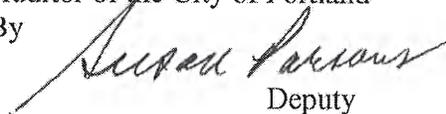
BE IT FURTHER RESOLVED, that the City Council gratefully acknowledges the dedication and hard work of the N/NE Quadrant and I-5 Broadway/Weidler Plans Stakeholder Advisory Committee and the many community organizations and members of the public who participated in the planning process.

Adopted by the Council: OCT 25 2012

Mayor Sam Adams  
Prepared by: Nicholas Starin, BPS  
Date Prepared: October 12, 2012

**LaVonne Griffin-Valade**  
Auditor of the City of Portland

By

  
Deputy

Agenda No. **36972** As Amended  
**RESOLUTION NO.**  
 Title

Adopt the N/NE Quadrant Plan and the I-5 Broadway-Weidler Facility Plan (Resolution)

INTRODUCED BY Commissioner/Auditor: <b>Mayor Sam Adams</b>	CLERK USE: DATE FILED <u>OCT 19 2012</u>
COMMISSIONER APPROVAL 	LaVonne Griffin-Valade Auditor of the City of Portland  By: Deputy  ACTION TAKEN:
Mayor—Finance and Administration - Adams	
Position 1/Utilities - Fritz	
Position 2/Works - Fish	
Position 3/Affairs - Saltzman	
Position 4/Safety - Leonard	
BUREAU APPROVAL Bureau: Planning and Sustainability Bureau Head: Susan Anderson 	
Prepared by: Nicholas Starin Date Prepared: Oct. 11, 2012	
Financial Impact & Public Involvement Statement  Completed <input checked="" type="checkbox"/> Amends Budget <input type="checkbox"/>	
Portland Policy Document If "Yes" requires City Policy paragraph stated in document. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Council Meeting Date <b>October 25, 2012</b>	
City Attorney Approval: required for contract, code, easement, franchise, charter, Comp Plan	

**AGENDA**

**TIME CERTAIN**   
 Start time: 2 pm

Total amount of time needed: 90 mins.  
 (for presentation, testimony and discussion)

**CONSENT**

**REGULAR**   
 Total amount of time needed: \_\_\_\_\_  
 (for presentation, testimony and discussion)

FOUR-FIFTHS AGENDA	COMMISSIONERS VOTED AS FOLLOWS:		
		YEAS	NAYS
1. Fritz	1. Fritz	✓	
2. Fish	2. Fish	✓	
3. Saltzman	3. Saltzman	✓	
4. Leonard	4. Leonard	✓	
Adams	Adams	✓	