I-84 Chenoweth Interchange Area Management Plan

The Dalles, Oregon

December 2009

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The Dalles, Oregon

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Preface

The progress of this plan was guided by the Project Management Team (PMT), Technical Advisory Committee (TAC), and Steering Committee (SC). The PMT, TAC, and SC members are identified below, along with members of the consultant team. The PMT members were all part of the TAC and primarily coordinated between meetings on project management tasks related to project schedule and meeting logistics. The PMT included representation from ODOT, the City of The Dalles, and the consultant team. The TAC and SC members were responsible for reviewing all work products and guiding the planning work. They devoted a substantial amount of time and effort to the development of the I-84 Chenoweth Interchange Area Management Plan (IAMP), and their participation was instrumental in the development of the recommendations that are presented in this report.

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Section 1
Introduction

Introduction

An Interchange Area Management Plan (IAMP) was prepared for the Interstate-84 (I-84) Chenoweth Interchange in The Dalles, Oregon. The following section provides an overview of the purpose and intent of the IAMP and defines: the interchange function, the project goals and objectives, and the study area. These elements were defined through a collaborative effort between the project Technical Advisory Committee (TAC) and the Steering Committee (SC).

PURPOSE AND INTENT

The IAMP is intended to protect the function of the I-84 Chenoweth Interchange and ensure that it will continue to provide safe and efficient connections between I-84 and all roadways within the vicinity of the interchange. The IAMP identifies land use management strategies, near-term, mid-term, , long-term, and long-term vision transportation improvements, an access management plan, and strategies to fund identified improvements.

The IAMP planning efforts resulted in policies, ordinances, and other provisions that will be adopted into the City of The Dalles and Wasco County Transportation System Plans (TSP), Comprehensive Plans, and development review ordinances to support and implement the IAMP. The IAMP will also be adopted by the Oregon Transportation Commission (OTC) as an amendment to the Oregon Highway Plan.

PROBLEM STATEMENT

In 1997 the State of Oregon invested $12 million into construction of the I-84 Chenoweth Interchange. The improvements serve to meet Oregon Department of Transportation (ODOT) priorities to provide access from I-84 to the west side of the City of the Dalles ("City"), the Port of the Dalles ("Port"), and the Columbia Gorge Discovery Center (Discovery Center). In 2006, WM3, Inc. ("WM3") proposed a zone change from industrial to commercial use for an approximately 67 acre parcel adjacent to the Chenoweth Interchange. The zone change was adopted by the City and subsequently appealed by ODOT. An Intergovernmental Agreement (IGA) between ODOT, the City, and WM3 was drafted in which WM3 was approved to develop 25 acres with commercial land uses and agreed not to develop any 'non-industrial' uses on the remaining 42 acres until an IAMP is adopted by ODOT and the City. The City and ODOT initiated the IAMP process to ensure that the original priorities for the interchange continue to be met, and to identify what changes to the interchange and surrounding street network may be needed for the current land uses, and future development. The IAMP identifies transportation improvements and potential funding strategies

that satisfy requirements of the IGA and Oregon Administration Rule (OAR) 734-051. *The IGA is provided as an attachment to Technical Memorandum #2 in the Volume 2 Technical Appendix.* The IAMP was developed according to the ODOT IAMP Guidelines.

INTERCHANGE FUNCTION

The I-84 Chenoweth Interchange is an urban interchange located near the City's northwestern boundary that connects I-84 with Highway 30 on the west side of the interchange and River Road on the east side. Highway 30 is a District Highway that runs parallel to I-84 and ends just south of River Road at Division Street. Highway 30 then turns into West 6th Street which runs through much of the City and has several interchanges connecting it to I-84. River Road is a Wasco County facility from the Chenoweth Interchange to Bargeway Road at which point it becomes Webber Street, a City of The Dalles facility. These roadways provide a loop connection through the city's industrial area, much of which is owned by the Port, from the Chenoweth Interchange to the Webber Street Interchange. The land uses served by the Chenoweth Interchange are primarily industrial although some commercial land is located on the east side of the interchange and a mix of commercial and residential is located on the west side of the interchange.

When it was originally designed in 1996, the I-84 Chenoweth Interchange was intended to function as a service-level interchange that would safely and efficiently accommodate the traffic demands associated with the Port, industrial property in the vicinity of the I-84, and the Discovery Center. Visitor traffic to the Discovery Center has been lower than originally projected and the function of the interchange today is principally to provide safe and efficient access to the Port and industrial land in the western part of The Dalles (the area located east of the interchange). In addition to its primary function, the Chenoweth Interchange remains an important facility for accessing the Discovery Center and existing commercial lands in the vicinity of the City's industrial center. The interchange also serves local residential and commercial traffic circulating from I-84 to Highway 30 and West 6th Street.

The City of The Dalles is currently considering designating land northwest of the I-84 Chenoweth Interchange for residential development to meet the City's 20-year projected population needs. This requires amending the Columbia River Gorge National Scenic Area boundary in order to expand the City Urban Growth Boundary (UGB). If both of these changes happen, then the I-84 Chenoweth Interchange would provide a link from new residential development northwest of the interchange to I-84 and to the employment area southeast of the interchange. No decision has been made regarding future UGB expansion in this area; therefore, the interchange function for the I-84 Chenoweth IAMP does not assume it is intended to serve future growth outside of the current UGB.

INTERCHANGE MANAGEMENT STUDY AREA

To provide a comprehensive study and to achieve effective results, the Interchange Management Study Area (IMSA) includes developable and re-developable properties and major roadways that could significantly affect the interchange function over the next 20 years. At a minimum, the IMSA includes properties within ½-mile from the existing I-84 Chenoweth Interchange as defined by

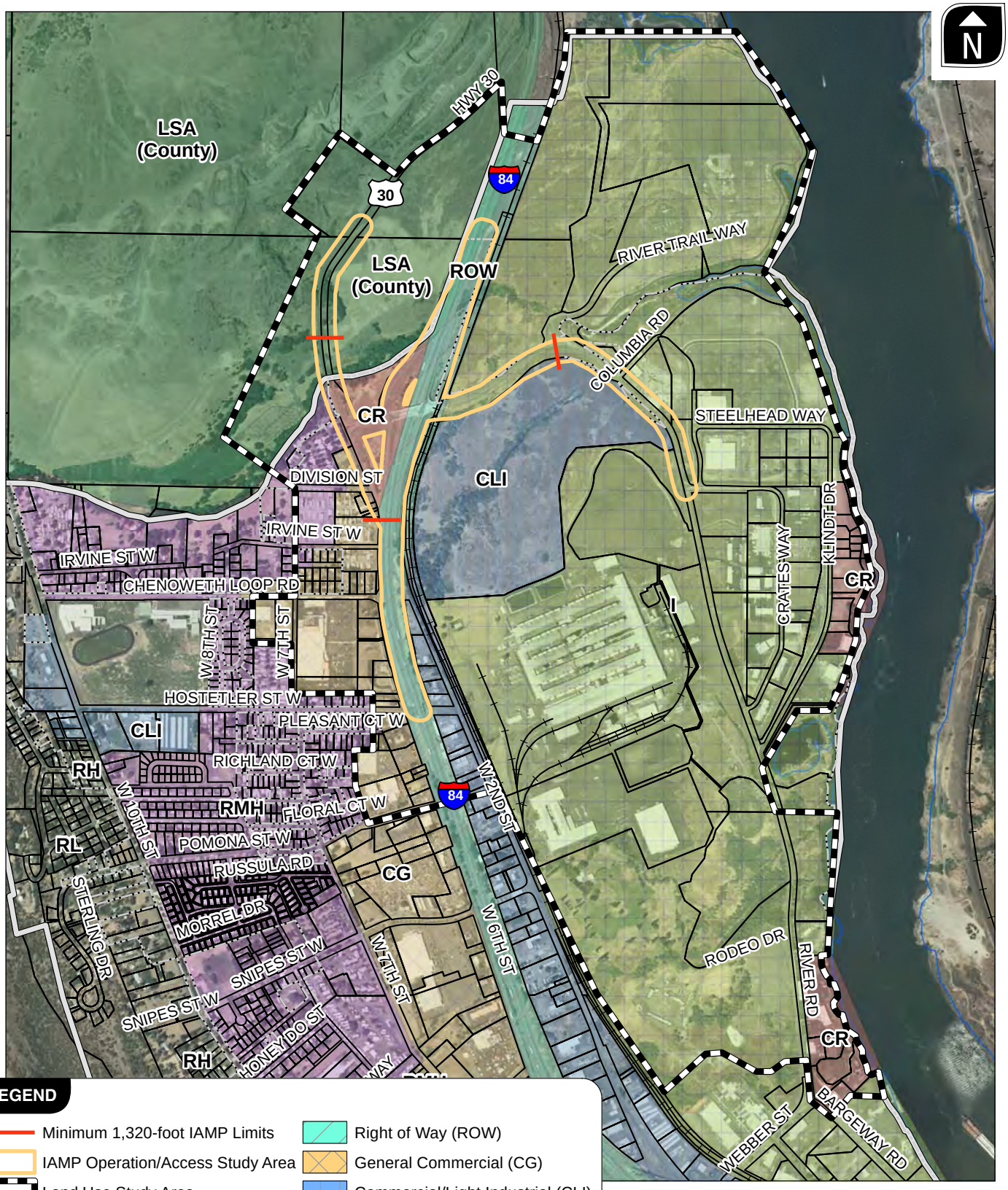
ODOT's IAMP Guidelines. The study area also takes into account facilities and properties that will impact the operations of the interchange and any natural (e.g., Columbia River) or cultural resources in the vicinity of the interchange.

The IMSA map is shown in Figure 1-1, which identifies key features and boundaries of the area included in the IAMP. As shown on the IMSA map, two study boundaries are identified: the IAMP Operations and Access Study Area and the Land Use Study Area. Each of these study areas are described below.

Operations and Access Study Area

The Operations and Access Study Area includes all access points and intersections within approximately ½-mile from the existing I-84 Chenoweth Interchange and encompasses key intersections that have potential to affect traffic operations in the interchange area over the planning period. This study boundary identifies the area for which operational analysis was completed and the area that was considered for the Access Management Plan. Interchange crossroad access spacing requirements are ¼ mile, as identified in Figure 1-1. The study intersections include:

- I-84 Eastbound Ramps/River Road
- I-84 Westbound Ramps/River Road
- Historic Columbia River Hwy (US 30)/River Road
- Historic Columbia River Hwy (US 30)/Division Street
- Historic Columbia River Hwy (US 30)/Chenoweth Loop
- Historic Columbia River Hwy (US 30)/Hostetler Street
- River Road/Columbia Road
- River Road/Crates Way
- River Road/River Way Trail



LEGEND

- Minimum 1,320-foot IAMP Limits
- IAMP Operation/Access Study Area
- Land Use Study Area
- The Dalles Town Boundary
- Tax Lots
- The Dalles UGB
- Lakes and Rivers
- Railroads
- Right of Way (ROW)
- General Commercial (CG)
- Commercial/Light Industrial (CLI)
- Recreational Commercial (CR)
- Industrial (I)
- Mobile Home Residential (RMH)
- Large-Scale Agriculture (LSA)

INTERCHANGE MANAGEMENT STUDY AREA
THE DALLES, OREGON

FIGURE **1-1**

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Land Use Study Area

The Land Use Study Area includes all properties that lie within a ½-mile of the interchange. The Land Use Study Area extends beyond a ½ mile in places to incorporate developable and re-developable properties that are expected to significantly affect the interchange function over the next 20 years. Properties identified with potential to affect the interchange include those that are expected to utilize the interchange as the primary connection to I-84 or those that may be impacted by actions needed to improve local circulation. Developments to the east of I-84 were included if their primary access to the interchange is provided via River Road, including those located on Klindt Drive, Crates Way, and Steelhead Way. To the west of I-84, properties included in the Land Use Study Area primarily include those properties with potential access needs within the interchange crossroad access spacing standard distance of ¼-mile. The boundary of the Land Use Study Area extends south of the interchange to encompass the Northwest Aluminum Company parcels and all of the Port of The Dalles property.

Future development located within the Land Use Study Area will be required to comply with the City of The Dalles Development Code which incorporates code amendments proposed in this IAMP.

GOALS AND OBJECTIVES

The goal of the IAMP is to protect the function of the interchange for the next 20 years while accounting for changes in land use and traffic patterns. Potential capacity for development of existing industrial land within the Port and redevelopment of land adjacent to the interchange will impact the traffic patterns over this period. As stated in Policy 3C of the 1999 Oregon Highway Plan, "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." From this definition, the objectives of the I-84 Chenoweth IAMP are to:

- Protect the function and operation of the Chenoweth Interchange as a local service facility and Interstate-84 as a facility of statewide significance.
- Protect the function and operation of the existing local street network within the IAMP study area.
- Ensure changes to the planned land use are consistent with protecting the long-term function of the interchange and the local street system.
- Ensure that the interchange will function to support future local economic development over the next 20 years by managing the allowed land uses within the vicinity of the interchange.
- Identify the existing and potential land use designations, intensities, conditions, and actions that could have a *favorable* effect on the facility, or an *adverse* effect on the facility.
- Identify and prioritize transportation improvements and apply access management techniques needed to maintain acceptable traffic operations at the interchange while providing safe access to adjacent land uses.

- Provide certainty to the public, property and businesses owners, The City of The Dalles, Wasco County, and ODOT regarding transportation and land use actions within the vicinity of the interchange.
- Collaborate throughout the planning process with design professionals, jurisdictional representatives, developers, and local property and business owners.
- Comply with the intent of Statewide Planning Goal 1: Public Involvement, 2: Land Use Planning, 5: Natural Resources, 6: Air, Water and Land Resources Quality, 7: Areas Subject to Natural hazards, 8: Recreation Needs, 9: Economic Development, 12: Transportation, and 14: UrbanizationUrbanization.
- Develop implementation policies and monitoring tools to be adopted into the City and County comprehensive plans, transportation system plans, interchange access standards, and zoning ordinances, as appropriate.

EVALUATION CRITERIA

Based on the above objectives, the following evaluation criteria were assembled to ensure that each concept would be evaluated for consistency with the overall intent of the community and the project. The six evaluation categories are as outlined below:

- Transportation Operations: This category consists of those criteria that assess the ability for vehicles to travel through and within the study area. Special considerations within this category include safety, local connectivity and mobility, including freight mobility.
- Land Use: This category consists of those criteria that assess right-of-way impacts, consistency with adopted land use and economic development plans, transportation capacity impacts of changes in land use intensity, impacts to utilities, and impacts to existing and proposed developments.
- Economic Development: This category consists of those criteria that assess the potential for near-term growth (1-5 years), mid-term growth (5-15 years), and long-term growth (15+ years)
- Cost: This category consists of those criteria that assess the practicality of a design concept from a construction cost and feasibility perspective.
- Environmental, Social, and Equity: This category consists of those criteria that assess the degree to which an alternative is compatible with the natural and built environment including environmental impacts (i.e., storm water drainage and hazardous waste) and socio-economic impacts (i.e., stakeholders' needs).
- Accessibility: This category consists of those criteria that assess the ability to access properties and businesses within the study area to/from the regional infrastructure network including the balance between local access and roadway function, future access for undeveloped properties, and adherence to the access spacing standards.

DEVELOPMENT OF THE IAMP

The I-84 Chenoweth IAMP was guided by the Technical Advisory Committee (TAC) and a Steering Committee (SC), technical and policy review committees each made up of representatives from the Oregon Department of Transportation (ODOT), the City of The Dalles, and Wasco County. The TAC and SC roster list is provided in the Preface of this document and in Section 2. The TAC and SC convened jointly throughout the course of the project to review and guide the technical analysis prepared by the consultant team. *A summary of the individual TAC and SC meetings is provided in Appendix "A."*

Public Involvement

In addition to the technical review work provided by the TAC and SC, local citizens, property owners, and business owners participated in two public workshops and a joint work session of the City of The Dalles Planning Commission and City Council. The workshops and work session provided members of the public with opportunities to comment on the design alternatives. Property and business owners within the IAMP Land Use area were individually interviewed at the beginning of the IAMP process. Members of the public submitted comments on the project website (http://www.oregon.gov/ODOT/HWY/REGION4/I84_Chenoweth_IAMP/I84_Chenoweth_IAMP) and directly to the project management team. In addition, adoption of the plan included public hearings for The City of The Dalles, Wasco County, and the Oregon Transportation Commission. *Summaries of the public meetings are provided in Appendix "A."*

IAMP ORGANIZATION AND METHODOLOGY

The development of the I-84 Chenoweth IAMP began in September 2008 when the Project Management Team (PMT) first met. Work with the TAC and SC began in December 2008. Since December 2008, these groups have undergone an extensive process that has involved a review of existing and future transportation conditions, future land use analyses, potential Union Pacific railroad crossing alignments and design, local access and circulation alternatives, and financing options.

Sections 1 through 9 comprise Volume 1 of the IAMP and provide the main substance of the plan. These are supplemented by Technical Appendices in Volume 2 which contains the technical memoranda documenting each step in the process. The organization and description of each element of the IAMP are outlined below:

Section 1 describes the IAMP process, purpose, and goals and outlines the remainder of the document;

Section 2 details the interagency and public involvement program;

Section 3 provides the plan and policy review;

Section 4 outlines the existing land use patterns and transportation facilities within the IAMP study area;

Section 5 documents the future land use and transportation conditions and how they were addressed by the planning effort;

Section 6 provides a description of the alternatives analysis and transportation planning efforts involving the selection of a preferred interchange form, supporting local access and circulation network, access management plan, and land use management plan;

Section 7 is the I-84 Chenoweth IAMP, including the local circulation and access elements and the and the transportation improvement projects that are necessary to ensure the continued long-term safety and function of the interchange;

Section 8 provides guidance on IAMP adoption, monitoring, and updates; and **,**

Section 9 documents how the I-84 Chenoweth IAMP complies with the Oregon Administrative Rules for the development of an interchange area management plan as well as the Oregon Highway Plan.

Section 2
Interagency and Public Involvement Program

Interagency and Public Involvement Program

As part of the I-84 Chenoweth Interchange Area Management Plan (IAMP), interagency and public involvement occurred through: stakeholder interviews conducted with business owners at the beginning of the IAMP process; a Technical Advisory Committee (TAC) and a Steering Committee (SC) that had regular meetings; two public Open Houses involving local citizens, property owners, and business owners; public comments posted on the project website; and, a joint work session of the City of The Dalles Planning Commission and City Council that was open to the public; and public adoption hearings at The City of The Dalles, Wasco County, and the Oregon Transportation Commission. An overview of the TAC and SC meetings and open houses is summarized below.

TECHNICAL ADVISORY AND STEERING COMMITTEES

The TAC and SC guided the planning work and were responsible for reviewing all work products, providing input on all planning recommendations such as the project study area, goals and objectives, level of public involvement, technical analysis, and the proposed alternatives. Ultimately the TAC and SC helped select the preferred local circulation/access, land use management, and coordination elements of the IAMP. A Project Management Team (PMT) performed a coordination function, planning and executing project management tasks related to project schedule and meeting logistics. The PMT included representation from ODOT, the City of The Dalles, and the consultant team and were all members of the TAC.

Membership on the TAC and SC was established through input from City, County, and ODOT representatives. A proposed TAC and SC membership roster was presented and finalized at a project kick-off meeting of the Project Management Team (PMT) held September 15th, 2008. A list of TAC and SC members is included in Table 2-1.

TABLE 2-1 TECHNICAL ADVISORY AND STEERING COMMITTEES

Agency	Name	Position/Title	Role
ODOT Region 4	Ana Jovanovic	ODOT Region 4 Planner	ODOT Project Manager PMT and TAC
	Mark Devoney	ODOT Region 4 Planner	TAC
	David Boyd	ODOT Region 4 Access Management Engineer	TAC
	Rod Cathcart	ODOT Region 4 Traffic Analyst	TAC
ODOT District 9	Brad DeHart	ODOT District 9 Area Manager	TAC
	Sam Wilkins	ODOT District 9 Manager	SC
ODOT Statewide Office	Peter Schuytema	ODOT Transportation Planning Analysis Unit	TAC
	Tracy White	ODOT Access Management Planner	TAC
Wasco County	Marty Matherly	Wasco County Roadmaster	TAC
	Todd Cornett	Wasco County Planning Director	SC
	Gary Nychyk	Wasco County Senior Planner	TAC
City of The Dalles	Richard Gassman	City of The Dalles Senior Planner	City Project Manager PMT and TAC
	Dan Durow	City of The Dalles Planning Director	SC
	Dale McCabe	City of The Dalles Engineer	TAC
Wasco County	Marty Matherly	Wasco County Roadmaster	TAC
	Todd Cornett	Wasco County Planning Director	SC
	Gary Nychyk	Wasco County Senior Planner	TAC
DLCD	Mark Radabaugh	DLCD Field Representative	TAC

The TAC and SC members were selected in order to provide representation from both the planning and public works departments for each agency involved. An outline of all of the TAC and SC meetings is included in the next section.

PUBLIC INVOLVEMENT PLAN

To ensure that adequate project coordination and public participation occurred throughout the development of the Chenoweth IAMP, a series of joint TAC and SC meetings, public workshops, and public joint work sessions were held over the course of the project. The City of The Dalles and Wasco County also conducted public hearings to adopt the plan. A summary of all of the meetings associated with the project, as well as the meeting objectives, are summarized in Table 2-2.

TABLE 2-2 MEETING SUMMARY

Meeting Event	Date/Location	Meeting Purpose/Objectives
PMT Kick-off Meeting	September 15th, 2008/ The Dalles – ODOT District 9 Office	- Review TAC and SC Membership - Review Project Schedule
TAC/SC Meeting #1	December 3rd, 2008/ The Dalles – City Hall	- Review Project Schedule - Presentation: IAMP 101 - Review Tech Memorandums #1 and #2 (IAMP Definition and Background and Plans and Policy Review) The purpose of the Meeting #1 was to introduce the I-84 Chenoweth Interchange project and the consultant team; review the project schedule; review the project goals, objectives, and evaluation criteria; confirm the study area; confirm the project schedule; and review the project's policy framework.
TAC/SC Meeting #2	February 11th, 2009/ The Dalles - City Hall	- Review Tech Memorandums #3/4 and #5/6 (Existing and Future Conditions) - Review Stakeholder Interview Summary - Presentation: Interchange 101 and Local Circulation 101 - Brainstorm Design Alternatives The purpose of Meeting #2 was to provide an overview of the IAMP process and principals of local circulation; review the existing and future land use and traffic operations; review a summary of stakeholder interviews that were conducted; and involve the TAC and SC in a brainstorming exercise to develop roadway, local circulation, and access management alternatives for the existing roadway system.
Public Workshop #1	March 5th, 2009 The Dalles – Civic Auditorium	- Project Overview - Summary of Existing and Future Conditions - Review, Comment, Brainstorm Alternatives The purpose of the first public workshop was to present the project goals and objectives and findings to date; educate the public and stakeholders on the IAMP process and access management practices; and engage the participants to help develop potential local circulation and access management alternatives.
TAC/SC Meeting #3	April 8th, 2009/ The Dalles – City Hall	- Review Tech Memorandums #7 (Alternatives Analysis) - Screen Alternatives - Presentation: Access Management 101 - Brainstorm Access Management Plan The purpose of Meeting #3 was to review the Alternatives Analysis and reduce the number of alternatives for refined analysis.
TAC/SC Meeting #3B (extra meeting)	April 30th, 2009/ The Dalles – ODOT District 9 Office	- Review Updated Tech Memorandums #7 (Alternatives Analysis) - Presentation: System Development Charges 101 The purpose of Meeting #3B was to review the Updated Technical Memorandum #7, review the qualitative evaluations of the refined alternatives, brainstorm land use management alternatives and funding options, and select a preferred alterative to carry forward for the Draft IAMP document.
TAC/SC Meeting #4	May 27th, 2009/ The Dalles – City Hall	- Review Interchange Design Plans - Review Access Management Recommendations - Review Land Use and Implementation Recommendations The purpose of Meeting #4 was to review design plans for the Draft Preferred Alternative selected in Meeting #3B and select a preferred access management alterative to carry forward for the Draft IAMP document.

Meeting Event	Date / Location	Meeting Purpose / Objectives
Public Workshop #2	June 11th, 2009/ The Dalles – Civic Auditorium	- Summary of Alternatives Analysis and Draft Plan (Interchange Design, Draft Access Management Plan and Land Use and Implementation Recommendations) The purpose of the second public workshop was to present the qualitative evaluations of the local access and circulation alternatives for the Interchange Area developed during Public Workshop #1 and collect input on the Draft Preferred Alternative for the Draft IAMP.
Joint Work Session #1	June 18th, 2009/ The Dalles – Civic Auditorium	- Summary of Alternatives Analysis and Draft Plan (Interchange Design, Draft Access Management Plan and Land Use and Implementation Recommendations) - Confirm direction for Draft IAMP The purpose of the joint work session of the City Council and Planning Commission was to present the qualitative evaluations of the local access and circulation alternatives for the Interchange Area developed during Public Workshop #2 and collect input on the Draft Preferred Alternative for the Draft IAMP.
TAC/SC Meeting #5	July 22nd, 2009 The Dalles – City Hall	- Draft IAMP - Draft Ordinance Amendments The purpose of the PPMT Meeting #5 was to review the complete Draft IAMP document and recommendations, draft SDC methodology, and draft ordinances and code amendments.
City Council Work Session #2	July 27th, 2009 The Dalles – City Hall	- Crossing Alternatives Technical Memorandum - At-Grade Rail Analysis Memorandum The purpose of the Work Session #3 was for the City Council to review the supplemental information prepared to compare the UP railroad crossing alternatives, West 6th Street intersection treatment alternatives, and operational impacts associated with an at-grade crossing at Hostetler (as opposed to a grade-separated option).
TAC/SC Meeting #6	August 5th, 2009 The Dalles – City Hall	- Updated Draft IAMP - Updated Draft Ordinance Amendments The purpose of Meeting #6 was to review the Updated Draft IAMP document and recommendations, SDC methodology, and ordinances and code amendments.
Joint Work Session #2	September 3rd, 2009 The Dalles – Civic Auditorium	- Summary of Draft IAMP - Summary of Draft Ordinance Amendments The purpose of the joint work session of the City Council and Planning Commission was to provide supplemental education and summary of the IAMP process. The following elements of the Draft IAMP were summarized: 6th Street cross-section, at-grade vs. grade-separated railroad crossing, and preferred east-west crossing location.
City Planning Commission Hearing	September 17th, 2009 The Dalles – City Hall	The Draft IAMP was presented to the Planning Commission for adoption. The public hearing was continued until the Planning Commission could have questions answered by the city attorney.
City Planning Commission Hearing	October 1st, 2009 The Dalles – City Hall	The Draft IAMP was approved and forwarded with a recommendation for approval with modifications to the City Council.
County Planning Commission Hearing	October 6th, 2009 The Dalles - Discovery Center	The Draft IAMP was approved and forwarded with a recommendation for approval to the County Court.

Meeting Event	Date / Location	Meeting Purpose / Objectives
City Council Hearing	October 26th, 2009 The Dalles – City Hall	The Draft IAMP was presented to the City Council for adoption. The public hearing was closed but the vote was postponed to allow additional review time for the Councilors.
County Court Hearing	November 4th, 2009	A public hearing was held on the Draft IAMP however a decision was deferred until action was taken by The City of The Dalles City Council.
City Council Hearing	November 9th, 2009 The Dalles – City Hall	The Draft IAMP was approved with modifications.
County Court Hearing	November 25th, 2009	Update once meeting occurs
Oregon Transportation Commission Hearing	January, 2009	Update once meeting occurs

Section 3
Plan and Policy Review

Plan and Policy Review

One of the project objectives of the IAMP is to ensure that the plan is consistent with local and state transportation policies and standards. To meet this objective, a review and evaluation of existing plans, policies, standards, and laws that are relevant to the IAMP study area was conducted. A summary of the documents reviewed is provided below. Detailed information from this review can be found in the Technical Appendix.

DOCUMENTS REVIEWED

The following transportation and land use plans were reviewed for policies and regulations applicable to the I-84 Chenoweth Interchange.

Federal

- Columbia River Gorge National Scenic Area Management Plan

State/ODOT

- Statewide Planning Goal 1 (Public Involvement), Goal 2 (Land Use Planning), Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces), Goal 6 (Air, Water and Land Resources Quality), Goal 7 (Areas Subject to Natural Hazards), Goal 8 (Recreational Needs), Goal 9 (Economic Development), Goal 12 (Transportation) and Transportation Planning Rule (TPR) Oregon Administrative Rule 660 Division 12, and Goal 14 (Urbanization)
- Oregon Administrative Rule 731, Division 15, Department of Transportation Coordination Rules
- Oregon Transportation Plan (1992)
- Oregon Highway Plan (1999)
- Oregon Administrative Rule 734, Division 51 (Highway Approaches, Access Control, Spacing Standards and Medians)
- Highway Design Manual
- Port of The Dalles Chenoweth Interchange, Columbia River/Interstate 84, Final Environmental Impact Statement (1995)
- Intergovernmental Agreement/Settlement Agreement (No. 23886) – ODOT, City of The Dalles, and WM3, Inc. (2007)

Local

- Wasco County Comprehensive Plan (1983)
- Wasco County Land Use and Development Ordinance (1985, Updated 1999)
- City of The Dalles Comprehensive Plan (2006)
- City of The Dalles Growth Management Report (2007)
- City of The Dalles Land Use and Development Ordinance (1998, Updated 2008)
- City of The Dalles Transportation System Plan (1999, Updated 2006)
- City of The Dalles Capital Improvement Program, 2007-2012 (CIP)

CONSISTENCY WITH EXISTING PLANS

The IAMP has been developed to be consistent with local and state transportation policies. The review of local policies and regulations did not reveal conflicts with the primary goal of the IAMP to protect the function of the interchange but, at the same time, the existing regulatory tools also do not adequately address the future transportation needs in the area. Additional requirements regarding access management, local street connectivity, and transportation financing must be adopted if the transportation system in this area of The Dalles is going to support future planned growth. See Sections 7 and 8 for proposed amendments to existing plans required to make existing plans consistent with the IAMP.

Section 4
Inventory of Existing Transportation/Land Use Conditions

Inventory of Existing Transportation/Land Use Conditions

This section provides a review of existing land uses and transportation facilities as well as natural and cultural resources within the vicinity of the I-84 Chenoweth Interchange. As shown in Figure 4-1, the interchange is located at the northwest end of the city and has a service area much larger than the study area (shown in Figure 1-1). The information identified in this section is intended to provide a basis for identifying opportunities and constraints for meeting the goals and objectives of the IAMP.

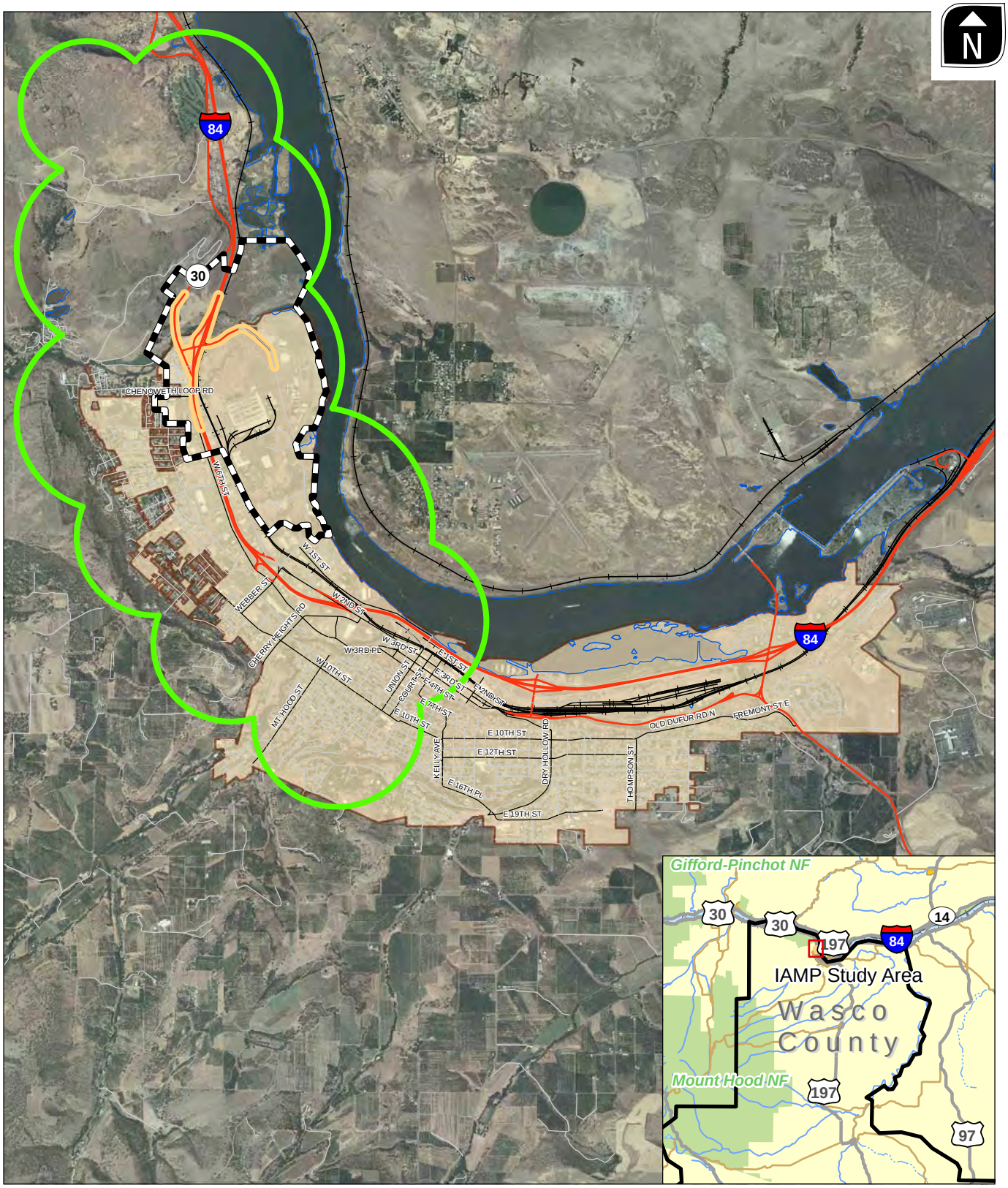
INTERCHANGE MANAGEMENT STUDY AREA

The Land Use Study Area shown in Figure 4-1 includes all properties that lie within a ½-mile of the interchange. Additionally, the Land Use Study Area includes the areas with trip-generation potential that are expected to have a direct affect on the design and function of the interchange. Developments to the east of I-84 were included if their primary access to the interchange is provided via River Road, including those located on Klindt Drive, Crates Way, and Steelhead Way. To the west of I-84, properties included in the Land Use Study Area primarily include those properties with potential access needs within the interchange crossroad access spacing standard distance of ¼-mile. The boundary of the Land Use Study Area extends south of the interchange to encompass the Northwest Aluminum Company parcels and all of the Port of The Dalles property.

Generally speaking, land uses outside of the Land Use Study Area in the Interchange Service Area (the area where trips using the interchange are likely to have a trip end) use the facility and are impacted by traffic using the facility, but are not anticipated to directly impact the function of the interchange because: they are already developed, have limited redevelopment potential, or are outside of The Dalles Urban Growth Boundary (UGB). Specific trip generation from land uses within the Land Use Study Area was calculated based on individual property development or redevelopment potential, while growth from outside of this area was represented through a regional traffic growth forecast as part of the traffic analysis for the IAMP.

Figure 4-1 also outlines the Interchange Operations/Access Review Area. The operations and access management of intersections and driveways within this area is the subject of analysis described later in this section.

A majority of the Land Use Study Area contains industrial land, which lies to the east of I-84. Many of the industrial properties gain access to I-84 through the Chenoweth Interchange via River Road, including those located on Klindt Drive, Crates Way, Columbia Road, and Steelhead Way. Land to the west and north of the interchange includes undeveloped and underdeveloped land, both inside and outside of The Dalles UGB.



LEGEND

- Interchange Service Area
- IAMP Operation/Access Study Area
- Land Use Study Area
- The Dalles Town Boundary

0 2,650 5,300 10,600 Feet

STUDY AREA VICINITY MAP
THE DALLES, OREGON

FIGURE **4-1**

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EXISTING LAND USE

Pursuant to the requirements stated in the Oregon Administrative Rule 734-051-0155 for the preparation of an IAMP, a land use inventory was prepared for the I-84 Chenoweth IAMP study area. This section provides a description of the existing land-use patterns and zoning regulations that currently exist within the interchange study area.

DESIGNATIONS AND DEVELOPMENT STANDARDS

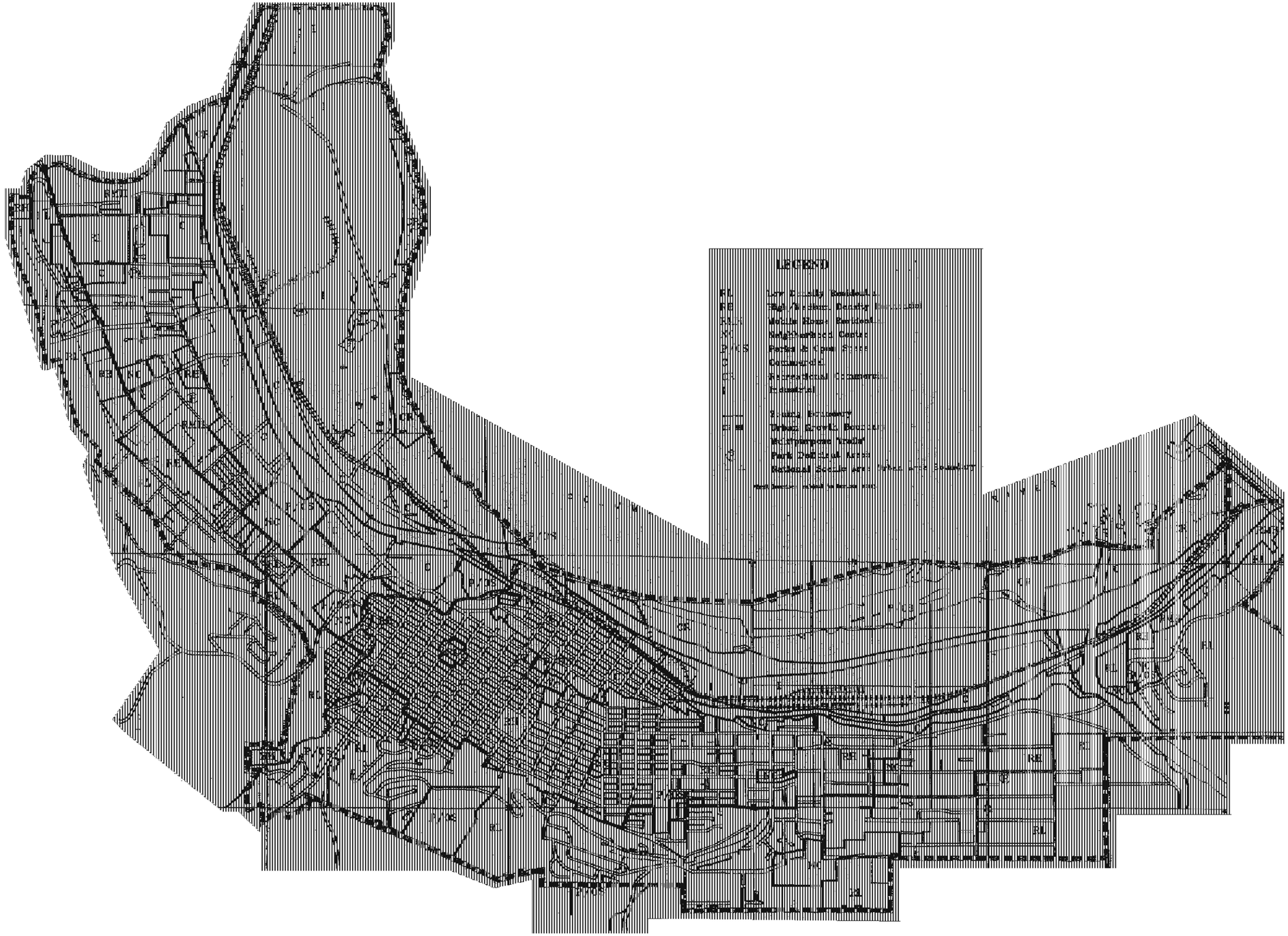
As shown in Figure 4-2, The Dalles Comprehensive Plan assigns the following designations to parcels within the Land Use Study Area and The Dalles city limits:

- Low Density Residential (RL)
- High/Medium Density Residential (RH)
- Mobile Home Residential (RMH)
- Neighborhood Center (NC)
- Park & Open Space (P/OS)
- General Commercial (C)
- Recreational Commercial (CR)
- Industrial District (I)

The Dalles' Land Use and Development Ordinance (LUDO) implements policies established in the City's Comprehensive Plan and regulates development through zoning designations and provisions that apply generally to all development and particularly to land divisions within the city. As shown in Figure 4-3, LUDO zoning is relatively consistent with The Dalles Comprehensive Plan designations, with the exception of the recent zoning designation of Commercial/Light Industrial District (CLI) in the immediate vicinity of the interchange. For the purposes of this IAMP, the analysis assumed land uses as designated in the City's Comprehensive Plan.

The majority of the land in the Land Use Study Area east of I-84 is zoned Industrial District. Uses allowed in this zone include what is generally considered "heavy industrial" uses, such as manufacturing and storage services; rail yards; shipyards; commercial docking facilities; rock and mineral processing; and, warehousing. With the exception of uses that support personal and professional services (e.g., restaurant, laundry, and cleaning services), commercial and retail uses are prohibited. The minimum lot size for development zoned Industrial is 10,000 square-feet. There are no upper limitations on lot size or lot coverage; however, building heights are limited to 55 feet in I zones.

Several properties are zoned for Recreational Commercial, including properties east of Klindt Drive, east of River Road near Webber Street, and between I-84 and West 6th Street near River Road. Light industrial uses that are compatible with commercial and recreational uses are allowed in this zone, as are restaurants, administrative offices, lodging, and campgrounds. Retail services with limited floor area (15,000 square feet) are allowed, but shopping centers are prohibited.



EXISTING COMPREHENSIVE PLAN LAND USE
THE DALLES, OREGON

FIGURE
4-2

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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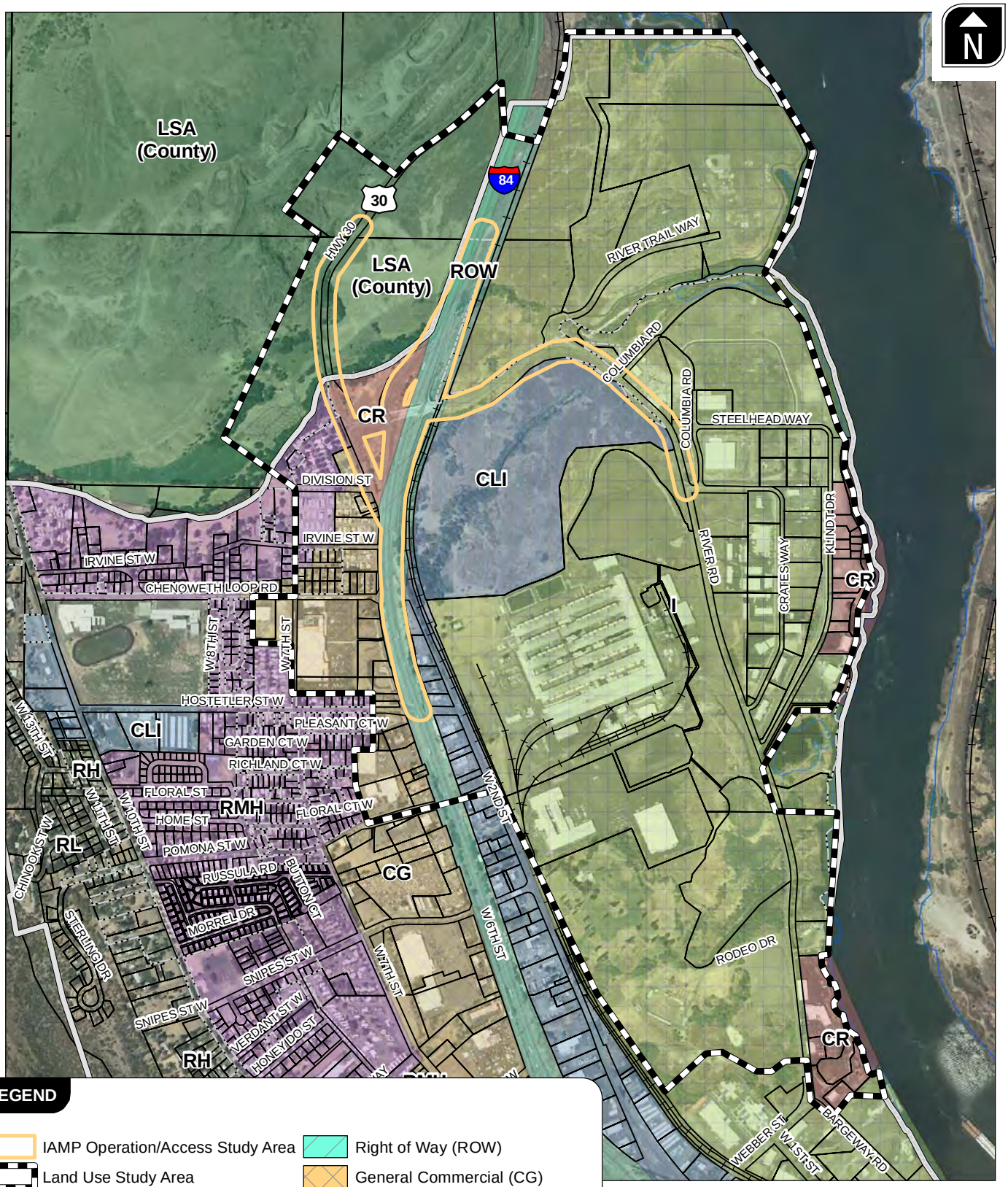

LEGEND

- IAMP Operation/Access Study Area
- Land Use Study Area
- The Dalles Town Boundary
- Tax Lots
- The Dalles UGB
- Lakes and Rivers
- Railroads
- Right of Way (ROW)
- General Commercial (CG)
- Commercial/Light Industrial (CLI)
- Recreational Commercial (CR)
- Industrial (I)
- Mobile Home Residential (RMH)
- Large-Scale Agriculture (LSA)

0 650 1,300 2,600 Feet

EXISTING ZONING CLASSIFICATIONS
THE DALLES, OREGON

FIGURE **4-3**

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The 67-acre property in the southeast quadrant of the interchange is zoned Commercial/Light Industrial (CLI) and is the subject of an Intergovernmental Agreement (IGA) between the property owner (WM3, Inc.), the City of The Dalles, and ODOT. Uses allowed in the zone that can be considered "light industrial" include: engineering; research and development; manufacturing; and, warehousing. Retail uses, including shopping centers and grocery stores, are also allowed. As in the Industrial zone, there is a minimum lot size required for development in the CLI zone (10,000 square feet), but no maximum limits on size, lot coverage, or lot width or depth. Building heights are also limited to 55 feet in the CLI zone.

Currently, land to the northwest of the interchange is largely outside of the city's existing UGB. The Wasco County LUDO governs land outside the city's UGB. County zoned land within the Land Use Study Area is A-1 (160), which corresponds to Exclusive Farm Use (EFU) zoning with a 160-acre minimum. The county portion of the IAMP study area, which is part of the Columbia River Gorge National Scenic Area (CRGNSA), and outside of the Urban Area, is also designated as General Management Area (GMA). Applicable provisions of the CRGNSA Management Plan are described in Technical Memorandum #2 in the Technical Appendix.

Permitted uses in the A-1 zone are limited to agricultural uses and structures for agricultural use. Transportation improvements, consistent with state law, are also permitted, as are schools, places of worship, and mineral and geothermal operations. Parks and community centers are allowed conditionally.

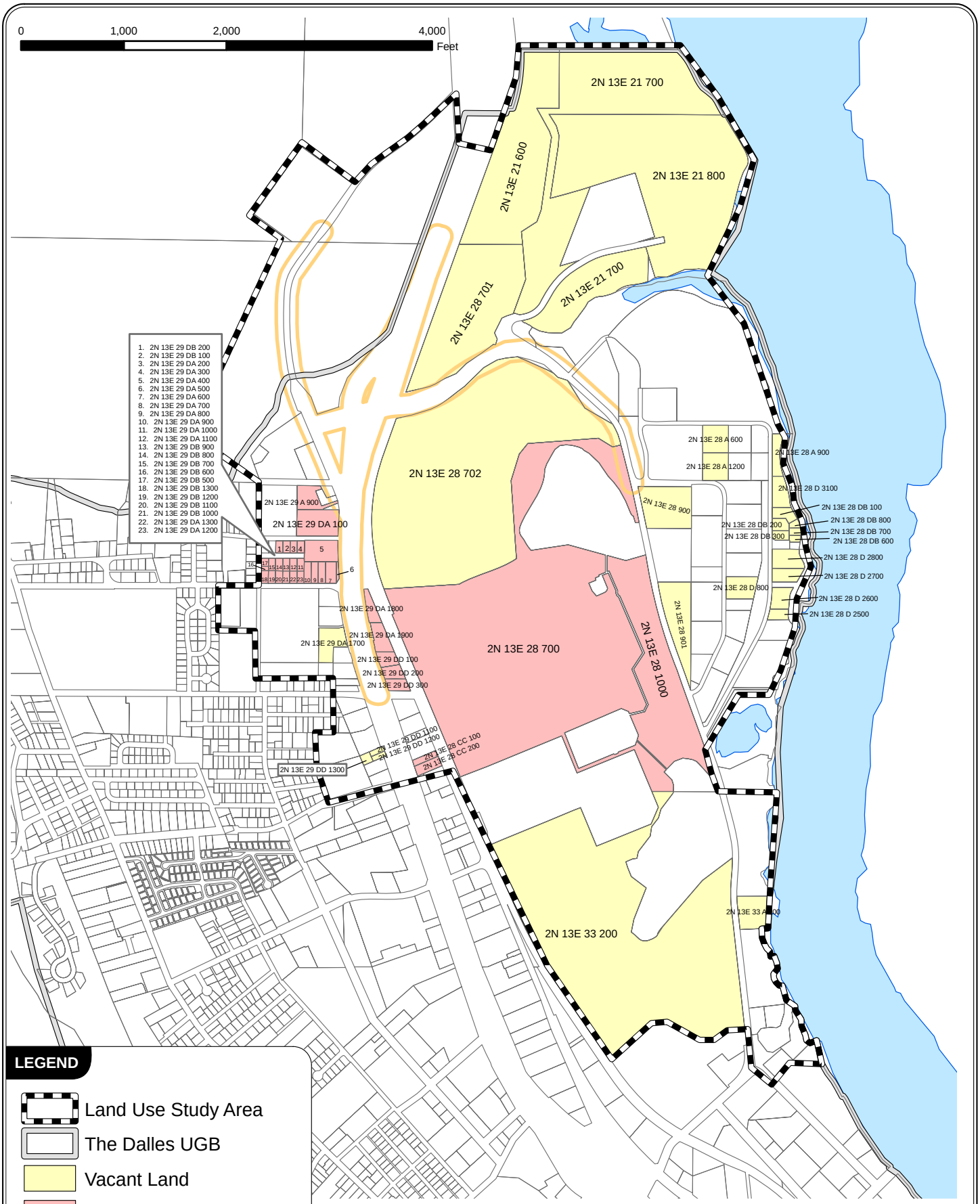
LAND USE INVENTORY

Existing land uses in the Land Use Study Area are largely consistent with the uses allowed by the underlying zoning. There are 200 acres in the Port Industrial Area, some in private ownership. The largest property owner is the Port of The Dalles, with multiple businesses leasing land, including Munsen Paving, a large rock crushing and aggregate company.

Another large land-holder is Northwest Aluminum Company, which currently owns an approximately 100-acre site that is being prepared for redevelopment. During its operation, Northwest Aluminum Specialties, a secondary aluminum casting operation, had 100 employees and was located to the south of the WM3, Inc. site.

An inventory of land within the IAMP Land Use Study Area was prepared based on GIS data and site observations. Figure 4-4 illustrates the identified vacant and re-developable lands. Re-developable land includes parcels that can be expected to be cleared and redeveloped without requiring deconstruction of valuable infrastructure. Vacant lands include parcels that have no buildings, which allows for the potential for new developments to be constructed. All other land is expected to continue to be used by existing tenants, or tenants with similar trip generation potential, through the 20-year study period. These classifications were used for analysis only and do not replace LUDO definitions of development, redevelopment, or improvements requiring development review.

Table 4-1 provides supporting information for each vacant and re-developable parcel. The tax lot identification for each parcel is labeled on the map for reference.



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EXISTING LAND INVENTORY
THE DALLES, OREGON

FIGURE
4-4

TABLE 4-1 EXISTING LAND INVENTORY

Tax Lot	Acres	Zoning	Existing Development	Owner
2N 13E 28 CC 100	0.3	CLI	Various	LEE ERNEST W & MARY L
2N 13E 28 CC 200	0.6	CLI	Various	LEE ERNEST W & MARY L
2N 13E 29 DA 1800	0.6	CLI	Various	VELADOR AMADO & CHARLOTTE
2N 13E 29 DA 1900	1.0	CLI	Various	KOOPS DUANE C & JEAN M
2N 13E 29 DD 100	0.6	CLI	Various	STEELE CLARA S ET AL
2N 13E 29 DD 200	0.6	CLI	SPEE DEE HAULERS INC	SPEE DEE HAULERS INC
2N 13E 29 DD 300	0.5	CLI	SPEE DEE HAULERS INC	SPEE DEE HAULERS INC
2N 13E 28 700	94.3	I	NORTHWEST ALUMINUM CO	NORTHWEST ALUMINUM CO
2N 13E 28 1000	18.7	I	NORTHWEST ALUMINUM CO	NORTHWEST ALUMINUM CO
2N 13E 28 900	4.4	I	Vacant	CHENOWITH CREEK DEVELOPERS LLC
2N 13E 28 901	4.3	I	Vacant	NORTHWEST ALUMINUM CO
2N 13E 28 DB 600	0.2	CR	Vacant	RIVERFRONT ASSETS LLC
2N 13E 28 DB 300	0.3	CR	Vacant	RIVERFRONT ASSETS LLC
2N 13E 28 DB 700	0.2	CR	Vacant	RIVERFRONT ASSETS LLC
2N 13E 29 DA 1500	0.8	CG	Vacant	HOME DEPOT USA INC
2N 13E 29 DA 1501	1.0	CG	Vacant	MAGID ROBERT N
2N 13E 29 DA 1700	1.6	CG	Vacant	METRO INVESTMENTS LLC
2N 13E 29 DD 1100	0.2	CG	Vacant	DEAN SANDY ET AL
2N 13E 29 DD 1200	0.2	CG	Vacant	DEAN SANDY ET AL
2N 13E 29 DD 1300	0.2	CG	Vacant	DEAN SANDY ET AL
2N 13E 28 701	20.5	I	Vacant	NORTHWEST ALUMINUM CO
2N 13E 33 200	76.9	I	Vacant	NORTHWEST ALUMINUM CO
2N 13E 28 702	67.2	CLI	Vacant	WM3 INC
2N 13E 21 700	40.9	I	Vacant	PORT OF THE DALLES
2N 13E 21 800	42.5	I	Vacant	PORT OF THE DALLES
2N 13E 33 A 100	7.6	I	Vacant	FORT DALLES RIVERFRONT PROP LLC
2N 13E 21 600	22.2	I	Vacant	NORTHWEST ALUMINUM CO
2N 13E 28 A 600	1.5	I	Vacant	PORT OF THE DALLES
2N 13E 28 A 900	0.8	I	Vacant	PORT OF THE DALLES
2N 13E 28 A 1200	1.6	I	Vacant	PORT OF THE DALLES
2N 13E 28 D 3100	1.1	CR	Vacant	PORT OF THE DALLES
2N 13E 28 D 3000	1.2	CR	Vacant	PORT OF THE DALLES
2N 13E 28 D 2800	1.3	CR	Vacant	PORT OF THE DALLES
2N 13E 28 D 2700	0.9	CR	Vacant	PORT OF THE DALLES
2N 13E 28 D 2600	0.7	CR	Vacant	PORT OF THE DALLES
2N 13E 28 D 2500	0.9	CR	Vacant	PORT OF THE DALLES
2N 13E 28 D 800	1.4	I	Vacant	PORT OF THE DALLES

CR=Recreational Commercial, CLI=Commercial/Light Industrial, I=Industrial, CG=General Commercial

EXISTING TRANSPORTATION INVENTORY

The second major component of the I-84 Chenoweth IAMP existing conditions evaluation process is the transportation system. The existing transportation inventory provides a detailed description of all transportation facilities and travel modes within the study area. In addition, the inventory identifies the current operational, traffic control, and geometric characteristics of roadways and other transportation facilities, a safety analysis, access inventory, and identifies existing deficiencies.

ROADWAY FACILITIES

The roadways within the study area include state, county, and city facilities. A description of each of the roadway facilities is summarized in Table 4-2. Figure 4-5 illustrates the existing lane configurations and traffic control devices at the respective study intersections.

TABLE 4-2 EXISTING TRANSPORTATION FACILITIES AND ROADWAY DESIGNATIONS

Roadway	Existing Roadway Ownership/ Functional Classification	Cross-section	Surface Type	Posted Speed (mph)	Side-walks?	Bicycle Lanes?	On-Street Parking?
I-84	ODOT/ Interstate Highway	4-lane	Paved	65	No	No[1]	No
West 6th Street	[2]City/ Arterial	2-lane	Paved	40	Partial	South of River Rd.	No
River Road	Wasco County/ Collector	2-lane	Paved	40	No	Yes	No
Hostetler Street	Wasco County/ Collector[3]	2-lane	Paved	30	Partial	West of West 6th Street	Yes
Chenoweth Loop	Wasco County/ Collector	2-lane	Paved	25	Partial	Yes	Yes
Division Street	Public Access/ Local	2-lane	Paved	25	No	No	Yes
River Trail Way	Wasco County/ Local	2-lane	Paved	Not Posted	No	No	No
Columbia Road	Local[3]	2-lane	Paved	20	Partial	No	No
Crates Way	Local[3]	2-lane	Paved	20	Partial	No	No

[1] It is illegal to operate a bicycle or other non-motorized vehicle on an interstate.
[2] 6th Street is an ODOT facility North of Division Street and is classified as a district highway and Oregon Scenic Byway
[3] Not documented in the City of The Dalles TSP; currently functioning as local streets.

(NO SCALE)

30
84
US 30
RIVER TRAIL WAY
RIVER ROAD
COLUMBIA ROAD
CRATES WAY
DIVISION ST
CHENOWETH LOOP
HOSTETLER STREET
I-84
6TH STREET
KLINDT DRIVE
WEBBER STREET

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

EXISTING LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
THE DALLES, OREGON

FIGURE 4-5

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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Interstate-84

I-84, a four-lane interstate highway that runs roughly north-south through The Dalles,, is the main east-west travel route within the State of Oregon providing connections between Portland, Oregon and Boise, Idaho. I-84 is part of the National Highway System and is designated in the 1999 Oregon Highway Plan (Reference 1) as an Interstate Highway, Freight Route, and Truck Route. The pavement conditions on Interstate-84 were observed to be in good condition in the vicinity of the I-84/Chenowith Interchange at the time of the study.

Interstate-84 Ramps

The interstate ramps are single-lane, paved connections between the right lane of travel on I-84 and River Road. The eastbound ramp provides approximately 900 feet for deceleration and queue storage from the ramp gore to the ramp terminal intersection. Right-turn storage is provided for approximately eight passenger cars on the eastbound I-84 off-ramp at the intersection with River Road. The Westbound ramp approach to the intersection with River Road provides approximately 800 feet for deceleration and queue storage from the ramp gore to the ramp terminal. The approach is flared to provide right-turn storage for approximately one passenger car. Due to the need to elevate River Road over I-84 and the parallel railroad tracks, the overpass has a grade that slopes down to the west from the high point located just east of the westbound ramp terminal as shown in Exhibit 4-1.

Exhibit 4-1 I-84 Chenoweth Interchange from North looking South at WB On-Ramp

Because the westbound ramp terminal is located at approximately the high point of the interchange, the eastbound ramp terminal is located at a lower elevation. Consequently, sight

distance from the eastbound off-ramp terminal is limited due to vertical curve when looking towards the east, as shown in Exhibit 4-2.

Exhibit 4-2 River Road at I-84 Looking East at EB Ramp Terminal

Although no crashes were reported at the ramp terminal intersection over a three-year period from January 1, 2005 to December 31, 2007, the perception by some local residents is that sight distance is inadequate and poses a traffic hazard at this location.

Based on field observations, the available sight distance to the east from the shared left/through lane on the eastbound off-ramp is approximately 275 feet. The design speed of the overpass is 35 miles per hour (mph); however, no speed limit is posted on the overpass. The closest speed limit sign designates a limit of 45 mph on River Road in the westbound direction approximately 1,750 feet east of the westbound ramp terminal intersection. On level grade the required stopping sight distances on 35 and 40 mph roadways is 250 and 305 feet, respectively. Accounting for the existing grade, estimated to be 3% or less, at the ramp terminal, the required stopping sight distances are 257 feet and 315 feet, respectively. Considering that the overpass was designed for and is estimated to provide adequate sight distance at a speed of 35 mph on the overpass, it is suggested that the actual sight distance be measured in the field and consideration be given to posting a speed limit of 35 mph on the overpass.

West 6th Street (US 30)

Highway 30, designated by the Oregon Highway Plan as a District Highway and an Oregon Scenic Byway, runs parallel to I-84 west of the study area and ends just south of River Road at Division Street. South of Division Street Highway 30 becomes West 6th Street, a city facility, which has a posted speed limit of 40 mph and in general has a two-lane cross-section with bicycle lanes and intermittent sidewalks along the west side. At some intersections there are exclusive left-turn and/or right-turn lanes. West 6th Street connects to I-84 again at the Webber Street interchange

approximately 1.5 miles south of the Chenoweth Interchange at River Road. The Dalles TSP classifies West 6th Street as an arterial.

River Road

River Road is a two-lane collector road that links US 30 and 1st Street. River Road is a Wasco County facility from the Chenoweth Interchange to Bargeway Road at which point it becomes Webber Street, a City of The Dalles facility. River Road has a posted speed of 40 mph and provides a connection between the I-84 Chenoweth and Webber Street Interchanges on the east side of I-84. It is the main access to the Port of The Dalles.

Hostetler Street

Hostetler Street is a Wasco County road running east-west connecting West 10th Street to West 2nd Street. It is the only crossing of I-84 between the Chenoweth and Webber Street Interchanges (this location is an underpass). The main access to the Northwest Aluminum Company industrial property is at the intersection of Hostetler Street and West 2nd Street. Hostetler Street is maintained by Wasco County east of West 6th Street and by the City west of West 6th Street. The county portion is classified as collector and the city portion is a local road. The speed limit is 30 mph near the West 6th Street intersection.

Chenoweth Loop

Chenoweth Loop is a two-lane Wasco County collector road that provides an east-west connection from West 10th Street to West 6th Street. The posted speed limit is 25 mph on Chenoweth Loop.

Division Street

Division Street is an un-striped, two-way local street maintained by the county. It provides access to a residential area west of I-84 and has a posted speed limit is 25 mph.

River Trail Way, Columbia Boulevard, and Crates Way

River Trail Way, Columbia Boulevard, and Crates Way are not classified in the City of The Dalles TSP. All three streets function as local streets providing access to local properties.

PUBLIC TRANSPORTATION FACILITIES

Existing public transportation service in The Dalles is provided by the Transportation Network. The Transportation Network, a member of the Gorge TransLink, provides dial-a-ride service for The Dalles and select portions of Wasco County. Service is provided Monday-Friday from 8:00 a.m. to 5:00 p.m. More information is available on the Gorge TransLink's website at www.gorgetranslink.com.

The Hood River County Transportation District offers public transportation services through Columbia Area Transit (CAT). CAT provides fixed-route service between Hood River, Mosier, and The Dalles on a daily basis and between Portland and The Dalles on a weekly basis. The current schedule provides two transit trips per day between The Dalles, Mosier, and Hood River during the

morning and evening time periods. Stop locations in The Dalles include: Rosauers, Columbia Gorge Community College, and The Transportation Center, located at 201 Federal Street.

Service to Portland is provided on Thursdays only. In The Dalles the pick-up and drop-off location is The Transportation Center. Stops include the CAT office (Hood River), Gateway MAX Station (Portland), Portland Art Museum, Oregon Health Sciences University, and Clackamas Town Center. Up-to-date schedules, stop location descriptions, and more information on transportation services offered by The Hood River County Transportation District is provided on their website at http://community.gorge.net/hrctd.

PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian facilities throughout the study area include sidewalks on the west side of West 6th Street and on other local and collector facilities as outlined in Table 4-2. The existing segments of sidewalk form an incomplete system that does not provide consistent pedestrian connections. Pedestrian volumes were observed to be minimal.

Designated bicycle lanes provide connections between the Port of The Dalles and other properties located on the east side of I-84 and residential and commercial developments along West 6th Street west of I-84. Hostetler Road and Chenoweth Loop provide partial bicycle facilities west of West 6th Street. Low levels of bicycle activity were observed within the study area.

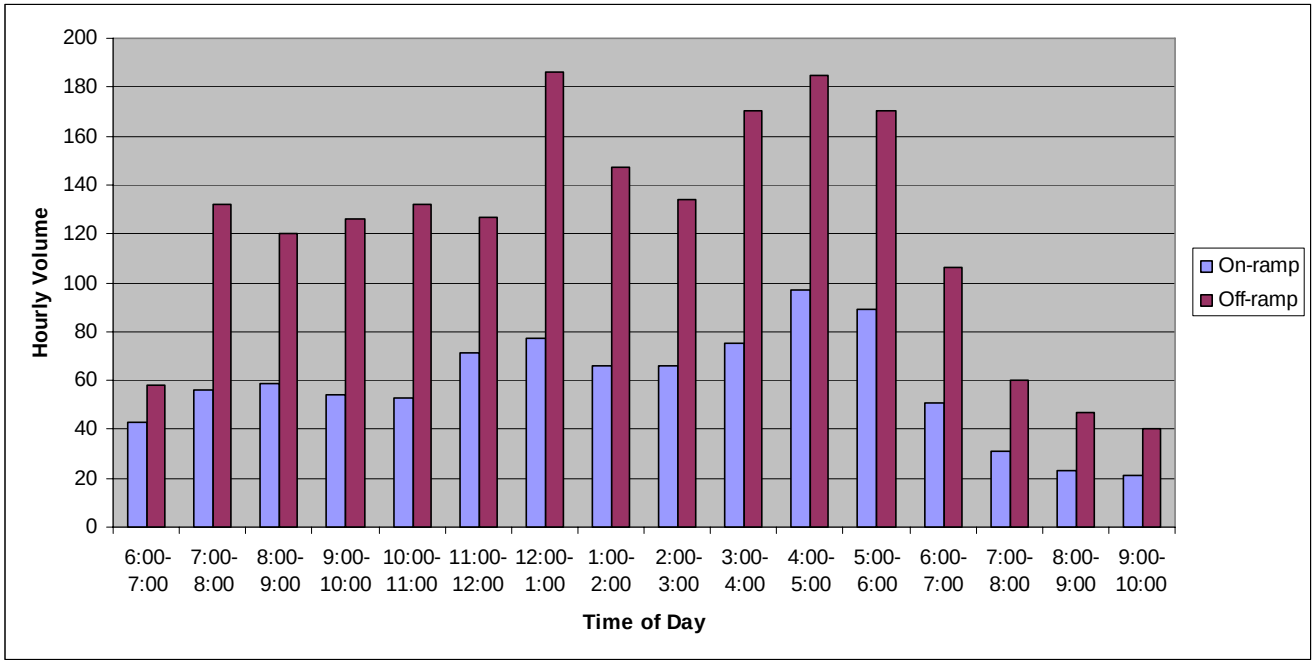
EXISTING TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

Manual intersection turning movement counts were obtained from ODOT at each of the study intersections to assess the operational performance and characteristics within the study area. These counts were conducted on mid-week days in July 2008. These traffic volume counts were supplemented with data from the July 2007 traffic counts collected for the WM3 Traffic Impact Analysis completed by DKS Associates. A description of the analysis conducted with this data is summarized in the following sections.

Peak Hour Intersection Volumes

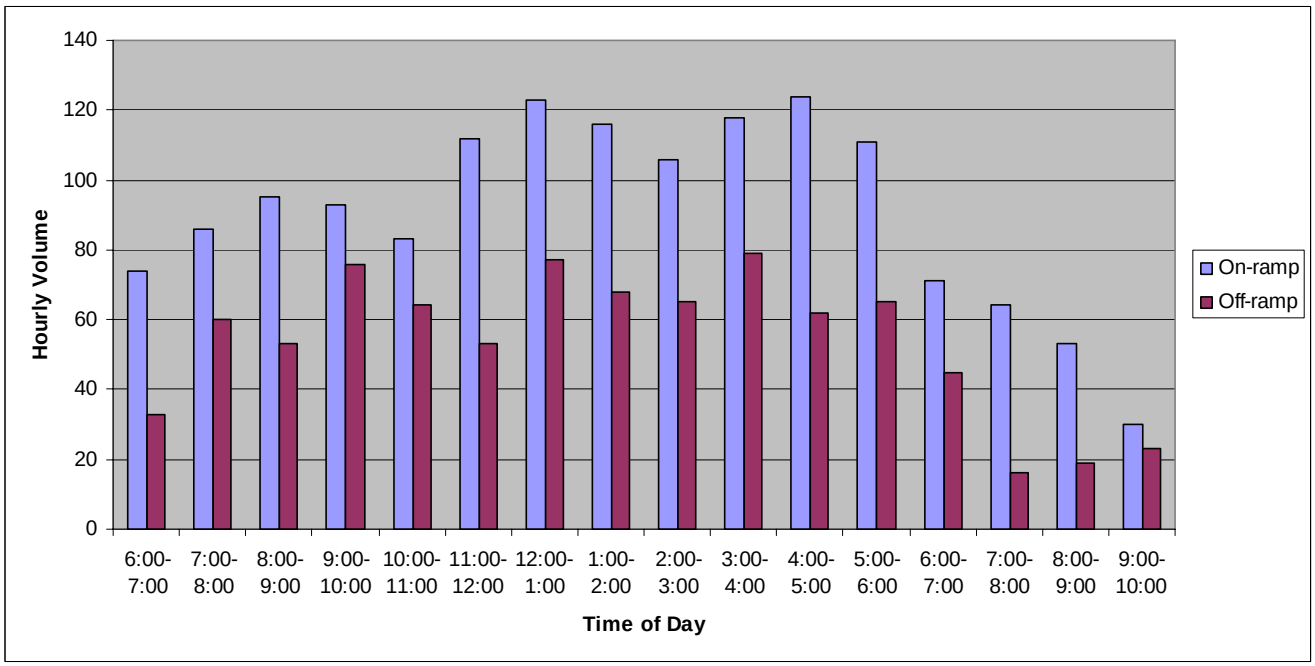
Turning movement counts at each intersection were recorded from 6:00 a.m. to 10:00 p.m. Because of the close proximity of the intersections, a system-wide peak hour was identified based on the volumes at all study intersections. The weekday p.m. peak hour in the study area was found to occur between 4:45–5:45 p.m. Exhibit 4-3 through Exhibit 4-5 illustrate the daily volume peaking characteristics of the I-84 ramp and through traffic. Exhibit 4-6 illustrates the daily volume peaking characteristics of River Road east of US 30.

Exhibit 4-3 Daily Traffic Volume Profile for I-84 Eastbound Ramps at Chenoweth



Note: On-ramp volumes collected in August 2008, Off-ramp Volumes collected in April 2008.

Exhibit 4-4 Daily Traffic Volume Profile for I-84 WB Ramps at Chenoweth



Note: On-ramp volumes collected in August 2008, Off-ramp Volumes collected in April 2008.

Exhibit 4-5 Daily Traffic Volume Profile for I-84 (bi-directional) at Chenoweth

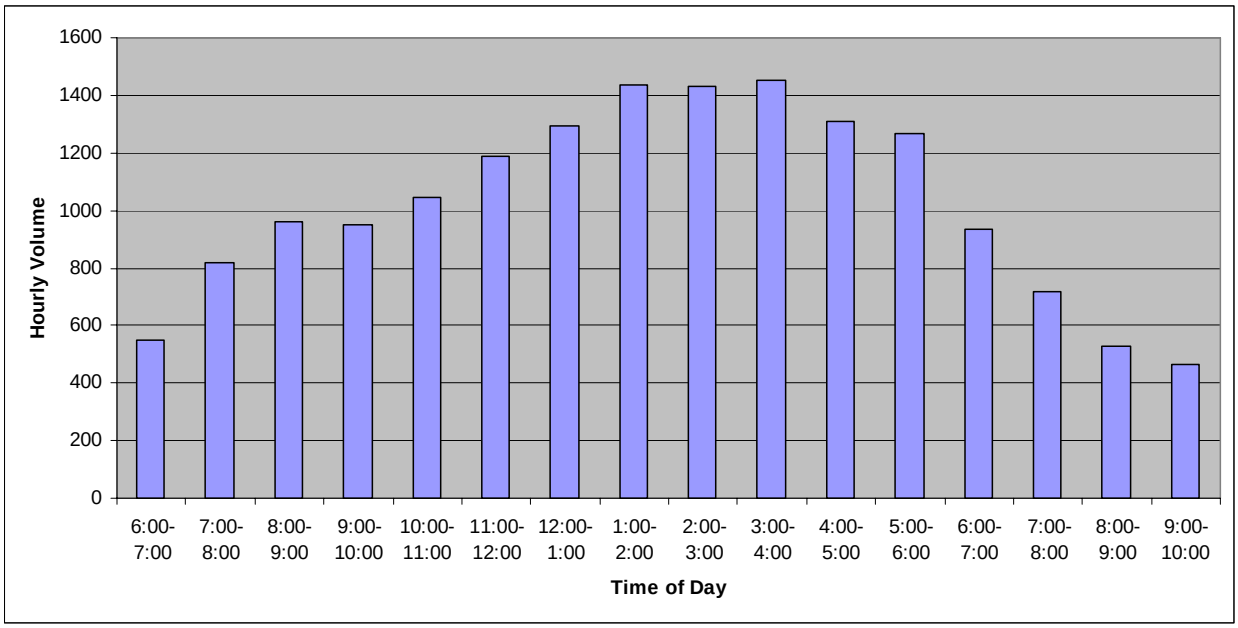
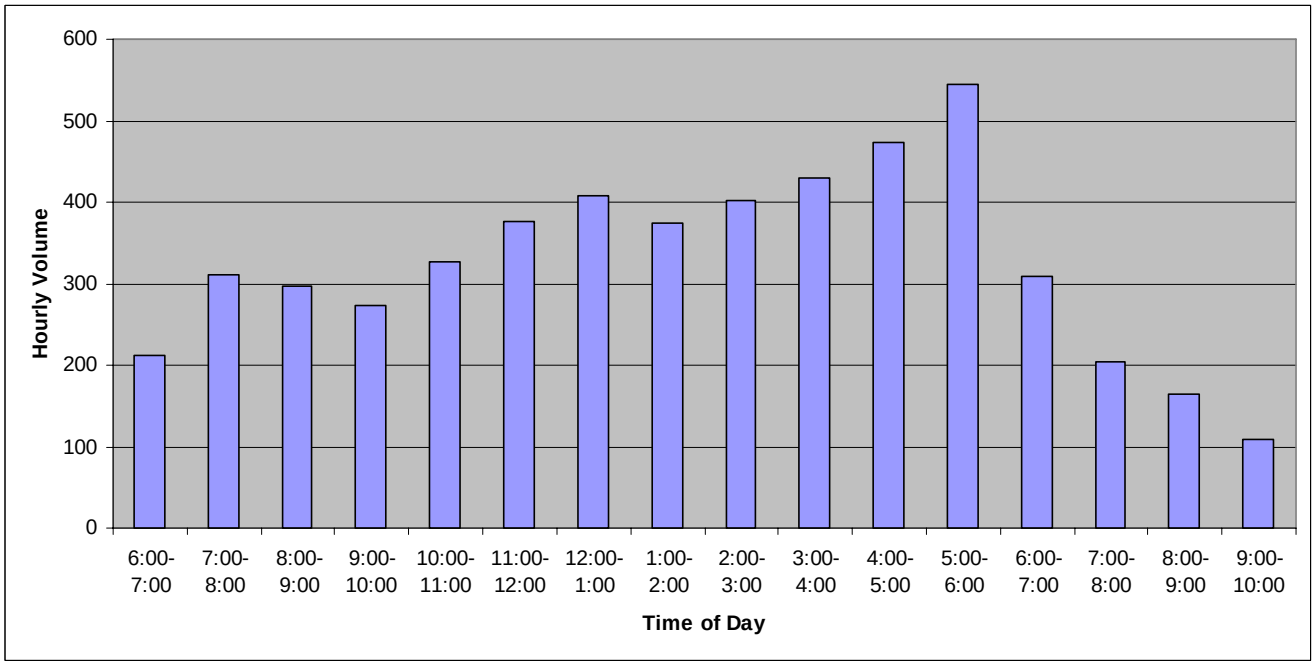


Exhibit 4-6 Daily Traffic Volume Profile on River Road (East of US 30)



As shown in Exhibit 4-6, the weekday a.m. peak hour traffic volumes on River Road are less than half of the weekday p.m. peak hour traffic volumes. Therefore, the existing and future traffic operations analysis was conducted during the weekday p.m. peak hour only.

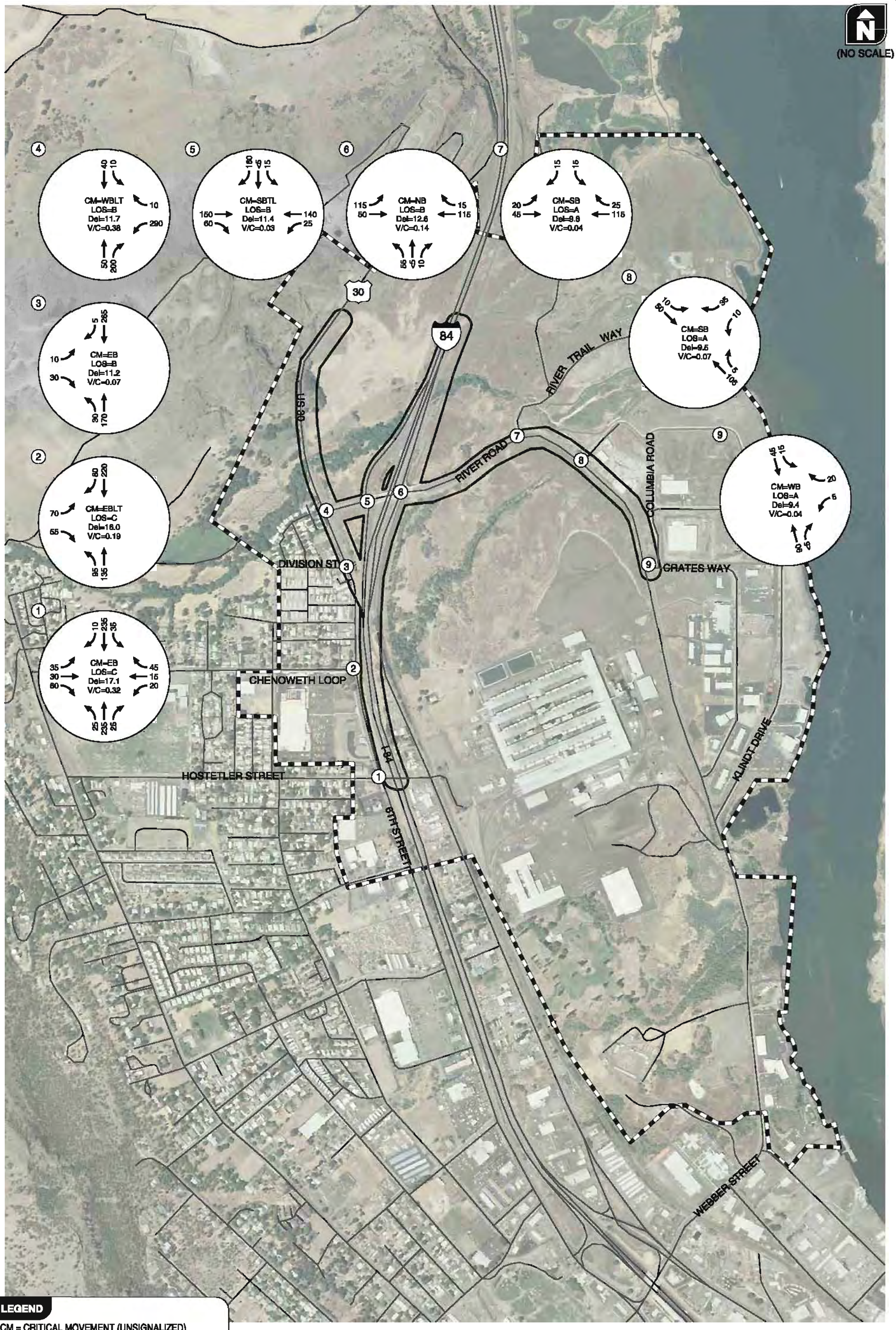
Seasonal Adjustments

Following the methodology outlined by ODOT's Analysis Procedures Manual (Reference 2), a seasonal adjustment factor was not applied to the traffic counts collected for the existing conditions

analysis. The counts were collected in late July, which was found to be the peak traffic volume time period of the year during four of the last five years at ODOT Automatic Traffic Recorder location 03-001, approximately 6 miles west of the Chenoweth Interchange on I-84. The weekday p.m. peak hour intersection turning movement counts used for the existing conditions analysis are shown in Figure 4-6.

Existing Intersection Operations

All level of service analyses described in this analysis was performed in accordance with the procedures stated in the 2000 Highway Capacity Manual (Reference 3). The operational standard for the ramp terminals is a volume-to-capacity ratio of 0.75. The operational standard for all other study intersections is a LOS D. As shown in Figure 4-6, all study intersections currently operate acceptably. The existing conditions operations worksheets are provided in the *Appendix "C" of the Technical Appendix.*



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

EXISTING TRAFFIC CONDITIONS, WEEKDAY PM PEAK HOUR
THE DALLES, OREGON

FIGURE 4-6

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TRAFFIC SAFETY

The crash histories at the respective study intersections and three study roadway sections were reviewed in an effort to identify potential existing intersection safety issues. The three study roadway sections include: I-84 one mile in each direction of the Chenoweth Interchange, River Road from West 6th Street (US 30) to Klindt Drive, and West 6th Street (US 30) from Discovery Drive to Hostetler Street. Crash records were obtained from ODOT for the three-year period from January 1, 2005 through December 31, 2007.

No crashes were reported for the following intersections and roadway sections:

- Intersections
    - River Road/I-84 eastbound and westbound ramp terminals,
    - West 6th Street (US 30) /River Road,
    - River Road/Columbia Road,
    - River Road/Crates Way, and
    - River Road/River Trail Way.
- Segments
    - River Road from West 6th Street (US 30) to Klindt Drive.

Reported crashes on I-84 and West 6th Street are summarized in Table 4-3. There was one fatal crash involving a collision with a deer on West 6th Street (US 30) between Discovery Drive and Hostetler Street. The crash rates calculated along these segments were compared to statewide averages for similar facilities. As shown in Table 4-3 the crash rates for similar facilities in Oregon are greater than or equal to the crash rates for the study roadways. Further review of the crash patterns on I-84 shows that 67 percent of crashes were fixed object crashes. This proportion of fixed-object crashes is comparable to other single-vehicle crashes in Wasco County and on Oregon State Highways.

Table 4-4 summarizes the reported crashes at the study intersections where crashes occurred. No observable crash patterns have been identified within the study area; therefore, no traffic safety mitigation has been proposed. No crash rates are available at a statewide level for comparison with the calculated rates shown here. Generally a crash rate of 1.0 or greater indicates the need for further investigation. Given the relatively low entering volume and number of crashes, no patterns could be identified.

TABLE 4-3 ROADWAY SECTION CRASH HISTORIES (JANUARY 1, 2005 THROUGH DECEMBER 31, 2007)

Roadway Section	Segment Length (Miles)	Number of Crashes	Crash Type					Severity			Crashes/ MVM	Statewide Comparison	
			Fixed Object	Rear -End	Overturn	Turning	Other	PDO	Injury	Fatality			
I-84: 1 Mile Each Direction from Chenoweth Interchange	2.0	15	10	2	2	0	1	8	7	0	0.38	Interstate Freeway	0.38
West 6th Street (US 30) from Discovery Drive to Hostetler Street	1.9	5	1	1	1	1	1	2	2	1	0.51	Rural Cities, Minor Arterials	1.71

MVM = Million Vehicle Miles

TABLE 4-4 INTERSECTION CRASH HISTORIES (JANUARY 1, 2005 THROUGH DECEMBER 31, 2007)

Intersection	Number of Crashes	Crashes/MEV	Crash Type				Severity		
			Angle	Rear-End	Turning	Other	PDO	Injury	Fatality
West 6th Street/ Hostetler Street	3	1.1	1	1	1	0	3	0	0
West 6th Street/ Chenoweth Loop	1	0.4	0	0	1	0	0	1	0
West 6th Street/ Division Street	1	0.5	0	0	1	0	0	1	0

MEV = Million Entering Vehicles

EXISTING ROADWAY ACCESS CONDITIONS

There are currently ten private access points located within the Operations and Access Study Area, all of which are located on West 6th Street. There are an additional eight public road access points in the Operations and Access Study Area. Figure 4-7 shows the location and type (public or private) of each of the access locations within the access study area. Table 4-5 identifies the tax lots and existing businesses served by each of the access points.

Oregon Administrative Rule 734, Division 51 and the Oregon Highway Plan (OHP) identify ODOT's access management standards within the vicinity of interchanges. Within 1,320 feet from the ramp terminals no partial or full access is allowed according to the OHP. Figure 4-7 shows the 1,320 foot access control area as measured from the I-84 ramp terminal intersections. As shown, four private and three public accesses are located within the 1,320-foot control area west of the interchange. The three public accesses include the River Road/River Trail Way, River Road/West 6th Street/US 30 and West 6th Street/Division Street intersections. It should be noted that access to the recently approved WM3 commercial development comes via the River Road/River Trail Way intersection which is within the 1,320-foot access control area.

Access spacing standards are 500 feet for US 30, a District Highway, based on the spacing requirements stipulated in the OHP. South of Division Street, West 6th Street is designated as a City Arterial and minimum spacing standards are 300-400 feet between driveways and/or streets. Accesses #2 through #13 are in conflict with one or more access points, which will require access consolidation or modifications, particularly in the mid- or long-term when traffic volumes increase on West 6th Street. Minimum spacing standards for River Road, a major collector, are 150-300 feet between driveways and/or streets according to the City of The Dalles TSP. The public and private accesses on River Road within the Operations and Access Study Area meet these spacing standards.

TABLE 4-5 EXISTING PUBLIC/PRIVATE ACCESS APPROACH INVENTORY

Access Number	Approach Type (Jurisdiction)	Roadway	Side	Serves Tax Lot Number	Property Owner/ Business Name	Zoning	Acreage
1	Public (City)	West 6th Street	West	Hostetler Street	Wasco County	NA	NA
2	Private (City)	West 6th Street	West	2N 13E 29 DD 1900	Columbia Star LLC/ Adult Shop	CG	0.8
33	Private (City)	West 6th Street	West	2N 13E 29 DA 1600		CG	0.6
4	Private (City)	West 6th Street	West	2N 13E 29 DA 1700	MetroMetro Investments LLC/Vacant	CG	1.6
				2N 13E 29 DA 1501, 1400, and 1500	Home Depot USA Inc.	CG	11.2
5	Public (City)	West 6th Street	West	Chenoweth Loop Rd	Wasco County	NA	NA
6	Private (City)	West 6th Street	West	2N 13E 29 DA 600	Donnell Martin & Carlee	CG	0.5
7	Private (City)	West 6th Street	West	Lee Street	Private	NA	NA
8	Public (City)	West 6th Street	West	Irvine Street	City of The Dalles	NA	NA
	Private (City)			2N 13E 29 DA 400	Robinson Family/ Ideal Homes	CG	1.6
				2N 13E 29 DA 100	Robinson Family/ Marlett Homes	CG	2.4
9	Private (City)	West 6th Street	West	2N 13E 29 A 900	Robinson Family	CG	1.3
10	Private (City)	West 6th Street	West	2N 13E 29 A 1100	Long Stephen Marco	CG	0.4
11	Private (City)	West 6th Street	West	2N 13E 29 A 1000	Lindley Marion D/ Doug's Affordable Muffler	CG	0.3
12	Public (ODOT)	West 6th Street	West	Division Street	Wasco County	NA	NA
13	Private (ODOT)	West 6th Street	West	2N 13E 29 A 200	Hattenhauer John	CG	1.6
14	Public (ODOT)	River Road	West	West 6th Street	City of The Dalles	NA	NA
15	Private (ODOT)	US 30	West	2N 13E 29 100	Spee Dee Haulers	LSA (County)	155.0
16	Public (County)	River Road	North	River Trail Way	City of The Dalles	NA	NA
17	Public (County)	River Road	East	Columbia Road	City of The Dalles	NA	NA
18	Public (County)	River Road	East	Crates Way	City of The Dalles	NA	NA

LEGEND

- Minimum 1,320-foot IAMP Limits
- IAMP Operation/Access Study Area
- Land Use Study Area
- Tax Lots

Type of Access

- (#) Public Approach
- [#] Private Approach

0 650 1,300 2,600 Feet

EXISTING ROADWAY ACCESS LOCATIONS
THE DALLES, OREGON

FIGURE **4-7**

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EXISTING ROADWAY DEFICIENCIES

No significant existing roadway deficiencies were identified within the study area along the paved sections of roadway, with the exception of sight-distance limitations at the east-bound off-ramp terminal at the I-84 Chenoweth Interchange. As summarized previously in the existing facilities inventory subsection, although no crashes were reported at the ramp terminal intersection from January 1, 2005 to December 31, 2007, the perception by some local residents is that sight distance is inadequate and poses a traffic hazard at this location.

The length and grade of the I-84 ramps are not consistent with current ODOT design standards based on the speed of vehicles entering and exiting I-84.

Traffic operations at each of the study intersections are currently acceptable during the critical weekday p.m. peak hour and there are no identified safety issues based on the crash history.

NATURAL AND CULTURAL RESOURCES

Land in the I-84/Chenoweth IAMP study area includes two Columbia River Gorge National Scenic Area (CRGNSA) designations: Urban Area and General Management Area (GMA) A-1 (160). These designations are intended to preserve natural resources within the CRGNSA; however, the land within the UGB is "urban exempt" and not subject to the CRGNSA.

Based on a regulatory review of state and local government publications (see Technical Memorandum #2) there are currently no known fish or wildlife habitat, flood plains, historic properties, or archeological resources, hazardous materials, or major utilities identified within the IAMP study area boundary. Due to the historic presence of indigenous peoples in the area, it is possible that unknown archeological resources related to the Confederated Tribes of Warm Springs are in existence in the area.

Two significant natural resources in or adjacent to the study area include Chenoweth Creek and the Columbia River. Development in areas identified as natural drainageways, or within the FEMA 100-year flood boundary are subject to provisions in Chapter 8 (Physical and Environmental Constraints) of the City's Development Code.

Existing wetland boundaries are currently unknown; a survey to be completed by the Department of State Lands in late 2009 is planned for the portion of the IMSA that is owned by WM3, Inc.

The study area also includes a portion of the Columbia River Gorge Historic Highway, which is popular with recreational drivers and cyclists. Also referred to as the Mosier-The Dalles Highway or US 30, the highway is classified in the Oregon Highway Plan as a District Highway and a Scenic Byway. The highway is also subject to the design standards in the Historic Columbia River Highway Master Plan. The 2006 Master Plan addresses history, highway section recommendations, management activities, restoration progress, and funding plans. The chapter on management activities describes general cultural resource management for the roadway, bridges, viaducts, tunnels, retaining walls, parapets, footbridges, picnic areas and campgrounds. The same chapter also describes scenic resource management and resource management measures such as access control, speed zones, shuttle buses, and signage.

SUMMARY

- The primary roadways within the study area include Interstate-84, West 6th Street, US 30, and River Road.
- All of the study roadways have a two-lane cross-section with the exception of Interstate-84 which is a four-lane facility.
- All of the study intersections operate at a volume-to-capacity ratio of 0.38 or less and a Level-of-Service "C" or better during the weekday p.m. peak hour which satisfies the ODOT volume-to-capacity thresholds and local mobility standards, respectively.
- Based on a review of the most recent five years of available crash data, there are no identified safety issues within the study area.
- Sight distance at the I-84 eastbound off-ramp is limited by the vertical curve of the bridge over I-84 and the UPRR. Given the distance (over 1500 feet) between the interchange and the nearest speed limit sign, a speed limit sign posted at 35 miles per hour (the design speed of the overpass) may help to reduce potential for crashes due to limited sight distance.
- There are currently 1818 access points (8 public/10 private) located within the Operations and Access Study Area along West 6th Street and River Road. The existing access points are a combination of public and private approaches.
- ODOT's access spacing standard within the vicinity of the interchange is 1,320 feet from the ramp terminals to any type of access (partial or full). Three private access points and two public accesses (River Road/River Trail Way and West 6th Street/Division Street intersections) do not meet ODOT's current access spacing standard. One of the private approaches that does not meet ODOT's standard is north of River Road on Highway 30; the other two private approaches are located on West 6th Street south of River Road.
- Access spacing standards for US 30, a district highway, are based on the spacing requirements stipulated in the OHP of 500 feet.
- Access spacing standards for West 6th Street, a City Arterial south of Division Street, are based on the spacing requirements stipulated in the City of The Dalles TSP of 300-400 feet. The driveways and streets on West 6th Street in the Operations and Access Study Area do not consistently meet these spacing standards.
- There are no consistent pedestrian or bicycle facilities providing connection between properties east and west of I-84.
- Two significant natural resources in or adjacent to the study area include Chenoweth Creek and the Columbia River. Based on a regulatory review of state and local government publications (*see Technical Memorandum #2 in the Volume 2 Technical Appendix*) there are currently no known fish or wildlife habitat, flood plains, historic properties, archeological resources, hazardous materials, or major utilities identified within the IAMP study area boundary. Due to the historic presence of indigenous peoples in the area, it is possible that unknown archeological resources related to the Confederated Tribes of Warm Springs are in existence in the area.

- Department of State Lands is to complete a wetlands study in 2009 identifying wetland impacts in the Chenoweth IAMP area, specifically for the WM3 property. From preliminary reports, it appears these wetlands can be mitigated.

Section 5
2030 Future Conditions

2030 Future Conditions

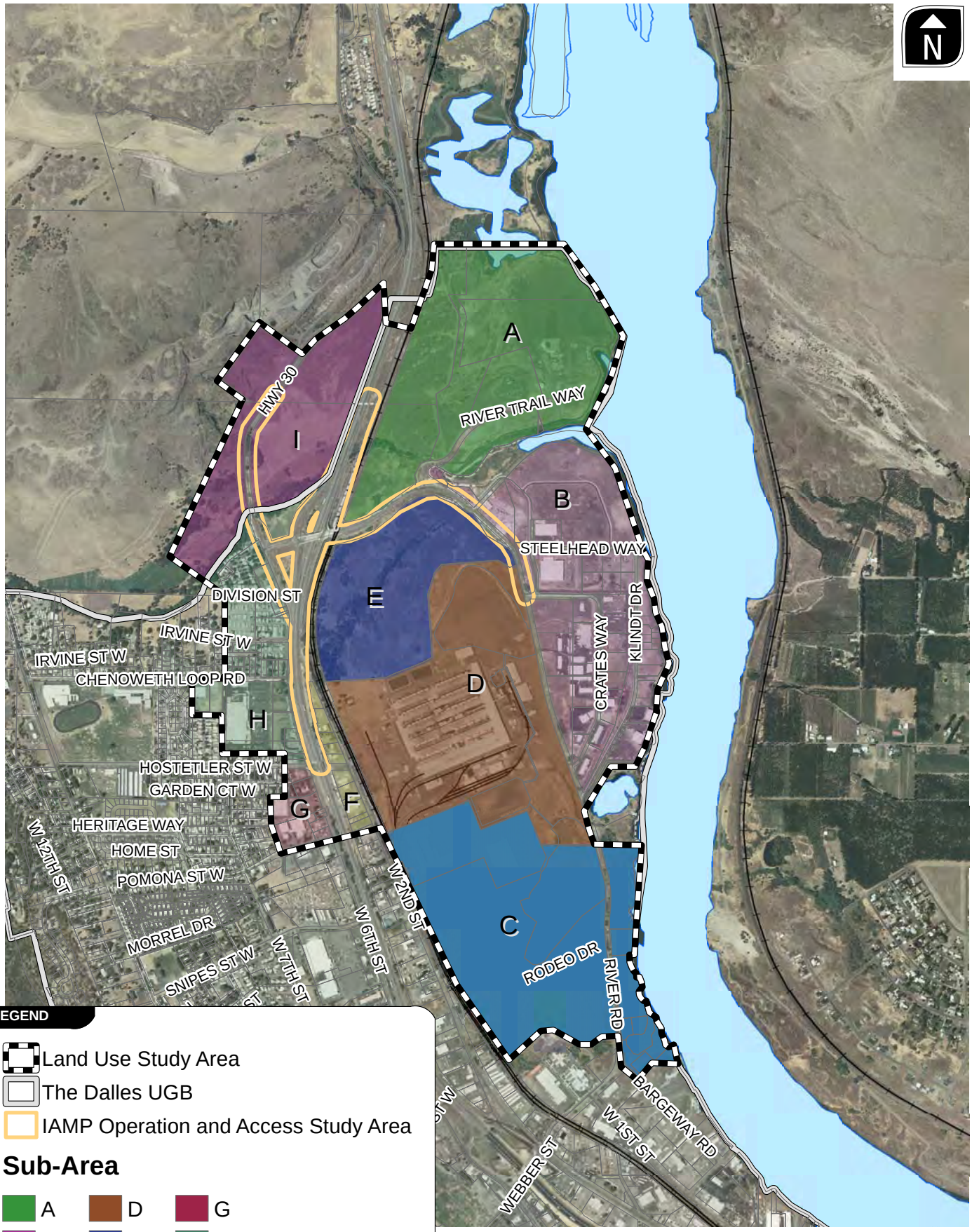
This section documents the future land use as well as the forecast traffic operations in the vicinity of the I-84 Chenoweth Interchange. Two future land use scenarios were developed with guidance from the Technical Advisory Committee (TAC) and Steering Committee (SC). The two Land Use Scenarios were assessed in year 2030 assuming no improvements are made to the system, beyond those already scheduled and funded.

FUTURE LAND USES

The analysis of future land uses within the vicinity of the I-84 Chenoweth Interchange was focused on parcels that are expected to have development or redevelopment potential that would generate traffic at the interchange. The analysis is intended to identify actions that could have a *favorable* effect on the facility, or an *adverse* effect on the facility. Figure 5-1 illustrates the parcels identified for study. The Land Use Study Area includes parcels that cumulatively include approximately 750 acres and incorporate a variety of land uses, including: commercial, industrial, residential, and agricultural. The majority of the land is zoned industrial.

For the purposes of forecasting future development potential and access alternatives, the study area was divided into eight sub-areas, as illustrated in Figure 5-1. The sub-areas were defined based on current zoning, the travel shed served, and point of primary access.

Each sub-area shown in Figure 5-1 is described in Table 5-1.



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SUB-AREA MAP
THE DALLES, OREGON

FIGURE **5-1**

TABLE 5-1 FUTURE CONDITIONS SUB-AREA ANALYSIS ZONES

Sub-area	Zoning Classifications	Developable or Re-Developable Land (Acres)	Non-Buildable	Developed/ Occupied	Total Acreage	Primary Access
A	I	126.2	0.00	10.3	136.5	River Trail Way at River Road
B	I	14.0	0.00	89.1	109.4	Crates Way at River Road
	CR	6.3				
C	I	79.1	47.6	20.3	147.0	River Road
	CR	0.0				
D	I	113.0	29.2	0.00	142.2	River Road, Hostetler Street
E	CLI	25.0	2.5	0.00	67.2	River Road at River Trail Way
	I	36.4	3.3			
F	CLI	4.3	0.0	3.0	7.3	Hostetler Street
G	CG	0.6	0.0	10.5	11.1	West 6th Street
H	CG	11.6	0.0	34.7	46.3	West 6th Street
I	LSA	0.0	0.0	80.6	80.6	US 30
Total		416.5	82.6	248.5	747.6	

Zoning Classifications: I – Industrial; CR – Recreational Commercial; CLI – Commercial/Light Industrial; CG – General Commercial

As shown in Table 5-1, sub-areas 'A', 'C', 'D', and 'E' have the greatest potential for development and each gain access to the I-84 Chenoweth Interchange via River Road. The following section describes the characteristics of the sub-areas.

Sub-Area "A"

Sub-area "A" is located in the NE corner of the Land Use Study Area. The majority of land within Sub-area "A" is currently vacant, except for a power sub-station located in the center of the Sub-area. All parcels within Sub-area "A" are designated for industrial use and are accessed via River Trail Way, which connects to River Road east of the I-84 Chenoweth Interchange. This plan was developed assuming land within sub-area "A" develops consistent with existing land use designations. Development with more intense uses may have an adverse effect on the I-84 Chenoweth Interchange.

Sub-Area "B"

The land within sub-area "B" is composed of currently developed and vacant parcels zoned for Industrial (I) and Recreational Commercial (CR) use. A total of 20.3 acres in the Sub-area have been estimated to be developable or to have the potential to be redeveloped. Access to the developable or re-developable parcels is primarily served through an unsignalized intersection on River Road at Crates Way (North). The IAMP was developed assuming land within sub-area "B" develops

consistent with existing land use designations. Development with more intense uses may have an adverse effect on the I-84 Chenoweth Interchange.

Sub-Area "C"

Sub-area "C" is composed of multiple properties on the east side of River Road just north of Webber Street and one large parcel west of River Road. The majority of land within Sub-area "C" is currently vacant, with the exception of several smaller developments on the east side of River Road. A total of 47.6 acres within sub-area "C" consists of non-buildable land, which has been designated as a Brownfield area. It is assumed that traffic generated by new development within Sub-area "C" will utilize the Chenoweth and Webber Street interchanges to access I-84. This plan was developed assuming land within sub-area "C" develops consistent with existing land-use designations. Development with more intense uses may have an adverse effect on the I-84 Chenoweth Interchange.

Sub-Area "D"

The largest redevelopment opportunity within the Land Use Study Area is the Northwest Aluminum site which solely comprises Sub-area "D." The sub-area is located southeast of the I-84 Chenoweth Interchange and currently has two accesses to River Road. The current plan for the 100-acre site is to make it shovel ready for future industrial uses. According to Northwest Aluminum's project manager, there have been several inquires and site visits by future industrial users and discussion about how best to utilize the site. One potential plan would include dividing it into smaller parcels for future uses. Future users would likely continue to access River Road. The site is reportedly a fairly clean site, having gone through PCB abatement in the 1990s, and ongoing soil sampling as part of a final work plan that will be submitted to DEQ in early 2009. The site is also anticipated to be certified by the Oregon Economic and Community Development Department as a certified "shovel ready" industrial site. The project manager anticipates that there will be new industrial uses on the site by 2010. This plan was developed assuming land within sub-area "D" develops consistent with existing land use designations. Development with more intense uses may have an adverse effect on the I-84 Chenoweth Interchange.

Sub-Area "E"

Sub-area "E" was comprised of one 67.2 acre parcel zoned Commercial/Light Industrial District (CLI) but has recently been partitioned into five parcels, all of which are owned by WM3, Inc. (WM3). Twenty-five acres of sub-area will be developed with commercial uses, consistent with existing zoning. A development application for a 149,147 square-foot Wal-Mart to be constructed on 18.08 of the 25 acres has been approved by the city and the remaining 6.92 acres are expected to be developed with commercial uses. As discussed in *Technical Memorandum #2 in the Technical Appendix*, the type of use that is allowed to develop on the additional 42.2 acres is dependent on the outcome of this analysis as identified by the Interchange Area Management Plan and Implementation, as described in Section 7 and Section 8.

Two future land use scenarios were developed for the future analysis based on variation of the development potential within Sub-area "E." The following identifies the assumptions of each Land Use Scenario:

Scenario #1

- Commercial development of 25 acres.
- Industrial development of 36.4 acres.
- Dedicated right-of-way and wetland tract to utilize 5.8 acres.

Scenario #2

- Commercial development of 61.4 acres of buildable land.
- Dedicated right-of-way and wetland tract to utilize 5.8 acres.

Sub-Area "F"

Multiple parcels within Sub-area "F" make up 4.3 acres of land zoned CLI that is expected to have potential for re-development. Access to the Sub-area "F" parcels is provided via West 2nd Street, which connects to West 6th Street via Hostetler Street. These land uses will likely utilize both the Chenoweth and Webber Street interchanges to access I-84 depending on the ultimate origination/destination of the trips. Given the nature of existing development and size/shape of the parcels in sub-area "F" it was assumed, for future estimation of traffic demand, the land will redevelop with uses that generate trips more similar to a light industrial use than shopping center use. Under CLI zoning both uses are allowed. Development with more intense uses may have an adverse effect on the I-84 Chenoweth Interchange.

Sub-Area "G"

Three vacant parcels on the west side of West 6th Street comprise approximately 0.6 acres of land. The parcels are currently zoned General Commercial (CG) and are expected to attract similar commercial development. Development with more intense uses than CG may have an adverse effect on the I-84 Chenoweth Interchange.

Sub-Area "H"

Sub-area "H" is zoned CG. The majority of land within sub-area "H" is currently developed, with the exception of one retail pad associated with the Home Depot development that is currently for sale. Several parcels west of West 6th Street and between Division Street and Chenoweth Loop are currently developed with mobile homes, but the existing zoning classifications and comprehensive plan map classify these parcels as CG. In order to provide a reasonably conservative analysis of a 20-year development horizon, it is assumed these parcels will redevelop as commercial uses over the next 20 years. The parcels expected to redevelop combine to make up 11.6 acres adjacent to West 6th Street. Development with more intense uses may have an adverse effect on the I-84 Chenoweth Interchange.

Sub-Area "I"

Sub-area "I" is comprised of land in the northwest quadrant of the I-84 Chenoweth Interchange. The majority of this land is not included in the existing City of The Dalles Urban Growth Boundary (UGB) and is zoned Large-Scale Agriculture (LSA) by Wasco County. An approximately 3.6 acres parcel in the NW quadrant of the Chenoweth Interchange within sub-area "I" is within the UGB boundary, but is owned by ODOT and is not expected to be developed in the next 20 years.

It is difficult to anticipate when, or if, development outside the existing City of The Dalles UGB will occur in the 20-year planning horizon. Currently, this land is designated a National Scenic Area (NSA) and is governed by the provisions of the Columbia River Gorge National Scenic Area (CRGNSA) Act. The purpose of the CRGNSA Act is to protect and provide for the enhancement of the scenic, cultural, recreational and natural resources of 292,500 acres within the Gorge; and, to protect and support the economy of the Columbia River Gorge area by encouraging growth to occur in existing urban areas and by allowing future economic development. Uses and development on county land in the IMSA must comply with both Wasco County and CRGNSA Management Plan regulations according to applicable land use designations.

The City of The Dalles 2007 Growth Management Report provides findings to support a proposed expansion of the 2026 UGB, the expansion of The Dalles "Urban Area" consistent with the CRGNSA Act, and the establishment of the 2056 The Dalles Urban Reserve Area (URA). The current NSA designation must be converted to Urban Area in order to accommodate the adoption of the UGB expansion and the establishment of a URA. A rules committee convened by the Columbia River Gorge Commission must determine whether this conversion constitutes a "minor" or "major" amendment to the NSA management plan (see Columbia River Gorge National Scenic Area Management Plan/National Scenic Area Act section in *Technical Memorandum #2 in Appendix "B" of the I/84 Chenoweth IAMP Technical Appendix*). A minor amendment could be decided by the Columbia River Gorge Commission while a major amendment would need to be decided by Congress. It is possible that the rules committee decision and subsequent action, including potential appeals, will take several years.

According to the Generalized Comprehensive Plan (Map 6 in the Growth Management Report) the UGB expansion and designation of URA areas to the north/northwest of the city, including lands in the vicinity of the I-84 Chenoweth Interchange, are intended primarily for residential use. The Growth Management Report documents a twenty-year land need (to 2026, and in addition to land already inside the UGB) of approximately 540 gross buildable acres of residential land and approximately 85-120 buildable acres for employment throughout the City of The Dalles. This is the amount of land that is being proposed for inclusion in the UGB.

Given that there is uncertainty as to whether or not the UGB may be expanded, the land outside of the existing UGB is not assumed to generate new trips prior to 2030. However, if future expansion of the UGB includes the land in the northwest quadrant of the interchange, the interchange area should be evaluated, and the IAMP updated, as part of the amendment.

YEAR 2030 NO-BUILD TRAFFIC VOLUMES FORECAST METHODOLOGY

Year 2030 "No-Build" traffic volume forecasts for intersection turning movements and street segments were developed in order to analyze the effects of traffic growth on the I-84 Chenoweth Interchange and the surrounding transportation system. The year 2030 "No-Build" scenario was developed based on the currently adopted Wasco County and the City of The Dalles comprehensive plans. The remainder of this section describes the methodology and assumptions used to develop year 2030 forecasts.

Future year 2030 no-build traffic volumes were developed by considering the following traffic growth through year 2030:

- Future traffic growth related to development and redevelopment of land in the vicinity of the I-84 Chenoweth Interchange (including sub-areas "A" through "I").
- Future traffic related to regional growth within The Dalles UGB and along the I-84 Interstate corridor.

The specific assumptions used in each of these traffic growth components are summarized below.

Development and Redevelopment Traffic

To account for local traffic growth attributed to the development and redevelopment of vacant and re-developable land in the vicinity of the I-84 Chenoweth Interchange, the reasonable "worst-case" trip-generating potential of the properties was calculated.

The reasonable "worst-case" trip-generation potential of each parcel was estimated using a two-step approach. Step one included reducing the developable or re-developable area (summarized in Table 5-2) by 20 percent to account for utility and roadway right-of-way. Step two applied a Floor Area Ratio (FAR) of 0.25 for commercial zones and 0.40 for industrial lands. The Technical Advisory Committee agreed that these FARs represent a maximum FAR that could be expected for the area. Table 5-2 and Table 5-3 provide a summary of the development assumed to occur under Land Use Scenario #1 and #2, respectively.

The City of The Dalles Development Code does not specify a maximum FAR, but limits the height of development to 40 feet in CR zones and 55 feet in I, CLI, and CG zones.

TABLE 5-2 I-84 CHENOWETH INTERCHANGE AREA DEVELOPMENT ASSUMPTIONS – SCENARIO #1

Land Use	Total Developable or Re-developable Land Area (Acres)	Utilities and ROW (20%)	Net Developable or Re-developable Land Area (Acres)	FAR	Size (1,000 Sq. Feet GLA)
Sub-area "A"					
Industrial	126.2	(25.0)	101.2	0.40	1,763
Sub-area "B					
Industrial	14.0	(3.0)	11.0	0.40	192
Commercial	6.3	(1.0)	5.3	0.25	58
Sub-area "C"					
Industrial	79.1	(16.0)	63.1	0.40	1,099
Sub-area "D"					
Industrial	113.0	(23.0)	90.0	0.40	1,567
Sub-area "E"					
Commercial/ Light Industrial[1]	25.0	-	25.0	0.25	272
Industrial[1]	36.4	-	36.4	0.40	634
Sub-area "F"					
Commercial/ Light Industrial	4.3	(1.0)	3.3	0.25	35
Sub-area "G"					
Commercial	0.6	0.0	0.6	0.25	6
Sub-area "H"					
Commercial	11.6	(2.0)	9.6	0.25	104
Sub-area "I"					
LSA	0.0	0.0	0.0	-	-
				Total Industrial	5,255
				Total Commercial	168
				Total Commercial/Light Industrial	307
				TOTAL	**5,730**

[1] The developable land for Sub-area "E" includes a 5.83 acre reduction for utility and ROW land needs based on the Chenoweth Station Subdivision development application dated October 17, 2008.

TABLE 5-3 I-84 CHENOWETH INTERCHANGE AREA DEVELOPMENT ASSUMPTIONS – SCENARIO #2

Land Use	Total Developable or Re-developable Land Area (Acres)	Utilities and ROW (20%)	Net Developable or Re-developable Land Area (Acres)	FAR	Size (1,000 Sq. Feet GLA)
Sub-area "A"					
Industrial	126.2	(25.0)	101.2	0.40	1,763
Sub-area "B					
Industrial	14.0	(3.0)	11.0	0.40	192
Commercial	6.3	(1.0)	5.3	0.25	58
Sub-area "C"					
Industrial	79.1	(16.0)	63.1	0.40	1,099
Commercial	0.0	0.0	0.0	0.25	0
Sub-area "D"					
Industrial	113.0	(23.0)	90.0	0.40	1,567
Sub-area "E"					
Commercial/ Light Industrial[1]	61.4	-	61.4	0.25	669
Sub-area "F"					
Commercial/ Light Industrial	4.3	(1.0)	3.3	0.25	35
Sub-area "G"					
Commercial	0.6	0.0	0.6	0.25	6
Sub-area "H"					
Commercial	11.6	(2.0)	9.6	0.25	104
Sub-area "I"					
LSA	0.0	0.0	0.0	-	-
				Total Industrial	4,621
				Total Commercial	168
				Total Commercial/Light Industrial	704
				TOTAL	**5,493**

[1] The developable land for Sub-area "E" includes a 5.83 acre reduction for utility and ROW land needs based on the Chenoweth Station Subdivision development application dated October 17, 2008.

The trip generation potential for each sub-area was calculated for the weekday p.m. peak hour using the 7th Edition of Trip Generation (Reference 4), published by the Institute of Transportation Engineers (ITE). ITE trip generation rates for General Light Industrial developments were applied to the estimated square footage of buildings that could be constructed on parcels zoned Industrial. ITE's Shopping Center trip generation rates (fitted curve equation) were applied to the estimated

building sizes on parcels zoned CG. Parcels zoned CR were estimated by ITE's Specialty Retail rates. Pass-by trip reductions were applied to ITE Shopping Center trip generation rates only.

The assumed distribution patterns of trips generated within each sub-area were based on the existing zoning and relative attractions within the overall study area. Trip distribution patterns for Commercial and Industrial uses was developed based on trip distribution patterns developed for the WM3 site and knowledge of existing travel patterns within the City of The Dalles. Figure 5-2 and Figure 5-3 illustrate the estimated trip distribution patterns for commercial and industrial sub-areas, respectively.

A summary of the estimated net new trip generation potential of vacant and re-developable lands under Scenarios #1 and #2 are shown in Table 5-4 and Table 5-5, respectively. Net new trip generation potential reflects pass-by trip reductions. It was assumed that up to 34 percent of new trips generated by commercial developments are pass-by trips as long as the number of pass-by trips did not exceed 10 percent of through volumes at the site access point along River Road or West 6th Street. Under Scenario #2 the number of pass-by trips associated with commercial development within sub-area "E" was limited to 24 percent of new trips so that the commercial pass-by trips would be no more than ten percent of the traffic volumes projected on River Road from industrial development.

(NO SCALE)

84
30
US 30
3%
20%
RIVER TRAIL WAY
RIVER ROAD
CRATES WAY
5%
HOSTETLER STREET
10%
6TH STREET
WEBBER STREET
84
20%
7%
20%
15%

TRIP DISTRIBUTION PATTERN
COMMERCIAL LAND USE
THE DALLES, OREGON

FIGURE 5-2

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(NO SCALE)

84
30
US 30
3%
20%
RIVER TRAIL WAY
RIVER ROAD
CRATES WAY
HOSTETLER STREET
10%
6TH STREET
WEBBER STREET
84
15%
20%
25%
7%

TRIP DISTRIBUTION PATTERN
INDUSTRIAL LAND USE
THE DALLES, OREGON

FIGURE **5-3**

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TABLE 5-4 FORECASTED TRIP GENERATION – SCENARIO #1

Land Use	ITE Code	Size (1,000 sq. feet)	Weekday PM Peak Hour		
			Total	In	Out
Sub-Area "A"					
Industrial	110	1,763	1,730	210	1,520
Sub-Area "B"					
Industrial	110	192	190	25	165
Commercial Recreational	814	58	160	70	90
Sub-Area "C"					
Industrial	110	1,099	1,080	130	950
Sub-Area "D"					
Industrial	110	1,567	1,540	185	1,355
Sub-Area "E"					
Industrial	110	634	620	75	545
Commercial Light Industrial	820	272	1,210	605	605
Pass-By Trip Reduction (34%)			*(410)*	*(205)*	*(205)*
Net New Commercial Trips			800	400	400
Sub-Area "F"					
Commercial Light Industrial	110	35	30	5	25
Sub-Area "G"					
General Commercial	820	6	100	50	50
Pass-By Trip Reduction (34%)			*(30)*	*(15)*	*(15)*
Net New Trips			70	35	35
Sub-Area "H"					
Commercial	820	104	640	320	320
Pass-By Trip Reduction (34%)			*(220)*	*(110)*	*(110)*
Net New Trips			420	210	210
Total New Trips			7,300	1,675	5,625
Pass-By Trip Reduction (34%)			*(660)*	*(330)*	*(330)*
Net New Trips			6,640	1,345	5,300

[1]ITE Land Use 820: Shopping Center was applied for Commercial zoning using the fitted equation.

[2]ITE Land Use 110: Light Industrial was applied to Industrial Sub-areas using the average trip rate.

As shown in Table 5-4, Scenario #1 assumes that 634,000 square feet of industrial development and 272,000 square feet of commercial could occur in sub-area "E" resulting in a total of 1,420 net new weekday p.m. peak hour trips generated by sub-area "E." A total of 6,640 net new weekday p.m. peak hour trips are expected to be generated under Scenario #1 from 5,730,000 square feet of

development (5,255,000 square feet of industrial and 475,000 square feet of commercial). Table 5-5 summarizes forecast trip generation for Scenario #2.

TABLE 5-5 FORECASTED TRIP GENERATION – SCENARIO #2

Land Use	ITE Code	Size (1,000 sq. feet)	Weekday PM Peak Hour		
			Total	In	Out
Sub-Area "A"					
Industrial	110	1,763	1,730	210	1,520
Sub-Area "B"					
Industrial	110	192	190	25	165
Commercial Recreational	814	58	160	70	90
Sub-Area "C"					
Industrial	110	1,099	1,080	130	950
Sub-Area "D"					
Industrial	110	1,567	1,540	185	1,355
Sub-Area "E"					
Commercial Light Industrial	820	669	2,190	1,095	1,095
Pass-By Trip Reduction (24%)			*(530)*	*(265)*	*(265)*
Net New Trips			1,660	830	830
Sub-Area "F"					
Commercial Light Industrial	110	35	30	5	25
Sub-Area "G"					
General Commercial	820	6	100	50	50
Pass-By Trip Reduction (34%)			*(30)*	*(15)*	*(15)*
Net New Trips			70	35	35
Sub-Area "H"					
Commercial	820	104	640	320	320
Pass-By Trip Reduction (34%)			*(220)*	*(110)*	*(110)*
Net New Trips			420	210	210
Total New Trips			7,660	2,090	5,575
Pass-By Trip Reduction (34%)			*(780)*	*(390)*	*(390)*
Net New Trips			6,880	1,700	5,185

[1]ITE Land Use 820: Shopping Center was applied for Commercial zoning using the fitted equation provided.
[2]ITE Land Use 110: Light Industrial was applied to Industrial Sub-areas using the average trip generation rate.

As shown in Table 5-5, Scenario #2 assumes that 61.4 acres in sub-area "E" will be developed with commercial uses resulting in a total of 1,660 net new trips generated by sub-area "E." A total of

6,880 net new p.m. peak hour trips are expected to be generated under Scenario #2 from 5,493,000 square feet of development (4,621,000 square-feet of industrial and 872,000 square-feet of commercial), which reflects an increase of 240 net new weekday p.m. peak hour trips above Scenario #1.

Background Traffic Growth

The proposed annual growth rates were determined based on a review of ODOT's Future Year Volume Tables, historical ADT counts, and future development assumptions within the study area. The growth was applied to the existing traffic volumes described in Section 4 to obtain future year forecast volumes.

US Highway 30 – West of 6th Street

An annual local growth rate was applied to the existing through volumes along West 6th Street, all turning movements at the Highway 30/River Road intersection, and turning movements to/from I-84 to the west. An annual growth rate was not be applied to local and collector street turning movements along West 6th Street as these trips are generated by existing development that is not impacted by regional growth. Given that growth rates were not applied consistently to all study intersections, future volumes were adjusted to address the overlap in trips being generated directly from within the land use sub-areas and those of a regional nature calculated by the growth rates along I-84, US Highway 30, and West 6th Street.

Based on a review of ODOT's Future Year Volume Tables (which are based on historic traffic volumes), a local growth rate was estimated for the IMSA based on two data points; one north of the US 30/River Road intersection, and one south of the intersection. To estimate a growth rate, volumes for the year 2007 were compared with ODOT's 2027 estimates. Table 5-6 illustrates the estimated local growth rates.

TABLE 5-6 BACKGROUND GROWTH RATE CALCULATIONS ON US 30

Mile Point	Location	Average Annual Daily Traffic		R-Squared Value	Per Year Growth Rate (2007-2027)[1]
		2007	2027		
38.00	0.05 mile north of connection from Columbia River Highway (I-84)	1,700	2,300	0.79	1.76%
38.53	0.13 mile south of connection from Columbia River Highway (I-84)	5,500	8,100	0.97	1.45%
Average					**1.6%**

[1] Per Year Growth Rate = [(2027 AADT– 2007 AADT) / (2007 AADT)] / (2027 – 2007)

The R-Squared Value shown in Table 5-6 indicates the degree of correlation between the dependent variable (historical traffic volume) and the independent variable (time). The ODOT Analysis Procedures Manual states that values over 0.75 are preferred, which indicates that the chosen

locations are acceptable for this analysis. As shown in Table 5-6, a 1.6% annual growth rate was identified for background traffic volumes in the vicinity of the I-84 Chenoweth Interchange. Therefore, through traffic volumes on Highway 30 and West 6th Street from 2008 will be increased by 35.2% to the forecast year 2030.

River Road

An annual growth rate will not be applied to intersections on River Road that are east of I-84 because this area has very limited through traffic volumes and all growth will be related to future redevelopment or new development as previously defined.

Interstate-84

The I-84 traffic growth rate will be applied to the existing through traffic volumes to forecast future traffic projections for I-84. Traffic volume analyses on I-84 east and west of the I-84 Chenoweth Interchange indicate that the interstate traffic volume have been steadily increasing over the past 10 years. Based on a review of ODOT's Future Volume Tables, a background growth rate was estimated for I-84 near the Chenoweth Interchange. Two data points on I-84 were used in the calculation, including one on each side of the interchange. To determine a growth rate estimate, volumes for the year 2005 were compared with ODOT's 2027 estimates. Table 5-7 summarizes the estimated growth rates.

TABLE 5-7 BACKGROUND GROWTH RATE CALCULATIONS ON I-84

Mile Point	Location	Average Annual Daily Traffic		R-Squared Value	Per Year Growth Rate (2005-2027)[1]
		2005	2027		
77.15	0.05 mile east of Rowena Interchange	19,900	31,300	0.93	2.6%
82.62	Hostetler Way Overcrossing	19,300	30,500	0.92	2.1%
Average					**2.4%**

[1] Per Year Growth Rate = [(2027 AADT– 2005 AADT) / (2005 AADT)] / (2027 – 2005)

The R-Squared Value indicates the degree of correlation between the dependent variable (historical traffic volume) and the independent variable (time). The APM states that values over 0.75 are preferred, which indicates that the chosen locations are acceptable for this analysis. As shown in Table 5-7, a 2.4% annual growth rate was identified for background traffic volumes on I-84 in the vicinity of the Chenoweth Interchange. Therefore, through traffic volumes on I-84 from 2008 will be increased by 52.8% to the forecast year 2030.

PLANNED TRANSPORTATION IMPROVEMENTS

No transportation improvements inside the IMSA are identified in ODOT's Statewide Transportation Improvement Plan (STIP) or the City of The Dalles Transportation System Plan.

Mitigations associated with the 25-acre commercial development approved on the WM3 Property in Sub-area "E" are expected to be completed by 2030. The mitigations associated with the WM3 commercial development, as outlined in the Chenoweth Station subdivision application, are outlined in Table 5-8. These improvements were included in the 2030 No-Build scenario analysis. Figure 5-4 illustrates the year 2030 no-build lane configurations and traffic control devices.

TABLE 5-8 WM3 DEVELOPMENT MITIGATIONS

Intersection / Roadway	Recommended Mitigation	Completion By
River Road/ River Trail Way	Install 75-foot eastbound and westbound left-turn lanes with taper on River Road.	Day of Opening
River Road/ River Trail Way	Install 100-foot eastbound right-turn lane on River Road.	Day of Opening
River Road/ River Trail Way	Install northbound left-turn and shared through/right lanes out of development.	Day of Opening
West 6th Street (Hwy 30)/ River Road	Restripe northbound West 6th Street approach to include a 100-foot right-turn lane with taper at River Road	Year 2027 or Earlier
West 6th Street (Hwy 30)/ River Road	Restripe westbound left-turn lane on River Road to provide a minimum of 250 feet of storage	Year 2027 or Earlier
I-84 EB Ramp/ River Road	Install Traffic Signal	Year 2027 or Earlier
I-84 WB Ramp/ River Road	Install Traffic Signal	Year 2027 or Earlier

YEAR 2030 NO-BUILD TRAFFIC CONDITIONS

Future year 2030 "No-Build" weekday p.m. peak hour traffic volumes were determined for each future scenario by applying growth rates and trip generation estimates to the existing 2008 traffic network. The resulting year 2030 No-Build weekday p.m. peak hour traffic volumes for Scenarios #1 and #2 are shown in Figure 5-5 and Figure 5-6, respectively.

All level of service analyses were performed in accordance with the procedures stated in the 2000 Highway Capacity Manual (Reference 3). The operational standard for the ramp terminals is a volume-to-capacity ratio of 0.75. The operational standard for all other study intersections is a LOS D. Traffic operations analysis was performed for the study intersections using the forecast year 2030 No-Build weekday p.m. peak hour traffic volumes for Scenarios #1 and #2.

(NO SCALE)

RIVER TRAIL WAY
COLUMBIA RD
US 30
84
RIVER ROAD
STEELHEAD WY
CRATES WAY
DIVISION ST
IRVINE ST
CHENOWETH LOOP
6TH STREET
2ND STREET
HOSTETLER STREET
KLINDT DRIVE
WEBBER STREET

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

FUTURE 2030 LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
THE DALLES, OREGON

FIGURE 5-4

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(NO SCALE)

4 CM=WBLT LOS=F Del=>50 V/C=>1.0: 65, 45, 145, 1195, 95, 725

5 CM=SBTL LOS=F Del=>50 V/C=>1.0: 280, 6, 200, 630, 140, 1060, 530

6 CM=NB LOS=F Del=>50 V/C=>1.0: 350, 480, 885, 1450, 130, 220

7 CM=SB LOS=F Del=>50 V/C=>1.0: 975, 105, 470, 155, 200, 340, 90, 715, 30, 850, 10, 65

3 CM=EB LOS=F Del=>50 V/C=>1.0: 85, 1125, 85, 105, 85, 645

8 CM=SB LOS=D Del=29.2 V/C=0.29: 10, 725, 35, 10, 5, 800

2 CM=EBLT LOS=F Del=>50 V/C=>1.0: 180, 1060, 135, 145, 175, 585

9 CM=EB LOS=F Del=>50 V/C=>1.0: 75, 100, 325, 705, 175

1 CM=WBLT LOS=F Del=>50 V/C=>1.0: 290, 855, 70, 125, 50, 80, 220, 155, 575, 135, 500, 85

10 CM=WB LOS=F Del=>50 V/C=0.94: 225, 105, 175, 15, 5, 700

US 30

84

RIVER TRAIL WAY

COLUMBIA RD

RIVER ROAD

STEELHEAD WY

CRATES WAY

DIVISION ST

IRVINE ST

CHENOWETH LOOP

HOSTETLER STREET

6TH STREET

2ND STREET

KLINDT DRIVE

WEBBER STREET

15,000 VEH/DAY

12,500 VEH/DAY

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2030 TRAFFIC CONDITIONS, WEEKDAY PM PEAK HOUR
SCENARIO #1
THE DALLES, OREGON

FIGURE 5-5

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(NO SCALE)

4
CM=WBLT
LOS=F
Del=>50
V/C=>1.0
55 55
145
1165
95 820

5
CM=SBTL
LOS=F
Del=>50
V/C=>1.0
280 270
735 140
1020 565

6
CM=NB
LOS=F
Del=>50
V/C=>1.0
350 655
885 1455
130 290

7
CM=SB
LOS=F
Del=>50
V/C=>1.0
950 150 440
155 210 580
85 630 85
730 15 85

3
CM=EB
LOS=F
Del=>50
V/C=>1.0
85 1095
85 105
85 735

8
CM=SB
LOS=E
Del=39.0
V/C=0.99
10 725
35 10
5 745

2
CM=EBLT
LOS=F
Del=>50
V/C=>1.0
180 1030
135 145
175 680

9
CM=EB
LOS=F
Del=>50
V/C=>1.0
745 35
30 285
720 270

1
CM=WBLT
LOS=F
Del=>50
V/C=>1.0
275 835 70
165 50 80
220 155 575
135 550 85

10
CM=WB
LOS=F
Del=>50
V/C=>1.0
125 815
200 15
5 780

US 30
84
RIVER TRAIL WAY
COLUMBIA RD
RIVER ROAD
STEELHEAD WY
1300 FT ONE WAY
1300 FT ONE WAY
DIVISION ST
IRVINE ST
CHENOWETH LOOP
6TH STREET
2ND STREET
HOSTETLER STREET
CRATES WAY
KLINDT DRIVE
WEBBER STREET

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2030 TRAFFIC CONDITIONS, WEEKDAY PM PEAK HOUR
SCENARIO #2
THE DALLES, OREGON

FIGURE 5-6

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As shown in Figure 5-5 and Figure 5-6, the volume-to-capacity ratios of the ramp terminal intersections exceed 1.0 and all other intersections are forecast to operate with a LOS F under Scenarios #1 and #2.

SUMMARY OF YEAR 2030 FUTURE YEAR CONDITIONS

The year 2030 "No-Build" forecasts and analysis resulted in the following findings:

- Based on historic volumes on US 30, local growth is forecast at a rate of 1.6% per year from 2008 to 2030 resulting in a total of 35.2% growth over 22 years. This growth rate was applied to through-traffic volumes on West 6th Street, all turning movements at the West 6th Street (Hwy 30)/River Road intersection, and turning movements to/from West 6th Street at the I-84 ramp terminal intersections.
- The potential for new development or redevelopment of properties within the IMSA was accounted for by developing estimates of trip generation for two No-Build scenarios, based on reasonable worst-case development that could occur through 2030. Scenario #1 assumes the WM3 site will be developed with 25 acres of commercial and 36.4 acres of industrial uses. Scenario #2 assumes the WM3 site will be developed entirely as commercial uses. Both scenarios assume development of all other sub-areas will be consistent with existing land use designations in the City of The Dalles Comprehensive Plan and the Wasco County Comprehensive Plan.
    a. Land Use Scenario #1 is forecast to generate approximately 6,640 net new trips during the weekday p.m. peak hour associated with 5,255,000 square-feet of industrial space and 475,000 square-feet of commercial space.
    b. Land Use Scenario #2 is forecast to generate 6,880 net new trips during the weekday p.m. peak hour associated with 4,656,000 square-feet of industrial space and 837,000 square-feet of commercial space.
- No capacity enhancing transportation improvements were identified inside the IAMP study area in ODOT's STIP or the City of The Dalles TSP.
- Mitigations associated with the 25-acre commercial development approved on the WM3 Property in Sub-area 'E' are expected to be completed by 2030 and were included in the 2030 "No Build" scenario analysis.
- Under Scenarios #1 and #2, the I-84 ramp terminal intersections at River Road are forecast to operate with volume-to-capacity ratios greater than 1.0 during the weekday p.m. peak hour. ODOT's volume-to-capacity ratio standard for the interchange ramp terminals is 0.75.
- Under Scenarios #1 and #2 all unsignalized intersections on River Road and on West 6th Street within the IAMP Operation and Access Study Area are forecast to operate at LOS F during the weekday p.m. peak hour. The City of The Dalles specifies a LOS D or better be maintained.

Section 6
Alternative Development and Analysis

Alternative Development and Analysis

This section documents the development and evaluation of the local circulation and access concepts as part of the IAMP process. Twenty-two concepts were developed and taken through a thorough screening process that included input from Technical Advisory Committee (TAC), Steering Committee (SC), local property and business owners, and the public at-large. Based on results of the initial screening, a refined analysis was conducted that resulted in the identification of a preferred alternative. The following sections document the concepts that were evaluated and the results of the screening process.

CONCEPT DEVELOPMENT PROCESS

The development of the initial local circulation and access concepts for the I-84 Chenoweth Interchange began with a design workshop at a joint meeting of the TAC and SC on February 11, 2009. Additional concepts were developed at a public workshop that was attended by local agency representatives, interested citizens, business owners, and landowners on March 5, 2009.

Workshop participants were presented with an overview of applicable design parameters and local circulation/access management techniques. Following the presentation, participants were asked to sketch their ideas for improving the future local circulation and access system. Participants were encouraged to consider improvement opportunities at all intersections within the IMSA, including the I-84 Chenoweth Interchange, and opportunities to create new connections to support the collector/local street circulation network.

Following the completion of the public workshop, the consultant team refined the ideas generated during TAC and SC Meeting and public workshops to develop a series of individual local circulation and access concepts in the north, south, and east regions of the IMSA. These concepts are described in the following sections.

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS

Based on the general design ideas developed as part of the workshop exercises, a set of local circulation and access concepts were developed and grouped by geographic location. A total of 22 concepts were developed, including: 6 to the west of I-84; 13 to the east of I-84 and south of the River Road; and, 3 to the north of River Road. These concepts represent a culmination of the individual design ideas developed by the workshop participants. Each of the concepts and key design components are described below.

Westerly Local Circulation and Access Design Concepts

Local circulation and access design concepts developed for the portion of the study area west of I-84 include: access control along West 6th Street (US 30) and modifications to traffic control at the intersections on West 6th Street (US 30) at River Road, Division Street, Chenoweth Loop, and Hostetler Street. Each westerly (W-X) concept is described below and illustrated in Figure 6-1 through Figure 6-6.

Concept W-1 (Combined West 6th Street and I-84 EB Ramp Terminal Roundabout)

- Combine adjacent intersections of West 6th Street (US 30)/River Road and I-84 Eastbound Ramp Terminals/River Road at a single roundabout.
- Convert the intersections of Chenoweth Loop and Hostetler Way at West 6th Street to signal control.
- Restrict access on West 6th Street between River Road and Chenoweth Loop to public streets including Division Street, Irvine Street, and Lee Street. The existing private approaches on West 6th Street would be routed via backage roads and/or cross-over easements to West 6th Street via Division Street and Irvine Street.
- Provide a local street access from Division Street to property in the northwest quadrant of the West 6th Street/Division Street intersection.
- Relocate the private driveway on the west side of US 30 (just north of Chenoweth Creek) to a location further north of the West 6th Street (US 30)/River Road intersection to meet the 1,320-foot access spacing standard.

Concept W-2 (West 6th Street/River Road Roundabout)

- Convert West 6th Street (US 30)/River Road intersection from stop control to a roundabout.
- Convert the intersections of Chenoweth Loop and Hostetler Way at West 6th Street from stop control to signal control.
- Restrict eastbound left-turn movements from Division Street to West 6th Street.
- Restrict access on West 6th Street between River Road and Chenoweth Loop to public streets, including Division Street, Irvine Street, and Lee Street. The existing private approaches on West 6th Street would be routed to West 6th Street via Division Street and Irvine Street.
- Provide a local street access from Division Street to property in the northwest quadrant of the West 6th Street/Division Street intersection.
- Relocate the private driveway on the west side of US 30 (just north of Chenoweth Creek) to a location further north of the West 6th Street (US 30)/River Road intersection to meet the 1,320-foot access spacing standard.

Concept W-3 (Dual Roundabouts with West 6th Street Center Median)

- Convert West 6th Street (US 30)/River Road and West 6th Street/Chenoweth Loop intersections from stop control to roundabouts.
- Construct a median on West 6th Street from River Road to Chenoweth Loop.
- Convert the intersection of West 6th Street/Hostetler Way from stop control to signal control.
- Relocate the private driveway on the west side of US 30 (just north of Chenoweth Creek) to a location further north of the West 6th Street (US 30)/River Road intersection to meet the 1,320-foot access spacing standard.

Concept W-4 (Reconfigured West 6th Street/River Road Intersection)

- Modify geometry of West 6th Street (US 30)/River Road intersection to provide continuous through movements between River Road and West 6th Street to the south. US 30 would be realigned to intersect River Road as a perpendicular, stop-controlled approach.
- Convert the intersections of Chenoweth Loop and Hostetler Way at West 6th Street to signal control.
- Restrict access on West 6th Street between River Road and Chenoweth Loop to public streets, including Division Street, Irvine Street, and Lee Street. The existing private approaches on West 6th Street would be routed to West 6th Street via access to Division Street and Irvine Street.
- Provide a local street access from Division Street to property in the northwest quadrant of the West 6th Street/Division Street intersection.
- Relocate the private driveway on the west side of US 30 (just north of Chenoweth Creek) to a location further north of the West 6th Street (US 30)/River Road intersection to meet the 1,320-foot access spacing standard.

Concept W-5 (Traffic Signals with West 6th Street Center Median)

- Convert the following intersections from stop control to signal control:
    - West 6th Street (US 30)/River Road
    - West 6th Street/Division Street
    - West 6th Street/Irvine Street
    - West 6th Street/Chenoweth Loop
    - West 6th Street/Hostetler Street
- Construct median on West 6th Street from River Road to Irvine Street.

Concept W-6 (Local Frontage Road on West 6th Street)

- Convert the following intersections from stop control to signal control:
    - West 6th Street (US 30)/River Road

  - West 6th Street/Division Street
  - West 6th Street/Chenoweth Loop
  - West 6th Street/Hostetler Street
- Restrict access on West 6th Street between River Road and Irvine Street and develop a frontage road that would provide access to commercial and residential properties.
- Extend West 7th Street from Irvine Street to Division Street to improve local connectivity and provide a connection from Division Street to West 6th Street.
- Relocate the private driveway on the west side of US 30 (just north of Chenoweth Creek) to a location further north of the West 6th Street (US 30)/River Road intersection to meet the 1,320-foot access spacing standard.

SCALE
0 300 600

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL LOCAL CIRCULATION AND ACCESS DESIGN CONCEPT
CONCEPT W-1: COMBINED WEST 6TH STREET AND I-84 EB RAMP TERMINAL ROUNDABOUT
THE DALLES, OREGON

FIGURE 6-1

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SCALE
0 300 600

ONLY

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT W-2: WEST 6TH STREET/RIVER ROAD ROUNDABOUT
THE DALLES, OREGON

FIGURE 6-2

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SCALE
0 300 600

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT W-3: DUAL ROUNDABOUTS WITH WEST 6TH STREET CENTER MEDIAN
THE DALLES, OREGON

FIGURE 6-3

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SCALE
0 300 600

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT W-4: RECONFIGURED 6TH STREET/RIVER ROAD INTERSECTION
THE DALLES, OREGON

FIGURE 6-4

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SCALE
0 300 600

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT W-5: TRAFFIC SIGNALS WITH 6TH STREET MEDIAN
THE DALLES, OREGON

FIGURE 6-5

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SCALE
0 300 600

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT W-6: LOCAL FRONTAGE ROAD ON 6TH STREET
THE DALLES, OREGON

FIGURE 6-6

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Easterly Local Circulation and Access Design Concepts

Local circulation and access design concepts developed for the portion of the study area in the southeast quadrant of the interchange include: constructing additional connections from River Road to West 2nd Street and ultimately to West 6th Street; modifications to traffic control at the River Road/River Trail Way intersection; and, construction of local streets to improve connectivity and circulation between West 2nd street and River Road. Each easterly (E-X) concept is described below and illustrated in Figure 6-7 through Figure 6-18.

Concept E-1 (New Interchange)

- Construct a new fly-over style interchange with I-84 between the existing Chenoweth and Webber interchanges. The new interchange would provide connections from River Road (at River Trail Way and Crates Way) to I-84.

Concepts E-2A through E-2C (Two Grade-Separated Crossings of the Union Pacific (UP) railroad at West 2nd Street and Hostetler Street)

- Construct an overpass crossing of the UP railroad north of Hostetler Street to provide access from River Road to West 2nd Street (Concepts E-2A and E-2B2B).
- Construct an underpass crossing of the UP railroad north of Hostetler Street to provide access from River Road to West 2nd Street (Concepts E-2C).
- Construct an underpass crossing of the UP railroad at Hostetler Street to provide access from River Road to West 2nd Street(Concepts E-2A through E-2C).
- Develop a local street network to provide circulation and improve connectivity between West 2nd Street and River Road.
- Convert stop control at River Road/River Trail Way intersection to a roundabout or a signal.

Concept E-3A through E-3C (One Northern Grade-Separated Crossing of the UP)

- Construct an overpass crossing of the UP railroad at West 2nd Street or an underpass of the UP at Hostetler Street to provide access from River Road to West 2nd Street and ultimately West 6th Street.
- Develop a collector and local street network that will alleviate congestion on River Road by providing an alternative north-south route between the River Road/River Trail Way intersection and Webber Street.

Concept E-4A and E-4B (Two Grade-Separated Crossings of the UP at Hostetler Street and Snipes Street)

- Construct a grade-separated crossing (overpass or underpass) of the UP Railroad at Hostetler Street and Snipes Street.
- Construct a grade-separated crossing (overpass or underpass) of I-84 at Snipes Street. (Concept E-4A only).

- Develop a local street network to provide circulation and improve connectivity between West 2nd Street and River Road.

Concept E-5 (One Southern Grade-Separated Crossing of the UP)

- Construct a grade-separated crossing (overpass or underpass) of the UP Railroad on the south side of West 2nd Street (north of Webber Street).
- Develop a local street network to provide circulation and improve connectivity between West 2nd Street and River Road.

Concept E-6 (At-grade Crossings of the UP at Hostetler Street)

- Maintain the existing at-grade crossing of the UP at Hostetler Street and enhance it's connections to River Road. The intersection will be signal or roundabout controlled.
- Develop a local street network to provide circulation and improve connectivity between the West 2nd Street/Hostetler Street intersection and River Road.

Concept E-7 (Close At-Grade Crossing of the UP at Hostetler Street)

- Restrict access to Hostetler and West 2nd Street from the existing Northwest Aluminum property.
- Develop a collector and local street network west of River Road.

Concept E-8 (One Grade-Separated Crossing of the UP at Chenoweth Loop Road)

- Construct a grade-separated underpass of the UP Railroad at Chenoweth Loop Road.
- Develop a local street network to provide circulation and improve connectivity between West 2nd Street and River Road.

SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-1: NEW INTERCHANGE
THE DALLES, OREGON

FIGURE 6-7

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SCALE
0 600 1200

LEGEND
- CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-2A: TWO GRADE-SEPARATED CROSSINGS OF THE UP AT 2ND ST AND HOSTETLER ST
THE DALLES, OREGON

FIGURE 6-8

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-2B: TWO GRADE-SEPARATED CROSSINGS OF THE UP AT 2ND ST AND HOSTETLER ST
THE DALLES, OREGON

FIGURE 6-9

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-2C: TWO GRADE-SEPARATED CROSSINGS OF THE UP AT 2ND ST AND HOSTETLER ST
THE DALLES, OREGON

FIGURE 6-10

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SCALE
0 600 1200

LEGEND
- CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-3A: ONE NORTHERN GRADE-SEPERATED CROSSING OF THE UP
THE DALLES, OREGON

FIGURE 6-11

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-3B: ONE NORTHERN GRADE-SEPERATED CROSSING OF THE UP THE DALLES, OREGON

FIGURE 6-12

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-3C: ONE NORTHERN GRADE-SEPERATED CROSSING OF THE UP
THE DALLES, OREGON

FIGURE 6-13

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-4A: TWO GRADE-SEPARATED CROSSINGS OF THE UP (HOSTETLER ST AND SNIPES ST)
THE DALLES, OREGON

FIGURE 6-14

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-4B: TWO GRADE-SEPARATED CROSSINGS OF THE UP (HOSTETLER ST AND SNIPES ST)
THE DALLES, OREGON

FIGURE 6-15

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SCALE
0 600 1200

LEGEND
- CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-5: ONE SOUTHERN GRADE-SEPERATED CROSSING OF THE UP
THE DALLES, OREGON

FIGURE 6-16

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-6: AT-GRADE CROSSING OF THE UP AT HOSTETLER ST
THE DALLES, OREGON

FIGURE 6-17

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-7: CLOSE AT-GRADE OF THE UP AT HOSTETLER ST
THE DALLES, OREGON

FIGURE 6-18

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SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-8: ONE GRADE-SEPERATED CROSSING OF THE UP AT CHENOWETH LOOP ROAD
THE DALLES, OREGON

FIGURE 6-19

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Northerly Local Circulation and Access Design Concepts

Local circulation and access design concepts developed for the portion of the study area to the north of River Road and east of I-84 include: developing a collector and local street network; constructing an I-84 overpass north of the existing Chenoweth Interchange to connect to US 30 on the west side of I-84; and, constructing a bridge over Chenoweth Creek to connect River Trail Way to Columbia Road. Each northerly (N-X) concept is described below and illustrated in Figure 6-20 through Figure 6-22.

Concept N-1 (Local Street Network Only)

- Develop a collector and local street network.

Concept N-2 (I-84 Overpass)

- Construct an I-84 overpass north of the existing Chenoweth Interchange to connect to US 30 on the west side of I-84.
- Develop a collector and local street network.

Concept N-3 (Chenoweth Creek Bridge)

- Construct a bridge over Chenoweth Creek to connect River Trail Way to Columbia Road.
- Develop a collector and local street network.

SCALE
0 400 800

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT N-1: LOCAL STREET NETWORK ONLY
THE DALLES, OREGON

FIGURE 6-20

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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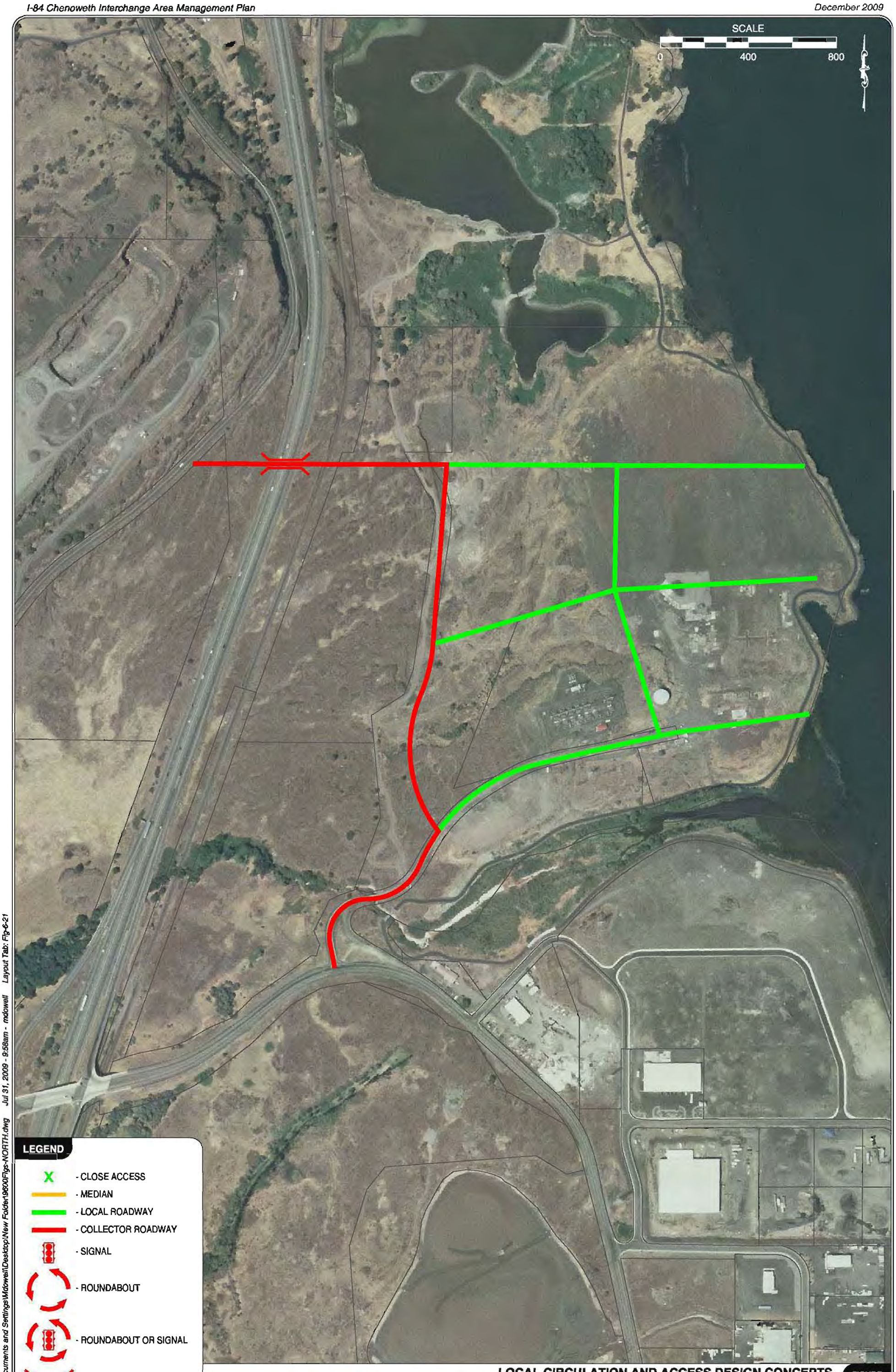

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT N-2: I-84 OVERPASS
THE DALLES, OREGON

FIGURE **6-21**

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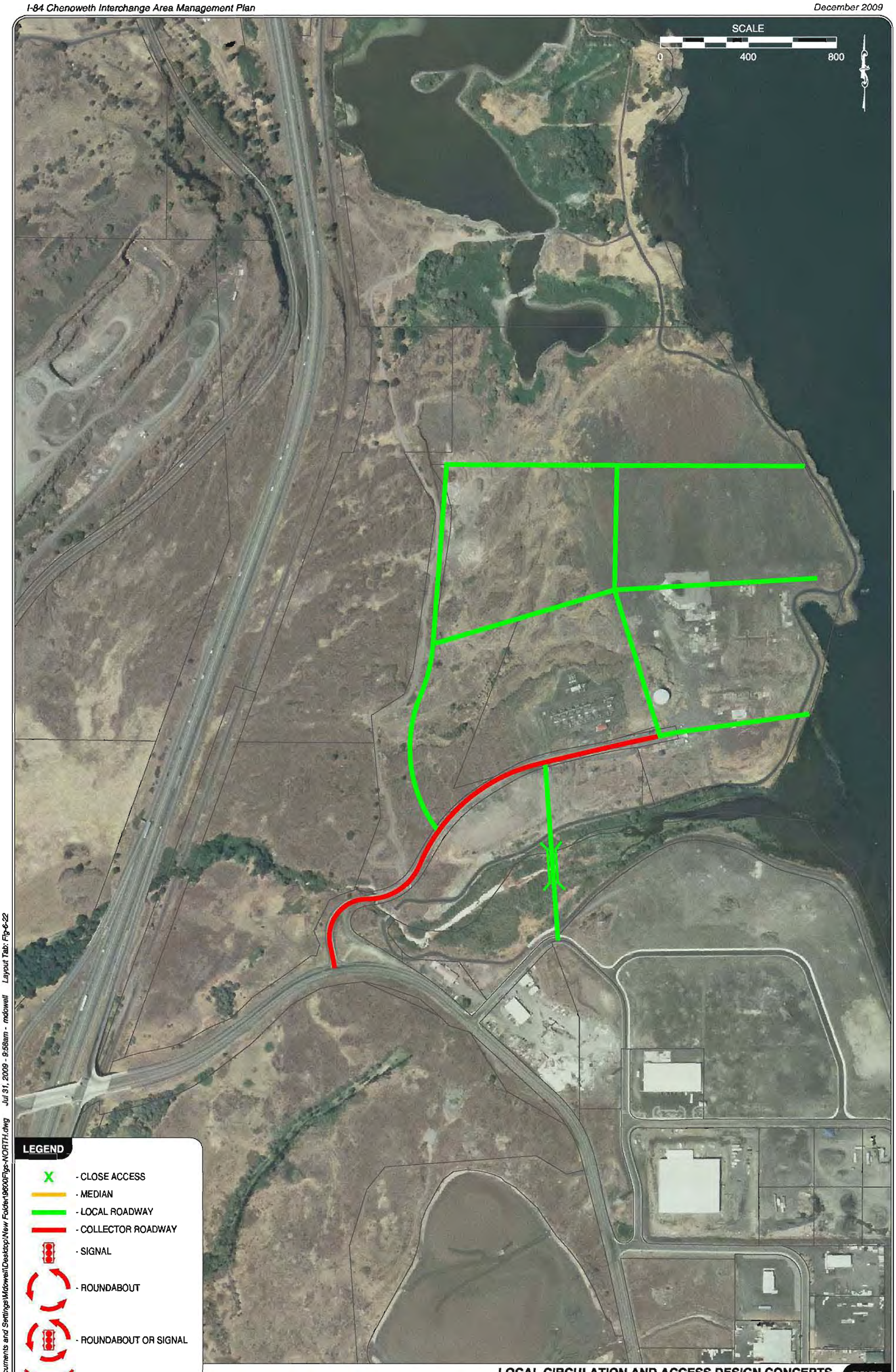

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT N-3: CHENOWETH CREEK BRIDGE
THE DALLES, OREGON

FIGURE 6-22

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PRELIMINARY SCREENING ANALYSIS

A screening analysis was conducted to separate those concepts that warranted further evaluation from those that did not. The screening process was conducted at a qualitative level and was based on a relative comparison of each concept. The concepts were compared based on the extent of the improvements needed to accommodate forecasted land use projections. The following section provides detailed explanation of this preliminary screening analysis with respect to roadway cross-sections and intersection operations, and identifies which concepts were forwarded by the TAC and SC for further evaluation.

All analysis of future conditions was based on traffic volumes developed for Land Use Scenario #2, as outlined in Section 5. Land Use Scenario #2 assumes that the WM3 property will be developed as General Commercial land, which generates 240 more net new trips than Land Use Scenario #1 and is expected to provide a conservative analysis of future conditions.

Roadway Cross-Section Comparison

Section 5 summarizes the forecast traffic conditions analysis, which assumed no capacity improvements to the existing facilities. The analysis showed that future development, in accordance with existing land use designations, would increase traffic demand beyond capacity of the existing network. Further analysis shows that if no land use restrictions are imposed, no alternative mobility standards are adopted, and no geometric changes are made to the study area roadways, the resulting theoretical cross-section need on the I-84 Chenoweth Interchange bridge would require nine lanes, including:

- Three westbound through lanes
- Two westbound left-turn lanes to I-84 eastbound
- Two eastbound left-turn lanes to I-84 westbound
- Two eastbound through lanes

A nine-lane cross-section on River Road was determined not to be a feasible option, due to the surrounding street network, construction costs, and right-of-way impacts. A six-lane section on the River Road overpass is the widest structure that could feasibly be constructed. A bridge structure with more than six lanes would include two-lane ramps to support dual left-turn lanes to I-84 westbound, which is infeasible to construct without moving the entire interchange. Railroad lines on the east side of I-84 limit the ability to increase the width of westbound off and on-ramps. Due to the pressure of Chenoweth Creek to the north, relocating the interchange was not considered due to interchange spacing requirements. Additionally, providing more than two through lanes in each direction on the River Road overpass at I-84 would require greater cross-sections on West 6th Street and River Road than are suitable for their intended function.

A feasible future scenario was assumed to require the use of a combination of: system-wide improvements, alternative mobility standards, and/or land use management (e.g. trip cap/trip budget) alternatives. System-wide improvements include a new connection to West 2nd Street from

River Road and other localized improvements, as shown in the local circulation and access design concepts. In addition, a combination of these measures could be implemented to address future forecast travel demand.

In order to evaluate and compare roadway improvements to alternative development measures, a development threshold analysis was completed based on cross-sections of the River Road overpass and West 6th Street. Table 6-1 provides a summary of the minimum cross-sections required to minimize queuing and satisfy ODOT mobility standards, based on incremental levels of development. Full development in accordance with Land Use Scenario #2 is assumed, except where a trip cap/trip budget is shown to limit development. For example, a trip cap/trip budget of 85 percent reflects a 15-percent reduction from full development (or a corresponding alternative mobility standard that would allow for the additional 15 percent of forecasted development).

TABLE 6-1 DEVELOPMENT THRESHOLD ANALYSIS OF STUDY ROADWAYS

Cross-Section			I-84 Interchange Cross-Section Feasible (Yes/No)	Connection to W. 2nd Street	Trip Cap/ Trip Budget or Alternative Mobility Standards	Allowable FAR (Commercial/ Industrial)
I-84 Interchange (Between Ramp Terminals)	West 6th Street (North of Hostetler Street)	Hostetler Street (Under I-84)				
9-lanes	5-lanes	2-lanes	No	No	None	(0.25/0.40)
6-lanes	5-lanes	2-lanes	No	No	50%	(0.13/0.20)
8-lanes	5-lanes	5-lanes	No	No	None	(0.25/0.40)
7-lanes	5-lanes	5-lanes	No	No	85%	(0.21/0.34)
6-lanes	5-lanes	4-lanes	Yes	Yes	85%	(0.21/0.34)
4-lanes	5-lanes	4-lanes	Yes	Yes	75%	(0.19/0.30)
4-lanes	5-lanes	4-lanes	Yes	No	55%	(0.14/0.22)

As shown in Table 6-1, a connection from River Road to West 2nd Street is needed in order to reduce the cross-section of River Road from nine lanes to eight lanes at the I-84 Interchange. In order to further reduce the cross-section, land use management strategies (e.g., trip cap/trip budget) or alternative mobility standards are needed in combination with a West 2nd Street Connection.

Interchange Form Evaluation

Alternative interchange forms were considered, but due to the location of the interchange with respect to existing rail lines, Chenoweth Creek, and West 6th Street it was determined that other interchange forms are not feasible. The most likely alternative interchange form would include loop ramps, as they provide free-flow turning movements. However loop ramps require a large amount of right-of-way which is not available to the east or west of I-84. Section 7 identifies specific modifications for the existing interchange.

West 6th Street Evaluation

The cross-section of West 6th Street is shown as a 5-lane section, which includes: two southbound lanes, two northbound lanes, and a northbound left-turn lane. Two through lanes are only required in the southbound direction at the West 6th Street/River Road and the West 6th Street/Hostetler Street intersections; however, for continuity purposes and consistency with The Dalles TSP, a continuous 5-lane section is assumed. Given that analysis was performed on the evening peak hour, an equal lane configuration is assumed in the northbound direction to serve weekday morning peak hour traffic, in order to account for directional distributions during the peak hour time periods.

West 2nd Street Connection Evaluation

A connection to West 2nd Street is shown to reduce traffic demand on River Road at the I-84 Interchange. Although the design concepts show connections to West 2nd Street at various locations (see Concepts E-4 and E-5), all screening analyses assumed the benefits of a connection at Hostetler Street. It is expected that the reduction in traffic on the River Road overpass will not be as great if a connection to West 2nd Street is south of Hostetler Street. If concepts E-4 and E-5 are selected for further evaluation, traffic volumes within the study area will be redistributed to account for the connection location. Traffic is more likely to redistribute from the Chenoweth Interchange if a new connection to West 2nd Street is closer to the Chenoweth Interchange than the Webber Street Interchange.

Based on the identified benefits of a new connection to West 2nd Street, **Concept E-7 was removed from further evaluation because the concept does not include new connections to West 2nd Street**. All other concepts are compatible with the analysis shown in Table 6-1.

Intersection Operations

All study intersections are forecast to exceed capacity during the forecasted year 2030 peak hour, except the River Road/Columbia Road intersection. Mitigations to the intersections include installation of roundabouts or traffic signals at unsignalized intersections. *See Appendix D of the Technical Appendix for the 2030 no-build operational analysis details.*

Operational analysis of roundabouts was conducted during the preliminary screening process at the following locations where design concepts suggested single-lane or double-lane roundabouts:

- River Road/River Trail Way
- West 6th Street/River Road
- West 6th Street/Chenoweth Loop

Roundabout vs. Signalization Analysis

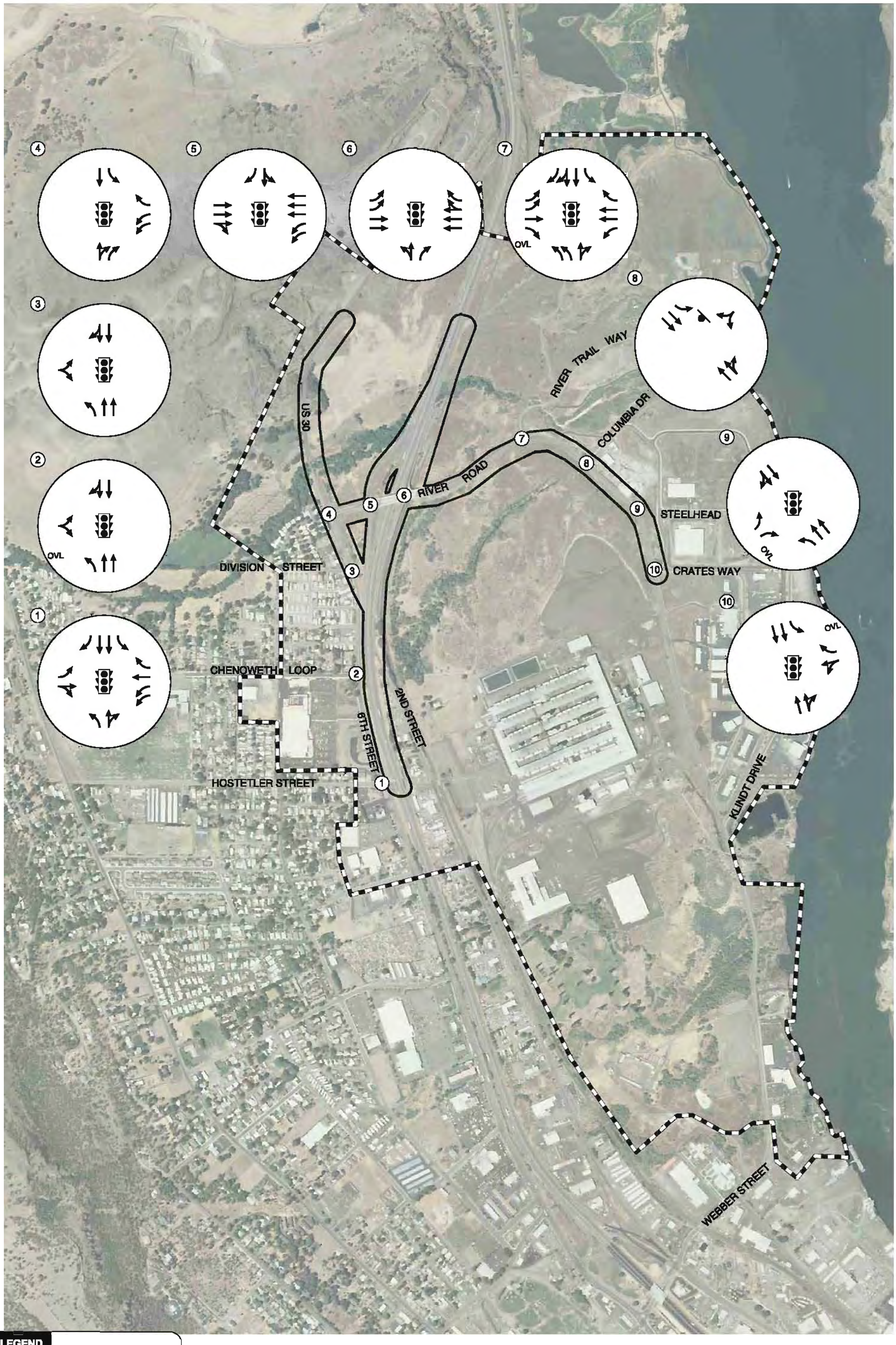
The operational analysis of roundabout alternatives is summarized in Table 6-2, based on NCHRP Report 572 methodology for single-lane and double-lane roundabouts. *Technical Memorandum #7 in Appendix "E" of the I-84 Chenoweth IAMP Technical Appendix provides a summary of the lane geometry assumed on each approach and summarizes the operational analysis.*

TABLE 6-2 ROUNDABOUT OPERATIONAL ANALYSIS SUMMARY

Geometry Information	West 6th Street/ Chenoweth Loop			West 6th Street/ River Road			River Road/River Trail Way			
	North Leg	West Leg	South Leg	East Leg	North Leg	South Leg	East Leg	North Leg	West Leg	South Leg
Number of Entry/ Exit Lanes	2/2	1/1	2/2	2/2	1/1	2/2	2/1	2/1	2/2	2/2
Right Turn By-Pass	No	No	No	No	No	No	No	Yes	No	No
Circulating Lanes	1	2	1	1	2	1	2	2	2	2
Performance Measure	2030 Operations without New Connection to West 2nd Street									
Critical Lane Volume//Capacity	0.63	0.51	0.70	0.64	0.24	0.75	0.65	0.71	0.81	0.65
Critical Lane Average Delay (sec)	10.0	13.2	11.6	9.4	9.5	12.7	16.3	27	23	15.2
95% Queue Length (ft)	125	75	150	125	25	200	125	150	225	125
Performance Measure	2030 Operations with New Connection to West 2nd Street									
Critical Lane Volume//Capacity	0.54	0.46	0.60	0.56	0.22	0.67	0.55	0.75	0.83	0.52
Critical Lane Average Delay (sec)	8.2	10.6	9.0	7.9	8.3	9.7	13.1	28.2	25.7	9.3
95% Queue Length (ft)	100	75	125	100	25	150	100	175	250	100

As shown in Table 6-2, the roundabouts are forecast to operate acceptably under Land Use Scenario #2 volume conditions, with or without a new connection to West 2nd Street. However, a connection to West 2nd Street reduces average delay at the West 6th Street/Chenoweth Loop and West 6th Street/River Road intersections. The operational analysis shows that a two-lane roundabout is needed at the River Road/River Trail Way intersection. At the West 6th Street/River Road intersection a partial two-lane roundabout is needed, which includes a two-lane circulatory roadway on the north approach and a single-lane circulatory roadway at the south and east approaches.

Signalized intersection alternatives were analyzed using Highway Capacity Manual procedures (Reference 3). Three signalized scenarios were evaluated with and without a new connection to West 2nd Street. Lane configurations were developed to provide acceptable operations at all study intersections. Given the directionality of the weekday p.m. peak hour volumes, through lanes were assumed to be equal in each direction of major traffic flow. A summary of mitigated lane configurations and traffic control devices are shown in Figure 6-23 and Figure 6-24. Figure 6-25 and Figure 6-26 summarize the operational analysis of the signalized mitigated scenarios.



LEGEND

OVL - OVERLAP

- STOP SIGN

- TRAFFIC SIGNAL

2030 MITIGATED LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
FUTURE NO BUILD
THE DALLES, OREGON

FIGURE 6-23

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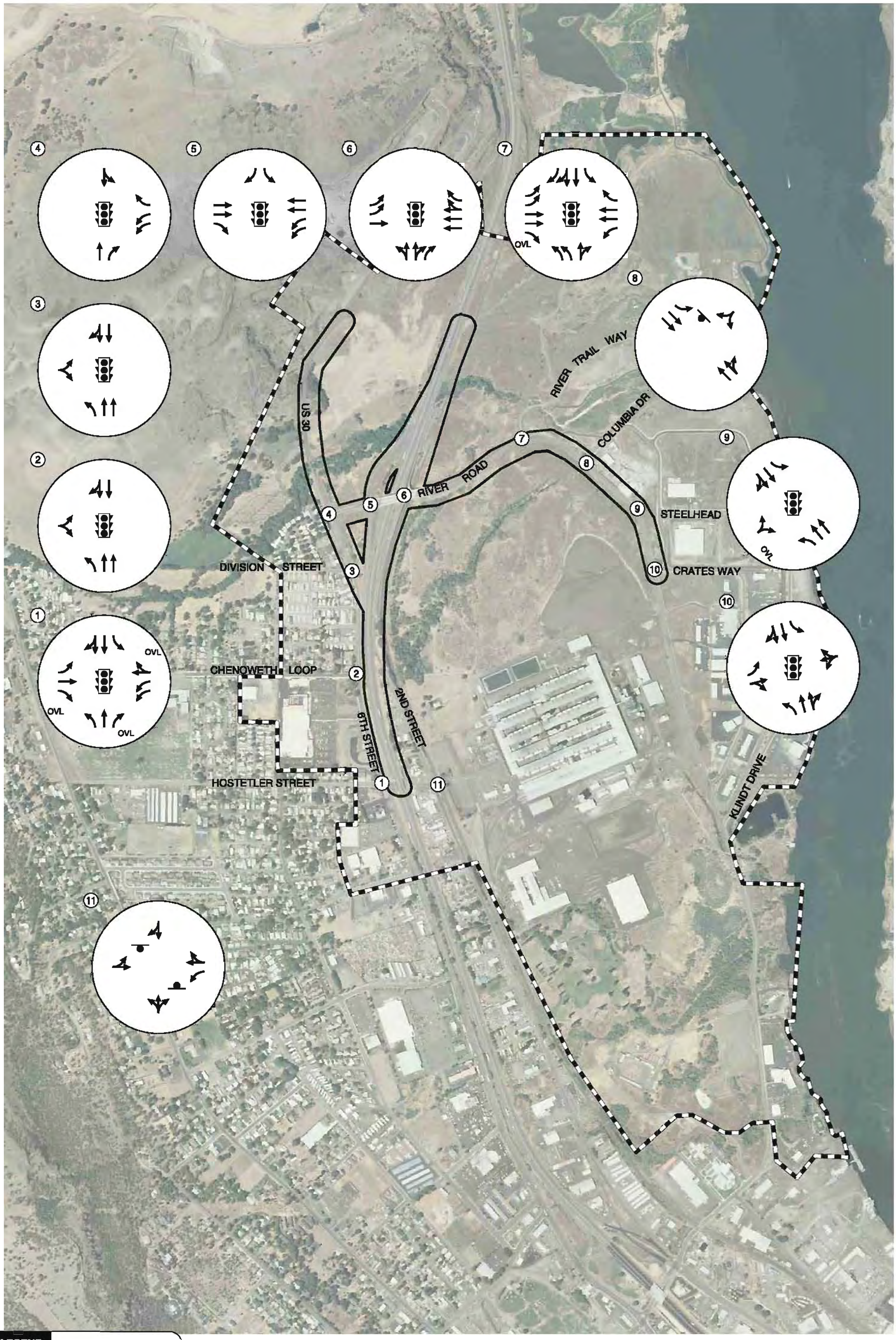

LEGEND

OVL - OVERLAP

- STOP SIGN

- TRAFFIC SIGNAL

2030 MITIGATED LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
2ND STREET CONNECTION
THE DALLES, OREGON

FIGURE **6-24**

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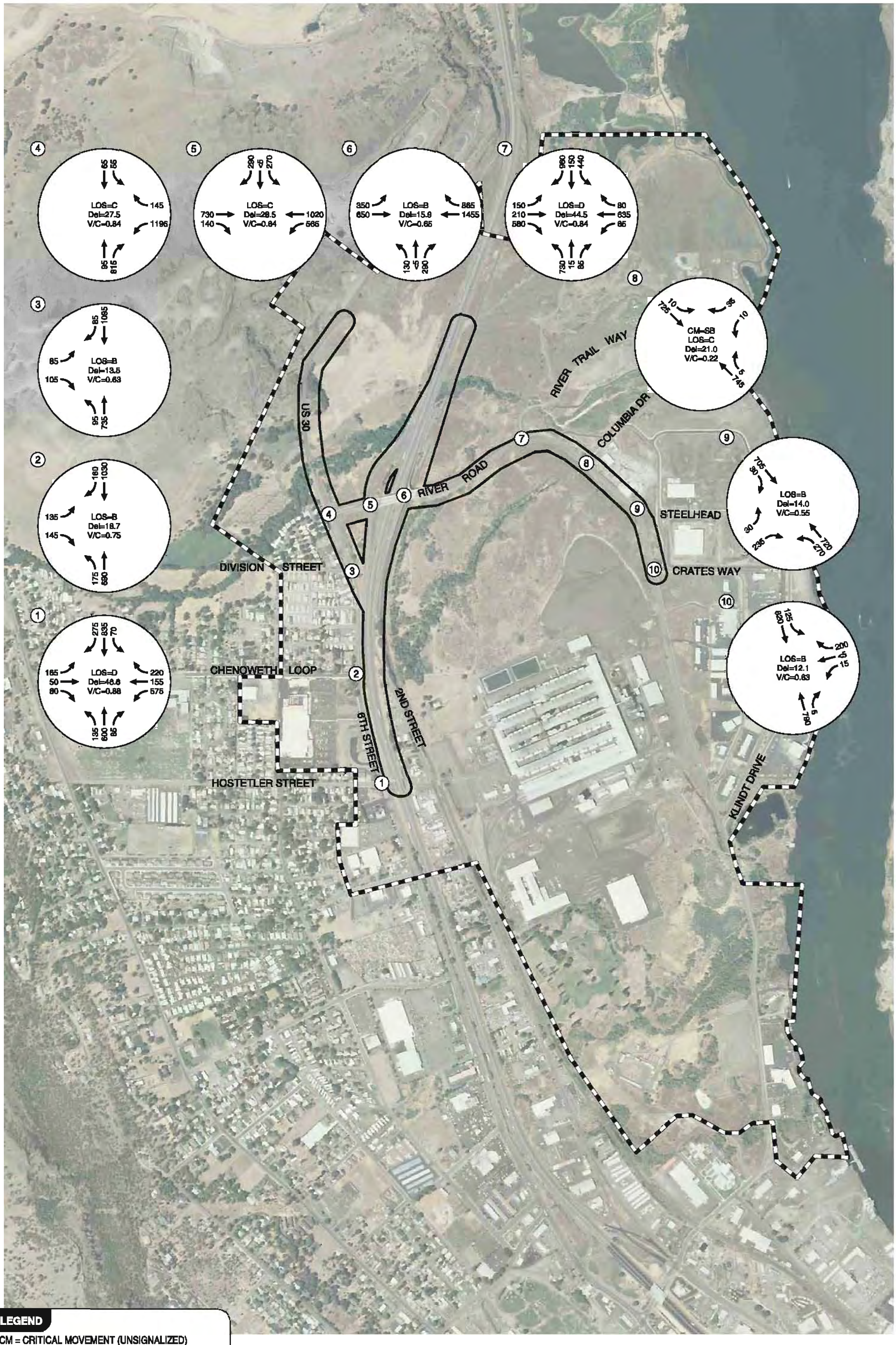

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2030 MITIGATED TRAFFIC CONDITIONS, WEEKDAY PM PEAK HOUR
FUTURE NO BUILD
THE DALLES, OREGON

FIGURE 6-25

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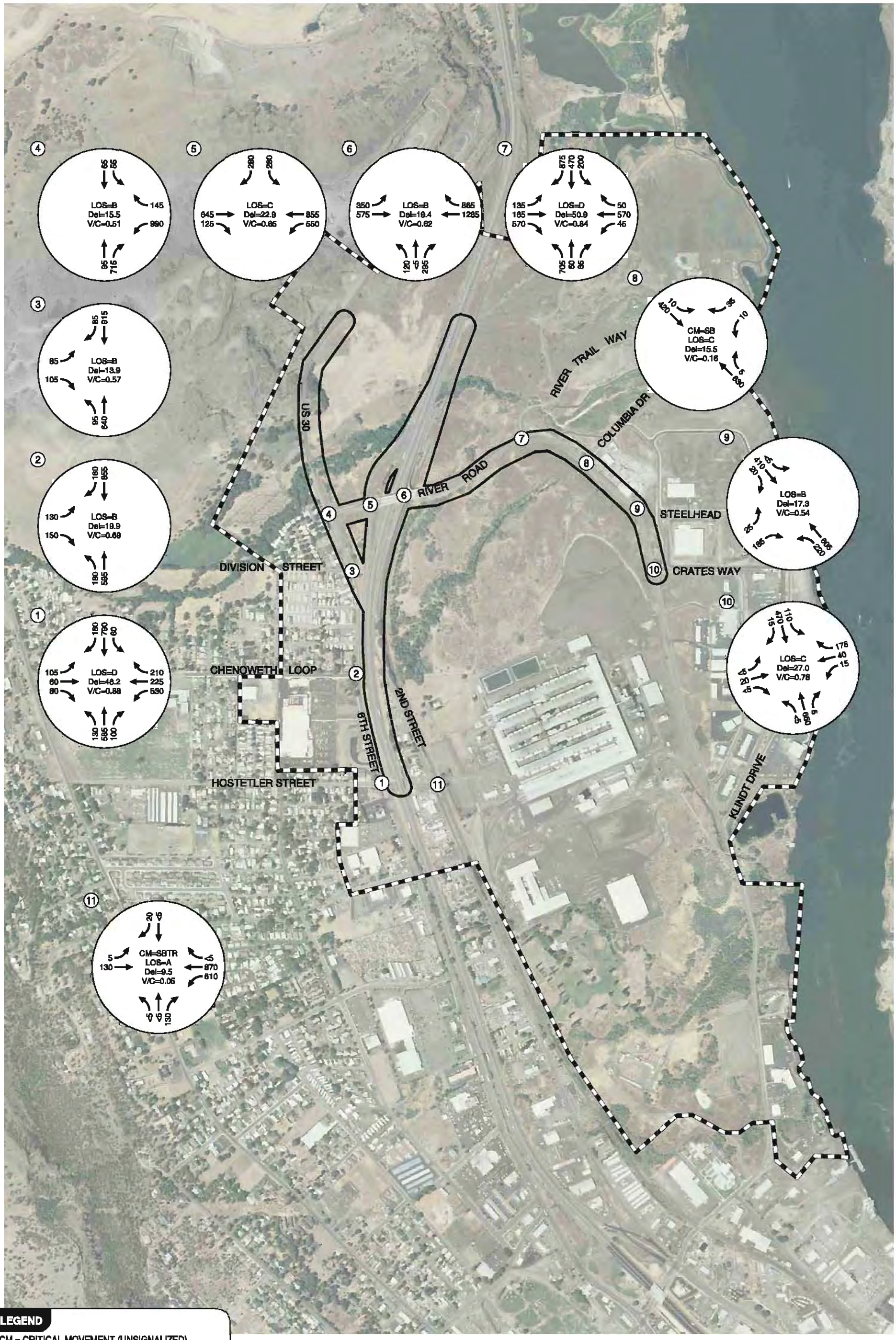

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2030 MITIGATED TRAFFIC CONDITIONS, WEEKDAY PM PEAK HOUR
2ND STREET CONNECTION
THE DALLES, OREGON

FIGURE **6-26**

H:\proj\ffis\9600 - I-84 Chenoweth IAMP\GIS_Report\9600Figs_Alternatives.dwg Jul 20, 2009 - 9:54pm - dbergh Layout Tab: FIG 6-26

Table 6-3 provides a summary of roadway cross-section for the critical approach to the three roundabout intersections as compared to the signalized options. The lane configurations are based on a maximum V/C ratio of 0.85 and future concepts with a new connection to West 2nd Street.

TABLE 6-3 INTERSECTION CONTROL CROSS-SECTION COMPARISONS

Intersection	Intersection Control	Critical Approach	Entering Lanes	Exiting Lanes	Total
River Road/ River Trail Way	Roundabout	Eastbound	2	2	4
	Traffic Signal		5	2	7
West 6th Street/ River Road	Roundabout	Westbound	2	1	3
	Traffic Signal		3	1	4
West 6th Street/ Chenoweth Loop	Roundabout	Eastbound	1	1	2
	Traffic Signal		1	1	2

As shown in Table 6-3, roundabouts can effectively minimize the width of intersection approaches as compared to signalized alternatives. At the River Road/River Trail Way intersection a roundabout is expected to reduce the number of lanes by three on the critical approach. If the intersection were to operate with a traffic signal, the eastbound approach would require two left-turn lanes, two through lanes, and an exclusive right-turn lane. Roundabouts are evaluated in greater detail in the Refined Concept Evaluation later in this section.

Concept W-1 included a roundabout option that combines the intersections of River Road at West 6th Street and I-84 Eastbound. Operational analysis of this roundabout option showed that this design could not provide adequate capacity. Therefore, **Concept W-1 was excluded from further study.** *Technical Memorandum #7 in Appendix "E" of the I-84 Chenoweth IAMP Technical Appendix includes a sketch of the roundabout alternative.*

PRELIMINARY QUALITATIVE EVALUATION

An initial comparison of the remaining 20 concepts was conducted based on a qualitative assessment of the evaluation criteria outlined in Section 1. The comparison is intended to identify those concepts that do not have any "'fatal flaws" and warrant further detailed evaluation.

To rank each of the concepts according to the evaluation criteria, a scoring system was developed. In essence, each evaluation criterion was assigned a range of numerical values (+2, +1, 0, -1, or -2). The concepts that achieve each metric better than others receive a "+2", those that do not impact the metric receive a "0", those that underperform compared to other concepts receive a "-2" score, and those that fall in between receive a "+1" or "-1" score. The following outlines the elements considered in the initial evaluation and aspects of each that characterized the variations between concepts:

Operations/Land Use/Economic Development

- Ability to develop land within the study area per existing zoning designations, with little or no restrictions (dependant on operational capacity).
- Additional connection to West 2nd Street is expected to reduce through traffic on River Road and West 6th Street, which provides for higher intensity of development and greater potential for growth.
- Additional connection to West 6th Street over/under I-84 (at Hostetler Street, Chenoweth Loop, or Snipes Street) is expected to reduce the number of lanes and congestion on the River Road overpass of I-84, which provides for higher intensity of development and greater potential for growth.

Cost

- Overpass/underpass crossing(s) of UP railroad.
- Overpass/underpass crossing of I-84.
- Bridge structure required for crossing Chenoweth Creek.

Property Impacts/Accessibility

- The ability to access properties and businesses within the study area to/from the regional infrastructure network.
- Non-perpendicular crossing of West 2nd Street impacts existing development more than perpendicular crossing.
- Crossings of West 2nd Street require retaining walls and extended length of roadway to return from above or below grade to existing grade.
- Collector or local roadways run parallel to West 2nd Street and impact existing businesses.

Environmental

- Roadway location conflicts with existing natural resource (Chenoweth Creek).
- Multiple local roadways increase the amount of paved roadway within the area and impact the amount of storm water runoff.

Table 6-4 provides a summary of the initial evaluation of concepts based on these elements.

TABLE 6-4 INITIAL QUALITATIVE CONCEPT EVALUATION

Concept	Operations	Cost	Property Impacts	Environmental	Average Score	Forwarded for Further Consideration?
E-1	1	-2	-2	0	-0.75	No
E-2A	1	-2	-1	0	-0.50	No
E-2B	1	-2	-2	-1	-1.00	No
E-2C	1	-2	-1	0	-0.50	No
E-3A	1	-1	-1	0	-0.25	Yes
E-3B	1	-1	-1	-1	-0.50	Yes – combined with E-3C
E-3C	1	-1	-1	0	-0.25	Yes – combined with E-3B
E-4A	2	-2	-2	-1	-0.75	Yes – modified to include Snipes Street underpass only
E-4B	2	-2	-1	-1	-0.50	No
E-5	0	-1	-1	-1	-0.75	No
E-6	1	0	-2	-2	-0.75	No
E-8	1	-1	0	-1	-0.25	Yes
W-2	1	-1	0	0	0.00	Yes
W-3	1	-1	0	0	0.00	Yes
W-4	1	-1	0	0	0.00	Yes
W-5	0	-1	0	0	-0.25	Yes
W-6	0	-1	-1	0	-0.50	No
N-1	-1	0	0	0	-0.25	Yes
N-2	1	-1	0	0	0.00	Yes
N-3	0	-1	0	-1	-0.50	No

Each concept was compared to other concepts within each sub-area of the study area and the lowest scoring concepts were removed from further consideration. Each concept that scored an average of -0.50 or less was not forwarded for further evaluation with two exceptions (E-3C and E-4A which were forwarded for further evaluation with modifications to improve their viability). Five easterly, four westerly, and two northerly concepts were forwarded for additional evaluation based on this criteria. Table 6-5 provides additional information on the primary reason a concept was recommended for elimination or modification.

TABLE 6-5 PRIMARY REASON FOR CONCEPT ELIMINATION OR MODIFICATION

Concept	Average Score	Recommended for Further Evaluation?	Primary Reason for Concept Elimination or Modification
E-1	-0.75	No	Proposed interchange would not meet interchange spacing standards and would not provide new local east-west connectivity.
E-2A	-0.50	No	There is no significant operational benefit of providing two grade-separated crossings to West 2nd Street as compared to one as provided in Concept E-3A, B, and C.
E-2B	-1.00	No	There is no significant operational benefit of providing two grade-separated crossings to West 2nd Street as compared to one as provided in Concept E-3A, B, and C.
E-2C	-0.50	No	There is no significant operational benefit of providing two grade-separated crossings to West 2nd Street as compared to one as provided in Concept E-3A, B, and C.
E-3A	-0.25	Yes	NA
E-3B	-0. 50	Yes	Concept E-3B and E-3C are similar in that they both include one grade-separated crossing located at Hostetler Street and were combined into one alternative (E-3D) that reduces the property impacts at Webber Street and the proposed collector roadway and combines the intersections of River Trail Way, the proposed north-south collector roadway, and River Road as the intersection spacing in Concept E3-C is undesirable.
E-3C	-0.25	Yes	
E-4A	-0.75	Yes	Modify to remove the Hostetler Street underpass as there is no significant operational benefit of providing two grade-separated crossings and Concept E-3 presents the Hostetler Street grade-separation Concept.
E-4B	-0.50	No	A grade-separated crossing of the UP line to West 2nd Street is infeasible due to the constraints of distance for grade-transition and property access.
E-5	-0.75	No	Does not provide operational relief to the Chenoweth Interchange and directs additional traffic to the Webber Street Interchange.
E-6	-0.75	No	An at-grade crossing of the UP line with a public roadway is unlikely to be permitted.
E-7	N/A	No	Does not provide necessary connectivity to West 2nd Street and results in the need for severe reduction of development potential.
E-8	-0.25	Yes	NA
W-1	N/A	No	Operational analysis indicated the roundabout operations would not meet mobility standards.
W-2	-0.50	Yes	NA
W-3	0.00	Yes	NA
W-4	0.00	Yes	NA
W-5	-0.25	Yes	NA
W-6	-0.50	No	Property impacts too severe.
N-1	-0.25	Yes	NA
N-2	0.00	Yes	NA
N-3	-0.50	No	Bridge structure would have environmental impacts and would provide no significant operational benefit.

Based on the initial screening of the concepts, the following concepts were forwarded to be refined and evaluated in greater detail:

East concepts

- E-3A
- E-3B/C (Hybrid)
- E-4A (Modified)
- E-8

West Concepts

- W-2
- W-3
- W-4
- W-5

North Concepts

- N-1
- N-2

The preliminary screening process led to further evaluating local circulation and access designs for four easterly concepts (E-3A, E-3B/C Hybrid renamed as E-3D, a Modified E-4A renamed as E-4C, and E-8), four westerly concepts (W-2, W-3, W-4, and W-5), and two northerly concepts (N-1 and N-2). The two modified concepts are shown in Figure 6-27 and Figure 6-28. Each of the above concepts was evaluated in greater detail.

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LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-3D: HOSTETLER STREET EXTENSION
THE DALLES, OREGON

FIGURE 6-27

SCALE
0 600 1200

LEGEND
- X - CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

LOCAL CIRCULATION AND ACCESS DESIGN CONCEPTS
CONCEPT E-4C: SNIPES STREET CROSSING
THE DALLES, OREGON

FIGURE 6-28

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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REFINED CONCEPT EVALUATION

Given the remaining alternatives, the refined concept evaluation focused on identifying a preferred design concept within each concept area. The selection of a preferred concept in each concept area was impacted by the selected design concepts within the other areas. Therefore, the preferred concept in the area that is least impacted by others was selected first.

The magnitude and cost of potential improvements are greatest within the easterly concept area, while the westerly concepts are most impacted by the other concept areas; therefore, the preferred concept was identified for the northerly area (recognized as the most independent) and then the easterly area prior to identifying the preferred concept for the westerly area. Evaluation and selection of a preferred concept considered: the preferred location of a new east-west crossing of I-84, preliminary project cost estimates, and intersection operations.

Northerly Concept Refinement

Two concepts were qualitatively compared north of River Road and east of I-84: N-1 and N-2. The primary differentiator between the two concepts is a new crossing of I-84 approximately 2,000 feet north of the I-84 Chenoweth Interchange, as shown in Concept N-2. Given that the forecast distribution of trips to/from this portion of the study area (Sub-area "A") is primarily to/from the south of the I-84 Chenoweth Interchange and along the I-84 corridor, it is not expected that much traffic would divert to the north in order to return south on US Highway 30. Ultimately, the new connection would also increase the needs at the Highway 30/River Road/West 6th Street intersection. There would be operational benefits at the River Road/River Trail Way intersection but they are not sufficient enough to outweigh the cost of the potential overpass. **Therefore, the northerly concept without a new crossing of I-84, as shown in Concept N-1, was incorporated into a preferred local circulation and access design concept. Included in this concept is the recommendation that right-of-way be preserved that would provide the option for a future overpass.** This overpass could have significant system benefits if the city were to expand its urban growth boundary in the future in the area northwest of the interchange along US Highway 30.

Easterly Concept Refinement

As discussed previously and as summarized in Table 6-1, providing a new east-west connection across I-84 and the UPRR allows more development to occur consistent with the existing comprehensive plan, while maintaining a feasible cross-section on the River Road overpass of I-84. The evaluated crossing locations are identified from north to south:

- North 2nd Street Overpass (Concept E-3A)
- Chenoweth Loop Underpass (Concept E-8)
- Hostetler Street Underpass (Concept E-3D)
- Snipes Street Overpass (Concept E-4C)

An evaluation of the crossing locations was conducted that considered the preliminary cost, traffic operations, and property impacts.

Cost Estimates

Cost estimates (excluding right-of-way) were prepared to evaluate the financial impacts of each alternative location. Table 6-6 summarizes the cost estimates for each proposed crossing location. *Technical Memorandum #7 in Appendix "E" of the I-84 Chenoweth IAMP includes the detailed summary of the preliminary cost estimates.*

TABLE 6-6 PRELIMINARY COST ESTIMATES OF EAST-WEST CROSSING ALTERNATIVES

Crossing Location	Cost Estimate (millions)[1]
North 2nd Street Overpass (E-3A)	$19.8
Chenoweth Loop Underpass (E-8)	$20 to $30
Hostetler Street Underpass (E-3D)	$14.1
Snipes Street Overpass (E-4C)	$32.2

[1]Includes 40-percent contingency

The order of magnitude of the preliminary cost estimates shown in Table 6-6 is primarily related to the bridge and retaining wall construction costs. The crossing with the highest estimated cost, at Snipes Street, is greater than two times the cost of the Hostetler Street Extension. This cost differential reflects the length of the bridge structure needed to go over the UP Railroad and I-84 which was estimated to include two bridge structures totaling 220 feet. In comparison, the UP Railroad overcrossing structure at Hostetler Street is estimated at 130 feet.

A specific cost estimate was not prepared for the Chenoweth Loop Underpass, but an estimated cost range was developed based on a relative comparison with other crossing locations. The Chenoweth Loop Underpass is expected to be more expensive than concept E-3A, but less expensive than Concept E-4C. The following assumptions form the basis for this comparison:

- In the vicinity of Chenoweth Loop the elevation of 6th Street is approximately six to eight feet below the elevation of I-84. Therefore, an undercrossing will have less impact to businesses and properties along 6th Street and Chenoweth Loop than an overpass.
- New bridge structures would be needed to support I-84 and the UPRR where Chenoweth Loop would pass under each.
- Retaining walls would be needed under both I-84 and the UPRR, and along 6th street and Chenoweth Loop to minimize impacts to adjacent properties.
- Given the grade separation between existing roads and I-84, less excavation (total earthwork) would be required at Chenoweth Loop than at Snipes Street.

Qualitative Assessment of Operations

Each proposed east-west crossing location was evaluated with respect to the benefits or impacts each crossing has on traffic operations. Although operations were evaluated as part of the preliminary assessment, the impacts on operations were considered in more detail under the refinement evaluation.

Additional refinements to this operational analysis included limiting the Hostetler Street undercrossing to three lanes. As shown in Exhibit 6-1, the existing cross-section is two-lanes. A detailed assessment of the I-84 underpass at Hostetler Street showed that a three-lane cross-section is the maximum that can be accommodated under the existing structure, while providing reasonable clearance to the columns. The distance between the existing bridge piers is approximately 50 feet, providing approximately 6 to 7 feet on either side of the travel lanes between the fog line and the piers. Sidewalks and bike lanes would be provided behind the piers. Reconstruction of the underpass to accommodate additional lanes is a possibility but, in order to minimize cost, widening is not proposed at this time.

Exhibit 6-1 Photo of Hostetler Street Undercrossing of I-84 (Looking East)

North 2nd Street Overpass (E-3A)

As shown in Concept E-3A, north of Hostetler Street the proposed crossing of the UP Railroad would connect West 2nd Street to River Road and provide an east-west connection at Hostetler Street. This crossing location is expected to have three shortcomings and no unique benefits compared to Concept E-3D. The shortcomings include:

- Low potential for diversion of traffic from River Road
    - It is expected that a significant proportion of traffic on the River Road using the I-84 Chenoweth Interchange bridge would not divert to the new connection route. This is expected due to the orientation of the overcrossing and resulting location of a

local street connection to River Road within the northern portion of the Easterly Concept Area.

- High proportion of turning movements at West 2nd Street/Hostetler Street
    - Operationally, the majority of traffic that reroutes to use the new east-west connection would be making a southbound right-turn during weekday p.m. peak hour and an eastbound left-turn during the weekday a.m. peak hour at the West 2nd Street/Hostetler Street intersection. The larger proportion of turn movements generated with the new connection is expected to reduce the operational capacity of the West 2nd Street/Hostetler Street intersection compared to the connection to West 2nd Street at Hostetler in Concept E-3D.
- High potential for impacting traffic operations at Webber Street
    - The orientation of the UP Railroad crossing would direct through movements onto West 2nd Street in the southbound direction. Much of this traffic would be expected to continue straight on West 2nd Street and increase traffic volumes at the I-84 Webber Street interchange. Furthermore, the northerly location of the east-west connection under this scenario would not be as likely to attract east-west trips from the Easterly Concept Area that currently utilize the Webber Street interchange to access West 6th Street.

Chenoweth Loop Underpass (E-8)

Concept E-8 would create a new undercrossing of I-84 and the UPRR at Chenoweth Loop. In the vicinity of Chenoweth Loop the elevation of 6th Street is approximately six to eight feet below the elevation of I-84, which makes an underpass more feasible than an overpass. Two new bridge structures would be needed to support I-84 and the UPRR where Chenoweth Loop would pass under each. Retaining walls would be needed under both I-84 and UP Railroad, and along 6th street and Chenoweth Loop to minimize impacts to adjacent properties.

Given the location of Chenoweth Loop with respect to the Chenoweth and Webber Interchanges, the Chenoweth Loop Underpass is expected to provide a lesser diversion of traffic than the Hostetler Street and Snipes Street Crossing locations from the Chenoweth Interchange and a greater diversion than the North 2nd Street Overpass. Relative to other crossing locations the Chenoweth Loop location is expected to have less impact on the Webber Street interchange than the Hostetler Street Underpass given that drivers may utilize a new intersection on 2nd Street to connect to Webber Street and less will do so if the underpass of I-84 is further from Webber Street.

Hostetler Street Underpass (E-3D)

As shown in Concept E-3D (a hybrid of E-3B and E-3C), an extension of Hostetler Street could provide access to/from River Road from multiple directions. The concept includes an undercrossing of the UPRRUPRR that would be constructed to allow through traffic using the existing undercrossing of I-84 to access West 6th Street. The undercrossing of I-84 at West 6th Street includes two bridge structures carrying I-84 eastbound and westbound traffic and lowering of West 6th Street and Hostetler Street. Due to the cost and impacts to property access of, constructing bridges on I-84

and lowering West 6th Street, such a connection would be very difficult to replicate at another location under existing conditions.

This connection location is expected to provide several benefits and has no negative operational impacts relative to the other Hostetler Street crossing, Concept E-3A. The greatest benefit is moderate to high potential for diversion of future traffic from River Road and potentially the Webber Street interchange. The location of this crossing allows for a connection to River Road approximately midway between the existing I-84 interchanges at a location that is familiar to motorists.

Snipes Street Overcrossing (E-4C)

Concept E-4C includes a new overcrossing of I-84 and the UP railroad at Snipes Street. This new connection provides an alternative to a crossing of I-84 at Hostetler Street, but the benefits of this location are not expected to outweigh the additional costs of a new grade-separated crossing of I-84. (While there is an existing grade-separation of I-84 and Hostetler Street providing connectivity between West 2nd Street and West 6th Street, no such connection is currently provided at Snipes Street.)

It is expected that this crossing location will have low potential for diversion of traffic from River Road due to its southerly location. The amount of traffic that is expected to be diverted from the River Road overpass of I-84 to a new Snipes Street crossing is expected to be less than the Hostetler Street location and less than the location north of Hostetler, given that Snipes Street is closer to the Webber Street interchange.

Property Impacts of Grade Changes

Preliminary estimates of grade changes associated with each crossing were prepared by CH2MHill based on field observations of existing elevations. Given the required clearance for an under or over crossing of the UP Railroad and I-84, the distance required to tie back into existing roadway grade is expected to range from 200 to 1000 feet depending on the existing elevations. Until survey information is obtained, these represent a conservative estimate based on relative differences in elevation. The following sections outline the estimated impacts of grade changes to the roadways based on the proposed crossing form at each location.

North 2nd Street Overpass (E-3A)

As shown in Figure A, the North 2nd Street Overpass is expected to impact properties along 2nd Street from the proposed overpass location south to Hostetler Street (approximately 1000 feet). Retaining walls would be required to gain elevation prior to the overpass of the UP Railroad and may block access to four to five parcels on the west side of 2nd Street. This crossing location does not impact 6th Street, however capacity constraints at the 2nd Street/Hostetler Street intersection may reduce the potential operational benefit of this location.

Depending on approval of the proposed Wal-Mart in the southwest quadrant of the I-84 Chenoweth Interchange, the alignment shown may need to be modified to avoid impacts to the site plan.

Chenoweth Loop Underpass (E-8)

Given the existing difference in elevation between I-84 and 6th Street at Chenoweth Loop, retaining walls are expected to be required up to 800 feet in each direction from the 6th Street/Chenoweth Loop intersection and the 2nd Street/Chenoweth Loop intersection. Both intersections would be below grade in order to go under I-84 and the UPRR. Within 800 feet of the 6th Street/Chenoweth Loop intersection access to commercial and residential properties would be impacted, including access to Home Depot which has primary access on 6th Street and secondary access on Chenoweth Loop. On 2nd Street three to four parcels would likely be impacted.

Hostetler Street Underpass (E-3D)

The Hostetler Street Underpass location is expected to result in the least number of properties impacted by grade changes and associated retaining walls given the existing underpass of I-84 at Hostetler Street. As shown in a photo taken in the southbound direction on 6th Street, the existing elevation of 6th Street at Hostetler Street is depressed in order to provide the existing undercrossing. Construction of an undercrossing of the UPRR on Hostetler Street would require reduction in elevation of 2nd Street, but minimizes impacts to properties on 6th Street.

Snipes Street Overcrossing (E-4C)

As shown in Figure D, the Snipes Street Overcrossing alternative includes two overpass structures that span I-84 and the UPRR east of 2nd Street. In order to provide an overpass of I-84 and the UPRR, while maintaining connections on 6th Street and 2nd Street, the elevation of each roadway will be increased to match grade with the overpass structure. Retaining walls would be utilized to obtain grade increases which are expected to impact access to residential and commercial properties on 2nd Street and 6th Street for up to 1,000 feet in each direction from the intersections. Given the density of existing development on 6th Street and 2nd Street (residential and commercial) within the vicinity of the Snipes Street, this crossing location has the greatest impact on existing property access relative to other crossing locations.

Comparison of East-West Crossing Locations

The crossing locations were ranked relative to one another with respect to preliminary cost estimates, property impacts, and expected operational benefits. Each crossing location was ranked on a scale of one to three. The highest ranking crossing location in each category (1 being the highest, 3 being the lowest) provided the lowest cost estimate, the least impacts to adjacent properties, and the greatest operational benefits. Operational benefits were measured by the potential to divert traffic from the Chenoweth Interchange and not increase traffic impacts to the Webber Street interchange. A summary of the relative ranking of east-west crossing locations is provided in Table 6-7.

TABLE 6-7 RELATIVE COMPARISON MATRIX OF EAST-WEST CROSSING LOCATIONS

Crossing Location	Cost Estimate Rank	Property Impact Rank (# of Properties Impacted)	Potential to Divert Traffic from Chenoweth Interchange Rank	Potential to Negatively Impact Webber Interchange Rank	Total Ranking Score
North 2nd Street Overpass (A)	2	2 (7)	3	4	11
Chenoweth Loop Underpass (B)	3	3 (20)	2	2	10
Hostetler Street Underpass (C)	1	1 (4)	1	3	6
Snipes Street Overcrossing (D)	4	4 (26)	4	1	13

As shown in Table 6-7, the Hostetler Street Underpass is expected to provide the relatively best location for a new east-west crossing when considering the cost, anticipated property impacts, and impacts to adjacent I-84 interchanges. In addition it should be noted that the Hostetler Street Underpass has access impact to four properties while the three remaining alternatives impact seven or more properties. For example, the Chenoweth Loop Road underpass would impact approximately 20 properties.

As shown in Table 6-7, the Hostetler Street crossing alternative scored the best in all four categories. **Therefore, the Hostetler Street crossing alternative, as shown in Concept E-3D, was incorporated into the preferred circulation and access design concept.**

Westerly Concept Refinement

The following refined concept evaluation focuses on identifying the preferred design concept for the west concept area. Four westerly concepts have been included in refined evaluation: W-2, W-3, W-4, and W-5. The critical elements that distinguish westerly concepts from one another include feasibility of roundabout intersection control and the type of access control measures implemented. Both elements are discussed in the following sections.

Roundabout vs. Signalized Operations

Roundabouts and signal alternatives were considered in order to serve the forecast demand volumes at West 6th Street/River Road, West 6th Street/Chenoweth Loop, and West 6th Street/Hostetler Street. The operational analysis results are summarized below. For this analysis it was assumed that Concept N-1 and E-3D are the preferred concepts for their respective areas (i.e., there will not be a future I-84 overpass north of the Chenoweth Interchange and there will be an I-84 and UP railroad underpass at Hostetler Street).

All traffic volumes were developed based on a conservative estimate of future traffic demand generated by new developments. This was assumed to be achieved by a future volume scenario that includes development of up to 85 percent of full development as allowed under Land Use Scenario #2. This does not represent the maximum development that could occur, but represents a likely development scenario for the purpose of comparison between traffic control types.

West 6th Street/River Road

At the West 6th Street/River Road intersection, Concepts W-2 and W-3 propose a roundabout, Concept W-4 proposes a "T" intersection, and Concept W-5 proposes a signalized intersection.

Given the demand volumes anticipated on West 6th Street the analysis assumed a 5-lane section on West 6th Street south of River Road through Hostetler Street. This cross-section includes two southbound lanes, one center turn lane, and two northbound through lanes. During the weekday p.m. peak hour, the southbound traffic warrants two through lanes. In order to account for weekday a.m. peak hour directional traffic, an equal cross-section was assumed in the northbound direction.

Table 6-8 provides a summary of the roundabout and signal operations at the West 6th Street/River Road intersection.

TABLE 6-8 ROUNDABOUT AND SIGNAL OPERATIONS AT WEST 6TH STREET/RIVER ROAD

Geometric Description	Signalized			Roundabout		
	East Leg	North Leg	South Leg	East Leg	North Leg	South Leg
Entry Lanes	2	1	2	2	1	2
Right Turn By-Pass?	N/A			NO	NO	NO
Circulating Lanes	N/A			1	2	1
Exit Lanes	N/A			1	1	2
Performance Measure						
Critical Lane Volume / Capacity	0.58			0.50	0.20	0.28
Critical Lane Average Delay (sec)	13.9			7.0	7.4	4.7
95% Queue Length (ft)	200	100	150	75	25	50

As shown in Table 6-8 the operational benefits of a roundabout include reduced delay and queuing. Figure 6-29 conceptually shows the right-of-way impacts expected with a roundabout. As shown, a two-lane roundabout could be constructed at this location without significant impacts to adjacent properties.

PRELIMINARY ROUNDABOUT DESIGN AT 6TH STREET/RIVER ROAD
THE DALLES, OREGON

FIGURE 6-29

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West 6th Street/Chenoweth Loop

Concept W-3 proposes a roundabout at the West 6th Street/Chenoweth Loop intersection, while Concepts W-2, W-4, and W-5 propose a signalized intersection. Table 6-9 provides a summary of the signal and roundabout operations at West 6th Street/River Road

TABLE 6-9 ROUNDABOUT AND SIGNAL OPERATIONS AT 6TH STREET/CHENOWETH LOOP

Geometric Description	Signalized			Roundabout		
	North Leg	West Leg	South Leg	North Leg	West Leg	South Leg
Entry Lanes	2	1	2	2	1	2
Right Turn By-Pass?	N/A			NO	NO	NO
Circulating Lanes	N/A			1	2	1
Exit Lanes	N/A			2	1	2
Performance Measure						
Critical Lane Volume / Capacity	0.44			0.52	0.37	0.35
Critical Lane Average Delay (sec)	9.4			8.4	8.4	5.7
95% Queue Length (ft)	250	200	150	50	25	50

As shown in Table 6-9, a roundabout is forecast to operate with less delay and queuing than the signal. However, both a roundabout and signal provide adequate capacity and minimal delay.

Figure 6-30 shows a conceptual design of a two-lane roundabout and illustrates the right-of-way impacts of a roundabout at the West 6th Street/Chenoweth Loop intersection. The sketch shows the additional right-of-way required for sidewalks and utilities as a dashed line. As shown in Figure 6-30, a two-lane roundabout could be constructed at this location, but would impact adjacent property, including recently constructed businesses in front of the Home Depot in the southwest quadrant of the intersection.

PRELIMINARY ROUNDABOUT DESIGN AT 6TH STREET/CHENOWETH LOOP
THE DALLES, OREGON

FIGURE 6-30

West 6th Street/Hostetler Street

Table 6-10 provides a summary of the signal and roundabout operations at West 6th Street/Hostetler Street

TABLE 6-10 ROUNDABOUT AND SIGNAL OPERATIONS AT 6TH STREET/HOSTETLER STREET

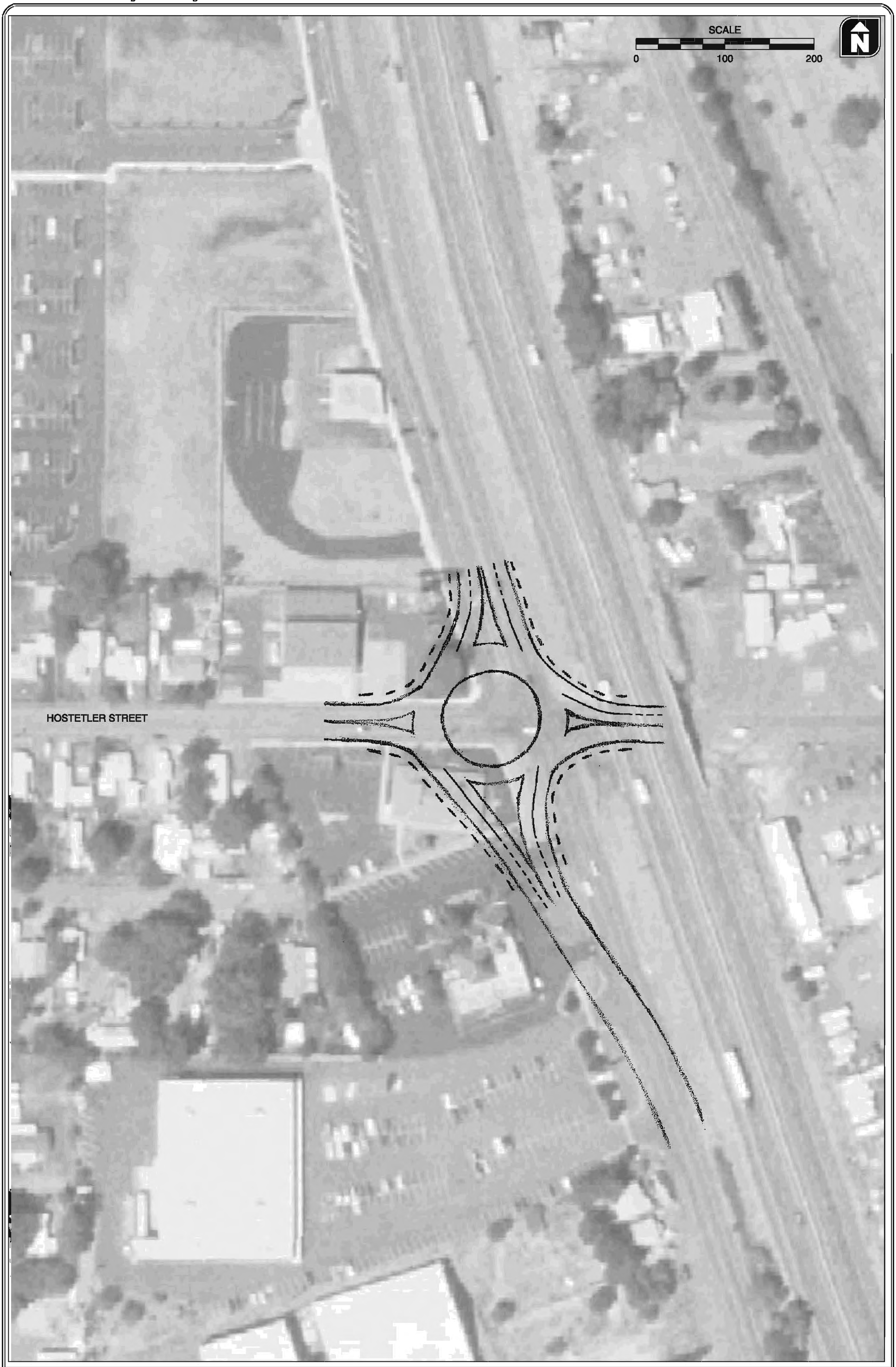
Geometric Description	Signalized				Roundabout			
Approach	East	North	West	South	East	North	West	South
# Entry Lanes	2	4	3	4	2	2	1	2
Right Turn By-Pass	N/A				NO	NO	NO	NO
Circulating Lanes	N/A				2	2	2	1
Exit Lanes	N/A				1	2	1	2
Performance Measures								
Critical Lane Volume/Capacity	0.91				0.58	0.73	0.59	0.44
Critical Lane Average Delay, sec	35.2				12.3	19.6	18.4	7.2
95% Queue Length, ft	250	275	125	150	100	175	100	75

As shown in Table 6-10, a roundabout is forecast to operate with less delay and queues than the signal. However, a roundabout or a signal provides adequate capacity and minimal delay.

Figure 6-31 shows a conceptual design of a two-lane roundabout and illustrates the right-of-way impacts of a roundabout at the West 6th Street/Hostetler Street intersection. As shown in Figure 7-7, a two-lane roundabout could be constructed at this location, but would significantly impact adjacent property, including businesses in the southwest quadrant and the northwest quadrant of the intersection.

Access Control

In order to provide access control and improve traffic flow along West 6th Street, a median is proposed in Concepts W-5 and W-3. The challenge associated with a continuous center lane median is the ability to provide access to all sites through right-in/right-out movements, which requires u-turns at the intersections. If two roundabouts are provided on West 6th Street at River Road and Chenoweth Loop, u-turns by both passenger cars and large vehicles can be made relatively easily. However, if signals are installed along with a median, as proposed in Concept W-5, u-turns by large vehicles cannot be made in the southbound direction at Chenoweth Loop or in the northbound direction at River Road.



PRELIMINARY ROUNDABOUT DESIGN AT 6TH STREET/HOSTETLER STREET
THE DALLES, OREGON

FIGURE 6-31

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Westerly Concept Comparison

The operational analysis showed that roundabouts will operationally perform better than signals along the West 6th Street corridor. However, due to right-of-way impacts, a roundabout is not recommended at the West 6th Street/Hostetler Street intersection.

Future traffic volume forecasts indicate that 6th Street will need to be a 5-lane facility in the future. For safety reasons, a center median is proposed on West 6th Street from River Road to Chenoweth Loop to prevent left-out turns at public street intersections and all left-turn movements at driveways, as shown in Concepts W-3 and W-5. Left-in movements would be provided at Division Street and Irvine Street. At the north and south termini of the median either roundabouts or signals are feasible, although it is anticipated that shorter queuing at the roundabout intersections as compared to the signalized intersection treatments will allow for more left-turn access to be provided than if signalized treatments are used.

The roundabout intersections are anticipated to provide greater access to properties impacted by a median because they would provide the ability for vehicles to make u-turns at either end of the median section. U-turns are unlikely to be feasible at a signalized intersection treatment at 6th Street/River Road and 6th Street/Chenoweth Loop Road because these are three-leg t-intersections without the northbound left and southbound left-turn movements, respectively, that would typically accommodate a u-turn. Furthermore, if a u-turn lane and signal phase were added to the intersections, the geometry would make u-turns difficult for any vehicle larger than a passenger car.

Although access management measures shown in Concepts W-2 and W-4 are expected to improve traffic flow within the vicinity of the interchange, they do not provide as much access control as a median. Additionally, Concepts W-2 and W-4 impose full driveway closures, which may have a significant impact on the viability of local businesses.

In order to effectively serve businesses while maintaining access control through a median, left-in turns would be provided at Division Street and Irvine Street and u-turns would be provided at the Chenoweth Loop and River Road intersections. A fourth signal phase (a u-turn specific phase) would need to be added to the existing 3-phase signalized intersections at River Road and Chenoweth Loop, if a roundabout is not constructed. This would reduce the projected traffic capacity at these intersections and may increase the number of needed lanes at the intersection or reduce the amount of development that could be accommodated by the proposed improvements. **Therefore, a continuous median on West 6th Street from River Road to Chenoweth Loop with openings for left-turns off of West 6th Street at Division Street and Irvine Street, as shown in Concept W-2, is included in the preferred local circulation and access design concept. Roundabouts are preferred at River Road and Chenoweth Loop and a signal is preferred at the Hostetler Street intersection on West 6th Street.**

PREFERRED ALTERNATIVE REFINED CAPACITY ANALYSIS

The refined concept evaluation resulted in selection of a preferred concept from the easterly, westerly, and northerly local circulation and design concepts. Concepts N-1, E-3D, and W-2 were selected and together form the preferred alternative.

Refined analysis of the preferred alternative was conducted to improve upon the accuracy of the capacity estimates provided by the preliminary evaluation of alternatives. The refined analysis focused on identifying the maximum development that could occur in the study area assuming implementation of the improvements identified in the preferred alternative. Additionally, the analysis helped to identify the timeline in which improvements will need to be made as development occurs over the next 20 or more years.

Refined Analysis Assumptions

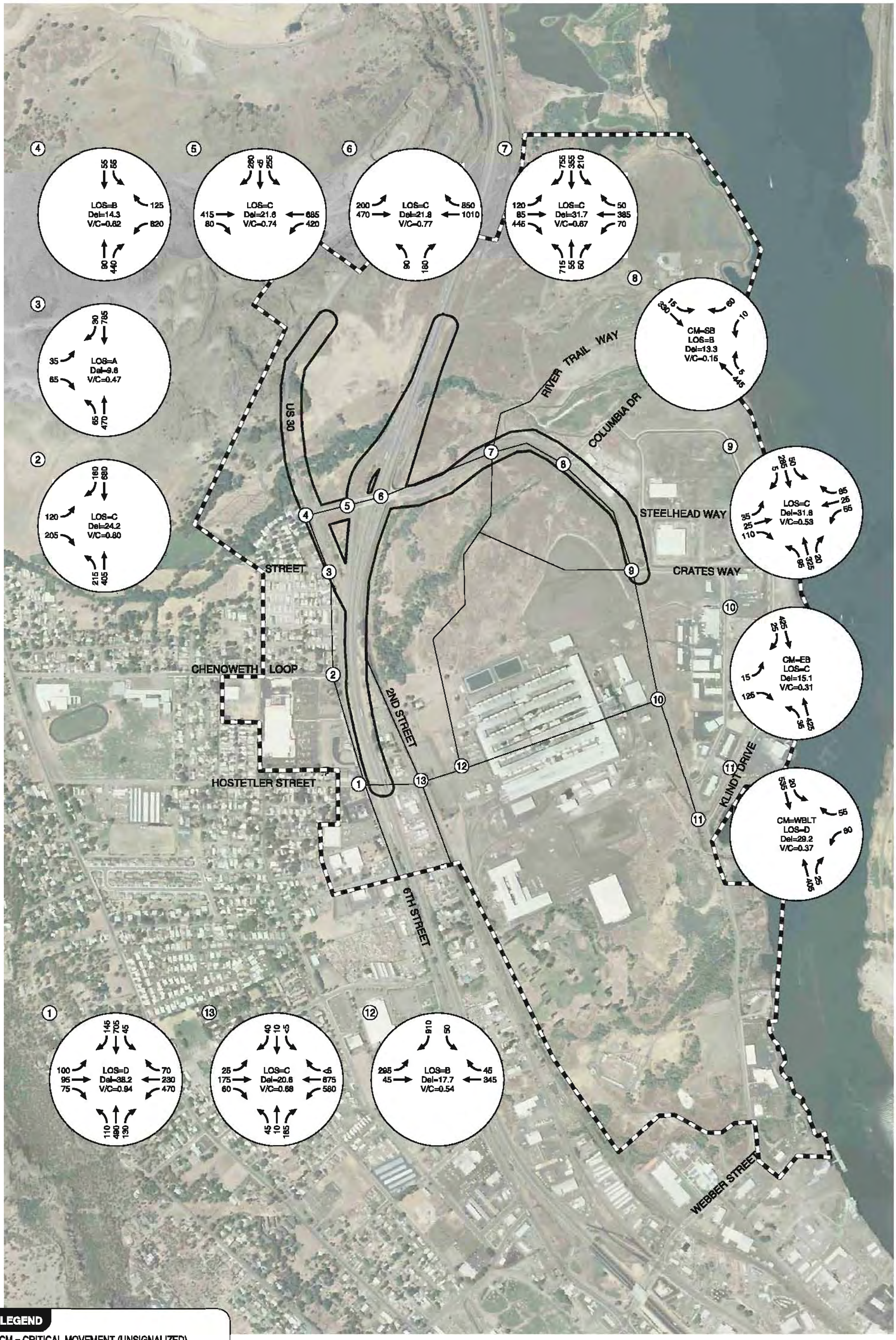
All refined analysis was conducted using Synchro software, in accordance with HCM parameters and ODOT APM guidance. SimTraffic simulations were also observed in order to evaluate the queue interactions between closely-spaced intersections. The analysis focused on critical intersections including: I-84 Eastbound Ramp Terminal/River Road, I-84 Westbound Ramp Terminal/River Road, West 6th Street/River Road, and West 6th Street/Hostetler Street. At the ramp terminal intersections forecast queues were maintained within available storage lengths and volume-to-capacity ratios were maintained at or below 0.70. All other study intersections are forecast to operate at or below mobility standards.

Development potential was measured in terms of the percent of full development that was forecast to occur in the study area under Land Use Scenario #2 (outlined in Section 5). An 85-percent development scenario (estimated to be a FAR of approximately 0.21 for commercial development and 0.34 for industrial development) assumes that the maximum amount of development that is allowed in the study area.

Analysis of development thresholds was conducted assuming a network of signalized intersections and no roundabouts; although roundabouts are identified as preferred at some study intersections (see Figure 7-2). Development capacity is not limited by intersection locations where roundabouts are proposed. Roundabouts were found to operate better than signals (i.e., reduce delay and queuing) at all locations where a roundabout was identified as preferred, therefore the analysis represents a conservative approach.

Maximum Development of Preferred Alternative

The refined capacity analysis found that the preferred alternative was able to accommodate up to 85-percent of full development under Land Use Scenario #2, while still operating below capacity and meeting ODOT mobility standards at the ramp terminals. Additional development beyond 85-percent of build-out is forecast to increase the queuing on River Road at the I-84 Ramp Terminal intersections and at the West 6th Street/Hostetler Street intersection beyond the available storage length. Figure 6-32 summarizes the forecast traffic volumes and operations based on up to 85-percent of full development.



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2030 85% DEVELOPMENT POTENTIAL TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
THE DALLES, OREGON

FIGURE 6-32

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Section 7
Interchange Area
Management Plan

Interchange Area Management Plan

The IAMP provides a local circulation and access plan which includes a Transportation Improvement Plan (described in Figure 7-1 and Table 7-1), street standards, and improvement phasing for implementing the plan in the short-, mid-, and long-term horizon. As described in Section 6, the long-term improvement plan can only accommodate up to 75 percent of the maximum density development; therefore, the IAMP also includes land use management strategies to ensure that the maximum development threshold for the long-term improvement plan is not exceeded without the IAMP and funding mechanisms being updated. The IAMP also includes an Access Management Plan that:

1. identifies future access locations for undeveloped properties in the IMSA;
2. identifies goals and policies that will guide evaluation of existing access for properties in the IMSA that might redevelop; and
3. documents the justification for the necessary deviations to ODOT's access management standards.

Through adoption by the City of The Dalles, Wasco County, and ODOT, future development located within the IMSA will be required to make circulation and access improvements, right-of-way dedications, and pay STSDC fees, as identified in this plan. Implementation of the IAMP is expected to preserve the functional integrity of the interchange over time and ensure viable access to existing and future land uses. Finally, the action items contained within the implementation plan (Section 8) will ensure proper coordination between the various stakeholders and that the IAMP remains a dynamic long-term planning tool.

TRANSPORTATION IMPROVEMENT PLAN OVERVIEW

A comprehensive transportation improvement plan including a local circulation and access plan within the IMSA was developed based on the alternative screening and evaluations outlined in Section 6. Figure 7-1 illustrates the transportation improvement plan including proposed alignments of new roadways and intersections, and locations where existing intersection control will be modified. Each transportation improvement identified in Figure 7-1 is described in Table 7-1 or Table 7-2. Figure 7-2 illustrates the lane configurations and traffic control devices associated with the improvement plan.

As shown in Figure 7-2, roundabouts or signals are identified for potential intersection control at the intersections of River Road/Hostetler Street, West 6th Street/Chenoweth Loop, and West 6th Street/River Road. Roundabouts are recommended on River Road at River Trail Way and on Hostetler Street at the proposed intersection with River Trail Way in order to provide consistency in the network and to reduce the number of approach lanes necessary when compared to signal alternatives.

SCALE
0 600 1200

N3 N2 N1
RIVER TRAIL WAY
30
84
W6
W2
6TH STREET
DIVISION STREET
W7
W9
IRVINE STREET
W8
W1
CHENOWETH LOOP
W3
W5
W4
HOSTETLER ST W
W 2ND ST
I3 I1 I2 I4
RIVER RD
E10
TAX LOT 2N 13 28B 500
TAX LOT 2N-13-28 702
LOT 1 6.92 ACRES
TRACT "A" 2.47 ACRES
LOT 2 16.08 ACRES
LOT 3 6.02 ACRES
LOT 4 30.34 ACRES
E1
E4B
E4
E11
E12
E3
E9
E6
E5
E2B
E2
E13
COLUMBIA RD
STEELHEAD WAY
CRATES WAY
KLINDT DR
RIVER RD

LEGEND

- (##) - IMPROVEMENT REFERENCE (SEE TABLE 7-1)
- ## - IMPROVEMENT REFERENCE (SEE TABLE 7-2)
- ALIGNMENT VARIABLE
- CLOSE ACCESS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- SIGNAL
- ROUNDABOUT
- ROUNDABOUT OR SIGNAL
- OVERPASS / UNDERPASS

IAMP TRANSPORTATION IMPROVEMENT PLAN
THE DALLES, OREGON

FIGURE **7-1**

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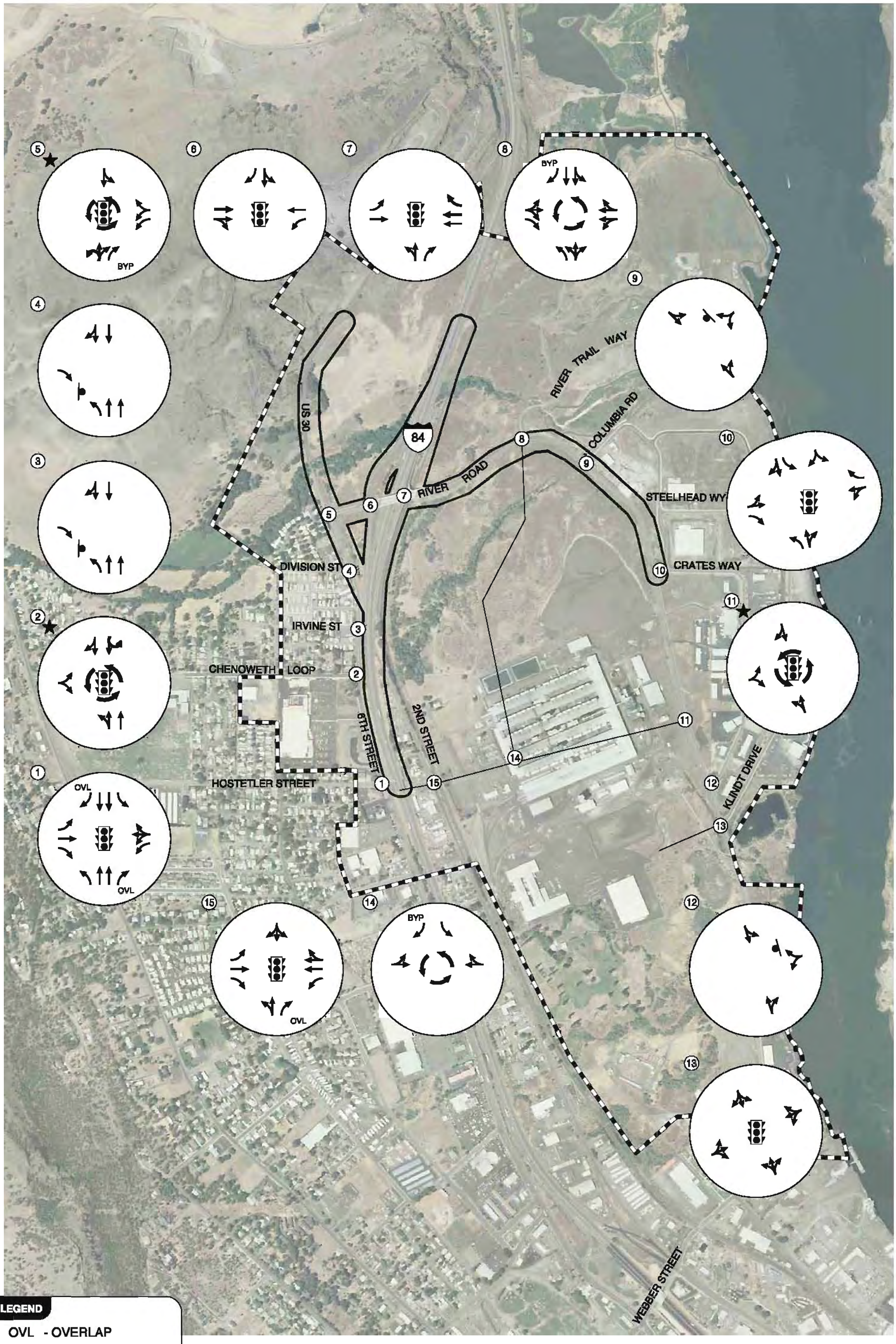

LEGEND

OVL - OVERLAP
BYP - BYPASS
- STOP SIGN
- ROUNDABOUT
- TRAFFIC SIGNAL

★ ROUNDABOUT OR SIGNAL BEING CONSIDERED; ROUNDABOUT LANE CONFIGURATION SHOWN

IAMP LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
THE DALLES, OREGON

FIGURE **7-2**

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TABLE 7-1 IAMP TRANSPORTATION IMPROVEMENTS

Reference	Improvement Type	Description
E1	New Collector Roadway	Extend River Trail Way from River Road to the Hostetler Street Extension
E2B	UP Railroad At-Grade Crossing and Signal (Short-term)	Provides Hostetler Street connection to River Road and intersection control to accommodate traffic at Hostetler Street and 2nd Street (requires approval by ODOT Rail and UPRR)
E3	New Collector Roadway	Extends Hostetler Street from West 2nd Street to River Road
E4	New Local Roadway (Long-term)	Provides local business access
E4B	New Local Roadway (Short-term)	Provides temporary local business access until environmental concerns can be mitigated and project E4 can be constructed.
E5	New Local Roadway	Provides local business access
E6	New Local Roadway	Provides local business access. Alignment is variable depending on parcel access and circulation.
E9	Intersection Improvement (Roundabout)	Intersection control to accommodate future traffic at Hostetler Street/River Trail Way Extension
E10	Intersection Improvement (Roundabout)	Intersection control to accommodate future traffic at reconstructed River Trail Way/River Road
E11	Intersection Improvement (Signals)	Intersection control to accommodate future traffic at River Road/Crates Way (North)/Columbia Road
E12	Intersection Improvement (Roundabout or Signal)	Intersection control to accommodate traffic at future connection of River Road and Hostetler Street
E13	Intersection Improvement (Signal)	Intersection control to accommodate future traffic at River Road/Klindt Drive
I1	Restripe Bridge Lanes (Short-term)	Restripe lanes on bridge to accommodate four lanes (two in each direction, including side-by-side left-turn lanes)
I2	Signalize Intersection	Accommodate weekday a.m. and p.m. peak hour travel demand at Westbound I-84 Ramp Terminal
I3	Signalize Intersection	Accommodate weekday a.m. and p.m. peak hour travel demand at Eastbound I-84 Ramp Terminal
I4	Widen Bridge to 6 Lanes (Long-term)	Accommodate weekday peak hour travel demand beyond the 85-percent development threshold (NOT PART OF 20-YEAR PLAN)
N1	New Local Roadways	Provide a network of local streets
N2	ROW Preservation	Preserve ROW for a potential future overpass of I-84
N3	ROW Preservation	Preserve ROW for a potential future overpass of I-84
W2	Intersection Improvement (Roundabout or Signal)	Intersection control at West 6th Street (US 30)/River Road to accommodate future traffic and provide for u-turns created by the median
W3	Intersection Improvement (Roundabout or Signal)	Intersection control at West 6th Street/Chenoweth Loop to accommodate future traffic and provide for u-turns created by the median
W4	Intersection Improvement (Signal)	Intersection control at West 6th Street/Hostetler Street to accommodate future traffic
W5	Widen West 6th Street to 5 Lanes	Widen West 6th Street from River Road to south of Hostetler Street to accommodate weekday a.m. and p.m. peak hour travel demand
W6	Relocate Driveway/ New Local Roadway	Relocate driveway further from interchange and River Road/West 6th Street intersection to meet access spacing standards
W7	New Local Roadway	Provides local connection between Division Street and Irvine Street

Reference	Improvement Type	Description
W8	New Local Roadway	Provides paved local connection between 6th Street and 7th Street
W9	Cul-de-sac	Supports consolidation of accesses on West 6th Street.

The proposed intersection configurations and roadway cross-sections in this IAMP were developed to serve a maximum amount of new development without requiring a greater cross-section on River Road over I-84 (at the Chenoweth Interchange) or on Hostetler Street under I-84 (at the preferred east-west crossing).

Although still a part of the IAMP, several projects were identified for special consideration at the time that the first IAMP review is triggered. These projects are listed in Table 7-2 and noted in Figure 7-1. Each of these projects are long-term needs and although each project provides benefits to the study area as a whole, they have the potential to negatively impact adjacent property and business owners and therefore, should be reconsidered based on updated forecasts during the first IAMP review.

TABLE 7-2 IAMP TRANSPORTATION IMPROVEMENT PROJECTS TO BE REVIEWED AT FIRST IAMP REVIEW TRIGGER

Reference	Improvement Type	Description
E2	UP Railroad Under-Crossing and Signal (Long-term)	Provides grade-separated Hostetler Street connection to River Road under the UPRR and intersection control to accommodate future traffic at Hostetler Street and 2nd Street
W1	Install median	Install median on 6th Street from River Road to Hostetler Street that limits all turning movements, except northbound left turns to Division Street and Irvine Street.

As shown in Table 7-2, two projects were selected to be reconsidered for implementation within the IAMP study area. These projects may be implemented if operational or safety conditions warrant further measures.

The following sections provide details on the major improvements identified in the Transportation Improvement Plan.

Hostetler Crossing Improvements

Short-term and long-term improvements have been evaluated for providing a crossing of the UPRR at Hostetler Street. The short-term improvement includes an at-grade crossing of the UPRR and the long-term improvement includes a grade-separated crossing. Each improvement is outlined below. The Hostetler Crossing (either grade-separated or at-grade) is expected to be needed in Phase 3, but ultimately will depends on concurrency of local development within the IMSA.

At-Grade Crossing Alternative

The existing UPRR mainline track maintains a private at-grade crossing at the 2nd Street/Hostetler Street intersection that serves the now vacant 67-acre Northwest Aluminum property. Technical Advisory Committee (TAC) and Steering Committee (SC) members provided direction at the

project outset that any public crossing of the UPRR tracks would require grade separation due to the level of train traffic, past practices of the UPRR and ODOT Rail, and federal and state safety initiatives to reduce the number of at-grade crossings. As a result, the four east-west crossing alternatives developed during the IAMP process, and described in Section 6, include grade-separated alternatives only.

In response to concerns expressed by adjacent property owners and the City Council regarding the impacts of the grade-separated crossing at Hostetler Street, and initial discussions between City staff and UPRR staff, the TAC and SC directed the consultant team to conduct an evaluation to assess the feasibility of developing an at-grade crossing in lieu of a grade-separated crossing at Hostetler Street. As documented in the Volume 2 Technical Appendix K, the analysis found that an at- grade crossing could become a viable short-term alternative if written approval can be obtained from ODOT Rail and the UPRR.

If approval is given by ODOT Rail and UPRR further evaluation will be conducted. The benefits to maintaining an at-grade crossing at the Hostetler Street Crossing location are to be weighted against some equivalent disadvantages. The greatest advantage of an at-grade crossing is the reduction in cost and impacts to adjacent property access when compared to constructing an underpass. However, these benefits must be weighted against potential safety and operational disadvantages.

Grade-Separated Crossing Alternative

Figure 7-3 provides a conceptual design layout of the long-term solution for the Hostetler Undercrossing (Projects E2, E3, and W4). The Hostetler Undercrossing conceptual design shown in Figure 7-3 was developed to accommodate traffic volumes assuming that the existing I-84 bridge structure will not be widened to six (6) lanes within the planning horizon.

The future Hostetler Street will include a four-lane cross-section proposed east of the bridge structure. If a design exception is not approved to allow a four-lane cross-section under the I-84 bridge at the intersection of West 6th Street and Hostetler Street, the cross-section under I-84 may be limited to three lanes, two westbound and one eastbound. A multi-use path for bicycles and pedestrians will be provided under the structure on both sides outside of the I-84 overpass piers. Refined cost estimates for improvements shown in Figure 7-3 were prepared and are provided in *Appendix "F" of the I-84 Chenoweth IAMP Technical Appendix.*

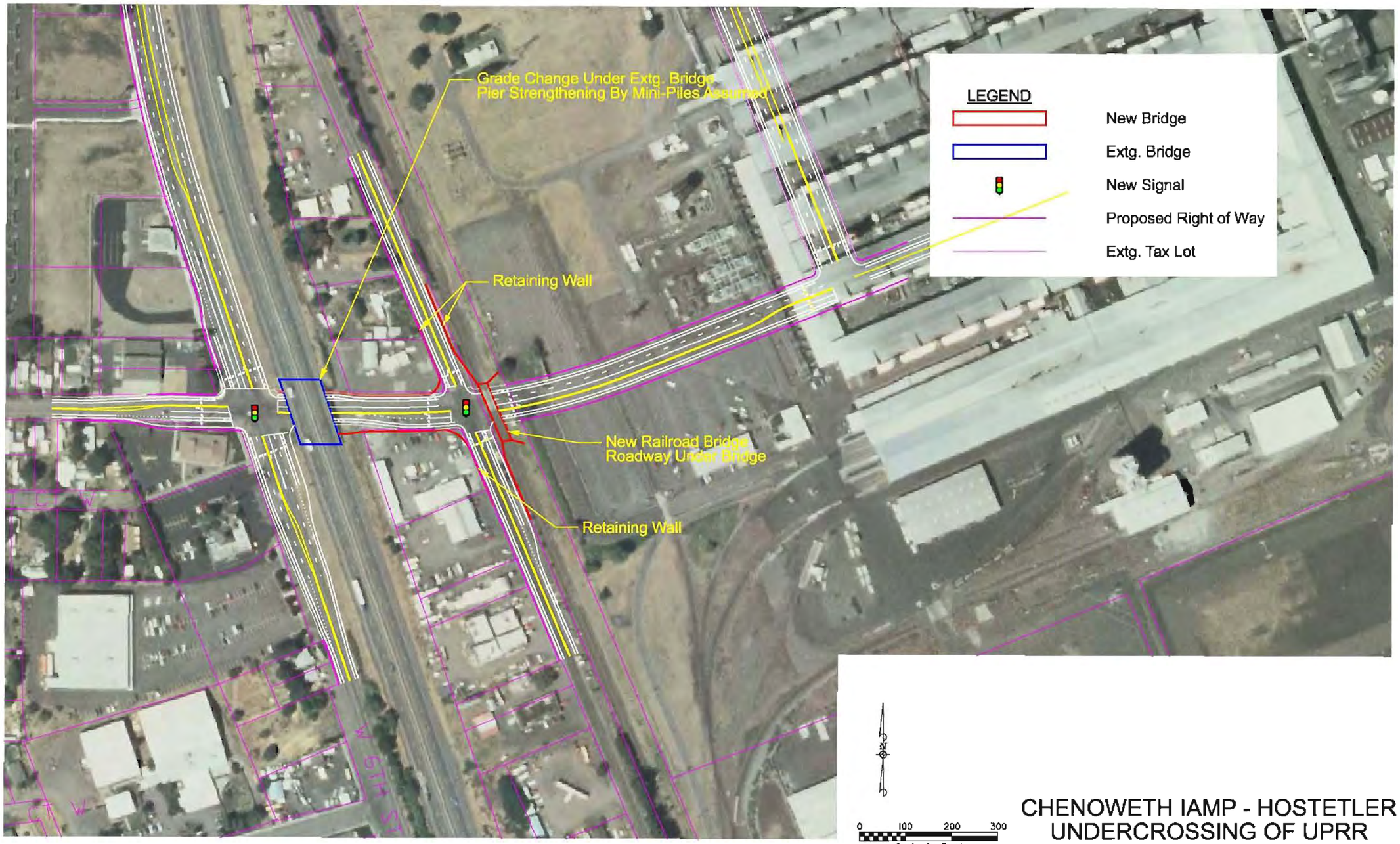
I-84 Chenoweth Interchange Improvements

Figure 7-4 shows a maximum six-lane cross-section at the I-84 Chenoweth Interchange (project I4). In order to provide adequate queue storage, this cross-section will include side-by-side left-turn lanes. To minimize queuing between I-84 ramp terminal intersections, coordinated signal timing will be implemented. Retaining walls are proposed to allow widening on the I-84 westbound ramps. Refined cost estimates for improvements shown in Figure 7-4 were prepared and are provided in *Appendix "F" of the I-84 Chenoweth IAMP Technical Appendix.* Construction of this project depends on local development within the IMSA. This project is not included in the 20-year plan, but

is listed as a potential project that could be completed if additional capacity is required beyond the planning horizon.

West 6th Street Improvements

Projects identified on West 6th Street include a median between Chenoweth Loop and River Road in conjunction with roadway widening from 3-lanes to 5-lanes. As development occurs along West 6th Street and traffic growth occurs over the next 20 years the City will begin to implement access management measures identified in the Access Management Plan and the Transportation Improvement Plan. Such improvements may vary from what is currently shown in the plans, depending on evaluations conducted by the City at the time of need. Likely outcomes include: acquire ROW through acquisition/dedication, implement crossover easements, implement access movement restrictions at driveways (to right-in, right-out or right-in/right-out/left-in).



CHENOWETH IAMP - HOSTETLER UNDERCROSSING OF UPRR

07/17/2009

CH2MHILL

December 2009

HOSTETLER STREET UNDERCROSSING CONCEPTUAL DESIGN
THE DALLES, OREGON

FIGURE 7-3

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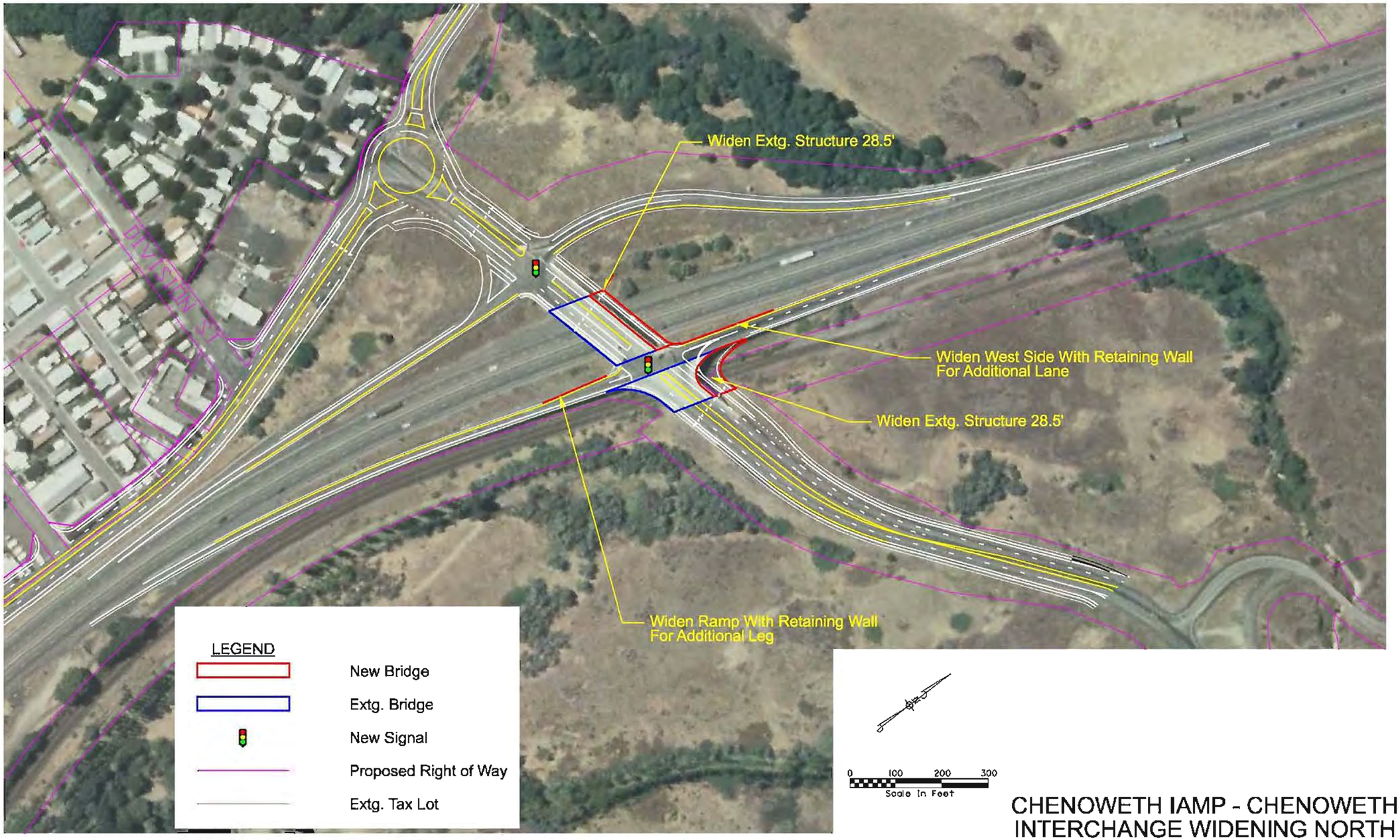

CHENOWETH IAMP - CHENOWETH INTERCHANGE WIDENING NORTH

07/17/2009

CH2MHILL

December 2009

CHENOWETH INTERCHANGE BRIDGE WIDENING CONCEPTUAL DESIGN
THE DALLES, OREGON

FIGURE 7-4

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Standard ROW Dedication and Roundabout Needs

When development occurs adjacent to or along the length of a project identified in the Transportation Improvement Plan, right-of-way (ROW) dedication will be required. Standard ROW dedications are outlined in Table 7-3 and are consistent with Street Design Standards outlined in the City of The Dalles Transportation System Plan (TSP).

TABLE 7-3 STANDARD ROW DEDICATIONS

Street / Intersection	Dimension (feet)	Measure	Notes
West 6th Street	40	from 5-lane section CL to east	No pedestrian facilities provided on east side due to ROW limitations
	50	from 5-lane section CL to west	
River Road	16	from outside edge of travelled way between River Trail Way and I-84 Ramp Terminal	
	35	from 3-lane section CL	Assumes 50-foot pavement width and 10-foot sidewalk/landscape strip
Hostetler Street Extension	45	from CL west of River Trail Way	
	35	from CL east of River Trail Way	Assumes 50-foot pavement width and 10-foot sidewalk/landscape strip
River Trail Way	35	from 3-lane section CL	Assumes 50-foot pavement width and 10-foot sidewalk/landscape strip
	50	from 5-lane section CL	Assumes 74-foot pavement width and 10- to 15-foot sidewalk/landscape strip
6th Street/Chenoweth Loop	25	from edge of travel way shown in preliminary design	See Figure 6-30
River Road/6th Street	25	from edge of travel way shown in preliminary design	See Figure 6-29
River Road/River Trail Way	25	from edge of travel way shown in preliminary design	See preliminary roundabout design in Appendix "B"
Hostetler Street/ River Trail Way Extension Roundabout	95	radius from point of intersection of roadway CL	25-foot buffer from outside edge of travel way accommodates landscape median strip, multi-use path, and utilities
River Road/Klindt Drive Roundabout	95	radius from point of intersection of roadway CL	25-foot buffer from outside edge of travel way accommodates landscape median strip, multi-use path, and utilities

CL – Centerline of roadway alignment

Phasing Plan

Four roadway improvement phases (near-term, mid-term, long-term, and vision beyond planning horizon) were developed in order to estimate the amount of new development that could occur within the IMSA before implementation of various components of the local access and circulation plan are required. These phases were developed as planning milestones, since improvements will likely be needed incrementally as development occurs. The phases are intended to show the increments of development that can occur before major improvements (e.g., new east-west crossing, Chenoweth Interchange Bridge widening, intersection control treatments, etc.) are needed.

The major components of each improvement phase are summarized below. Figure 7-5 through Figure 7-8 illustrates the lane configurations at the study intersections under each of the following improvement phases:

Phase 1 – Near-term Improvements (Figure 7-5)

- Traffic signal installed at West 6th Street/Hostetler Street intersection (Project #W4)
- Restriping of River Road overpass of I-84 to provide 4-lane cross-section (Project #I1)

Phase 2 – Mid-term Improvements and Actions (Figure 7-6)

- Roundabout constructed at River Road/River Trail Way (Project #E10)
- Traffic signal installed at River Road/I-84 Westbound Ramp Terminal, westbound and off-ramp approach widening (Project #I2)
- Traffic signal installed at River Road/I-84 Eastbound Ramp Terminal and eastbound approach widening (Project #I3)
- Roundabout or signal constructed at River Road/West 6th Street (US 30) (Project #W2)
- Roundabout or signal installed at West 6th Street/Chenoweth Loop (Project #W3)
- At the first triggered IAMP review, reevaluate improvement projects shown in Table 7-2 (W-1: 6th Street Median and E-2: Grade-Separated Crossing of the UP Railroad at Hostetler) based on updated forecasts.
- During the future development of the Webber Street IAMP, reevaluate the need for 6th Street widening (Project W-5).

Phase 3 – Long-term Improvements (Figure 7-7)

- Construct new east-west connection at Hostetler Street, either as an at-grade crossing (pending approval by ODOT Rail and UPRR) or a railroad undercrossing of Hostetler Street (Projects #E2, E2B, E3)
- Construct new collector roadway that extends River Trail Way from River Road to the Hostetler Street Extension (Project #E1)
- Provide dual westbound left-turns at River Road/West 6th Street (US 30) roundabout or signal (Project #W2)

- Construct raised median and provide 5-lane section on West 6th Street from River Road to Chenoweth Loop (Project #W1)
- Provide 5-lane section on West 6th Street from Chenoweth Loop south through the Hostetler Street intersection (Project # W5)
- Provide dual westbound left-turns at West 6th Street/Hostetler Street intersection (Project #W4)
- Traffic signal installed at 2nd Street/Hostetler Street (Project #E2)
- Traffic signal installed at River Road/Crates Way (north) and construct exclusive left-turn lanes on River Road approaches (Project #E11)
- Roundabout constructed at River Trail Way/Hostetler Street Extension (Project #E9)
- Roundabout or signal constructed at River Road/Hostetler Street Extension (Project #E12)

Phase 4 – Long-term Vision (Figure 7-8)

- Widen Chenoweth bridge structure to accommodate 6-lane cross-section, including side-by-side left-turn lanes(Project #I4)

Ongoing Phase – Improvements implemented in any phase

Some of the above improvements as well as additional improvements identified below will be implemented in conjunction with adjacent development, including:

- New local roadways to provide access to individual parcels and to provide connectivity to higher-order facilities (Project # E1, E4, E4B, E5, E6, N1, W7, W8, W9)
- Construct exclusive left-turn lanes on northbound, eastbound, and southbound approaches and an exclusive right-turn lane on the northbound approach to the West 6th Street/Hostetler Street intersection (Elements of projects #W4 and #W5)
- ROW preservation for potential long-term crossing of I-84 north of River Road (Project #N2, N3)
- Relocating driveway access on US 30 within 1,320 feet of the interchange ramp terminals to satisfy ODOT access management standard (Project #W6)
- Traffic signal installation at River Road/Klindt Drive (Project #E13)

Figures 7-9 and 7-10 conceptually illustrate the long-term and long-term vision phases, respectively.

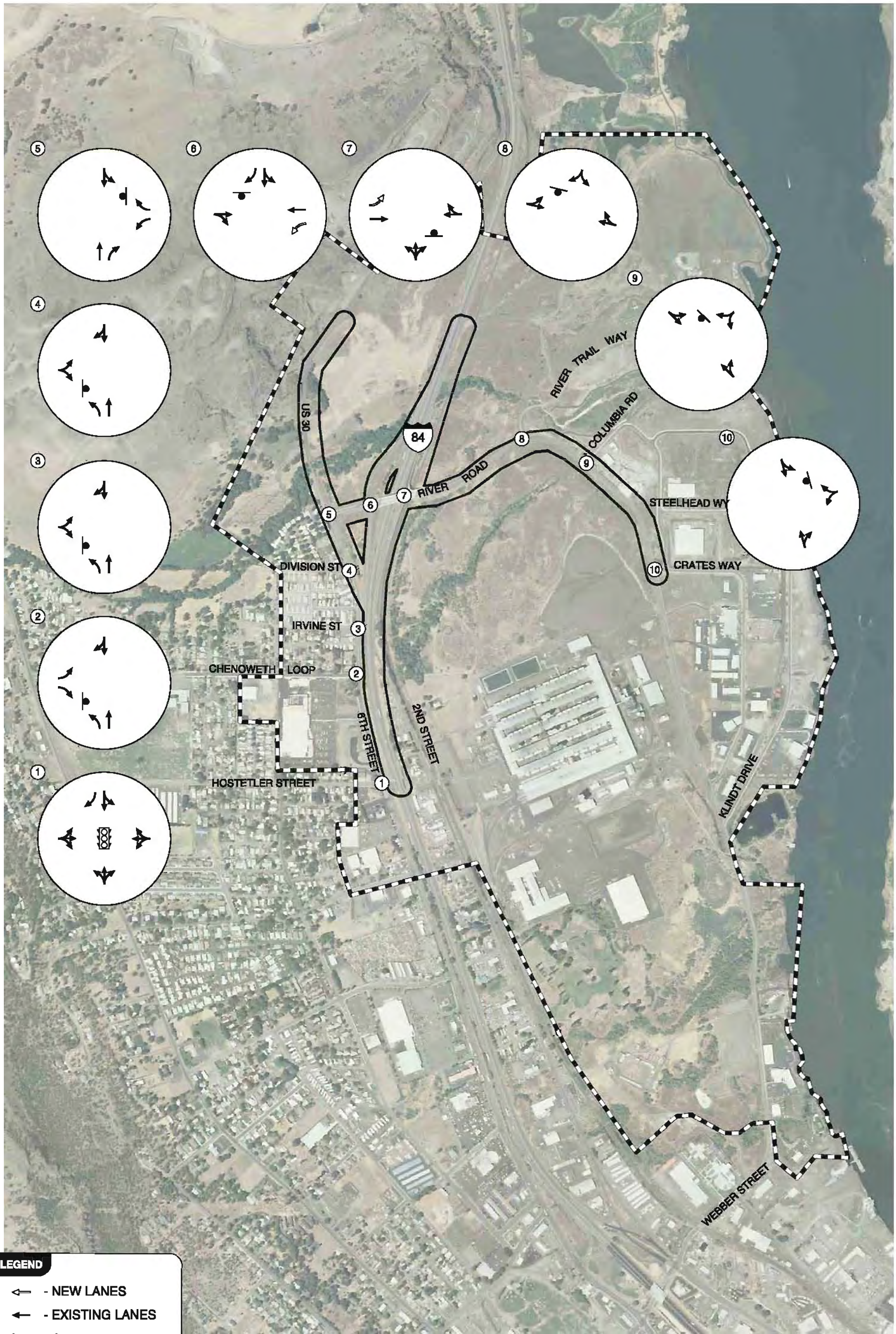
Table 7-4 summarizes the percent of development that is expected to be accommodated under each improvement phase. When all improvements identified in each improvement phase are in place, the development potential listed is expected to be attainable while maintaining adequate operational conditions. For example, if all improvements identified in Phase 2 are in operation, between 11 and 55 percent of full build-out under Land Use Scenario #2 could occur before queuing and intersection operations exceed capacity.

TABLE 7-4 TRANSPORTATION IMPROVEMENT THRESHOLDS

Improvement Phase	Development Threshold (Percent of Full Build-Out)
0 - No-Build	-
1 - Near-term Improvements	<10%
2 - Mid-term Improvements	11-55%
3 - Long-term Improvements	56-75%
4 - Long-term Vision Improvements	76-85%

As shown in Table 7-4, the Long-Term Improvements are expected to provide capacity for up to 75-percent of full build-out of all vacant and redevelopable land within the IMSA.* Implementation actions for managing future development in order to allow up to 85-percent (maximum use) of existing land for development purposes are provided in the following sections as part of the Vision Improvements.

* Assuming 0.25 FAR for commercial and 0.40 FAR for industrial development, as outlined in Table 5-2.



IAMP NEAR-TERM LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
THE DALLES, OREGON

FIGURE 7-5

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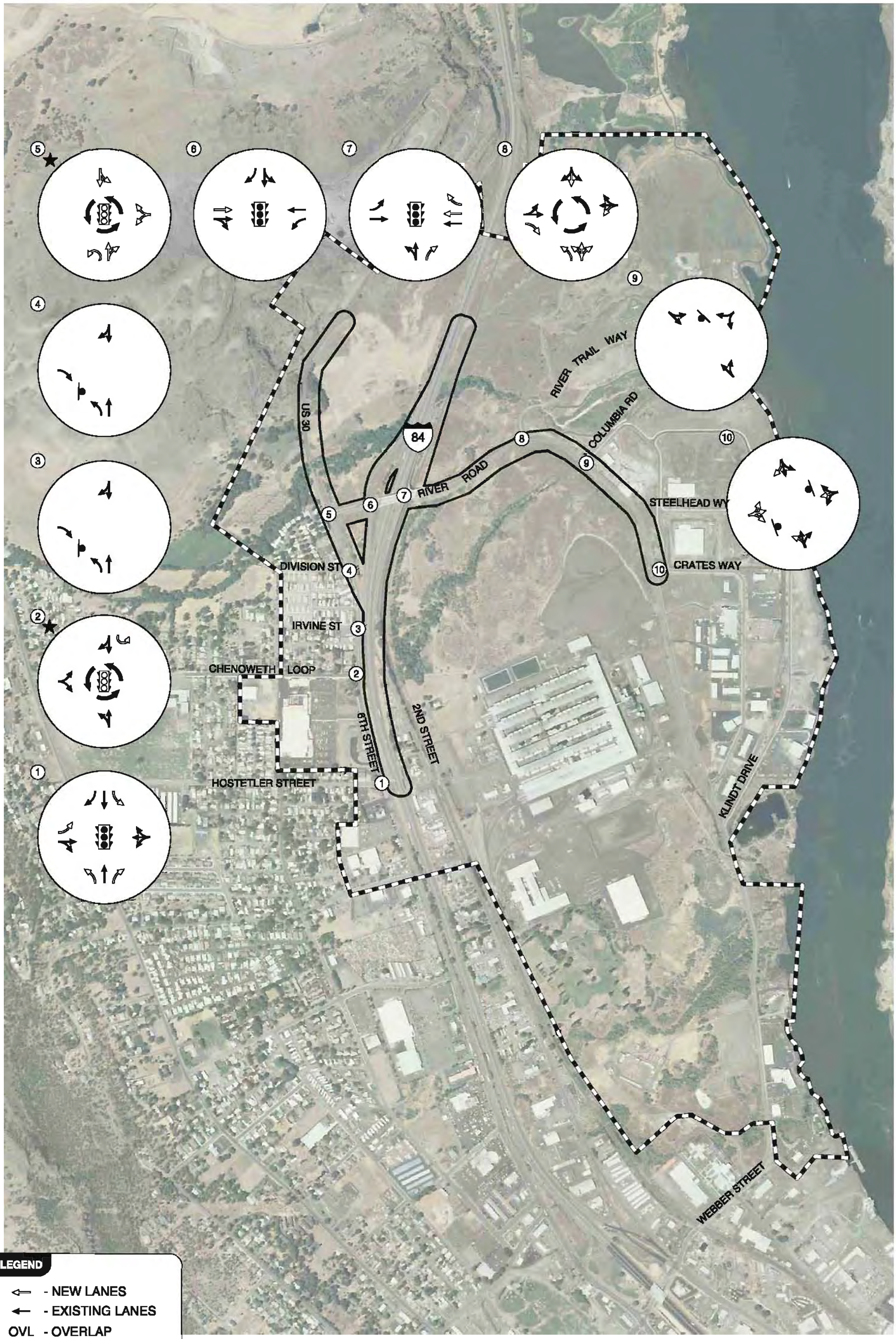

IAMP MID-TERM LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
THE DALLES, OREGON

FIGURE **7-6**

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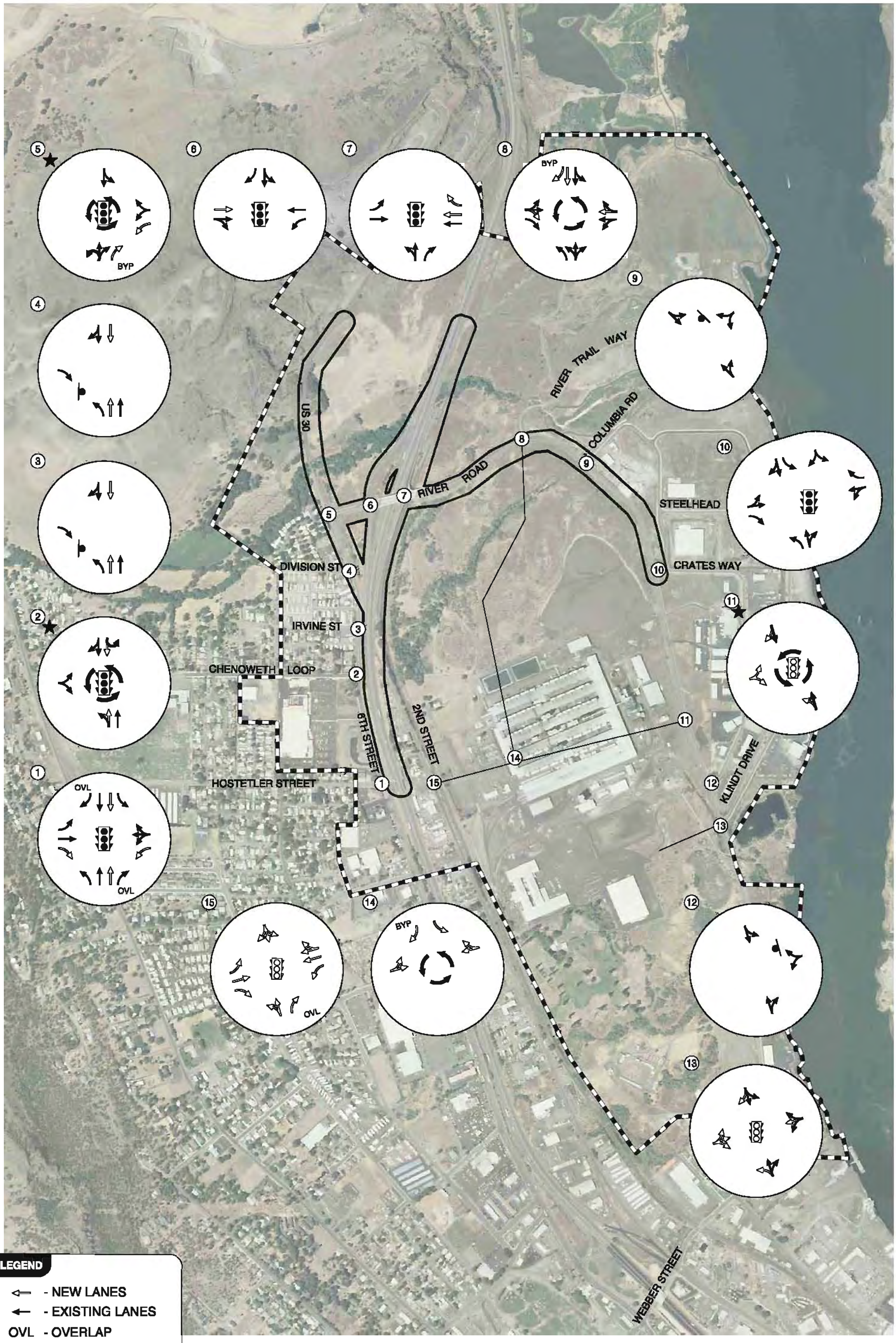

IAMP LONG-TERM LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
THE DALLES, OREGON

FIGURE **7-7**

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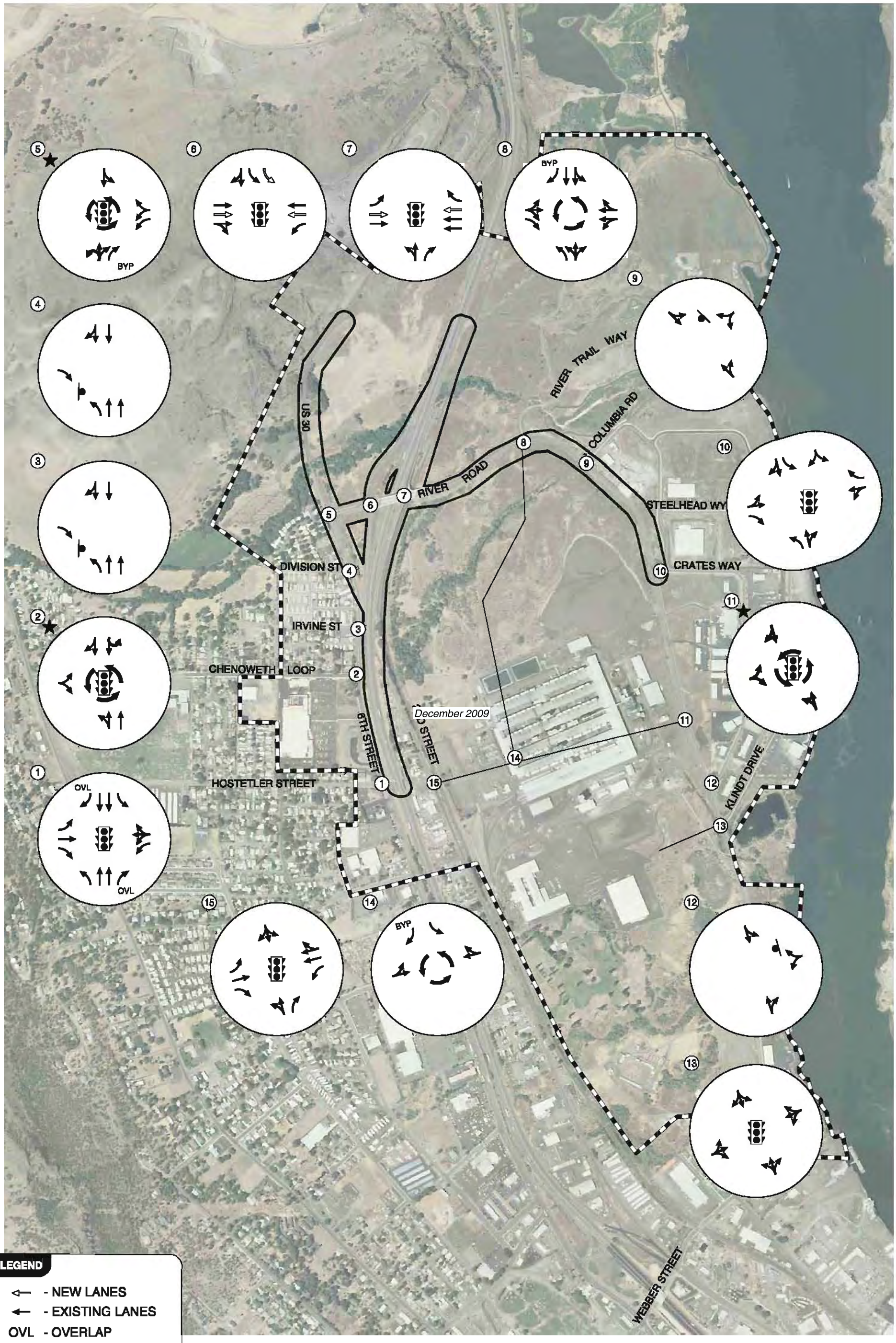

LEGEND

- ⇦ - NEW LANES
- ← - EXISTING LANES
- OVL - OVERLAP
- BYP - BYPASS
- - STOP SIGN
- - ROUNDABOUT
- - TRAFFIC SIGNAL

★ ROUNDABOUT OR SIGNAL BEING CONSIDERED; ROUNDABOUT LANE CONFIGURATION SHOWN

IAMP VISION PLAN LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
THE DALLES, OREGON

FIGURE **7-8**

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IAMP LONG-TERM CONCEPTUAL DESIGN
THE DALLES, OREGON

FIGURE 7-9

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IAMP VISION CONCEPTUAL DESIGN
THE DALLES, OREGON

FIGURE 7-10

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Trip Allocation Budget

The Long-term Improvement Plan can accommodate a development threshold of up to 75 percent of the maximum development potential of the IMSA. A Trip Allocation Budget, *provided in Appendix "C"*, was developed that identifies the number of net new weekday p.m. peak hour trips allocated to each developable or redevelopable parcel in the interchange area based on a 75-percent threshold of maximum density. As part of the Implementation Plan in Section 8, a monitoring process has been established to ensure that over time the trip budget is not being exceeded within the entire IMSA area (individual parcels could exceed their budget). If the trip budget for the IMSA is exceeded, the IAMP would need to be amended to identify the Vision Plan (Phase 4) as the planning horizon year improvements and the funding agreement and/or Supplemental Transportation System Development Charge (see Plan Elements in Section 8) would need to be updated. The Vision Plan improvements include reconstructing the I-84 Chenoweth Interchange overpass and ramps to accommodate six traffic lanes.

ACCESS MANAGEMENT PLAN

As part of the I-84 Chenoweth Road IAMP, future access locations and public street connections were evaluated for properties and streets located in the IAMP Access Study Area. Access locations were evaluated based on ODOT's Division 51 Access Management standards, the City of The Dalles access spacing standards, and an assessment of traffic operations and safety as described in Action 3C.3 of the 1999 Oregon Highway Plan. The Access Management Plan was developed to minimize impacts and preserve the operational integrity and safety of primary facilities (i.e., River Road, West 6th Street) serving the interchange area, while maintaining viable access to all parcels in the IMSA.

The intent of the Access Management Plan is to identify goals that will guide evaluation of the location of site-access driveways and internal circulation routes for properties located within the IMSA that are likely to develop or redevelop at some point in the future. I-84 Chenoweth IAMP Access Management Plan:

1. identifies future access locations for undeveloped properties in the IMSA

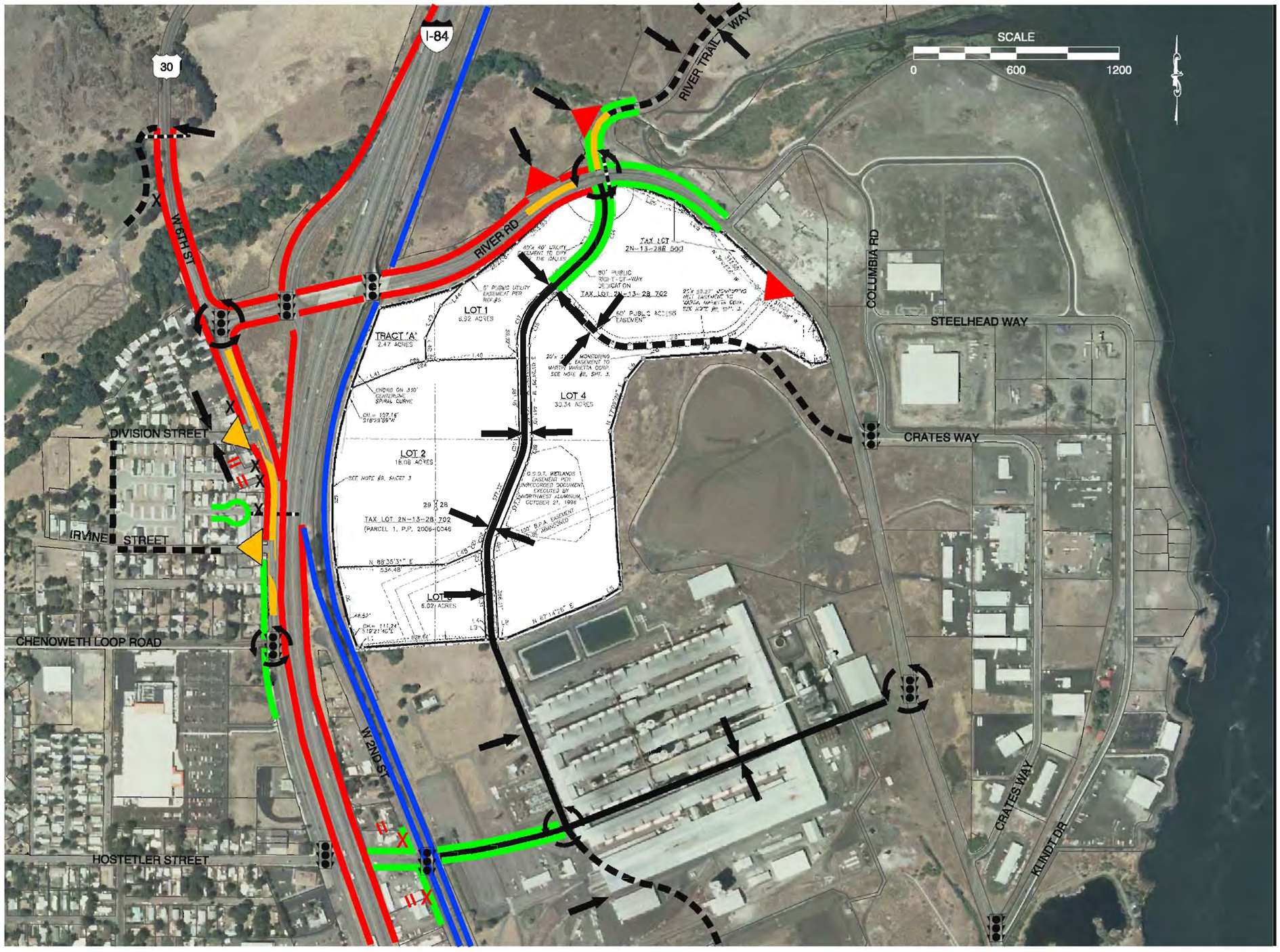
2. identifies goals and policies that will guide evaluation of existing access for properties in the IMSA that might redevelop, and

3. documents the justification for the necessary deviations to ODOT's access management standards.

The plan, as illustrated in Figure 7-11 and described in the following paragraphs, will be implemented as part of future land use changes, or ODOT and City project development and delivery processes, involving the properties located within the IMSA and Interchange Overlay District.

Near- and Mid-Term Access Management Implementation

Under ODOT's current access management policy, the 1999 Oregon Highway Plan stipulates that the desired distance between an interchange ramp terminal and the first major approach (public or private) on the crossroad should be 1,320 feet (¼ mile). Currently there are four private accesses and three public street connections within 1,320 feet of the interchange ramp terminals, as previously documented in Figure 4-7. Public street connections are located on River Road at River Trail Way, River Road at West 6th Street, and West 6th Street at Division Street. Existing private accesses are located on West 6th Street and US 30. Future private access is proposed on River Road.



LEGEND

- - - - - - MINIMUM 1320-FOOT IAMP LIMITS
- MEDIAN
- LOCAL ROADWAY
- COLLECTOR ROADWAY
- ODOT ACCESS CONTROL
- ODOT RAIL ACCESS CONTROL
- LOCAL AGENCY ACCESS CONTROL
- LEFT-IN/RIGHT-IN/RIGHT-OUT ONLY
- RIGHT-IN/RIGHT-OUT ONLY
- X - ACCESS CLOSED
- = - CROSSOVER EASEMENT
- CUL-DE-SAC
- ROUNDABOUT
- TRAFFIC SIGNAL
- = - REMOVE BARRIER
- GENERAL ACCESS LOCATION

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IAMP ACCESS MANAGEMENT PLAN
THE DALLES, OREGON

FIGURE **7-11**

In the near- and mid-term no access modifications will be made to the four existing private access approaches located on the west side of West 6th Street unless land use changes occur involving the properties served by these accesses or if increases in traffic volumes on West 6th Street warrant a modification for operation and safety reasons. ODOT guarantees Access Permit protection, as allowed within ORS374.305 & 310, to all existing private accesses. Each will remain a valid access as long as the existing uses remain on property/site (per OAR734.051.0045) and there is no capital improvement project that would trigger review of the access (per OAR734.051.0285). An access evaluation will be required, but is not limited to, when any of the following land use actions occur within 1,320 feet of the I-84 ramp terminal intersections:

- Modifications to existing land use or zoning,
- Changes to plan amendment designations;
- Construction of new buildings;
- Increases in floor space of existing buildings;
- Division or consolidation of property boundaries;
- Changes in the character of traffic using the driveway/approach;
- Safety or operational improvements;
- Changes to internal site circulation design or inter-parcel circulation;
- Reestablishment of a property's use (after discontinuance for two years or more that trigger a Traffic Impact Assessment as defined below) that occurs on the parcels served by the approaches; or,
- Capital improvement projects.

Long-Term Access Management Implementation

As traffic volumes increase with new development, access management can help maintain the operational integrity and safety of the primary roadways. Access management goals for each access identified in Figure 7-11 are outlined in Table 7-5. In general, the types of improvements identified include:

- Modifying, mitigating or removing existing approaches pursuant to an access management strategy as part of the highway project development and delivery process (OAR 734-051). This may include restricting left-turning egress movements along West 6th Street by constructing a raised median;
- Improving traffic safety and operations by improving the local street network to provide alternate access, better local street connections to the highway, and reducing conflict points. This may include consolidating access on West 6th Street from private approaches and minor public streets where traffic can be rerouted to a major public approach; and,

- Restricting highway access but improving arterial access by introducing shared access, cross-over easements, consolidated access when separate parcels are assembled for redevelopment, and access via collector or local streets. This may include providing crossover easements between adjacent parcels along West 6th Street and near Hostetler/2nd Street intersection.

The time period over which the measures outlined in Table 7-5 will be implemented will depend on the rate of development within the IMSA. As each parcel redevelops, or upon capital improvement, their access will be evaluated to determine how access will be modified to move in the direction of meeting the access spacing standards and long-term vision of driveway consolidation while still providing access as defined in OAR 734-051.The following text supports the actions outlined in Table 7-5 and illustrated in Figure 7-12.

River Road

Properties located east of the I-84 Chenoweth Interchange access River Road from three public approaches within the IAMP Operations/Access Study Area, illustrated in Figure 7-12. One additional access is proposed to be right-in, right-out only for long-term access to a vacant parcel (tax lot 2N 13E 28 701) in the northwest quadrant of the River Road/River Trail Way intersection. The roundabout proposed at the River Road/River Trail Way intersection would provide indirect left-turn movements to this parcel via River Trail Way and River Road. A combination of two right-in, right-out access points can provide access to site traffic; traffic entering from the west must complete a u-turn at the roundabout and make a right-turn to enter the site.

The public access at River Trail Way (#17) and the proposed right-in, right-out access (#16) do not meet the 1,320-foot access spacing requirement identified in OAR Division 51. Access #16 would need to be constructed at least 750 feet from the interchange ramp terminal and at least 550 feet from the roundabout at the River Road/River Trail Way intersection. A deviation is proposed under the provisions of OAR 734-51-0135(3) and will be reviewed by the ODOT Region Access Management Engineer.

West 6th Street

At the time that West 6th Street improvements are made to accommodate future traffic volumes (i.e., widen to five-lane cross-section, intersection control modifications, etc.), and at the first triggered review of the IAMP, ODOT and the City will revisit the need for a raised median to be installed. If appropriate, the raised median will extend from River Road south to Chenoweth Loop Road. The median will restrict left-turn movements to and from private driveways on West 6th Street and left-turn egress movements from public approaches on West 6th Street with Division Street and Irvine Street.

Under the Long-Term Access Management Plan, existing accesses on West 6th Street will be consolidated in order to increase access spacing on West 6th Street. Evaluation of site access and site access modifications that move in the overall direction of the access spacing standards, and long-term vision of driveway consolidation, will be made as development and redevelopment occurs or during a capital improvement project. At each phase of development or redevelopment, access as defined in OAR 734-051 will be provided depending upon the land uses that are being served.

Provisions for future compliance with the long-term access management plan, such as site orientation, access modification and mitigation, and crossover easements will be obtained. Figure 7-13 and the supporting text of Table 7-6 illustrates how this process could, in the long run, facilitate compliance with access management goals.

The public access at Highway 30 and West 6th Street (#14) and the proposed public left-in, right-in, right-out access (#12) do not meet the 1,320-foot access spacing requirement identified in OAR Division 51. Deviations are proposed under the provisions of OAR 734-51-0135(3) and will be reviewed by the Region Access Management Engineer.

Hostetler Street

Existing access to properties that currently access 2nd Street or Hostetler Street from the existing at-grade rail crossing at the Hostetler Street/2nd Street unsignalized intersection will be maintained until the Hostetler Street Extension is constructed. No other development access will be allowed other than those parcels that utilize the at-grade crossing as their primary site access point. At the time that the Hostetler Street Extension is constructed the parcels will have access provided via a local street extension of River Trail Way south of the River Trail Way/Hostetler Street Extension roundabout. The alignment of this street is variable, as shown in Figure 7-1.

2nd Street

In the short-term, if an at-grade crossing of the UPRR is approved, access to the properties located in the northwest and southwest quadrants of the 2nd Street/Hostetler intersection would be restricted to right-in/right-out due to the vehicular queues and level of traffic on 2nd Street and Hostetler Street. Vehicle queues would block additional property accesses along 2nd Street and Hostetler Street during train passage.

At the time that a grade-separated crossing is constructed, access to the properties located in the northwest and southwest quadrants of the 2nd Street/Hostetler intersection would be restricted due to the retaining walls on 2nd Street and Hostetler Street.

LEGEND

- Minimum 1,320-foot IAMP Limits
- IAMP Operation/Access Study Area
- Land Use Study Area
- Tax Lots

Type of Access

- (#) Existing Public Approach
- [#] Existing Private Approach
- **#** Proposed Private Approach

0 330 660 1,320 Feet

LONG-TERM ACCESS MANAGEMENT IMPLEMENTATION PLAN
THE DALLES, OREGON

FIGURE **7-12**

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TABLE 7-5 ULTIMATE ACCESS MANAGEMENT PLAN SUMMARY

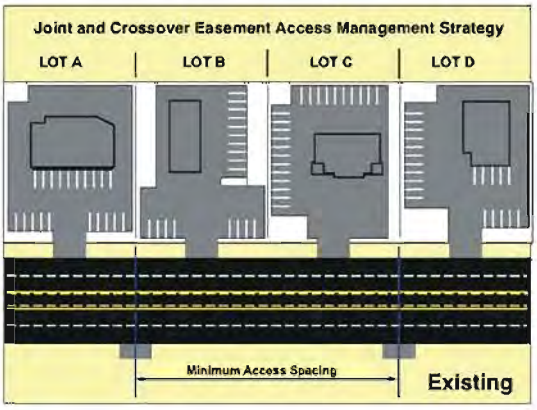
Deviation Required?	Access #	Access Control	Type/Location	Long-Term Access Management Implementation Plan
	1	City	Public (Hostetler Street) – Signalized intersection	Full-access allowing for all movements to/from West 6th Street.
	2		Private – Existing access 275 feet north of Hostetler Street.	Egress (left/right-out) only access to West 6th Street (based on one-way on-site circulation).
	3		Private – Existing access 470 feet north of Hostetler Street.	Ingress (right/left-in)_only access from West 6th Street (based on one-way on-site circulation).
	4		Private – Existing access 400 feet south of Chenoweth Loop.	Left-in/Right-in/Right-out access only to/from West 6th Street.
	5		Public (Chenoweth Loop) – Proposed roundabout location	Full-access allowing for all movements to/from West 6th Street.
	6		Private – Existing access 150 feet north of Chenoweth Loop.	Consolidate access to West 6th Street, relocate access to Chenoweth Loop.
	7		Private – Existing access 300 feet north of Chenoweth Loop.	Consolidate access and improve Lee Street to provide connection to 7th Street and construct cul-de-sac to close access to West 6th Street.
	8		Public (Irvine Street) – Existing access 465 feet north of Chenoweth Loop.	Complete Irvine Street connection from 7th Street to West 6th Street and restrict access at West 6th Street to Left-in/Right-in/Right-out.
	9, 10, 11, 13	ODOT	Private – Existing access within Interchange Access Study Area (1,320ft boundary from the I-84 ramp terminal)	Consolidate access on West 6th Street and provide access to Division Street, Irving Street, and Chenoweth Loop. Follow IAMP Access Management goals by modifying and mitigating access and establishing crossover easements to adjacent parcels. Access modification will be considered at time of redevelopment or capital improvement project.[†].
Yes	12		Public (Division Street) – Existing access 465 feet north of Chenoweth Loop.	Left-in/Right-in/Right-out access only to/from West 6th Street.

[†] Until then, ODOT guarantees Access Permit protection, as allowed within ORS374.305 & 310, to all existing private accesses. Each will remain a valid access as long as the existing uses remain on property/site (per OAR734.051.0045) and there is no capital improvement project that would trigger review of the access (per OAR734.051.0285)

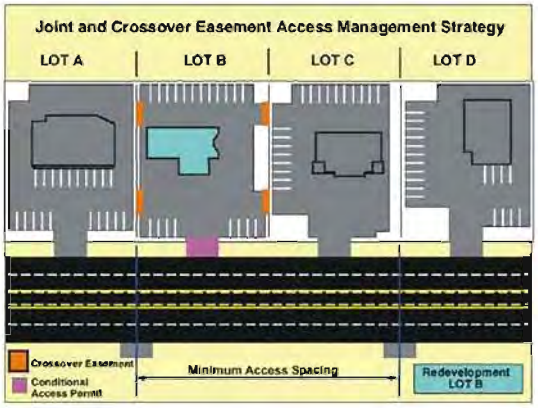
Deviation Required?	Access #	Access Control	Type/Location	Long-Term Access Management Implementation Plan
Yes	14		Public (River Road/West 6th Street and US Highway 30) – Existing full access intersection 350 feet from the I-84 eastbound off-ramp terminal.	Full-access allowing for all movements to/from River Road, West 6th Street, and US Highway 30.
	15		Private – Existing access 525 feet north of River Road.	Relocate access north, outside of the 1,320 foot boundary from the I-84 eastbound ramp terminal.
Yes	16		Private – Future access at least 750 feet from the westbound I-84 ramp terminal and 550 feet from River Trail Way.	Right-in, right-out access only to/from River Road.
Yes	17		Public (River Trail Way) – Existing access 1,300 feet east of I-84 westbound off-ramp terminal.	Full-access allowing for all movements to/from River Road.
	18	County	Public (Columbia Road) – Existing access 650 feet east of River Trail Way.	Full-access allowing for all movements to/from River Road.
	19		Public (Crates Way) – Existing access 1250 feet east of Columbia Road.	Full-access allowing for all movements to/from River Road.

TABLE 7-6 EXAMPLE OF CROSSOVER EASEMENT / INDENTURE / CONSOLIDATION - CONDITIONAL ACCESS PROCESS

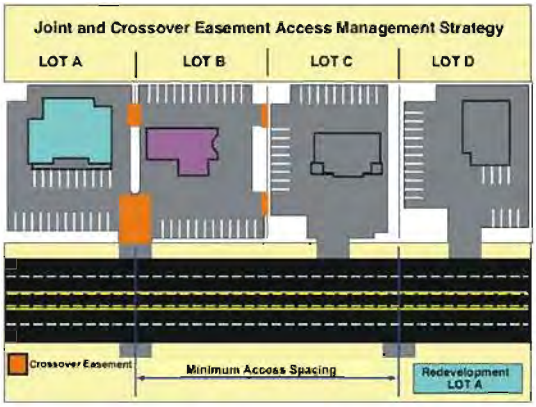
Step	Process
1	EXISTING – Currently Lots A, B, C, and D have site-access driveways that neither meet the access spacing criteria nor align with driveways or access points on the opposite side of the highway. *Under these conditions motorists are put into situations of potential conflict (conflicting left turns) with opposing traffic. Additionally, the number of side-street (or site-access driveway) intersections decreases the operation and safety of the highway.*
2	REDEVELOPMENT OF LOT B – At the time that Lot B redevelops, the local jurisdiction would review the proposed site plan and make recommendations to ensure that the site could promote future crossover or consolidated access. Next, the local jurisdiction would issue conditional permits for the development to provide crossover easements with Lots A and C, and ODOT would grant a conditional access permit to the lot. *After evaluating the land use action, ODOT would determine that LOT B does not have either alternative access, nor can an access point be aligned with an opposing access point, nor can the available lot frontage provide an access point that meets the access spacing criteria for this segment of highway.*
3	REDEVELOPMENT OF LOT A – At the time Lot A redevelops, the local jurisdiction and ODOT would undertake the same review process as with the redevelopment of LOT B (see Step 2); however, under this scenario ODOT and the local jurisdiction would use the previously obtained cross-over easement at Lot B to consolidate the access points of Lots A and B. ODOT would then relocate the conditional access of Lot B to align with the opposing access point and provide safe and efficient access to both Lots A and B. *The consolidation of site-access driveways for Lots A and B will not only reduce the number of driveways accessing the highway, but will also eliminate the conflicting left-turn movements on the highway by the alignment with the opposing access point.*
4	REDEVELOPMENT OF LOT D – The redevelopment of Lot D will be handled in the same manner as the redevelopment of Lot B (see Step 2).
5	REDEVELOPMENT OF LOT C – The redevelopment of Lot C will be reviewed once again to ensure that the site will accommodate crossover and/or consolidated access. Using the crossover agreements with Lots B and D, Lot C would share a consolidated access point with Lot D and will also have alternative frontage access via the shared site-access driveway of Lots A and B. *By using the crossover agreement and conditional access permit process, the local jurisdiction and ODOT will be able to eliminate another access point and provide the alignment with the opposing access points.*
6	COMPLETE – After Lots A, B, C, and D redevelop over time, the number of access points will be reduced and the remaining access points will either meet or move in the direction of the access spacing plan.



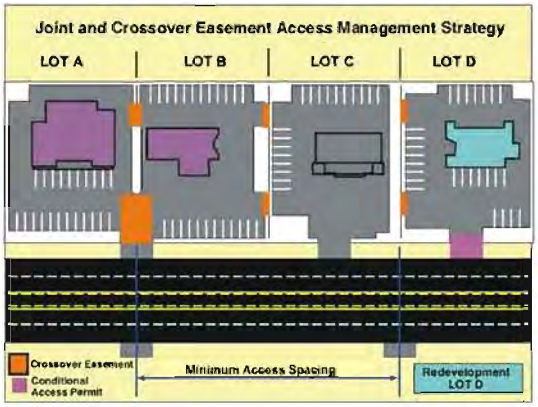
Step 1



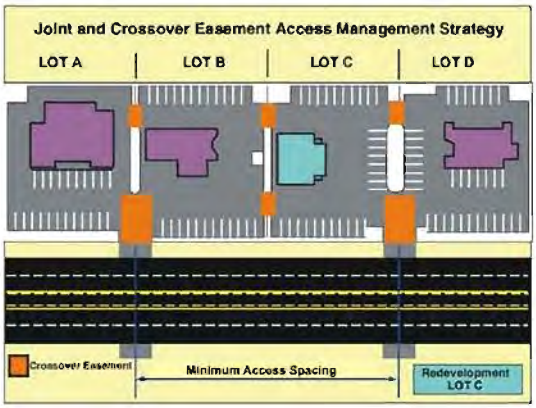
Step 2



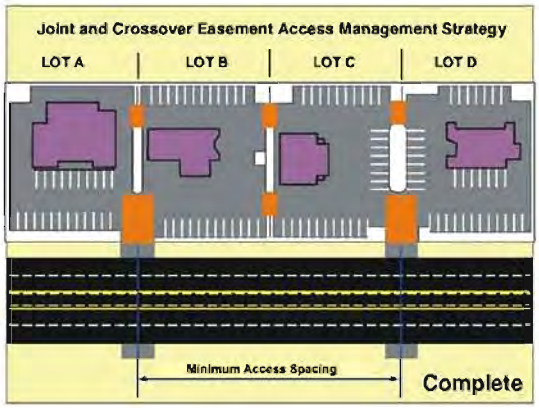
Step 3



Step 4



Step 5



Step 6

EXAMPLE OF CROSSOVER EASEMENT / INDENTURE / CONSOLIDATION / CONDITIONAL ACCESS PROCESS THE DALLES, OREGON

FIGURE 7-13

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Deviations to the Division 51 Access Management Standards

The public access at River Trail Way (#17) and the proposed private right-in, right-out access (#16) east of I-84 do not meet the 1,320-foot access spacing requirement identified in OAR Division 51. The public access at Highway 30 and West 6th Street (#14) and the proposed public left-in, right-in, right-out access at Division Street (#12), west of I-84, also do not meet the 1,320-foot access spacing requirement identified in OAR Division 51. Deviations are required under the provisions of OAR 734-51-0135(3) as described below and will be reviewed by the Region Access Management Engineer.

Deviation for Grant of Access #16 (Right-in, Right-out access to River Road)

Deviations to the 1,320-foot access spacing requirement identified in OAR Division 51 are required at Access # 16, proposed 750 feet east of the I-84 Westbound Ramp Terminal intersection, as shown in Figure 7-12. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

(a) Adherence to spacing standards creates safety or traffic operation problems;

> **Response:** Access #16 is proposed to be right-in, right-out only for long-term access to a vacant parcel (tax lot 2N 13E 28 701) in the northwest quadrant of the River Road/River Trail Way intersection. A right-in, right-out access is necessary because the parcel can only have right-in, right-out access on River Trail Way due to the limited site frontage that is between the proposed River Road/River Trail Way roundabout and the Chynoweth Creek bridge. A combination of two right-in, right-out access can provide access to site traffic; traffic entering from the west must complete a u-turn at the River Road/River Trail way roundabout and make a right-turn to enter the site.

(b) The applicant provides a joint approach that serves two or more properties and results in a net reduction of approaches to the highway;

> **Response:** NA

(c) The applicant demonstrates that existing development patterns or land holdings make joint use approaches impossible;

> **Response:** Based on existing land holdings, no joint access can provide full access to tax lot 2N 13E 28 701 due to the proposed location of the River Road/River Trail Way roundabout approach median. Therefore Access #16 (a private right-in, right-out access) is necessary in conjunction with a right-in, right-out access point on the northeastern-most boundary of the subject parcel that fronts River Trail Way.

(d) Adherence to spacing standards will cause the approach to conflict with a significant natural or historic feature including trees and unique vegetation, a bridge, waterway, park, archaeological area, or cemetery;

> **Response:** NA

(e) The highway segment functions as a service road;

Response: NA

(f) On a couplet with directional traffic separated by a city block or more, the request is for an approach at mid-block with no other existing approaches in the block or the proposal consolidates existing approaches at mid-block; or

Response: NA

(g) Based on the Region Access Management Engineer's determination that:

(A) Safety factors and spacing significantly improve as a result of the approach; and

Response: NA

(B) Approval does not compromise the intent of these rules as set forth in OAR 734-051-0020 (Which states: The purpose of Division 51 rules is to provide a safe and efficient transportation system through the preservation of public safety, the improvement and development of transportation facilities, the protection of highway traffic from the hazards of unrestricted and unregulated entry from adjacent property, and the elimination of hazards due to highway grade intersections.)

Response: The proposed access management plan meets the intent of the Division 51 rules as it reduces vehicle turning conflicts within the interchange access management area, and protects the flow of highway traffic traveling to/from the interchange to the Port of The Dalles by incorporating a right-in, right-out movement and restricting left-turns onto River Road from private property.

Deviation to Access #17 (Public Access to River Trail Way)

Deviations to the 1,320-foot access spacing requirement identified in OAR Division 51 are required at Access #17, located approximately 1,300 feet east of the I-84 Westbound Ramp Terminal intersection. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

(a) Adherence to spacing standards creates safety or traffic operation problems;

Response: NA

(b) The applicant provides a joint approach that serves two or more properties and results in a net reduction of approaches to the highway;

Response: Although the joint approach does not consolidate existing approaches, it provides a single access point that will serve multiple parcels that might otherwise require individual access points. Public access #17 (River Road/River Trail Way) currently serves an existing public roadway (River Trail Way) that provides access to multiple Industrial properties to the north of River Road. Additionally, with a proposed extension of River Trail

Way to the south of River Road, Access #17 would allow for future private accesses onto River Trail Way rather than River Road.

(c) The applicant demonstrates that existing development patterns or land holdings make joint use approaches impossible;

Response: NA

(d) Adherence to spacing standards will cause the approach to conflict with a significant natural or historic feature including trees and unique vegetation, a bridge, waterway, park, archaeological area, or cemetery;

Response: Adhering or exceeding the 1,320-foot standard would place the access point for River Trail Way in a location that would not allow use of the Chenoweth Creek Bridge, which was constructed in 2009 in place of an existing one-lane bridge. Additional impacts of moving the intersection include environmental impacts to Chenoweth Creek and impacts to the multi-use path that runs parallel to the Columbia River and has a crossing of Chenoweth Creek near the vehicular bridge.

(e) The highway segment functions as a service road;

Response: NA

(f) On a couplet with directional traffic separated by a city block or more, the request is for an approach at mid-block with no other existing approaches in the block or the proposal consolidates existing approaches at mid-block; or

Response: NA

(g) Based on the Region Access Management Engineer's determination that:

(A) Safety factors and spacing significantly improve as a result of the approach; and

Response: NA

(B) Approval does not compromise the intent of these rules as set forth in OAR 734-051-0020 (Which states: The purpose of Division 51 rules is to provide a safe and efficient transportation system through the preservation of public safety, the improvement and development of transportation facilities, the protection of highway traffic from the hazards of unrestricted and unregulated entry from adjacent property, and the elimination of hazards due to highway grade intersections.)

Response: NA

Deviation to Access #12 (Public access to Division Street)

The proposed Access Management Plan for West 6th Street west of I-84 does not meet the 1,320-foot access spacing requirement identified in OAR Division 51 at Access #12 and requires that the Region Access Management Engineer approve a deviation to the standards for the plan. Under the

provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

(a) Adherence to spacing standards creates safety or traffic operation problems;

> **Response**: Access #12 serves as a local street connection to West 6th Street, in accordance with functional classification principles. Closing access to West 6th Street will require that local street traffic (generated by more than 25 homes) will have to reroute to Irvine Street, which is already expected to receive an increase in traffic due to closure of other accesses on West 6th Street (#7 and #9). This is expected to create operational problems as through traffic volumes will increase on a residential street which is not designed to serve that level of demand.

(b) The applicant provides a joint approach that serves two or more properties and results in a net reduction of approaches to the highway;

> **Response**: Access #12 is a public street that provides joint access to West 6th Street and will serve future traffic from four existing private driveways on West 6th Street (#9, #10, #11, and #13) that currently serve individual properties. Crossover easements will be established as redevelopment occurs that will allow for closure of accesses #9, #10, and #11.

(c) The applicant demonstrates that existing development patterns or land holdings make joint use approaches impossible;

Response: Existing access #11 serves two developments (motel and muffler shop), of which the motel backs to the westernmost boundary of the parcel and is aligned with the access. The adjacent driveway (#10) can not be joined due to the presence of the motel structure. Upon redevelopment driveways on 6th Street will be closed and crossover easements will be sought to provide access to Division Street.

(d) Adherence to spacing standards will cause the approach to conflict with a significant natural or historic feature including trees and unique vegetation, a bridge, waterway, park, archaeological area, or cemetery;

> **Response**: NA

(e) The highway segment functions as a service road;

> **Response**: NA

(f) On a couplet with directional traffic separated by a city block or more, the request is for an approach at mid-block with no other existing approaches in the block or the proposal consolidates existing approaches at mid-block; or

> **Response**: NA

(g) Based on the Region Access Management Engineer's determination that:

(A) Safety factors and spacing significantly improve as a result of the approach; and

> **Response**: The proposed access management plan moves all private accesses and associated vehicle movements to outside of the 1,320 foot interchange access spacing standard. Public Access #12 will serve right-in/right-out/left-in movements within the 1,320 foot interchange access spacing standard and is anticipated to operate safely and represent a reduction in conflicting movements given that no left-turns out of the pubic approach will be allowed. A median break to accommodate a left-in movement is proposed to reduce the amount of u-turns required at the West 6th Street/River Road intersection and associated delays for westbound traffic. Adequate storage is available for queued vehicles waiting to complete a left-turn into Division Street.

(B) Approval does not compromise the intent of these rules as set forth in OAR 734-051-0020 (Which states: The purpose of division 51 rules is to provide a safe and efficient transportation system through the preservation of public safety, the improvement and development of transportation facilities, the protection of highway traffic from the hazards of unrestricted and unregulated entry from adjacent property, and the elimination of hazards due to highway grade intersections.)

> **Response**: The proposed access management plan meets the intent of the Division 51 rules as it consolidates access points, reduces vehicle turning conflicts within the interchange access management area, and protects the flow of highway traffic and traffic traveling from the interchange to the commercial and residential areas on the west side of West 6th Street.

Deviation to Access #14 (Public access to West 6th Street)

The proposed Access Management Plan does not meet the 1,320-foot access spacing requirement identified in OAR Division 51 at Access #14 and requires that the Region Access Management Engineer approve a deviation to the standards for the plan. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

(a) Adherence to spacing standards creates safety or traffic operation problems;

> **Response**: Access # 14 (West 6th Street/River Road/Highway 30) is an intersection of three major roadways. Topographic constraints and existing development make relocation of this intersection infeasible. Limiting the access at this intersection would result in operational issues as it is an intersection of three public roadways all of which require full access as there are no alternative routes.

(b) The applicant provides a joint approach that serves two or more properties and results in a net reduction of approaches to the highway;

> **Response**: NA

(c) The applicant demonstrates that existing development patterns or land holdings make joint use approaches impossible;

> **Response**: NA

(d) Adherence to spacing standards will cause the approach to conflict with a significant natural or historic feature including trees and unique vegetation, a bridge, waterway, park, archaeological area, or cemetery;

Response: Chenoweth Creek is located just north of the exiting intersection, which limits any opportunity to relocate the intersection to the north. Also, US 30 is designated an Oregon Scenic Byway, which limits ability to modify alignment.

(e) The highway segment functions as a service road;

Response: NA

(f) On a couplet with directional traffic separated by a city block or more, the request is for an approach at mid-block with no other existing approaches in the block or the proposal consolidates existing approaches at mid-block; or

Response: NA

(g) Based on the Region Access Management Engineer's determination that:

(A) Safety factors and spacing significantly improve as a result of the approach; and

Response: NA

(B) Approval does not compromise the intent of these rules as set forth in OAR 734-051-0020 (Which states: The purpose of division 51 rules is to provide a safe and efficient transportation system through the preservation of public safety, the improvement and development of transportation facilities, the protection of highway traffic from the hazards of unrestricted and unregulated entry from adjacent property, and the elimination of hazards due to highway grade intersections.)

Response: NA

(d) Adherence to spacing standards will cause the approach to conflict with a significant natural or historic feature including trees and unique vegetation, a bridge, waterway, park, archaeological area, or cemetery;

Response: Chenoweth Creek is located just north of the exiting intersection, which limits any opportunity to relocate the intersection to the north. Also, US 30 is designated an Oregon Scenic Byway, which limits ability to modify alignment.

(e) The highway segment functions as a service road;

Response: NA

(f) On a couplet with directional traffic separated by a city block or more, the request is for an approach at mid-block with no other existing approaches in the block or the proposal consolidates existing approaches at mid-block; or

Response: NA

(g) Based on the Region Access Management Engineer's determination that:

(A) Safety factors and spacing significantly improve as a result of the approach; and

Response: NA

(B) Approval does not compromise the intent of these rules as set forth in OAR 734-051-0020 (Which states: The purpose of division 51 rules is to provide a safe and efficient transportation system through the preservation of public safety, the improvement and development of transportation facilities, the protection of highway traffic from the hazards of unrestricted and unregulated entry from adjacent property, and the elimination of hazards due to highway grade intersections.)

Response: NA

Section 8
Implementation Plan

Implementation Plan

This section describes the IAMP implementation strategy, which includes an I-84 Chenoweth Interchange Function and Policy Definition, Overlay District, Trip Allocation Budget, and Supplemental Transportation System Development Charge. The Implementation Plan also includes adoption and monitoring procedures that will ensure transportation improvements are constructed and funded as development occurs and that the improvement plan, trip budget, and financing mechanisms are updated as needed over time.

To ensure that the IAMP remains dynamic and responsive to changes to the adopted land use and transportation plans, the City of The Dalles, Wasco County, and ODOT should, at a minimum:

- Amend their respective Transportation System Plans and Comprehensive Plans;
- Codify and map an Interchange Area Overlay District that defines the area wherein regulations and requirements associated with the protecting the interchange for its accepted function apply;
- Adopt a Supplemental Transportation System Development Charge (City only);
- Coordinate planning activities per the Transportation Planning Rule (OAR 660-012);
- Review the IAMP and mobility standards for the interchange prior to adopting local plan amendments;
- Regularly revisit transportation funding strategy (see system development charge methodology, Volume 2 Technical Appendix "I".)

PLAN ELEMENTS

In addition to adoption of the IAMP described in Section 7, implementation of the I-84 Chenoweth IAMP requires adoption of an "Interchange Function and Policy Definition", Interchange Management Area Plan Overlay District, and Supplemental Transportation System Development Charge (STSDC).

Interchange Function and Policy Definition

When it was originally designed in 1996, the I-84 Chenoweth Interchange was intended to function as a service level interchange that would safely and efficiently accommodate the traffic demands associated with The Port, industrial property in the vicinity of the I-84, and the Discovery Center. Visitor traffic to the Discovery Center has been lower than originally projected and the function of the interchange today is principally to provide safe and efficient access to the Port and industrial

land in the western part of The Dalles (the area located east of the interchange). In addition to serving the city's industrial center, the I-84 Chenoweth Interchange remains an important facility for accessing the Discovery Center, existing commercial lands in the vicinity of the industrial area, and existing business and residential areas west of I-84.

The City of The Dalles and Wasco County should adopt a clear definition of the I-84 Chenoweth Interchange function into their respective comprehensive plans and TSPs as a policy to provide direction for management of the interchange area and achieve the objectives and goals of the IAMP. This will help to ensure consistency between future policy decisions with the interchange's intended function.

Following is the function and policy definition for the I-84 Chenoweth Interchange:

> *"The transportation function of the I-84 Chenoweth Interchange is principally to provide safe and efficient access to the Port and industrial land in the western part of The Dalles (the area located east of the interchange). In addition to its primary function, the I-84 Chenoweth Interchange remains an important facility for accessing the Discovery Center and existing commercial lands in the vicinity of the city's industrial center. The interchange also serves local residential and commercial traffic circulating from I-84 to Highway 30 and West 6th Street."*

Interchange Area Management Plan Area Overlay District

To ensure the continued operational and safety integrity of the interchange, the City of The Dalles should adopt an Interchange Area Management Plan Overlay District[3]. Future development and land use actions within the Overlay District will be monitored to ensure that within the Interchange Area Management Plan Overlay District volume-to-capacity ratios do not exceed the adopted Oregon Highway Plan mobility standards at the interchange ramp terminals. This can be accomplished through the Trip Allocation Budget and STSDC, IAMP Monitoring, and Development Review Guidelines for the Overlay District included within the proposed amendments to the City's Land Use and Development Ordinances and described in the following sections (*see Appendix "J" of the IAMP Technical Appendix*).

Trip Allocation Budget

As described in Section 7, the Long-Term Improvement Plan can accommodate a development threshold of up to 75 percent of the maximum development potential of the Interchange Management Study Area (IMSA). A Trip Allocation Budget was developed, *provided in Appendix "I" of the IAMP Technical Appendix*, that identifies the number of net new weekday p.m. peak hour trips allocated to each developable parcel in the interchange area based on a 75-percent threshold of maximum density. The City shall monitor the Trip Budget to ensure that over time the trips from new development in the IMSA are not exceeding the budget. Individual parcels may exceed their trip allocations; however, they would pay a higher STSDC per trip for each trip exceeding their

[3] The Interchange Area Management Overlay District coincides and is consistent with the Land Use Study Area, which is a part of the Interchange Management Study Area in the IAMP.

allocation to help pay for the Vision Plan Improvements. The Vision Plan Improvements are described in detail in Section 7 and include reconstructing the I-84 Chenoweth Interchange overpass and ramps to accommodate six traffic lanes. The Trip Budget will be reviewed, at a minimum, during each development review that triggers a STSDC (monitored as described in the sections below).

Supplemental Transportation System Development Charge (STSDC)

Short-, mid-, and long-term transportation improvement plans were developed in order to estimate the amount of new development that could occur within the I-84 Chenoweth IMSA before various improvements are needed. A fourth phase, the "Long-term Vision" or Vision Plan (see Figure 7-8), includes the widening of the Chenoweth bridge structure to accommodate 6-lane cross-section, including side-by-side left-turn lanes. This fourth phase is anticipated to be outside of the 20-year planning horizon.

To provide the necessary funding to develop and construct the first three phases of the Circulation and Access Plan as illustrated in Figure 7-1 and listed in Table 7-1 and Table 7-2, the City of The Dalles should modify the existing system development charge ordinance to include a STSDC, which is assessed on trips generated by new development or redevelopment on property within the IAMP Overlay District, as shown on the amended Comprehensive Plan Map and Zoning Map and defined through a new Development Code Overlay District chapter.

ADOPTION ELEMENTS

Implementation of the I-84 Chenoweth IAMP will occur at several levels of government. As required by OAR 734-051, both the City of The Dalles and Wasco County will be required to amend their Transportation System Plans and Comprehensive Plans to incorporate elements of the I-84 Chenoweth IAMP. In addition, new ordinances or amendments to existing ordinances, resolutions, and Inter-Governmental Agreements (IGA) will be required to insure that the access management, land use management, and coordination elements of the IAMP are achieved. This adoption process will include Planning Commission/City Council hearings at the city level and Planning Commission/County Court hearings at the county level. Following successful adoption at the city and county levels, the I-84 Chenoweth IAMP will be presented to the Oregon Transportation Commission (OTC) for its review and adoption. This should occur prior to transportation improvements as described in this IAMP are constructed and before the covenant described in the ODOT/City of The Dalles/WM3, Inc. IGA (Misc. Contracts & Agreements No. 23886) prohibiting "non-industrial" development on 42-acres of WM3, Inc. property within the Overlay District is lifted.

To implement the I-84 Chenoweth IAMP, the following actions shall occur:

1. The City of The Dalles shall adopt the I-84 Chenoweth IAMP as part of the City of The Dalles Transportation System Plan and Comprehensive Plan. The IAMP shall serve as the long range comprehensive management plan for providing the transportation facilities that are specifically addressed in this plan, as well as the Access Management Plan and the planned local street network for the area.

2. The Wasco County Court shall amend its Transportation System Plan to incorporate the interchange function policy statement and transportation improvements associated with the Preferred Plan.

3. The City of The Dalles shall amend its Comprehensive Plan Map and Zoning Map to include the Interchange Area Management Plan Overlay District boundary. In addition, the City shall amend the Land Use and Development Ordinance to include an Interchange Area Management Plan Overlay District chapter that contains development and land use application requirements pertaining to transportation impact analysis, access management, and agency coordination *(see Appendix "J")*.

4. Subsequent to the local adoption of the IAMP, the City of The Dalles shall adopt a Supplemental Transportation System Development Charge (STSDC) that will finance transportation improvements in the vicinity of the I-84 Chenoweth Interchange *(see proposed methodology in Appendix "I")*.

5. ODOT Regional Access Management Engineer will review access deviation proposed in the IAMP.

6. The Oregon Transportation Commission shall amend the Oregon Highway Plan to include the I-84 Chenoweth IAMP.

7. The City of The Dalles, Wasco County, and ODOT shall enter into an IGA to assign funding responsibility to the respective transportation improvement plan and to establish agreements on how the IAMP and its triggers will be monitored.

8. ODOT and the City shall work together to identify and pursue funding for the Webber Street IAMP which shall also include consideration of I-84 Exit 83 (entrance and exit). The Webber Street IAMP will provide coordinated land use management and financing for both interchange areas upon final adoption.

TSP and Comprehensive Plan Amendments

The following outline discusses the major Transportation System Plan amendments that will need to occur at the city, county, and state levels to support adoption of the I-84 Chenoweth IAMP.

City of The Dalles

- The City shall adopt the Chenoweth Interchange Area Management Plan by reference as an element of the City's Transportation System Plan.
- The following interchange policy statement shall be included in the City of The Dalles Transportation System Plan: *The transportation function of the I-84 Chenoweth Interchange is principally to provide safe and efficient access to the Port and industrial land in the western part of The Dalles (the area located east of the interchange). In addition to its primary function, the Chenoweth Interchange remains an important facility for accessing the Discovery Center and existing commercial lands in the vicinity of the city's industrial center. The interchange also*

serves local residential and commercial traffic circulating from I-84 to Highway 30 and West 6th Street.

- The IAMP Transportation Improvement Plan, as illustrated in Figure 7-1 and listed in Table 7-1, shall be included in the recommended transportation improvements project list of the Transportation System Plan.

Wasco County

- The County shall include the I-84 Chenoweth IAMP in its transportation system plan. The IAMP may be adopted by reference into the TSP.
- For areas within the Interchange Management Study Area (IMSA) that are located outside of the City of The Dalles UGB, Wasco County is the land use regulatory authority. Upon the County's adoption of the IAMP, parcels within the IMSA and outside the UGB will be subject to the IAMP's Access Management Plan.
- The following interchange policy statement should be included in the Wasco County Transportation System Plan: *The transportation function of the I-84 Chenoweth Interchange is principally to provide safe and efficient access to the Port and industrial land in the western part of The Dalles (the area located east of the interchange). In addition to its primary function, the Chenoweth Interchange remains an important facility for accessing the Discovery Center and existing commercial lands in the vicinity of the city's industrial center. The interchange also serves local residential and commercial traffic circulating from I-84 to Highway 30 and West 6th Street.*
- The IAMP transportation improvement plan elements located on County facilities, as illustrated in Figure 7-1 and listed in Table 7-1, shall be included in the recommended transportation improvements project list of the Wasco County Transportation System Plan.

Oregon Transportation Commission

- The I-84 Chenoweth IAMP shall be adopted by the Oregon Transportation Commission as part of the Oregon Highway Plan.

Other City Amendments

The following outlines other major amendments that will need to occur at the city level to support adoption of the I-84 Chenoweth IAMP.

- The City shall adopt an Interchange Area Management Plan Overlay District that includes the submittal requirements, review standards, and administration fees for IAMP monitoring and updates for land use amendment and design review applications within the district.
- The City will adopt a Supplemental Transportation System Development Charge (STSDC) that will finance transportation improvements in the vicinity of the I-84 Chenoweth Interchange (*see proposed methodology in Appendix "I"*). This new STSDC will

be administered through the City's existing System Development Charge (SDC) program but will have its own methodology for assessing fees (*See Appendix "I").* Because the STSDC involves a new fee, state law and City regulation requires that it be adopted through a formal amendment process that includes a public review and comment period and approval of the new methodology by ordinance [ORD 3-8.4(B)]. Pursuant to the existing City ordinance, the procedure to enact an STSDC improvement fee includes adopting a plan that contains the list of projects needed to serve growth in the fee area (in this case, adoption of the IAMP) and providing written notice at least 30 days prior to adoption of the proposed fee to those who have requested notice [ORD 3-8.8].

MONITORING ELEMENTS

The purpose of the IAMP is to ensure that capacity at the interchange is preserved for its intended function. The IAMP needs to remain dynamic and responsive to development and changes to the adopted land use and transportation plans. To accomplish this goal, monitoring should be agreed upon by the City of The Dalles, Wasco County, and ODOT in an Intergovernmental Agreement (IGA) identifying triggers for reviewing the IAMP and how development within the Overlay District will be reviewed and coordinated with all parties.

Intergovernmental Agreement (IGA)

To ensure that the Chenoweth IAMP continues to preserve operational integrity and safety of the I-84 Chenoweth Interchange, the City of The Dalles, Wasco County, and ODOT will develop an Inter-Governmental Agreement (IGA) stipulating each agency's funding obligations to the transportation improvements in the Plan and to the following monitoring and update program:

- The agencies will review the IAMP pursuant to the "triggers" described below to ensure that the original assumptions and recommendations regarding the interchange, local circulation system, funding obligations, access management, land use management, and coordination efforts are still appropriate and effective given the current and projected future conditions inside the interchange management area. This review should be conducted through a meeting initiated by the City of The Dalles or ODOT and should include all affected agencies.
- In addition to the established triggers for IAMP review, the agencies can request a review of the IAMP at any time if, in their determination, specific land use or transportation changes warrant a review of the underlying assumptions and/or recommendations within the IAMP.
- If the participants in the IAMP review meeting agree that, once the impacts of the "trigger" that necessitated the review are examined, an IAMP amendment is not warranted, a recommendation of "no action" may be documented and submitted in the form of a letter to the City of The Dalles City Council, Wasco County Court, and the Oregon Transportation Commission.
- If the findings and conclusions from the IAMP review meeting demonstrate the need for an update to the plan, review participants will initiate an IAMP update process. Initial steps in

updating the IAMP will include scoping the planning process, identifying funding, and outlining a schedule for plan completion. Once completed, IAMP updates will be required to be legislatively adopted, requiring a City Council public hearing, as an amendment to the City of The Dalles Transportation System Plan and will be adopted by Wasco County Court (if affected) and the Oregon Transportation Commission as an update to the Oregon Highway Plan.

IAMP Review Triggers

Periodically, the IAMP implementation program will need to be evaluated to ensure it is accomplishing this goal. Events that will trigger an IAMP review include:

- Every fifth year from the date of IAMP adoption or latest update.
- Every cumulative addition of 250,000 sq. ft. of floor area within the IMSA.
- Cumulative trips from approved development within the IMSA exceed the combined trip budget for the subject parcels by more than 200 trips.
- Plan map and zone changes that have a "significant affect" per the Transportation Planning Rule[4] and impact the I-84 Chenoweth Interchange.[5]
- Mobility measures at the River Road/I-84 Ramp Terminal intersections or River Road/West 6th Street/US 30 intersection exceed the forecasted mobility measures presented in Section 7.

It is recommended that the IAMP monitoring program be linked to a review of the system development charge methodology and fees associated with the Overlay District. Examining the STSDC program as part of an IAMP update will ensure that sufficient revenue is being generated to finance necessary improvements. During an IAMP review, trips may be reallocated, provided that the overall area total for the Overlay District is not exceeded.

Development Review within the Overlay District

The following outlines the transportation requirements for development and zone change applications within the Chenoweth Interchange Overlay District and describes how The City of The

[4] Plan map or zone changes that result in equal to or less trips than included in the Trip Allocation Budget *(see Appendix "C")* would not have a "significant affect".

[5] A City amendment of the UGB in the vicinity of the interchange would also require an IAMP update, as land would be re-designated to allow urban uses. The Dalles Growth Management Report (2007) documents the City's intent to amend the Urban Growth Boundary and designate URA areas to the north/northwest of the city, including lands in the vicinity of the interchange. While the City has not adopted the report in its entirety through a legislative process, supportive source reports and analyses, such as the population forecast, have been adopted. Due to uncertainty as to when, or if, the UGB may be expanded within the National Scenic Area, the IAMP assumes that areas outside of the current UGB will not generate new trips within the 20-year planning horizon. The IAMP should be amended to reflect a revised future growth scenario when the UGB is updated.

Dalles and Wasco County should coordinate with ODOT. The intent of the overlay district and associated transportation requirements is to allow the City and development within the District to rely upon the planning work completed for the IAMP that identifies the transportation needs in the area and utilize a streamlined development review process requiring limited additional transportation analysis if the development is consistent with the Plan.

Transportation Assessment Report

For all development applications located within the Chenoweth Interchange Overlay District, the applicant shall prepare and submit to the City a Transportation Assessment Report that documents the following:

a) Expected weekday p.m. peak hour trip generation.
b) Documents whether or not the expected weekday p.m. peak hour generation is equal to or less than the trip allocation for each parcel documented in the SDC Methodology Memorandum *(see Appendix "I" of the I-84 Chenoweth IAMP Technical Appendix)*.
c) Calculates the STSDC for the proposed development.
d) Identifies any SDC Discount Options being requested and documents what actions/activities will be included to achieve such discount.
e) If applicable, recalculates the weekday p.m. peak hour trip generation and STSDC based on the requested SDC Discount Option.
f) Identifies how they comply with the IAMP, what off-site improvements will be constructed as part of the development, and which improvements are STSDC creditable.
g) Reviews proposed site-access driveways and streets to ensure compliance with the IAMP Access Management Plan and that adequate intersection sight distance and traffic control will be provided.
h) Reviews on-site parking and circulation plan to ensure safe and efficient travel for all modes of travel and includes AutoTurn analyses for anticipated trucks and emergency service vehicles.

Traffic Impact Analysis

All development applications located within the Chenoweth Interchange Overlay District that meet the following conditions are required to prepare and submit a Transportation Impact Analysis (TIA) to demonstrate the level of impact of the proposed development on the surrounding street system:

a) a zone change and/or comprehensive amendment that results in an increase in trips as compared to the Trip Allocation Budget *(see Appendix "C")*,
b) proposed use exceeds the Trip Allocation Budget by 25 percent, or
c) proposed use exceeds the number of allocated weekday p.m. peak hour trips in the Trip Allocation Budget by 25 or more.

The determination of impact or effect, and the scope of the TIA, shall be coordinated with the City of The Dalles, Wasco County, and ODOT. The TIA shall also document all elements required as part

of the Transportation Assessment Report (see above). The developer shall be required to mitigate impacts attributable to the project.

Trip Budget and STSDC Monitoring

- The City shall account for projected weekday p.m. peak hour trips generated by all new development and redevelopment within the I-84 Chenoweth Interchange Area Management Plan Overlay District and track how the projected trips compare with the trip budget included in the STSDC Methodology Memorandum *(see Appendix "I" of the IAMP Technical Appendix)*.
- The City shall document all STSDCs received and credits provided and provide current accounting of all funds.
- The City shall provide an Annual IAMP Report to ODOT documenting the status of the Overlay District Trip Budget and STSDC funds. This could include collecting actual trip generation to compare to projected trip generation from new development.
    - If the report indicates that the Trip Budget is being exceeded and/or there are not enough funds being collected by the STSDC to construct the necessary transportation improvements, the following remedies should be considered:
        - Increase the "threshold" and/or "surcharge" STSDC trip rate;
        - Implement more aggressive TDM measures within the Overlay District; and,
        - Adopt the Vision Plan improvements into the IAMP and incorporate them into the STSDC.

ODOT Coordination

- The City shall not deem the land use application complete unless it includes a Traffic Assessment Report or, if required, a Transportation Impact Study prepared in accordance with the requirements as described above.
- The City shall provide written notification to ODOT when the application is deemed complete. This notice shall include an invitation to ODOT to participate in the City's site team review meeting (Pursuant to the city's Pre-Application Requirements).
- ODOT shall have at least 20 days, measured from the date completion notice was mailed, to provide written comments to the City. If ODOT does not provide written comments during this 20-day period, the City staff report will be issued without consideration of ODOT comments.

Administration Fee

The City of The Dalles should set and require an administration fee for IAMP monitoring and updates for all site plan review applications within the Overlay District.

Section 9
OAR and OHP
Compliance

OAR and OHP Compliance

The following section discusses the Oregon Administrative Rule (OAR) and 1999 Oregon Highway Plan (OHP) policy based compliance issues that pertain to the development of the I-84 Chenoweth IAMP.

OAR COMPLIANCE

The I-84 Chenoweth IAMP was developed in collaboration with the City of The Dalles, Wasco County, and ODOT and was developed in accordance with the guidelines set forth in the State of Oregon's Oregon Administrative Rules for Interchange Access Management Planning and Interchange Area Management Planning. Table 9-1 identifies the required planning elements from OAR 734-051 and documents how the I-84 Chenoweth IAMP satisfies the requirements.

TABLE 9-1 OAR 734-051 ISSUES ADDRESSED

OAR 734-0051-0155 Requirement	How Addressed	Report Reference
Should be developed no later than the time the interchange is being developed or redeveloped -0155(7)(a)	This plan was developed in order to determine the future impacts of recent land use decisions on the function of the interchange. The plan was completed before any of the identified improvements to the interchange are necessary.	Section 1
Should identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt strategies and development standards to capture those opportunities -0155(7)(b)	The access and land use management elements identified in this plan, as well as incorporated into the proposed land development ordinance amendments and a proposed ordinance for a new Supplemental Transportation System Development Charge, will result in operational and capacity improvements.	Section 1 Section 6 Section 7 Section 8
Should include short, medium, and long-term actions to improve operations and safety in the interchange area -0155(7)(c)	The IAMP includes a phasing plan for the transportation system improvements, which includes a threshold analysis for determining how much development can be accommodated by each phase of improvements. Phase 1 (intersection improvements) includes short-term actions necessary to accommodate 10% of full build-out of the area. Phase 2 mid-term improvements include signalizing the interchange ramp terminals and a series of roundabouts on the local street system, will accommodate 55% of full build-out of the area. The Hostetler Street Connection is the major component of Phase 3, long-term improvements, which will allow for 75% build-out. The final phase is the long-term "Vision Improvements. This Phase 4 will likely occur beyond the 20-year time horizon and involves bridge widening to accommodate a 6-lane cross-section. The proposed Access Management Plan can be developed concurrently with improvements at all locations with the exception of along West 6th Street where it cannot be fully implemented until both proposed roundabouts on West 6th Street are operational (Phase 3).	Section 7 Section 8

OAR 734-0051-0155 Requirement	How Addressed	Report Reference
Should consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches -0155(7)(d)	A full analysis of existing and forecast (2030) operational, geometric, and safety conditions was conducted for this planning effort. All surrounding land use was also identified, as were all affected accesses.	Section 4 Section 5 Section 6
Should provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years -0155(7)(e)	The forecast analysis shows that safe operations will be achieved for the interchange through 2030.	Section 6
Should consider existing and proposed uses of all property in the interchange area consistent with its comprehensive plan designations and zoning -155(7)(f)	A thorough analysis of surrounding land uses and land use potentials was performed, including modeling of alternate land use scenarios for the 67 acres zoned Commercial/Light Industrial. This analysis resulted in trip assignments for each parcel in the study (overlay) area, based on accommodating 85% of full build-out development and funding the necessary Phase 1, Phase 2, and Phase 3 (near-, mid-, and long-term improvements).	Section 4 Section 5 Section 6 Section 7
Is consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission-0155(7)(g)	The I-84 Chenoweth Interchange Area Management Plan is consistent with the 1999 OHP. (See following table). No other applicable plans adopted by the OTC were identified.	Section 3 Section 8
Includes polices, provisions and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied upon to implement the Interchange Area Management Plan. -155(7)(h)	Implementation of the IAMP is reliant upon the City of The Dalles and Wasco County amending their respective Transportation System Plans to incorporate the transportation improvements associated with the Preferred Plan. In addition, implementation of the IAMP will occur through the City of The Dalles amending the Land Use and Development Ordinance to include an IAMP overlay district. The Chenoweth Interchange Overlay District (CIOD) contains the submittal requirements and review standards for land use amendment and development proposals within the district; access management standards and local street connectivity requirements will be based on the IAMP. The City will also adopt a Supplemental Transportation System Development Charge (STSDC) that will finance transportation improvements in the vicinity of the I-84 Chenoweth Interchange (Appendix I). Amendments will ensure that future development and land use actions within the interchange management area do not degrade the interchange terminal volume to capacity ratios below the adopted Oregon Highway Plan mobility standards. These amendments include coordination between agencies, traffic impact analysis requirements, monitoring of traffic operations, and access management requirements. The locally amended TSPs (City of The Dalles and Wasco County) and the two proposed City ordinances (CIOD and STSDC), are the documents that will be relied upon to implement the IAMP.	Section 3 Section 7 Section 8

THE PLAN WILL DETERMINE		
OAR 734-051-0155 Requirement	**Determination**	**Report Reference**
Driveway and roadway spacing and connections	The operational analysis considered all access points and intersections within approximately ½ mile from the existing I-84 Chenoweth Interchange, including all key intersections that have potential to affect traffic operations in the interchange area over the planning period. The resulting Access Management Plan implements the ¼ mile spacing requirements with the exception of public street access points on River Road at River Trail Way and on 6th Street at Division Street and Irvine Street.	Section 7
Local street connections to ensure adequate access to properties and off-highway circulation	The IAMP includes a proposed local street circulation pattern (Figure 7-1, Transportation Improvement Plan, and Table 7-1).	Section 7 Section 8
Median treatments	Median treatments are proposed for West 6th Street to meet ODOT access management standards (Figure 7-1, Transportation Improvement Plan).	Section 7
Location and type of traffic control devices needed to ensure safe and efficient operations in the operational area of the interchange	Signalizing the ramp terminals is included in Phase 2 improvements. Roundabouts at River Road/River Trail Way, River Road/West 6th Street (US 30), and West 6th Street/Chenoweth Loop are also planned as part of Phase 2. Signals at the Hostetler under-crossing are included in Phase 3 improvements. Figure 7-7 shows all necessary traffic control within the IMSA.	Section 7
Location of sidewalks and bicycle lanes	Sidewalks and bicycle lanes will be constructed on the local street system consistent with City standards. Bridge widening in Phase 4 (expected sometime beyond the IAMP planning horizon) will include sidewalks and bicycle lanes.	Section 7
Sidewalk and bicycle lane crossings (highway and ramp crossings)	NA – See above.	NA
Location of potential transit facilities (turnouts, shelters, park and ride areas)	Transit facilities were not considered as part of the IAMP because fixed route transit service does not exist nor is planned within the study area.	NA
Is new policy language needed in the City of The Dalles and/or Wasco County Comprehensive Plan to support adequate long-term interchange operations?	The City of The Dalles and Wasco County will amend their respective Transportation System Plans to incorporate the interchange policy statement (see Section 8). In addition, the City will amend its zoning ordinance to implement transportation demand management measures and development review standards.	Section 8

THE PLAN WILL DETERMINE		
OAR 734-051-0155 Requirement	**Determination**	**Report Reference**
Are any land use changes/comprehensive plan (including TSP) amendments needed to implement the Interchange Area Management Plan?	The City of The Dalles and Wasco County will amend their respective Transportation System Plans to incorporate the transportation improvements associated with the Preferred Plan. The City of The Dalles will amend the Land Use and Development Ordinance to include an Interchange Area Management Plan Overlay District that contains the submittal requirements and review standards for land use amendment and development proposals within the district. The City will also adopt a Supplemental Transportation System Development Charge (STSDC) that will finance transportation improvements in the vicinity of the I-84 Chenoweth Interchange (Appendix I). Amendments will ensure that future development and land use actions within the interchange management area do not degrade the interchange terminal volume to capacity ratios below the adopted Oregon Highway Plan mobility standards. These amendments include coordination between agencies, traffic impact analysis requirements, monitoring of traffic operations, and access management requirements.	Section 8
Are any deviations from OHP and OAR 731-051 standards and requirements needed?	Deviations to the OHP access spacing standards are required on 6th Street and River Road. The Access Management Plan and the OHP Compliance section describe how each of the necessary deviations meets the requirements of Division 51. The IAMP and Implementation Plan define all the necessary standards and requirements.	Section 7 Section 8

OREGON HIGHWAY PLAN COMPLIANCE

The I-84 Chenoweth IAMP was developed in accordance with the policies set forth in the Oregon Highway Plan (OHP). The following identifies the OHP policies that pertain to the I-84 Chenoweth IAMP and how the IAMP satisfies the requirements.

Policy 1A: State Highway Classification System. The state highway classification system includes five classifications: Interstate, Statewide, Regional, District, and Local Interest Roads. In addition, there are four special purpose categories that overlay the basic classifications: special land use areas, statewide freight route, scenic byways, and lifeline routes. Interstate-84 is an Interstate Highway and is part of the National Highway System (NHS). The Policy 1A definition states: "Interstate Highways provide connections to major cities, regions of the state, and other states. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. The Interstate Highways are major freight routes and their objective is to provide mobility. The management objective is to provide for safe and efficient high-speed continuous-flow operation in urban and rural areas."

> *How Addressed:* The I-84 Chenoweth IAMP recognized I-84 as an Interstate Highway, complies with the mobility standards of the interchange in the 20-year horizon, and along with a transportation improvement plan that provides for new and improved local facilities that will reduce travel on I-84 for local trips.

Policy 1B: Land Use and Transportation. This policy recognizes the role of both the State and local governments related to the state highway system and calls for a coordinated approach to land use and transportation planning.

> *How Addressed:* The IAMP was developed through a cooperative planning effort between the City of The Dalles, Wasco County, and DLCD. The IAMP will be implemented by the City of The Dalles and Wasco County through an Interchange Management Overlay District which will require coordinated agency review on all future development or land use actions within the District.

Policy 1C: State Highway Freight System. This policy recognizes the need for the efficient movement of freight through the state. Interstate-84 is a designated freight route.

> *How Addressed:* The transportation improvement plan improves local connectivity to and within an industrial area adjacent to the I-84 Chenoweth Interchange for the purpose of reducing traffic volume demand at the interchange and improving accessibility for heavy vehicles to the area.

Policy 1F: Highway Mobility Standards Access Management Policy. This policy addresses state highway performance expectations, providing guidance for managing access and traffic control systems related to interchanges.

> *How Addressed:* The I-84 Chenoweth IAMP demonstrates that the interchange will meet ODOT mobility standards through the 20-year horizon. It also provides an access management plan that improves access management within the study area.

Policy 1G: Major Improvements. This policy requires maintaining performance and improving safety by improving efficiency and management before adding capacity.

> *How Addressed:* The I-84 Chenoweth IAMP provides measures to increase efficiency through access management and provides improvements to the local street system that reduces the need to widen the Chenoweth Interchange bridge structure within the planning horizon.

Policy 2B: Off-System Improvements. This policy recognizes that the state may provide financial assistance to local jurisdictions to make improvements to local transportation systems if the improvements would provide a cost-effective means of improving the operations of the state highway system.

> *How Addressed:* As part of the I-84 Chenoweth IAMP process, ODOT is providing in kind project management to the City of The Dalles. The transportation improvement funding plan also includes a financial commitment from ODOT to participate in improvements on West 6th Street (a city facility) to help achieve ODOT's access spacing requirements.

Policy 2F: Traffic Safety. This policy emphasizes the state's efforts to improve safety of all uses of the highway system. Action 2F.4 addresses the development and implementation of the Safety Management System to target resources to sites with the most significant safety issues.

How Addressed: No existing safety deficiencies were identified within the study area, with the exception of limited sight distance at the interchange ramp terminals. However, an Access Management Plan was developed to ensure the long-term safety of the interchange area.

Policy 3A: Classification and Spacing Standards. This policy addresses the location, spacing and type of road and street intersections and approach roads on state highways. The adopted standards can be found in Appendix C of the Oregon Highway Plan. It includes standards for each highway classification; the I-84 Chenoweth Interchange is a urban interchange on an Interstate Highway with an existing two-lane crossroad. There are currently no plans for improvements to the interchange. Generally, the access spacing distance increases as either the highway's importance or posted speed increases. The current adopted spacing standard from the end of the Chenoweth Interchange entrance/exit ramps to the first major intersection is 1,320 feet.

How Addressed: See Policy 3C.

Policy 3C: Interchange Access Management Areas. This policy addresses management of grade-separated interchange areas to ensure safe and efficient operation between connecting roadways. Action items include developing interchange area management plans to protect the function of the interchange to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges. The local jurisdiction's role in access management is stated in Policy 3C as follows: "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 (Action 3C.2)."

Access management standards are detailed in Policy 3C and include the distance required between an interchange and approaches and intersections. The most stringent standards apply in interchange areas. Table 17 of the OHP[6] contains the minimum spacing standards applicable to the I-84 Chenoweth Interchange, a freeway interchange that will have a multi-lane crossroad. The spacing standards in an urban area for this type of interchange are:

1 miles (3.2 km) Distance between the start and end of tapers of adjacent interchanges.

1,320 feet (400 m) Distance to the first approach on the right (right in/right out only)

1,320 feet (400 m) Distance to the first major intersection or approach (no left turns allowed).

1,320 feet (400 m) Distance between the last right in/right out approach road and the start of the taper for the on-ramp.

[6] Although the IMSA is not fully developed, the IAMP is planning for full development for the IMSA and the existing access locations that do not meet ODOT's standards are along West 6th Street which is currently fully developed within 1,320-feet from the interchange.

How Addressed: The I-84 Chenoweth IAMP includes an Access Management Plan that consolidates access points and improves access spacing over the existing conditions. Ultimately, upon land redevelopment, access on the west side of the interchange will provide 350 feet of access spacing from the I-84 eastbound ramp terminal to the first full access to accommodate an existing intersection with Highway 30 and approximately 850 feet to the first right-in/right-out/left-in access point to a local public street approach through a deviation process. The east side of the interchange will require a deviation from the standard to 1,300 feet to the first full access due to topographic constraints and 750 feet to the first right-in/right-out in order to provide reasonable site access to developable parcel.

Policy 4A: Efficiency of Freight Movement. This policy emphasizes the need to maintain and improve the efficiency of freight movement on the state highway system. Interstate-84 is a designated Freight Route.

How Addressed: The transportation improvement plan improves local connectivity to and within an industrial area adjacent to the I-84 Chenoweth Interchange for the purpose of reducing traffic volume demand at the interchange while also improving the efficiency of freight movement on the local roadway system.

Policy 5B: Scenic Resources. This policy applies to all state highways and commits the State to using best management practices to protect and enhance scenic resources in all phases of highway project planning, development, construction, and maintenance.

How Addressed: This policy was considered as part of the plan development.

Section 10
References

References

1. Oregon Department of Transportation. 1999 Oregon Highway Plan. 1999
2. Oregon Department of Transportation. Analysis Procedures Manual. 2006.
3. Transportation Research Board. Highway Capacity Manual. 2000.
4. Institute of Traffic Engineers. Trip Generation, 7th Edition. 2003.

Appendix A
Meeting Summaries

SC Meeting #1

I-84 Chenoweth Interchange Area Management Plan (IAMP)

December 3, 2008 at 1 p.m.

City Hall, City of The Dalles, Oregon

The following documents the participants and discussion items from the December 3, 2008 Steering Committee Meeting for the I-84/ Chenoweth Road Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, Brad DeHart, and Sam Wilkins

City of The Dalles: Richard Gassman and Dan Durow

Wasco County: Todd Cornett

Kittelson & Associates: Susan Wright, Casey Bergh

Angelo Planning: Darci Rudzinski

Absent:

Kittelson & Associates: Marc Butorac

Agenda Items:

1. Meeting Purpose & Introductions

   Susan Wright talked through the Meeting Schedule and Deliverables Summary Memo provided at the meeting. The meeting schedule and review of project materials will be consistent throughout project duration.

   SC responsibilities are outlined in the Meeting Schedule and Deliverables Summary Memo. SC members agree to meet the identified deadlines for all deliverables.

2. IAMP 101

   a. Susan Wright lead SC through a presentation on IAMPs

3. Technical Memo #1: Definition and Background

   a. Dan Durow asked that IAMP not do anything that could potentially limit options for a new bridge over the Columbia River in/near The Dalles.

   b. The defined Interchange Function in Draft Memo #1 was discussed.

i. City's priorities were discussed which include promoting economic development (industrial uses/jobs) as well as providing locations for large-scale retail.

ii. SC members to provide written outline of priorities to Ana.

c. Discussion of how IAMP will impact WM3's development/zoning.

i. WM3's property is currently zoned CLI but development of the full property is conditioned upon completing the IAMP; not necessarily the findings of the IAMP.

ii. Two future background scenarios will be developed for the WM3 property in Tech Memo #4: Future Background Conditions. Both scenarios will include 25 acres of WM3's 67-acre property developed with a Wal-Mart. One scenario will include the remaining 42 acres developed with industrial land use and the other with commercial land uses.

d. IMSA Map Review

i. KAI will update the IMSA map to include additional properties southeast of the interchange, including the environmentally sensitive sites.

ii. KAI will create a separate map boundary to be referred to as "Service Area" that will include all properties that utilize the interchange for their primary access to I-84.

iii. Study area to include properties on River Rd south to Webber.

4. Technical Memo #2: Adopted Plans and Regulations

a. Darci provided a summary of memo. Additional documents/policy was suggested to be added (Wasco County National Scenic Lands Ordinance)

5. Concluding Comments/Next steps

a. Agency staff to provide comments on Tech Memos #1 and #2 and IMSA map to Ana by Friday, Dec 5.

b. SC agreed that for future TAC and SC meeting they would meet concurrently with the TAC and then follow that meeting with a one-hour SC specific meeting, if necessary.

TAC Meeting #1 Minutes

I-84 Chenoweth Interchange Area Management Plan (IAMP)

December 3, 2008, 10 a.m. to Noon

City Hall, City of The Dalles, Oregon

The following documents the participants and discussion items from the December 3, 2008 TAC Meeting for the I-84/ Chenoweth Road Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, David Boyd, Brad DeHart, Rod Cathcart, Tracy White

DLCD: Mark Radabaugh

City of The Dalles: Richard Gassman and Dale McCabe

Wasco County: Marty Matherly and Gary Nychyk

Kittelson & Associates: Susan Wright, Marc Butorac, and Casey Bergh

Angelo Planning: Darci Rudzinski

Absent:

ODOT: Mark Devoney

Wasco County: Gary Nychyk

Agenda Items:

1. Meeting Purpose & Introductions

   Marc Butorac talked through the Meeting Schedule and Deliverables Summary Memo provided at the meeting. The meeting schedule and review of project materials will be consistent throughout project duration.

   TAC responsibilities are outlined in the Meeting Schedule and Deliverables Summary Memo. TAC members agree to meet the identified deadlines for all deliverables.

2. IAMP 101

   a. Marc Butorac lead the TAC through a presentation on IAMPs

3. Technical Memo #1: Definition and Background

   a. Significant time spent discussing the Interchange Function as described in Draft Memo #1. Each TAC member agreed to provide comments on the Interchange Function to Ana.

b. Discussion of how IAMP impacts WM3's development/zoning.

   i. WM3's property is currently zoned CLI but development of the full property is conditioned upon completing the IAMP; not necessarily the findings of the IAMP.

   ii. Two future background scenarios will be developed for the WM3 property in Tech Memo #4: Future Background Conditions. Both scenarios will include 25 acres of WM3's 67-acre property developed with a Wal-Mart. One scenario will include the remaining 42 acres developed with industrial land use and the other with commercial land uses.

c. IMSA Map Review

   i. KAI will update the IMSA map to include additional properties southeast of the interchange, including the environmentally sensitive sites.

   ii. KAI will create a separate map boundary to be referred to as "Service Area" that will include all properties that utilize the interchange for their primary access to I-84.

   iii. Study area to include properties on River Rd south to Webber.

4. Technical Memo #2: Adopted Plans and Regulations

   a. Darci provided a summary of memo. Additional documents/policies were suggested to be added. Written comments will be submitted by the TAC.

5. Update on Stakeholder Interviews

   a. Darci noted that interviews are underway and no overwhelmingly negative comments have surfaced.

   b. No resident of the study area has been included in the interviews. The need to include one was discussed.

   c. A local cyclist organization was suggested to be added.

6. Concluding Comments/Next steps

   a. Richard and Marty to discuss potential Open House and City Council meeting dates.

   b. All TAC members asked to provide comments on Tech Memos #1 and #2 to Ana by Friday, Dec 5.

   c. Rod and David would like memos containing operational analysis at the same time as Ana to provide more review time.

TAC/SC Meeting #2 Minutes

I-84 Chenoweth Interchange Area Management Plan (IAMP)

February 11, 2009, 10 a.m. to 1 p.m.

City Hall, City of The Dalles, Oregon

The following documents the participants and discussion items from the February 11, 2009 joint TAC/SC Meeting for the I-84/ Chenoweth Road Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, David Boyd, Brad DeHart, Rod Cathcart, Tracy White, Mark DeVoney, Sam Wilkins

DLCD: Mark Radabaugh

City of The Dalles: Richard Gassman, Dale McCabe, Dan Durrow

Wasco County: Marty Matherly and Gary Nychyk, Todd Cornett

Kittelson & Associates: Susan Wright and Marc Butorac

Angelo Planning: Darci Rudzinski

Absent:

Kittelson & Associates: Casey Bergh

Agenda Items:

1. Brief overview of finalized memos

Susie Wright walked the TAC/SC through the finalized documents and meeting minutes available on the ftp site.

2. Review Stakeholder Report

Darci Rudzinski gave a brief presentation on the Stakeholder Interview Report. Specific development plans that were revealed through the interviews were discussed. It was also discussed that each of the stakeholders would be added to the Open House mailing list.

3. Review Draft memos #3/4 and #5/6

Susie Wright provided a brief overview of Draft Tech Memos #3/4 and #5/6. Issues that were raised for discussion included visibility at the ramp terminals (this section of the report will be updated with information ODOT is collecting) and assumptions for development/re-development and assumed FARs. It was agreed that more information

would be provided in Tech Memo #5/6 on the total acreage of property in each sub-area and the amount being assumed for redevelopment. It was also agreed that the FARs would be approached in two steps. The first step being to remove 20% of the property for roads and utilities and then applying a 25% FAR to commercial and 40% FAR to industrial. The code maximum FARs were also agreed to be investigated.

4. Access Management 101/Local Circulation 101 and Design Workshop

Marc Butorac provided a brief 101 course on Access Management and Local Circulation and then had the TAC and SC participate in a design workshop. Alternatives were created that will be evaluated by the consultant team.

It was agreed that the design worksheet would include a larger area for the Design Workshop at the Public Open House.

5. Public Open House

It was agreed that Local Agency Presentation #1 and Public Open House#1 would be combined and would occur on March 5th at 6 p.m. at the Civic Auditorium.

Kittelson agreed to prepare the flyer and provide it to ODOT, City, and County for distribution. The invitation will be posted to the ODOT website and linked to the City and County websites. The flyer will be mailed out to all tax lots within the study area as well as the stakeholders from the stakeholder interviews. The meeting will also be announced at the WM3 public hearing.

TAC/SC Meeting #3 Minutes

I-84 Chenoweth Interchange Area Management Plan (IAMP)

April 8, 2009, 10 a.m. to 1 p.m.

City Hall, City of The Dalles, Oregon

The following documents the participants and discussion items from the April 8, 2009 joint TAC/SC Meeting for the I-84/ Chenoweth Road Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, David Boyd, Brad DeHart, Rod Cathcart, and Tracy White

DLCD: Mark Radabaugh

City of The Dalles: Richard Gassman, Dale McCabe, and Dan Durrow

Wasco County: Marty Matherly and Todd Cornett

Kittelson & Associates: Susan Wright, Marc Butorac, and Casey Bergh

Angelo Planning: Darci Rudzinski

Absent:

ODOT: Mark DeVoney and Sam Wilkins

Wasco County: Gary Nychyk

Agenda Items:

1. Brief overview of documents on FTP site

   Susie Wright walked the TAC/SC through the finalized documents and meeting minutes available on the ftp site.

2. Review Draft Memo #7

   Susie Wright provided a brief overview presentation that summarized the concepts developed and the process used to eliminate some design concepts and identify others for more detailed evaluation.

   Comments included a suggestion to conduct further analysis that associates a timeline with the capacity improvements based on a 20-year average growth estimate. Additionally it was suggested that roundabouts be evaluated at all intersections, on a comprehensive basis, for the Westerly alternatives.

3. Discuss Screening Process and Obtain Consensus on Feasible Alternatives

Marc Butorac outlined the measures used to identify and screen out alternatives and asked for input on the process or opinions on which alternatives should be included in a refined analysis.

- Discussion included detailed information about the advantages and disadvantages of the various crossing locations of the UP railroad line.

- David Boyd asked for further consideration of the impacts of an additional crossing location on the operations at the Webber Street interchange. Further discussion ensued that centered on including Webber Street within the study area. It was agreed that this project will do everything to minimize impacts to the Webber Street Interchange, but a separate study is necessary at that interchange.

- Rod Cathcart asked that further explanation be provided in Memo #7

    - Define feasibility as it pertains to Table 7-1 and the cross-section of River Road over I-84.

    - Describe the ability or inability to widen the existing structure or how additional lanes would be constructed.

    - Provide supplemental information explaining the justification for screening out each alternative.

It was agreed that concept W-2 should be included in further analysis. All other alternatives identified in the preliminary screening process are the appropriate alternatives to carry forward for detailed analysis.

4. Discuss Selection of a Preferred Alternative

   Marc Butorac outlined the decisions that the TAC needed to make in order for the consultant to narrow the alternatives to one preferred alternative. Discussion focused on the use of land use management tools and the variety of options that could be implemented in conjunction with capacity improvements in order to accommodate future development.

   Various TAC members stated that key criteria for identifying a preferred alternative is cost estimations and the impacts the location of the east-west connection has on reducing traffic at the Chenoweth Interchange or negatively impacting the Webber Street Interchange area.

   The TAC agreed that KAI should identify a preferred alternative based on the discussions and priorities identified. KAI will present this plan in draft form at the April 30th Meeting.

5. Concluding Comments/ Next Meeting

It was agreed that the next meeting of the TAC will be April 30. Many of the TAC members will be in The Dalles for a meeting on the Wasco TSP project. A time will be determined in coordination with that meeting.

TAC/SC Meeting #3B (Extra) Minutes

I-84 Chenoweth Interchange Area Management Plan (IAMP)

February 11, 2009, 10 a.m. to 1 p.m.

City Hall, City of The Dalles, Oregon

The following documents the participants and discussion items from the April 30, 2009 joint TAC/SC Meeting for the I-84/ Chenoweth Road Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, David Boyd (via phone), Brad DeHart, Rod Cathcart, Tracy White (via phone), and Sam Wilkins

DLCD: Mark Radabaugh

City of The Dalles: Richard Gassman, Dale McCabe, Dan Durow

Wasco County: Marty Matherly, Gary Nychyk

Kittelson & Associates: Susan Wright, Casey Bergh, and Marc Butorac

Angelo Planning: Darci Rudzinski

Absent:

ODOT: Mark Devoney

Agenda Items:

1. Review Refined Concept Evaluation and Preferred Alternative

    - Brief overview of refined analysis conducted to identify preferred alternative.
    - Summary of components of Preferred Alternative

2. Transportation Demand Management Tools Example

    - Marc Butorac provided a brief example scenario on methods for managing traffic through use of TDM measures and SDCs.

3. Next Steps

    - Next meeting of TAC will be on…

TAC/SC Meeting #4 Minutes

I-84 Chenoweth Interchange Area Management Plan (IAMP)

May 27, 2009, 10 a.m. to 1 p.m.

City Hall, City of The Dalles, Oregon

The following documents the participants and discussion items from the May 27, 2009 joint TAC/SC Meeting for the I-84/ Chenoweth Road Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, David Boyd, Brad DeHart, Rod Cathcart, and Tracy White.

DLCD: Mark Radabaugh

City of The Dalles: Richard Gassman and Dale McCabe

Wasco County: Marty Matherly and Todd Cornett

Kittelson & Associates: Susan Wright, Casey Bergh, and Marc Butorac

Angelo Planning: Darci Rudzinski

Absent:

ODOT: Mark Devoney, Sam Wilkins

City of The Dalles: Dan Durow

Agenda Items:

1. Overview of Draft Documents

- Updated map of the Preferred Local Circulation and Access Design Alternative
- Functional design of the improvements located on 6th Street, River Road, River Trail Way Southern Extension, and Hostetler Street
- Memorandum documenting the proposed improvement phasing and associated development thresholds
- Cost estimates for each of the identified improvements
- Draft Access Management Plan identifying access control areas and jurisdiction

2. Discuss Draft Documents

a. Preferred Local Circulation and Access Design Alternative

- Brad DeHart suggested that projects E4, E7, and E8 be modified. E4 will be denoted as variable alignment to be determined at a time closer to build-out. E7 and E8 will be reviewed by City of The Dalles and a suggested solution will be developed.

b. Discuss proposed functional design

- Marc Butorac confirmed that a 60' foot cross-section on new roadways (River Trail Way Extension, Hostetler Extension) will be preferred, as denoted in the City's TSP, compared a 70' section that would allow for a center left-turn lane. The City (Dale, Dick) agreed that a 60' section could provide a center left-turn lane by reducing width of landscaping within cross-section.

- Brad DeHart suggested showing a 4-lane section at the proposed I-84 overpass at Hostetler Street. Although design exceptions will be needed, they believe it will otherwise be a constraint that could be alleviated.

- David Boyd reminded KAI of comments provided by ODOT that relate to weaving and lane balance on River Road between 6th Street and River Trail Way. KAI will consider and modify design to identify best configuration.

- Marc Butorac reminded TAC that ROW lines shown on map are suggested to be used to acquire land as redevelopment occurs.

c. Discuss Threshold Development Estimates

- Comments suggested that Hostetler Street Signal installation and Chenoweth Loop intersection improvements be included in Attachment "C" Memo with appropriate phase.

- KAI to modify figures in Attachment "C" to illustrate existing lane configurations and proposed.

- Suggestion by TAC to include analysis of Walmart development only (not entire WM3 parcel development) to determine specific needs at interim development level.

- Chenoweth Loop roundabout construction phasing discussed. City staff will have options whether to acquire full ROW for a 2-lane roundabout at time of construction or at the time a 2-lane roundabout will be needed for operations. A single-lane roundabout is expected to provide adequate operations for many years.

- KAI to include sub-area map with materials on thresholds in draft IAMP chapter.

d. Preliminary Functional Design Cost Estimates

- The TAC agreed that the cost estimates seemed reasonable.

e. Funding

- Multiple concerns were voiced that project costs will not be collected prior to the time that the project may be needed, resulting in greater impacts to the Chenoweth interchange.

- Marc Butorac outlined calculations that show that development SDCs collected at an average cost for all improvements (phase 1-3) will theoretically result in collection of up to 11% of Hostetler Crossing costs at 55% development, before the crossing is forecast to be needed.

- Discussion of Walmart fees assessed vs. potential charges if proposed SDC's were in place.

- Projects to be included in collective funding were discussed. Each project that was identified to provide benefit to study area, not just a single parcel, will be considered collective. As such W4, E1, E3, E11, E12, E13, I1, I2 will be denoted as collective.

- ODOT recognized their contribution to W1, W2, W3, and W5 may be appropriate.

- KAI will identify a split of what is funded vs. not funded collectively and develop a draft trip budget

- Trip budget triggers will include additional measures as suggested by TAC, including: if trip bank is 25% below a balanced level, or if ODOT (through regular monitoring of traffic) identifies more trips on system than expected.

- Obtain consensus on Access Management Plan

  - Minor comments were noted regarding proposed AM plan. KAI will modify plan accordingly.

3. Next Steps

- Public Open House June 11 at 6 PM at The Dalles Civic Auditorium.
- Local Agency Presentation June 18 with City Council.
- Next TAC/SC meeting July 22 to discuss draft IAMP.

TAC/SC Meeting #5 Minutes

I-84 Chenoweth Interchange Area Management Plan (IAMP)

July 22, 2009, 10 a.m. to 1 p.m.

The Dalles Council Chambers, City of The Dalles, Oregon

The following documents the participants and discussion items from the July 22, 2009 joint TAC/SC Meeting for the I-84 Chenoweth Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, David Boyd, Brad DeHart, Rod Cathcart, and Tracy White.

City of The Dalles: Richard Gassman, Dan Durow, and Dale McCabe

Wasco County: Marty Matherly and Todd Cornett

DLCD: Mark Radabaugh

Kittelson & Associates: Casey Bergh and Marc Butorac

Angelo Planning: Darci Rudzinski

Absent:

ODOT: Mark Devoney, Sam Wilkins, and Susan Wright

Agenda Items:

1. Overview of Draft Documents
    a. Overlay District Elements
        - Proposed IAMP Overlay District Code Amendments
        - Supplemental Transportation SDC Methodology and Ordinance
        - Trip Allocation Budget (Exhibit B)
        - Proposed Cost Sharing (Exhibit C)
    b. Draft IAMP
        - IAMP Circulation and Access Plan
        - IAMP Access Management Plan

2. Discuss Overlay District Elements

Marc Butorac led a discussion that summarized the main components of the following documents. Comments and discussion on each element is provided below.

a. Chenoweth Interchange Overlay District (COID) – Code Amendments

- Dick Gassman asked about the potential to assess SDC charges based on a trip-generation study of each completed development. Disadvantages include: difficult to know when to conduct study (1 month after, 1 year after, etc.) and ability to capture true trip generation even after development; industrial development trip generation is difficult to measure. Group discussed best option to include: using ITE as base, but allowing flexibility if there are reasons to vary from ITE (dependant on approval by City).

- David Boyd asked about how off-site improvements will be assessed without requiring developments within overlay district being required to conduct a Traffic Impact Analysis (TIA). Marc responded that improvement phasing and authority to choose which projects are funded will be given to the City.

- Dan Durow asked if the developments that send more trips to the Webber Street interchange than the Chenoweth Interchange will only pay a proportion of the fees. Marc responded that all developments within the COID will pay 100% of the Supplemental Transportation SDC (STSDC) and will not be responsible for transportation improvements elsewhere. Language in the Code will be made more specific to clarify this.

- Tracy White commented that this may leave Webber Street Interchange vulnerable. Marc responded that this may still be better than what currently happens now as piecemeal development occurs and none is large enough to trigger improvements, but the interchange continues to see greater demand volumes.

- Dan Durow asked about off-peak shift changes and how STSDC's will be impacted by them. Marc responded that the developer and the City will need to make an agreement on trip generation estimates assumed during the p.m. peak hour so that developments can't promise off-peak shift changes and then change shift hours after fees have been paid.

- Mark Radabaugh asked how the 50% threshold for development exceeding it's allocated trips was chosen, as noted on page 2 of Angelo's July 17th memo (code revisions). His suggestion is to reduce it from 50% to "either [unspecified] percent or [unspecified] number of trips above allocated number of trip" and be less than 50%.

b. Proposed Cost Sharing

- ODOT has reviewed the proportional cost shares and agrees to what is shown. City staff will review the shares in more detail and provide comment at a later date.

c. Supplemental Transportation SDC (STSDC)

- Mark Radabaugh asked that the ordinance language include more specific details that define how commercial development is restricted to pay the surcharge if exceeding allocated trip budget. There was some confusion about how pass-by trips are incorporated into this calculation and Darci agreed to clarify in the text and the trip allocation table (specify that the fee is based on net new trips).

- The discounts were discussed and it was suggested that a "menu" option be provided, which would allow more flexibility and help clear up some confusion about whether the proposed discount system required a cumulative participation in order to achieve the greatest trip reduction (20%).

- Dick asked what the City would have to do to enforce the discount ordinance. Darci and Marc responded that a development approval must specifically state the conditions of approval and the specific discount that is subject to actions of the developer. If those specified actions are not completed the additional fee will be assessed.

3. Discuss Draft IAMP

a. IAMP Circulation and Access Plan

- Steelhead Way Connection

    - The unsignalized intersection of Steelhead Way and Crates Way will be signalized and run in coordination with the future signal at Crates Way (north) and River Road. This eliminates the conflicts that led to previous suggestion to close the Steelhead Way connection to Crates Way.

- Project E4B will be constructed until E4 can be constructed and aligned with Crates Way. E4B will provide right-in/right-out access onto River Road.

- Roundabouts and signal options were discussed and preferred traffic control includes: Roundabouts at: West 6th Street/Chenoweth Loop, River Road/US 30, River Road/River Trail Way, River Road/ Hostetler Street Extension, and River Road/Klindt Drive. Signals are preferred at 6th Street/Hostetler Street, River Road/I-84 Ramps, and River Road/Crates Way

b. IAMP Access Management Plan

- KAI to show left-in/RIRO in legend on Figure 7-10.

- ODOT (David Boyd) agreed that the deviations proposed are reasonable and with further refinements can satisfy ODOT requirements. Design details may refine the deviations at the time of construction/design.

- KAI to reconcile Figures 7-10 and 7-1 so that the projects in the AM plan are consistent with the circulation and access plan.

4. Actions

    a. City

        i. Prepare and submit 45-day notice to DLCD by 07/31/09.

        ii. Follow up with Terrell Anderson (UPRR Rep.) and send Figure 7-1: IAMP Circulation and Access Plan to obtain written support for at-grade crossing at Hostetler Street.

        iii. Review and assess proportion of fees allocated as SDC's vs. other agency funding or private funding.

    b. ODOT

        i. Conduct internal discussions and talk with ODOT Rail to determine feasibility of at-grade crossing at Hostetler Street.

    c. KAI

        i. Modify Figures 7-10 and 7-1 per comments

        ii. Update draft IAMP per comments (including: access deviation text, figures, incomplete text, etc.)

        iii. Provide brief analysis and summary of operations at the Hostetler Street rail-crossing if it were to operate as an at-grade intersection. This will support the upcoming City Council Work Session on 7/27/09.

        iv. Attend 07/27/09 City Council Meeting and answer any questions that may arise.

    d. Angelo Planning

        i. Update Code and Ordinance language per comments

5. Next Steps

- City Council Work Session (07/27/09)

    - Discussion among the SC resulted in several actions that are incorporated into actions listed is section 4.

- Comments on draft materials to Ana by 7/29/09
- Preparation and submission of 45-day Notice to DLCD by City and County (7/31/09)
- Next TAC/SC meeting scheduled for August 5 at 10 a.m.
- Hearing dates:
    - The Dalles Planning Commission – Sept. 17th
    - The Dalles City Council – ~~Sept. 28th~~ (now scheduled for Oct. 5)
    - Wasco County Planning Commission – Oct. 6th
    - Wasco County Court – Nov. 4th

TAC/SC Meeting #6 Minutes

I-84 Chenoweth Interchange Area Management Plan (IAMP)

August 5, 2009, 10 a.m. to 1 p.m.

The Dalles Council Chambers, City of The Dalles, Oregon

The following documents the participants and discussion items from the July 22, 2009 joint TAC/SC Meeting for the I-84 Chenoweth Interchange Area Management Plan (IAMP).

Participants:

ODOT: Ana Jovanovic, Mark Devoney, David Boyd, Brad DeHart, Rod Cathcart, and Tracy White.

City of The Dalles: Richard Gassman, Dan Durow, and Dale McCabe

Wasco County: Marty Matherly and Todd Cornett

DLCD: Mark Radabaugh

Kittelson & Associates: Casey Bergh and Marc Butorac

Angelo Planning: Darci Rudzinski

Agenda Items:

1. Overview of Revisions and Meeting Goals

    - Susan Wright provided a summary of changes to draft documents and other project progress since the last TAC Meeting.

2. Discuss Proportional Costs of Implementing Local Circulation and Design Plan

    - Since the last TAC meeting the City has provided comments that revised the cost proportions paid by City, SDC, and Private entities. No changes were proposed to ODOT's proportion of 8%.

    - The TAC discussed the need for funding to be available for entire projects that serve the system. If a roadway connection is needed, the City can't be reliant on the development of adjacent properties to have developed the entire length of the roadway at that time or even in the near-term.

    - The TAC suggested grouping or other action that will ensure that E2, E3, and E9 are completely funded at the time they are needed to alleviate congestion on the I-84 Chenoweth Overpass.

- The TAC suggested using examples of how much a developer like Walmart would be charged under the proposed STSDC program and comparing that to what they were charged currently. Another example could be provided on the west side of I-84.

- It was suggested that the Cost Proportion table be inserted into the Draft IAMP document.

3. Discuss Overlay District Elements

   Susan Wright and Darci Rudzinski led a discussion that summarized the main revisions/updates and outstanding questions for the TAC.

   a. Supplemental Transportation SDC (STSDC) Discounts

      - It was noted that the discount options could be expanded to include other incentives that the City felt were applicable to their community.

      - Potential for residential discounts given that the residential district is west of I-84 and there are existing vacant parcels that would be charged too much for insignificant impacts; the IAMP boundary may change to exclude these parcels.

   b. Chenoweth Interchange Overlay District (COID) – Code Amendments

      - The wording that uses the term "vesting of trips" was questioned and will be reviewed by Angelo Planning

      - The County will be added to several section of the code to be included in invites to participate in reviews/meetings when ODOT is.

4. Discuss Hostetler Crossing

   - Marc Butorac led a discussion of four alternatives that could be pursued:

      1. Collect for the worst, hope for the best (collect for grade-separated, but hope that you can get approval for at-grade)

      2. Buy parcels effected north/south of Hostetler along 2nd Street in the near term

      3. Accept grade-separated plan and deal with impacts when project is implemented/constructed

      4. No grade-separated crossing

5. Action Items (Responsibilities)

   a. All TAC

      i. Send comments on draft documents to Ana by 08/12/09

b. City

   i. Prepare and submit notice of proposed SDC increase

   ii. Review and assess proportion of fees allocated as SDC's vs. other agency funding or private funding.

   iii. Discuss assumption of cost estimates with KAI and others to confirm cost estimates.

   iv. Review the draft IAMP and supporting documentation (SDC Memo and Code Amendment Memo) and ask questions to gain greater understanding of document and study implications.

c. ODOT

   i. Tracy to work with Darci to confirm revisions to code amendments and STSDC memo

d. County

   i. Prepare 45-day notice for IAMP and TSP - (08/19/09)

e. KAI

   i. Remind Todd (County) of upcoming 45-day notice deadline – (08/19/09)

   ii. Review County Land Use of sub-area "I" to determine what code amendments need to be made (or exclude from IMSA?)

   iii. Modify Figures and text to remove "Long-term" from Long-term vision project title and simply refer to is as the "Vision Conceptual Plan"

   iv. Update draft IAMP per comments

   v. Provide 1-page "quick" summary of IAMP process and findings for educational purposes to be distributed to City Council and Planning Commission.

   vi. Lead joint work session with City Council and Planning Commission on 09/03/09.

f. Angelo Planning

   i. Update Code and Ordinance language per comments and work with Tracy to confirm any outstanding questions/concerns.

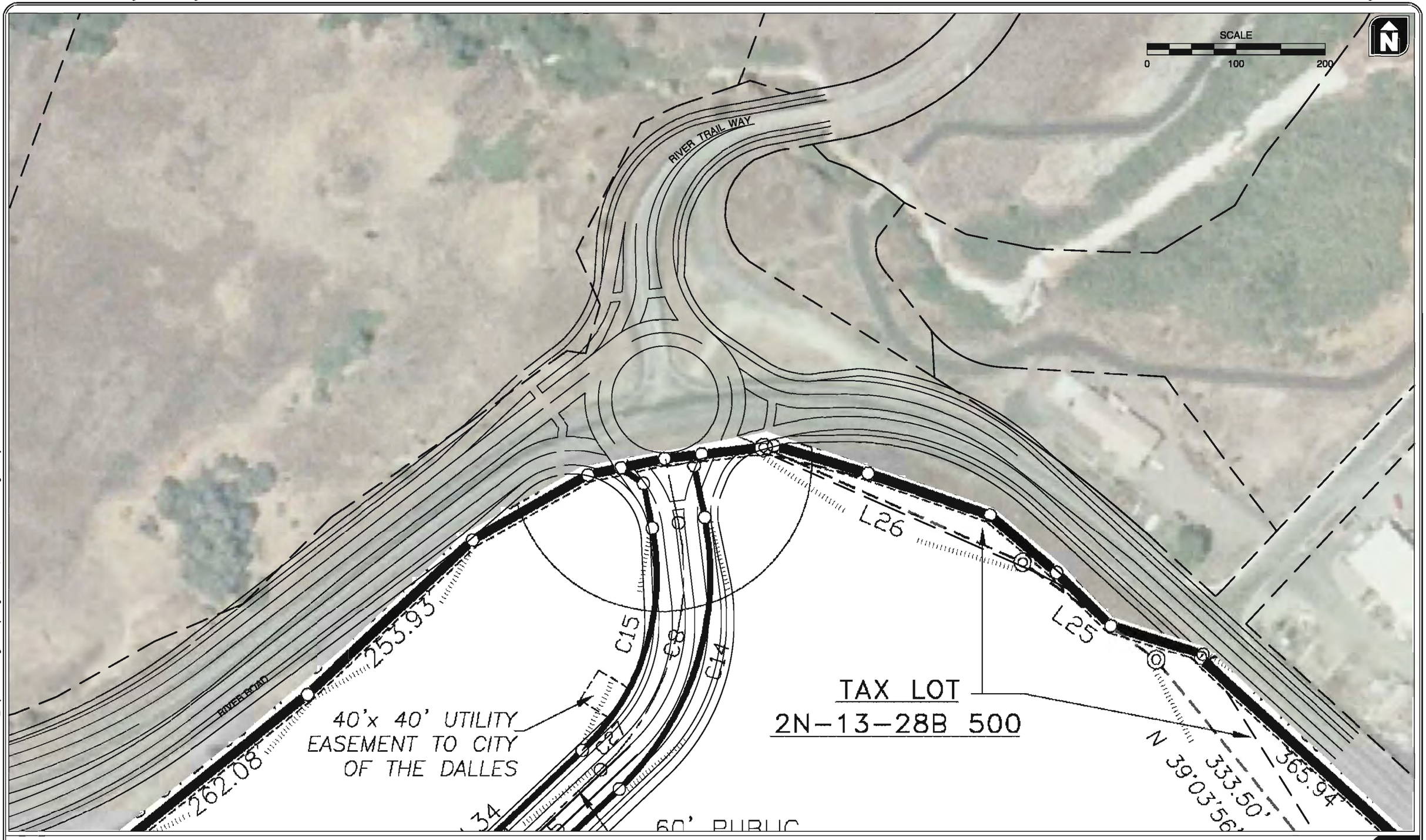
   ii. Work with City to get legal review of draft documents.

6. Next Steps

- Comments on draft materials to Ana by 08/12/09
- Joint City Council/Planning Commission workshop – 09/03/09
- Hearing dates:
    - The Dalles Planning Commission – Sept. 17th
    - The Dalles City Council – Oct. 5
    - Wasco County Planning Commission – Oct. 6th
    - Wasco County Court – Nov. 4th
    - OTC Hearing – Nov. 10th

Appendix B

Preliminary Roundabout Design Concept at River Road/River Trail Way



PRELIMINARY ROUNDABOUT DESIGN AT RIVER ROAD/RIVER TRAIL WAY
THE DALLES, OREGON

FIGURE B

H:\proj\file19600 - I-84 Chenoweth IAMP\GIS_Report\RabbtDesignConcept.dwg Oct 26, 2009 - 11:05am - cbergh Layout Tab: B-1

Appendix C
Trip Allocation Budget

Exhibit C - IAMP Transportation Improvement Plan - Scenario #2

Improvement Reference	Improvement Type	Description	Assumed ROW Cost	Total Cost (including ROW)	Funding Source							
					% SDC	$ SDC	% City	$ City	% ODOT	$ ODOT	% Private	$ Private
E1	New Collector Roadway	Extend River Trail Way from 2nd Street to the Hostetler Street Extension	$3,012,000	$10,899,559	10%	$1,089,956	0%	$0	0%	$0	90%	$9,809,603
E2	UP Railroad Under-Crossing	Provides Hostetler Street connection to River Road	$110,000	$11,804,175	100%	$11,804,175	0%	$0	0%	$0	0%	$0
E3	New Collector Roadway	Extends Hostetler Street from 2nd Street to River Road	$974,000	$3,691,587	0%	$0	0%	$0	0%	$0	100%	$3,691,587
E4	New Local Roadway (Long-term)	Provides local business access	$934,000	$3,640,370	0%	$0	0%	$0	0%	$0	100%	$3,640,370
E4B	New Local Roadway (Short-term)	Provides local business access until environmental concerns can be mitigated and project E4 can be constructed	$760,000	$3,021,618	0%	$0	0%	$0	0%	$0	100%	$3,021,618
E5	New Local Roadway	Provides local business access	$817,000	$3,133,425	0%	$0	0%	$0	0%	$0	100%	$3,133,425
E6	New Local Roadway	Provides local business access (variable alignment)	$773,000	$3,047,202	0%	$0	0%	$0	0%	$0	100%	$3,047,202
E9	Intersection Improvement (Roundabout)	Intersection control to accommodate future traffic at Hostetler Street/River Trail Way Extension	$250,000	$728,941	100%	$728,941	0%	$0	0%	$0	0%	$0
E10	Intersection Improvement (Roundabout)	Intersection control to accommodate future traffic at reconstructed River Trail Way/River Road	$95,000	$619,754	100%	$619,754	0%	$0	0%	$0	0%	$0
E11	Intersection Improvement (Signal)	Intersection control to accommodate future traffic at River Road/Crates Way (North)		$300,000	100%	$300,000	0%	$0	0%	$0	0%	$0
E12	Intersection Improvement (Roundabout)	Intersection control to accommodate future traffic at future connection of River Road and Hostetler Street	$25,000	$500,000	100%	$500,000	0%	$0	0%	$0	0%	$0
E13	Intersection Improvement (Roundabout)	Intersection control to accommodate future traffic at River Road/Klindt Drive	$25,000	$500,000	100%	$500,000	0%	$0	0%	$0	0%	$0
I1	Signalize Intersection	Accommodate weekday a.m. and p.m. peak hour travel demand at Eastbound I-84 Ramp Terminal	$0	$664,812	0%	$0	0%	$0	0%	$0	100%	$664,812
I2	Signalize Intersection	Accommodate weekday a.m. and p.m. peak hour travel demand at Westbound I-84 Ramp Terminal										
I3	Widen Bridge to 6 Lanes	Accommodate weekday peak hour travel demand	$0	$11,248,965	Beyond Planning Horizon							
N1	New Local Roadways	Provide a network of local streets	Dedication									
N2	ROW Preservation	Preserve ROW for a potential future overpass of I-84	Dedication									
N3	ROW Preservation	Preserve ROW for a potential future overpass of I-84	Dedication									
W1	Widen 6th Street Improvements (segment 1)	Widen 6th Street to 5 Lanes and Install Median (River Road to Chenoweth Loop)	$360,400	$4,100,444	0%	$0	25%	$1,025,111	75%	$3,075,333	0%	$0
W2	Intersection Improvement (Roundabout)	Intersection control at 6th Street (US 30)/River Road to accommodate future traffic and provide for u-turns created by the median	$25,000	$319,363	0%	$0	25%	$79,841	75%	$239,523	0%	$0
W3	Intersection Improvement (Roundabout)	Intersection control at 6th Street/ Chenoweth Loop to accommodate future traffic and provide for u-turns created by the median	$383,000	$1,377,047	0%	$0	25%	$344,262	75%	$1,032,785	0%	$0
W4	Intersection Improvement (Signal)	Intersection control at 6th Street/Hostetler Street to accommodate future traffic		$332,406	0%	$0	100%	$332,406	0%	$0	0%	$0
W5	Widen 6th Street Improvements (segment 1)	Widen 6th Street to 5 Lanes from Chenoweth Loop through Hostetler Street Intersection	$169,600	$1,907,533	0%	$0	100%	$1,907,533	0%	$0	0%	$0
W6	Relocate Driveway/ New Local Roadway	Relocate driveway further from interchange and River Road/6th Street intersection to meet access spacing standards	Dedication									
W7	New Local Roadway	Provides local connection between Division Street and Irvine Street	$750,000	$1,880,055	0%	$0	0%	$0	0%	$0	100%	$1,880,055
W8	New Local Roadway	Provides paved local connection between 6th Street and 7th Street	$0	$509,702	0%	$0	0%	$0	0%	$0	100%	$509,702
W9	Cul-de-Sac	Closes and effectively consolidates access to 6th Street at Division Street or Irvine Street.	$0	$100,000	0%	$0	0%	$0	0%	$0	100%	$100,000
All Projects			$9,463,000	$53,077,991	29%	$15,542,826	7%	$3,689,152	8%	$4,347,641	56%	$29,498,373
					SDC/Trip	$3,166						