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DATE: March 23, 2012

TO: Oregon Transportation Commission

FROM: Mathew L. Garrett
Director

SUBJECT: April 2012 OTC Consent Agenda Item
Adoption of the Port of Morrow Interchange Area Management Plan and the I-84/US 730 Interchange Area Management Plan

Requested Action

Region 5 requests that the Oregon Transportation Commission (OTC) adopt both the Port of Morrow and I-84/US 730 Interchange Area Management Plans. Adoption of these two facility plans will amend the Oregon Highway Plan (OHP) to include an Interchange Area Management Plan (IAMP) for the Port of Morrow (POM) interchange area at Exit 165 and the US 730 interchange area at Exit 168 along I-84. OTC adoption will establish policies for the interchange areas to guide Oregon Department of Transportation (ODOT) and local governments for managing the interchange facilities. Both IAMPs have been adopted into all relevant local comprehensive plans and transportation system plans.

Background

The IAMPs are strategic and dynamic transportation plans that are designed to protect the long-term function of the POM and the I-84/US 730 interchanges by preserving the capacity of the interchange while providing safe and efficient operations between connecting roadways. The IAMPs identify land use management strategies, short-, medium-, and long-term transportation improvements, access management goals, and strategies to fund identified improvements. The IAMP planning efforts have resulted in policies, ordinances, and other provisions that have been adopted into the City of Boardman's and Morrow County's Transportation System Plan (TSP) and Comprehensive Plan.

Under the Jobs & Transportation Act, the OTC allocated funds to the Port of Morrow for extending Lewis and Clark Drive to US 730 and constructing Gar Swanson Drive to connect to Lewis and Clark Drive. A special condition of approval for this funding was to complete an IAMP for both the POM and I-84/US 730 interchanges.

The primary function of the POM (Exit 165) interchange is to provide truck and vehicular access to the Port of Morrow, allowing goods to be transported between the Port and destinations in Oregon, Washington and Idaho. While sufficient to meet today's needs, it is recognized that long-term growth within the Port of Morrow will cause the POM interchange ramp terminals to fall below ODOT's mobility standards through the year 2030. In addition, the proximity of the Port of Morrow and its supporting local circulation network does not meet the desired access spacing standards for major interchange ramp terminals.

The I-84/US 730 (Exit 168) interchange is located in a rural area of Morrow County approximately three miles east of the POM interchange. This interchange primarily facilitates movements between I-84 and US 730 but provides access to the local County roadway network. Although movements are adequately facilitated between I-84 and US 730, the Lewis and Clark Drive extension and long-term growth plans at the Port of Morrow requires a formal access plan along the US 730 corridor located immediately north of the interchange.

A series of local plan, policy, and ordinance amendments were adopted by the City of Boardman and Morrow County during February, 2012 in support of these two IAMPs. OTC adoption of these facility plans will affirm its compatibility with the local comprehensive plans. Adoption of these facility plans will make the local actions already taken consistent with the state transportation plan. Adoption into the state plan also helps protect the decisions made locally be consistent with the Transportation Planning Rule (TPR), requiring local plans be consistent with the state plan. Adoption by the OTC is the complimentary action to support the legal proceedings and actions that have been completed by the local agencies.

The two IAMPs are attached as exhibit "A." Additional copies of the two facility plans may be requested from ODOT Region 5 Planning (541) 963-1345, or from the ODOT ftp site: ftp://ftp.odot.state.or.us/outgoing/Port%20of%20Morrow%20IAMPs/ .

ODOT findings of fact that demonstrate compliance with the highway plan amendment process and the facility plan adoption process are attached as exhibit "B." Documentation of compatibility with local plans, policies and ordinances from affected local jurisdictions are attached as exhibit "C." Letters of Concurrence from the Region 5 Access Management Engineer are attached as exhibit "D".

Notification of this OTC action has been provided to the affected local jurisdictions and the Department of Land Conservation and Development.

Attachments

Exhibit A:
Port of Morrow Interchange Area Management Plan;
I-84/US 730 Interchange Area Management Plan

Exhibit B:
ODOT Findings of Fact;
Findings of Compliance with OAR 731-0015-0055 and 0065

Exhibit C:
City of Boardman Ordinance No. 2-2012;
City of Boardman Community Development Staff Report;
Morrow County Ordinance No. MC-2-2012;
Morrow County Final Findings of Fact

Exhibit D:
Letter of Concurrence for Port of Morrow Interchange Area Management Plan;
Letter of Concurrence for I-84/US 730 Interchange Area Management Plan

PORT OF MORROW

INTERCHANGE AREA MANAGEMENT PLAN

Boardman, Oregon

November 2011

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Port of Morrow Interchange Area Management Plan

Boardman, Oregon

Draft

November 2011

Port of Morrow Interchange Area Management Plan

Boardman, Oregon

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Project No. 11253.0

November 2011

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PREFACE

The development of this plan was guided by the Project Management Team (PMT), Technical Advisory Committee (TAC), and Public Advisory Committee (PAC). The members these groups are identified below, along with members of the consultant team. The PMT members were all part of the TAC and PAC. The TAC and PAC 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 Port of Morrow Interchange Area Management Plan (IAMP) and their participation was instrumental in the development of the recommendations that are presented in this plan.

Project Management Team (PMT)

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ODOT Region 5 Planning

Gary Neal/Ron McKinnis
Port of Morrow

Technical Advisory Committee (TAC)

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City of Boardman

Bob Nairns
Morrow County

Carla McLane
Morrow County

Dave Warrick
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Public Advisory Committee (PAC)

Blair Purcell
ConAgra Foods

Ed Glenn
City Council/Area Property Owner

Jeff Wenholz
Morrow County Commission

Randy Yates/Kevin Taylor
Area Property and Business Owners

Rich Devin
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Kristen Currens

Section 1
Introduction

INTRODUCTION

An Interchange Area Management Plan (IAMP) has been prepared for the Interstate-84 (I-84) / Laurel Lane Interchange (aka Port of Morrow interchange) in Boardman, 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 have been defined through a collaborative effort between the project TAC and PAC.

Purpose and Intent

The IAMP is a strategic transportation plan that is designed to protect the long-term function of the Port of Morrow (POM) interchange by preserving the capacity of the interchange while providing safe and efficient operations between connecting roadways. The IAMP will identify land use management strategies, short-term and long-term transportation improvements, access management goals, and strategies to fund identified improvements.

The intent is that the IAMP planning efforts will result in policies, ordinances, and other provisions that will be adopted into the City of Boardman's and Morrow County's respective Transportation System Plans (TSPs) and Comprehensive Plans. The IAMP will be adopted by the Oregon Transportation Commission (OTC) as an amendment to the Oregon Highway Plan (OHP).

Problem Statement

Under House Bill 2001, the OTC allocated funds to the POM for extending Lewis & Clark Drive to US 730 and constructing Gar Swanson Drive to connect to Lewis & Clark Drive. Special condition of approval for this funding was to complete an IAMP for the POM and I-84/US 730 interchanges. The IAMP for the I-84/US 730 interchange is contained in a separate plan, *I-84/US 730 Interchange Area Management Plan.*

While sufficient to meet today's needs, it is recognized that long-term growth within the POM will likely cause the POM interchange ramp terminals to fall below ODOT's mobility standards through the year 2030. In addition, the proximity of the POM and its supporting local circulation network does not meet

the desired access spacing standards for major interchange ramp terminals. As such, an IAMP is sought to identify opportunities to improve long-term operations at the ramp terminals, improve the close intersection spacing, and do so in a way that minimizes impacts to freight mobility and POM properties.

Interchange Function and Classification

The primary function of the POM interchange is to provide truck and vehicular access to the POM, allowing goods to be transported between the Port and destinations in Oregon, Washington, and Idaho via I-84. A secondary function is to provide access to the residential areas and farm lands on the south side of I-84 and east of the City of Boardman. I-84 classified as an Interstate Highway by the Oregon Highway Plan (OHP) and is also a Federally Designated Truck Route and a Statewide Freight Route. Laurel Lane is classified as an arterial by the City of Boardman TSP.

Goal and Objectives

The primary goal of the IAMP process is to protect the function of the interchange by anticipating changes in land use and traffic patterns and planning for necessary improvements over a 20-year planning horizon. 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 POM IAMP are to:

- Consider the surrounding contextual land use and roadway network;
- Provide for efficient connectivity, right-of-way, and access control in the analysis area of the interchange;
- Refine and prioritize improvements needed to maintain acceptable traffic operations at the interchange while providing safe access to adjacent land uses;
- Provide plans for improved local street connectivity in the Interchange Management Study Area (IMSA) while limiting cul-de-sacs or other non-connected streets;
- Evaluate existing and potential land use designations, intensities, conditions, and actions that could have favorable effect on the facility or an adverse effect on the facility;
- Include implementation policies to be adopted into the City and County comprehensive plans, transportation system plans, interchange access standards, and zoning ordinances, as appropriate;
- Collaborate throughout the planning process with design professionals, jurisdictional representatives, developers, and local property owners; and

- 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: Urban Growth Boundaries.

Evaluation Criteria

Based on the above objectives, the following evaluation criteria were assembled to ensure that each concept developed throughout the project would be evaluated for consistency with the overall intent of the community and the project. These are basic criteria that will guide the development of future alternative concepts. Detailed criteria based on these will be developed later for use in the screening process. The six evaluation criteria categories are outlined below:

- Transportation Operations: This category consists of those criteria that assess the ability for all modes 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 (1-5 years), mid-term (5-15 years), and long-term growth (15-25 years) for areas within the vicinity of the interchange.
- 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 factors: This category consists of those criteria that assess the degree to which a concept is compatible with the natural and built environment including environmental (i.e., storm water drainage and hazardous waste) and socio-economic (i.e., stakeholders' needs) impacts.
- Accessibility: This category consists of those criteria that assess the ability to access properties and businesses within the IMSA 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.

Interchange Management Study Area (IMSA)

To provide a comprehensive study and to achieve effective and meaningful results, the IMSA for each interchange need to include an assessment of developable and re-developable properties and major roadways that would significantly affect the interchange function over the next 20 years. Under today's condition, development in the area is likely to primarily affect only one interchange; however, in the future as the POM develops and connects to US 730, growth will affect both interchanges. Therefore, only one IMSA is drawn for both interchanges. At a minimum, the IMSA should include properties within ½-mile from the existing POM and I-84/US 730 interchanges as defined by the IAMP Guidelines. The study areas should also take into account facilities and properties that will impact the operations of the interchange and any natural or cultural resources in the vicinity of the interchange.

An IMSA map is shown in Figure 1-1. This figure identifies key features and boundaries of the area to be included in the IAMP. The following describes the criteria used to create the IMSA map.

The IMSA includes all properties located roughly within a ½-mile of the existing POM and I-84/US 730 interchanges and encompasses key intersections that have potential to affect traffic operations in the interchange area over the planning period. These study boundaries identify the area for which operational analysis will be completed and the area that will be considered in the Access Management Plan element of the IAMP. From a land use perspective, properties identified with potential to affect the interchange are included in the IMSA boundaries and are those that are expected to utilize either one of the interchanges as their primary connection to I-84 or those that may be necessary to examine to improve local circulation.

The study intersections for the POM interchange include:

- I-84 Eastbound / Laurel Lane ramp terminal
- I-84 Westbound / Laurel Lane ramp terminal
- Columbia Avenue / Laurel Lane
- Columbia Avenue / Olson Road
- Columbia Avenue / Ulman Boulevard
- Columbia Avenue / Rippee Road

INTERCHANGE MANAGEMENT STUDY AREA
MORROW COUNTY, OREGON

FIGURE 1-1

H:\profile\

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

Development of the IAMP

The POM IAMP has been guided by the TAC and PAC, as well as area residents and business owners. TAC and PAC roster lists are provided in the Preface of this document and in Section 2. Regular TAC and PAC meetings held throughout the course of the project have provided opportunities for the two committees to review and guide the technical analysis prepared by the consultant team and the overall project direction. A summary of the individual TAC and PAC meetings is provided in the *Technical Appendix.*

PUBLIC INVOLVEMENT

In addition to the regular TAC and PAC meetings, local citizens, property owners, and business owners provided their input by participating in three public workshops. The first workshop provided participants with background information on the project and then gave them the opportunity to develop and present their ideas for design concepts. At the second workshop, participants provided their input on the design concepts that had previously been developed. The third workshop was focused on a review of the draft IAMP. Members of the public also submitted comments directly to the project management team either through correspondence or by attending a TAC or PAC meeting. In addition, adoption of the plan will have included public hearings before the City of Boardman Planning Commission and Council, Morrow County Planning Commission and County Commission, and the Oregon Transportation Commission.

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The development of the POM IAMP began in December 2010 with the first meeting of the consultant team and POM, City, County, and ODOT staff. Work with the TAC and PAC began shortly thereafter in January 2011. Since then these groups participated in an extensive process that involved reviewing existing and future transportation conditions, future land use analyses, interchange design and local access and circulation concepts, 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 IMSA;

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 concepts 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 POM IAMP, including the local circulation and access elements 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 POM 730 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 POM IAMP, interagency and public involvement occurred through: a kick-off meeting with agency staff; a TAC and a PAC that had regular meetings; three public workshops involving local citizens, property owners, and business owners; and public adoption hearings in front of the City of Boardman Planning Commission and Council, Morrow County Planning Commission and County Commission, and the Oregon Transportation Commission. An overview of the TAC and PAC meetings and public workshops is provided below.

Technical Advisory and Public Advisory Committees

The TAC and PAC guided the planning work and were responsible for reviewing all work products, providing input on all planning recommendations, such as the IMSA, goals and objectives, technical analysis, and the proposed concepts. Ultimately the TAC and PAC helped select the preferred interchange form, local circulation/access, land use management, and coordination elements of the IAMP. In addition, the 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 Port of Morrow, Morrow County, the City of Boardman, and the consultant team. All members of the PMT were also members of the TAC.

Membership on the TAC and PAC was established through input from POM, City, County, and ODOT representatives. A proposed TAC and PAC membership roster was presented and finalized at a project kick-off meeting held December 16, 2010. A list of TAC and PAC members is included in Tables 2-1 and 2-2.

Table 2-1 Technical Advisory Committee

Agency	Name	Position/Title	Role
Port of Morrow	Gary Neal	POM Director	PMT and TAC
	Ron McKinnis	POM Engineer	PMT and TAC
Morrow County	Bob Nairns	Assistant Public Works Director	TAC
	Carla McLane	Planning Director	PMT and TAC
ODOT	Dave Warrick	Interchange Engineer	TAC
	Don Fine	Region 5 Traffic Operations & Analysis	TAC
	Marilyn Holt	District 12	TAC
	Patrick Knight	Region 5 Planning	ODOT Project Manager PMT and TAC
	Rich Lani	District 12	TAC
	Swede Hays	Rail	TAC
	Tom Kuhlman/ Jeff Wise	Region 5 Traffic Section Manager	TAC
Oregon DLCD	Grant Young	Field Representative	TAC
City of Boardman	Barry Beyeler	Community Development Director	TAC
	Karen Pettigrew	City Manager	TAC

Table 2-2 Public Advisory Committee

Name	Representing
Blair Purcell	ConAgra Foods
Ed Glenn	City Council/Area Property Owner
Jeff Wenholz	Morrow County Commission
Rand Yates/Kevin Taylor	Area Property and Business Owners
Rich Devin	Pacific Pride

The TAC members were selected in order to provide representation from key components of interested government agencies. PAC members were selected in order to provide a good representation of City and County officials, and area property and business owners. In addition to the PAC members, a number of area property and business owners attended PAC meetings and participated in the process. An outline of all of the TAC and PAC meetings is included below.

Public Involvement Plan

To ensure that adequate project coordination and public participation occurred throughout the development of the POM IAMP, a series of TAC and PAC meetings, public workshops, and public joint work sessions were held over the course of the project. Morrow 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 2-3.

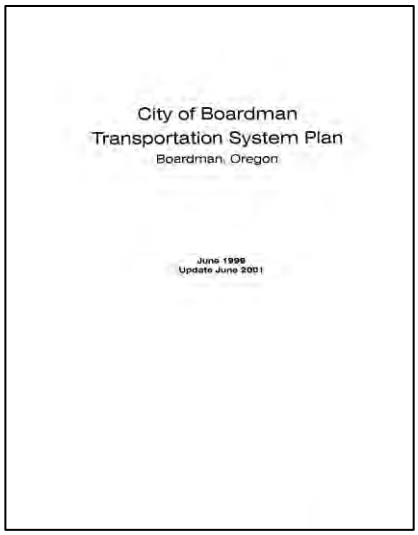
Table 2-3 Meeting Summary

Meeting	Date/Location	Meeting Objectives/Purpose
Kick-off Meeting	December 16, 2010/ Boardman – Port of Morrow	- Review project process and goals - Review TAC and PAC membership - Review project schedule
TAC/PAC Meeting #1	January 18, 2011/ Boardman – Port of Morrow	- Review project schedule and approach - Presentation: IAMP 101 - Review Tech Memorandums #1 and #2 (IAMP Definition and Background and Plans and Policy Review) The purpose of Meeting #1 was to introduce the I-84/US 730 and POM IAMP projects and the consultant team; review the project schedule; review the project goals, objectives, and evaluation criteria; familiarize TAC/PAC members with the IAMP process and their roles; confirm the IMSA; confirm the project schedule; and review the project's policy framework.
TAC/PAC Meeting #2	February 17, 2011/ Boardman – Port of Morrow	- Review Tech Memorandums #3/4 (Existing Conditions), #5 (Environmental), and #6 (Future Conditions) - Presentation: Interchange Design 101 - Brainstorm design concepts The purpose of Meeting #2 was to review the existing and future land use and traffic operations, the environmental review, and involve the TAC and PAC in a brainstorming exercise to develop interchange design, local circulation, and access management concepts for the existing roadway system.
Public Workshop #1	February 17, 2011/ Boardman – Port of Morrow	- Project Overview - Summary of Existing and Future Conditions - Presentation: Interchange Design 101 - Brainstorm design concepts 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 interchange design and access management practices, and engage the participants to help develop potential interchange design, local circulation, and access management concepts.
TAC/PAC Meeting #3	April 7, 2011/ Boardman – Port of Morrow	- Review Tech Memorandum #7a (Preliminary Concept Development & Analysis) - Screen Concepts The purpose of Meeting #3 was to review the Concepts Analysis and determine the concepts that would move forward for refined analysis.
Public Workshop #2	April 7, 2011/	- Review concept evaluation

	Boardman – Port of Morrow	The purpose of the second public workshop was to present the concepts being considered, the results of the concepts analysis, and provide the public with the opportunity to give their feedback on the concepts being considered.
TAC/PAC Meeting #4	June 21, 2011/ Boardman – Port of Morrow	- Review Tech Memorandum #7b (Detailed Concept Analysis) - Determine Preferred Concepts The purpose of Meeting #4 was to review the evaluation of the refined concepts developed at the last set of PAC and TAC meetings and determine preferred concepts. Feedback from this meeting resulted in slight refinement of the preferred concepts.
TAC/PAC Meeting #5	October 25, 2011/ Boardman – Port of Morrow	- Review Draft IAMP The purpose of Meeting #5 was to review the draft IAMP. The committees provided feedback that has been incorporated into the IAMP.
Public Workshop #3	October 25, 2011/ Boardman – Port of Morrow	- Review Draft IAMP The purpose of the third Public Workshop was to review the draft IAMP and provide the public an opportunity to comment on the document.
Planning Commission Hearing #1	TBD	
Planning Commission Hearing #2	TBD	
County Commission Hearing	TBD	
OTC Hearing	TBD	

Section 3
Plan and Policy Review

PLAN AND POLICY REVIEW


City of Boardman
Transportation System Plan
Boardman, Oregon

June 1996
Update June 2001

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 IMSA 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 POM Interchange.

STATE/ODOT

- Statewide Planning Goals
- Oregon Transportation Plan (2006)
- Oregon Highway Plan (1999, last amended 2006)
- Oregon Administrative Rule 734, Division 51 (Access Management Rule)
- Highway Design Manual (2003)

LOCAL

- Port of Morrow Agricultural Learning Center Business Plan
- Port of Morrow Rail Plan (2009)
- US Army Umatilla Chemical Depot Redevelopment Plan (2010)
- Morrow County Comprehensive Plan (2010)
- Morrow County Transportation System Plan (2005)
- Morrow County Zoning Ordinance (Revised, 2001)
- Morrow County Subdivision Ordinance (Revised, 2005)
- City of Boardman Comprehensive Plan (2003)

- City of Boardman Transportation System Plan (2001)
- City of Boardman Development Code (Revised, 2009)

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. 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 Boardman and Morrow County 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.

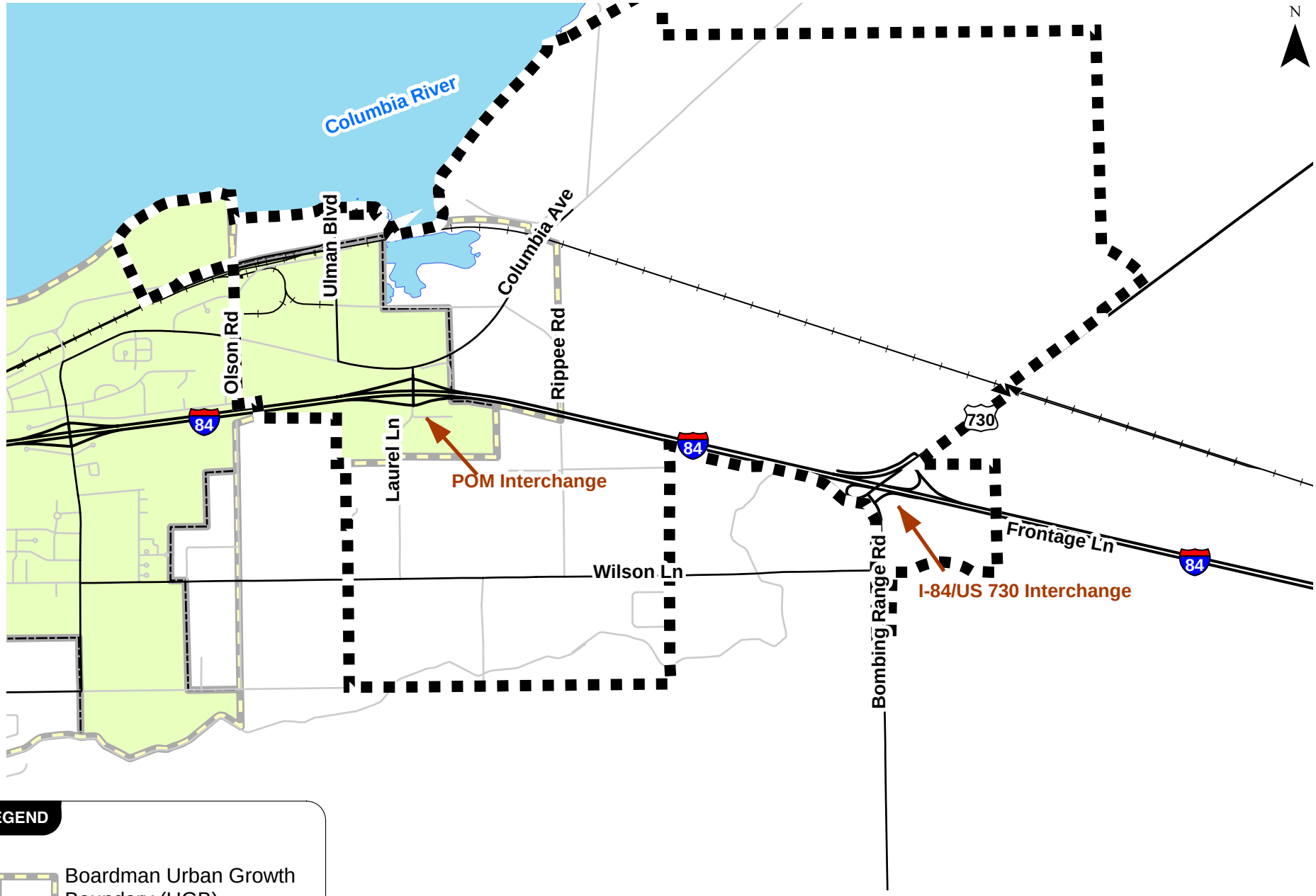
Section 4
Existing Transportation and Land Use Conditions

EXISTING TRANSPORTATION AND 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 POM interchange. As shown in Figure 4-1, the interchange is located the east side of the city of Boardman. The information identified in this section provides a basis for identifying opportunities and constraints for meeting the goals and objectives of the IAMP.

Interchange Management Study Area

The Interchange Management Study Area (IMSA), depicted in Figure 4-2, defines the extent of the land use and traffic operations review. Currently development in the IMSA is likely to primarily affect only one interchange; however, in the future as the POM develops and connects to US 730, growth within the overall IMSA will affect both interchanges. At a minimum, the IMSA includes all properties located roughly within a ½-mile of the existing POM and I-84/US 730 interchanges and encompasses key intersections. Beyond the minimum requirements, the IMSA includes properties whose development may have a direct impact on the function of either interchange. Generally, land uses outside of this area are not anticipated to directly impact the function of the interchange. This is because these properties do not directly access the interchange, have other travel route options within Boardman, or have limited potential to generate new trips (e.g., the land is already developed, the land has limited redevelopment potential, or the current zoning or location restricts its development potential). The Operation/Access Study Area boundaries identify the area for which operational analysis will be completed and the area that will be considered in the Access Management Plan element of the IAMP.



LEGEND

- Boardman Urban Growth Boundary (UGB)
- Boardman City Limits

STUDY AREA VICINITY
MORROW COUNTY, OREGON

FIGURE **4-1**

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LEGEND

- Minimum 1320' IAMP Limits
- Interchange Management Study Area
- Operations/Access Study Area
- Boardman UGB
- Boardman City Limits

INTERCHANGE MANAGEMENT STUDY AREA
MORROW COUNTY, OREGON

FIGURE 4-2

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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 has been prepared for the IMSA. This section provides a description of the existing land-use patterns and zoning regulations that currently exist within the IMSA. The following describes existing zoning and how the land is currently being used within the IMSA. Land use-related information will ultimately be combined with findings about existing transportation system conditions in an overall existing conditions section of the IAMP.

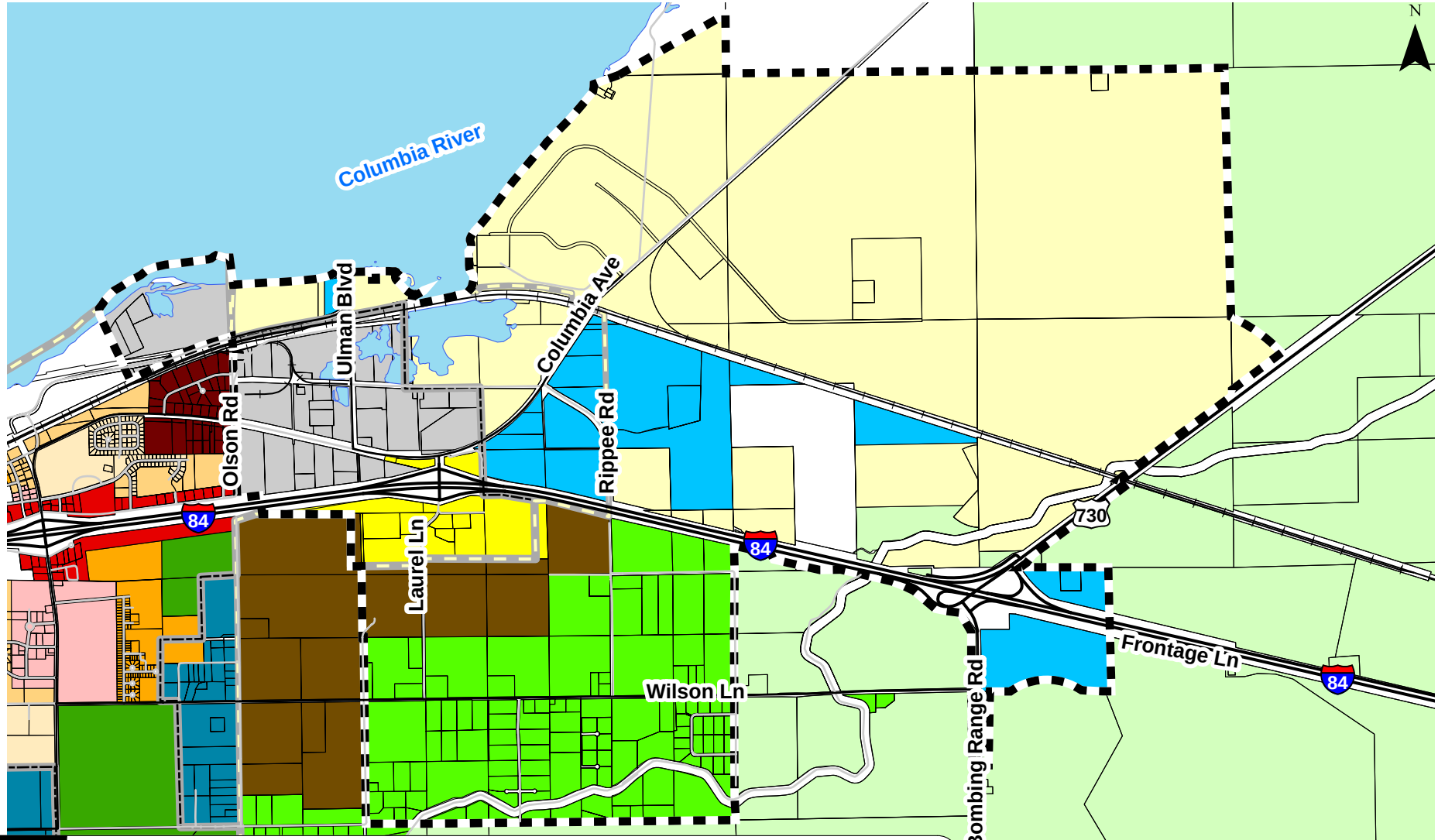
EXISTING ZONING AND DEVELOPMENT STANDARDS

Any development in the IMSA will have some direct impact on the facility, so it is important to review the existing zoning for parcels surrounding the interchange and connecting roads. Permitted land uses and the applicable standards associated with the zone designations are an indicator of the potential for growth in the area. Recommendations for restricting uses or modifying development standards (e.g., restricting uses with high traffic generation rates, developing trip budgets, or limiting building size) are a possible outcome of the IAMP process. Zoning for areas within the IMSA are shown in Figure 4-3. This map includes both city and county zoning, as the IMSA includes unincorporated areas of Morrow County.

Morrow County Zoning

Morrow County zoning designations in the vicinity of the POM interchange include Port Industrial (PI), General Industrial (MG), Small Farm (SF 40), and Farm Residential (FR2). A portion of the PI and MG zoned land in the IMSA to the northeast of the POM interchange is inside the Boardman UGB but outside the Boardman city limits. Pursuant to an intergovernmental agreement that exists between the City and County, the City is included in the County's development review process, but development approval is subject to existing County zoning requirements, as described below. If this land is annexed in the future, the corresponding City zoning that would be applied is General Industrial (GI), which is discussed later in this section.

The I-84/US 730 interchange is adjacent to land zoned General Industrial (MG), Port Industrial (PI), and Exclusive Farm Use (EFU). Uses permitted in the EFU zone are primarily restricted to uses that are associated with farming; consistent with state law, the County has identified certain uses that are permitted outright, while others require a conditional use permit.



LEGEND

- Interchange Management Study Area
- Boardman UGB
- Boardman City Limits

City Zoning

- C1
- C2
- C3
- CFU
- GI
- R1
- R2
- R3
- SC

County Zoning

- EFU
- FR2
- MG
- PI
- PUB
- RRI
- RSC
- SF40
- SR1

STUDY AREA ZONING
MORROW COUNTY, OREGON

FIGURE **4-3**

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An overview of permitted uses and development requirements of these zones, as regulated by the Morrow County Zoning Ordinance, is provided below.

- Port Industrial (PI) (Section 3.073). The PI zone was established to "provide for port-related industrial uses and aerospace-related industrial uses which are not devoted to research and development. The zone is intended to provide an industrial sanctuary, limiting commercial uses to those appropriate and necessary to serve the needs of the workers employed within the zone." As stated in its purpose, the zone allows uses that are port-related, especially water-dependent, aerospace, manufacturing, and heavy industrial uses. Commercial and retail uses are allowed conditionally and are limited in floor area so that they are clearly secondary to the primary uses in the zone. There are no restrictions on building height or minimum requirements for lot coverage in this zone.
- General Industrial (MG) (Section 3.070). Retail and wholesale businesses, construction-related businesses, freight hubs, warehouses and distributions centers, machine shops, and food processing are amongst the uses allowed outright in the MG zone. More intensive manufacturing and processing uses, industrial uses entailing outdoor storage, and public and semi-public uses are conditionally permitted in the MG zone. There are no specific minimum lot size or setback standards other than stream setbacks (100 feet) and building setbacks that range from 20 to 50 feet depending on whether the building fronts a local street, collector, or arterial.
- Small Farm (SF40) (Section 3.042). The SF40 zone was created to preserve land for farm use. Agricultural uses, single-family and accessory dwellings (subject to restrictions), farm worker dwellings, replacement buildings, wetland and habitat, specified road improvements, utilities, schools (intended for rural areas only and located at least three miles from the Urban Growth Boundary), churches and cemeteries, solid waste facilities, mining and energy exploration, and wineries are permitted outright. Single-family dwellings not in conjunction with a farm use, a "hardship" dwelling, commercial uses in conjunction with farm uses, more intensive mining uses, private recreation facilities, government- and non-profit-owned parks and community centers, other utilities, private airports, other solid waste and composting facilities, fair and rodeo grounds are amongst the uses that are permitted conditionally. Although initially established with a minimum lot size of 40 acres, state law has since required this minimum to be raised to 80 acres. Income and capability tests are required for residential uses in the zone. Stream setbacks are 100 feet.

- Farm Residential (FR2) (Section 3.041). This zone is a rural residential zone that acknowledges pre-existing homes on small lots outside the Urban Growth Boundary (UGB), although state policy and law discourages the expansion of such development. Single-family housing, farming (with some restriction), utilities, parks, community centers, and other public uses that serve rural residential uses are allowed outright in the FR2 zone. Duplexes, water and sewer facilities, golf courses, stables, and vet clinics are permitted conditionally. Lots in this zone must be at least two acres.
- Exclusive Farm Use (EFU) (Section 3.010). The EFU zone targets the preservation of agricultural land and uses and is designed to only allow uses that are compatible with agricultural uses. Agricultural production and harvesting, buildings associated with agricultural uses, accessory dwellings, farm worker dwellings, restoration of established dwellings and other lawful buildings, improvements to roads, schools not within three miles of the UGB, churches, wineries, and solid waste disposal facilities (with restrictions) are permitted outright in the EFU zone. Certain single-family homes, mining operations, golf courses, private recreation facilities, public- or non-profit-owned parks and community centers, utilities, road expansions, and other solid waste and composting facilities are amongst uses that are permitted conditionally. The lot standard for agricultural units in the zone is 160 acres. Income and capability tests are required for residential uses in the zone. Uses are subject to 100-foot stream setbacks, as in other zones.

A traffic impact analysis is required when a proposed use in any of these zones is projected to generate more than 400 passenger vehicle trips daily (or an equivalent).

City of Boardman Zoning

The POM interchange is surrounded by City of Boardman Service Center (SC) commercial. Further north lies City industrial land, zoned General Industrial (GI).

Chapter 2 of the City of Boardman Zoning Ordinance implements zoning "districts" that establish permitted uses and development standards for residential, commercial, and industrial zones. Below is an overview of these provisions for the zoning districts within the IMSA.

- General Industrial (GI) (Chapter 2.3). The GI district is intended for a range of light and heavy industrial uses and to provide business services close to employment centers, while limiting impacts on adjacent districts and keeping incompatible uses separate. Heavy and light industrial and manufacturing uses, warehouses and distribution centers, offices and commercial uses that serve industrial uses, limited retail uses, government facilities "where

the public is not generally received," vocational schools, open space, and Utilities are among the uses permitted outright in the GI district. Transportation facilities and improvements that are in the TSP, are part of an approved land division, or do not require land use approval are also permitted outright; transportation improvements that are not in the TSP or part of an approved land division are permitted conditionally. The maximum lot coverage in the district is 75% and building height is restricted to three stories or 35 feet. Additional standards apply to uses with significant noise, light/glare, dust, vibration, or traffic impacts, as defined in Section 2.3.160, including possible traffic impact analyses for uses that would increase average daily traffic by 20 percent or more and 100 vehicles per day.

- Service Center (SC) (Section 2.2.200). The Service Center designation is a sub-district of the City's Commercial district. The sub-district was established to accommodate heavy commercial uses and light industrial uses along segments of the I-84 corridor. The development standards of the Commercial district apply to the sub-district, except where modifications are specified. Lot coverage is capped at 85% in the sub-district. Maximum height is four stories or 50 feet. Design and additional standards as well as pedestrian amenity requirements apply to uses in this sub-district.

There are areas of County Port Industrial (PI) and General Industrial (MG) zoning northeast of the interchange on land that is inside the City of Boardman UGB but outside the city limits. The land could develop under current County zoning or could be annexed and, if so, most likely re-zoned with corresponding City General Industrial (GI) zoning. The existing County zoning and potential City zoning generally allow the same types of industrial uses. The City zoning is slightly more prescriptive when it comes to development standards, including maximum lot coverage of 75% and maximum building height of three stories or 35 feet.

LAND USE INVENTORY

For purposes of describing existing zoning and land uses within the IMSA, as well as conducting the transportation analysis, the narrative below will consider the surroundings for each interchange.

POM Interchange

Land uses directly adjacent to the POM interchange lie entirely within Boardman's city limits. Land in the immediate vicinity, both north and south of the highway, is zoned for highway "service" uses (SC). Industrial zoned land lies further north of this commercial land and includes land within the city zoned General Industrial and property within the City's UGB, but outside of city limits, zoned Port Industrial

and General Industrial. Notably, the IMSA encompasses all of the City of Boardman's industrial land (zoned General Industrial) and all of the POM's developable, industrial zoned land ("Port Industrial") north of I-84, in the vicinity of both the POM and the I-84/US 730 Interchange. Currently, there are no developed commercial uses north of the interchange. Industrial development begins further to the north, in proximity to the Columbia River and Columbia Avenue, and near Rippee Road to the east.

South of the interchange, there is only one developed commercial property, the Pacific Pride fueling station. The City's SC zoned land is coterminous with the city limits and UGB in this area. Land further south is in the County, zoned for small farms (SF40) and rural residential (FR2). The County expects some future growth in residential development in the FR2 zoned land.

I-84/US 730 Interchange

The I-84/US 730 interchange lies entirely within Morrow County, with land in the vicinity zoned for agricultural uses (south of I-84 and west of Bombing Range Road and west of US 730), Port Industrial (north of I-84 and west of US 730), and General Industrial immediately to the east.

The IMSA encompasses all of the POM's developable, industrial zoned land ("Port Industrial") north of I-84. The County Court recently approved a significant land use amendment for POM land in the vicinity of the I-84/US 730 interchange. In January 2011, the County Court approved the rezoning of 513.86 acres from EFU to Port Industrial (PI) north of the interchange; in an associated action, the County Court rezoned 515 acres of General Industrial (MG) south of the interchange, west of Bombing Range Road, to EFU. This action included a condition of approval; prior to the County issuing building permits on the recently zoned PI land, an IAMP must be completed that includes an analysis of the traffic implications of development on the 514 acres.

POM tenants include businesses engaged in agricultural products processing and shipping, cold storage, forest products, barge transportation, and trucking. Included in the IMSA boundary is also a hotel and restaurant located along the waterfront. The POM has also developed a business plan and feasibility study for an Agricultural Learning Center that would serve as a visitor's center for POM tenants and would house the local Chamber of Commerce. As will be discussed in depth in Section 5, the POM has a large amount of vacant land available for future industrial users.

Parcels that will have little, if any, future impact on the transportation system are those lands zoned for Exclusive Farm Use (EFU) southwest and northeast of the I-84/US 730 Interchange. Statewide Planning Goal 3, Agricultural Lands, requires that agricultural lands be preserved and maintained for farm use. The Goal is implemented through the County's EFU zoning that limits uses on agricultural lands to "farm uses and those nonfarm uses defined by commission rule that will not have significant

adverse effects on accepted farm or forest practices." Because of the minimal future impacts expected from EFU, the IMSA has been drawn to exclude areas with this zoning.

The Coyote Springs Wildlife Area is also located in the general vicinity, west of the Boardman Irrigation Canal. This approximately 143-acre parcel is shown as "PUB" on Figure 4-3 to recognize the public management of this area by the Oregon Department of Fish and Wildlife (ODFW) for wildlife habitat. Coyote Springs is accessed off of Rippee Road, via the POM interchange and Columbia Avenue.

Existing Transportation Inventory

The second major component of the existing conditions evaluation process is to document 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 within the IMSA. A detailed description of these facilities is provided in the following sections.

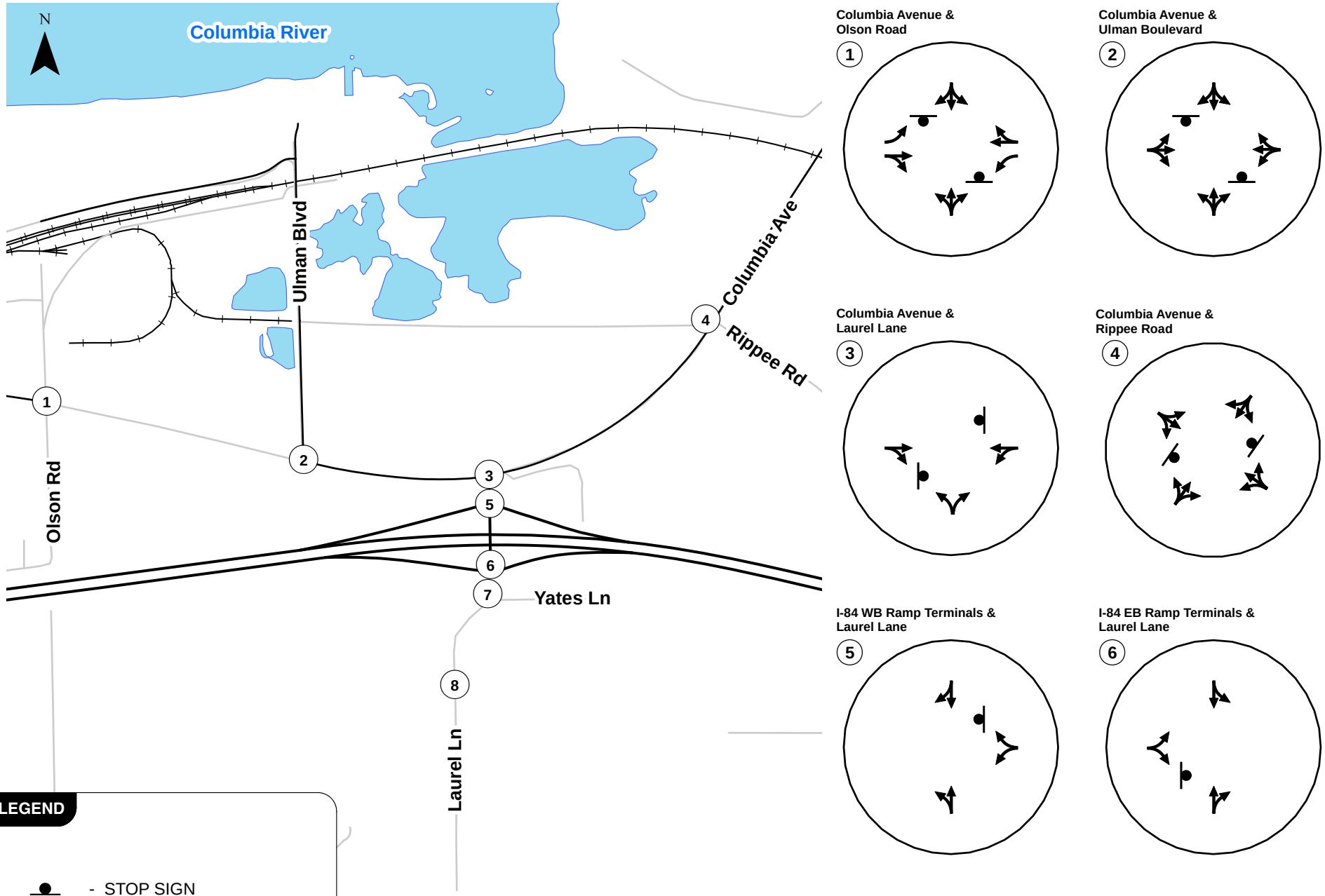
ROADWAY FACILITIES

The roadways within the IMSAs include state, county, and city roadways. A description of each of the functionally classified roadway facilities is summarized below for the POM interchange in Table 4-1. Figure 4-4 illustrates the existing lane configurations and traffic control devices at each study intersection.

Table 4-1 Existing Transportation Facilities and Roadway Designations

Roadway	Existing Roadway Ownership/ Functional Classification[1]	Cross-section	Posted Speed (mph)	Sidewalks?	Bicycle Lanes?	On-Street Parking?
Interstate-84	ODOT/Interstate Highway	4-lane	65	No	Shoulders	No
Columbia Avenue	City-County/Arterial	2/3-lane	35/40	No	Shoulders	No
Laurel Lane	City-County/Arterial	2-lane	35	No	No	No
Olson Road	City/Arterial	2-lane	35	No	No	No

[1]ODOT highway classifications are from the 1999 Oregon Highway Plan (Reference 1) and City roadway classifications are from the Boardman Transportation System Plan (Reference 2)



EXISTING LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES MORROW COUNTY, OREGON

FIGURE 4-4

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Interstate-84

I-84 is a four-lane interstate highway that runs east-west through Morrow County. It is the main east-west travel route within the state of Oregon providing a connection between Portland, Oregon and Boise, Idaho. I-84 is part of the National Highway System and is designated in the 1999 Oregon Highway Plan as an Interstate Highway, Freight Route, and Truck Route.

POM Interchange Ramps

The POM interchange ramps are currently configured in a diamond interchange form. Both ramp terminals are stop-controlled on the off-ramp approaches. Due to the area's topography, I-84 is elevated over Laurel Lane. As a result of the area's topography, sight distance is limited for vehicles exiting I-84 eastbound. Figure 4-5 provides a view of the vertical and horizontal curves on Laurel Lane immediately south of the eastbound ramp terminal (photo is taken from southbound Laurel Lane).

Figure 4-5 I-84 Eastbound Ramp Terminal at POM Interchange (Looking South)

The westbound ramp terminal is located in close proximity (approximately 200 feet) to the Laurel Lane/Columbia Avenue intersection. Generally speaking, such close spacing can create problems with queuing blocking the ramp terminal. However, the Laurel Lane approach at this intersection is not stop-controlled at this time, so queues are not currently a high concern on Laurel Lane.

Laurel Lane

Laurel Lane is a City and County roadway that provides a north-south connection across I-84 on the east side of Boardman. It is also an important roadway for providing access to the Port of Morrow area. It is a two-lane roadway with narrow shoulders that are partially paved and partially gravel. Within the Boardman Urban Growth Boundary (UGB) it is classified as an arterial by the City of Boardman TSP.

Columbia Avenue

Columbia Avenue is a two- to three-lane City arterial roadway connecting the Port of Morrow area to Laurel Lane and to the commercial core area of Boardman. Formerly, it provided a connection between Irrigon and Boardman, but that connection no longer exists. Currently, the majority of Port of Morrow traffic must use Columbia Avenue to access I-84. The County and City TSPs identify the need for additional emergency access to the Port of Morrow area. Many Port properties and local streets connect to Columbia Avenue.

Olson Road

Olson Road provides access to Port and other industrial properties. It is a two-lane roadway with a northern terminus just south of the railroad and a southern terminus at I-84. Olson Road is also present south of I-84 as a County roadway. The County and City TSPs contain long-term plans to build an overpass over I-84 connecting both segments of this roadway.

PUBLIC TRANSPORTATION FACILITIES

There are no fixed line public transportation facilities that operate within the IMSA. Morrow County Special Transportation provides para-transit services, including dial-a-ride and medical transportation, to senior and disabled Boardman residents. According to the County TSP, there is one bus and three cars available to Boardman residents. The drivers are volunteers. Other users may take advantage of the service so long as they do not displace qualified users. Intercity bus service is provided by Greyhound. Daily service is provided in Boardman on an as-needed basis, meaning passengers waiting along the route must flag-down the bus. The service provides connections to Portland and Pendleton, Oregon, and Boise, Idaho.

PEDESTRIAN AND BICYCLE FACILITIES

Due to the rural and industrial natures of the study areas, exclusive pedestrian and bicycle facilities (e.g. sidewalks and bike lanes) are limited in the study areas. Sidewalks are generally not present on the study roadways. Bike lanes are also not provided; however, many of the study roadways have shoulders that are at least partially paved and provide additional space for autos and bicycles to share on the roadway. Traffic volumes are also relatively low on many of the City and County roadways in the study area, making it more comfortable for non-motorized and motorized users to share the roadways.

While not along any of the study roadways, the Columbia River Heritage Trail is in the vicinity of the POM interchange. The Trail follows the Columbia River in the vicinity of the study area before

connecting to Main Street in Boardman. This multi-use path also extends to the northeast to Irrigon, providing a non-motorized connection between the two cities.

MARINE FACILITIES

The Port of Morrow is strategically located along the Columbia River. Goods can be shipped via barge west to Portland and Seattle or upriver to the Tri-Cities in Washington and Lewiston, Idaho. Goods barged from the Port can reach oceangoing freighters in Portland within 24 hours, accessing markets through the Pacific Ocean. According to the Port, Tidewater Terminal is the largest container terminal upriver of Portland (Reference 3).

RAIL FACILITIES

The Union Pacific Mainline passes through the IMSA. Businesses in the Port of Morrow are able to ship their goods across the country via rail due to the nearby location of the Hinkle Railyard, which is the largest hump yard in the West. Connections at Hinkle provide shippers the ability to send goods north and south via rail.

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 April 2010. A description of the analysis conducted with this data is summarized in the following sections.

Intersection Volumes

Turning movement counts at each intersection were recorded from 6:00 a.m. to 10:00 p.m. Separate peak hours for each interchange area are identified due to their different natures (e.g. the POM interchange serves primarily industrial traffic and the I-84/US 730 interchange serves regional commuter and through traffic) and the distance between them. The weekday p.m. peak hour in the POM interchange area occurs from 3:00-4:00 p.m. The turning movement volumes at each study intersection are balanced where appropriate during this hour to account for the differences in data collection. The existing unadjusted turning movement traffic counts are provided in the *Technical Appendix.*

Seasonal Adjustments

Following the methodology outlined by ODOT's Analysis Procedures Manual (APM, Reference 4), a seasonal adjustment factor was applied to the traffic counts collected for the existing conditions

analysis in order to estimate 30th highest hour volumes. The exception to this is I-84, since its volumes are taken from automatic traffic recorder (ATR) #25-008, which is located nearby on I-84 west of US 730, during the peak month (July). In consultation with ODOT staff, ATR #30-002, located on US 730 northeast of the study area and east of Umatilla at milepost 193.70, was determined to have the most similar characteristics to US 730 within the study area. The seasonal adjustment factor for counts conducted on US 730 and local roadways within the study area during April is 1.21.

Figure 4-6 illustrates the 16-hour volume peaking characteristics of the I-84 through traffic. Figures 4-7 through 4-8 illustrate the 16-hour volume peaking characteristics of the I-84 ramps at the POM interchange. Figure 4-9 shows the same for Laurel Lane. The volumes shown in these figures have been seasonally adjusted.

Figure 4-6 16-Hour Volume Profile for I-84 West of US 730

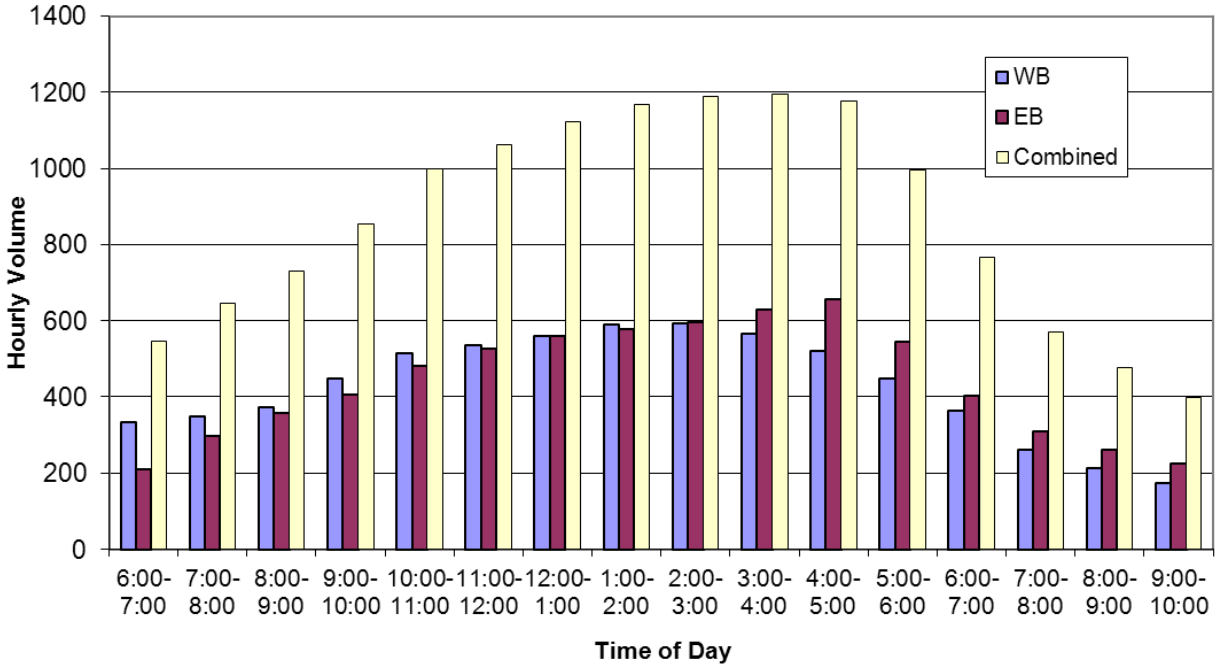


Figure 4-7 16-Hour Volume Profile for I-84 WB Ramps at Laurel Lane

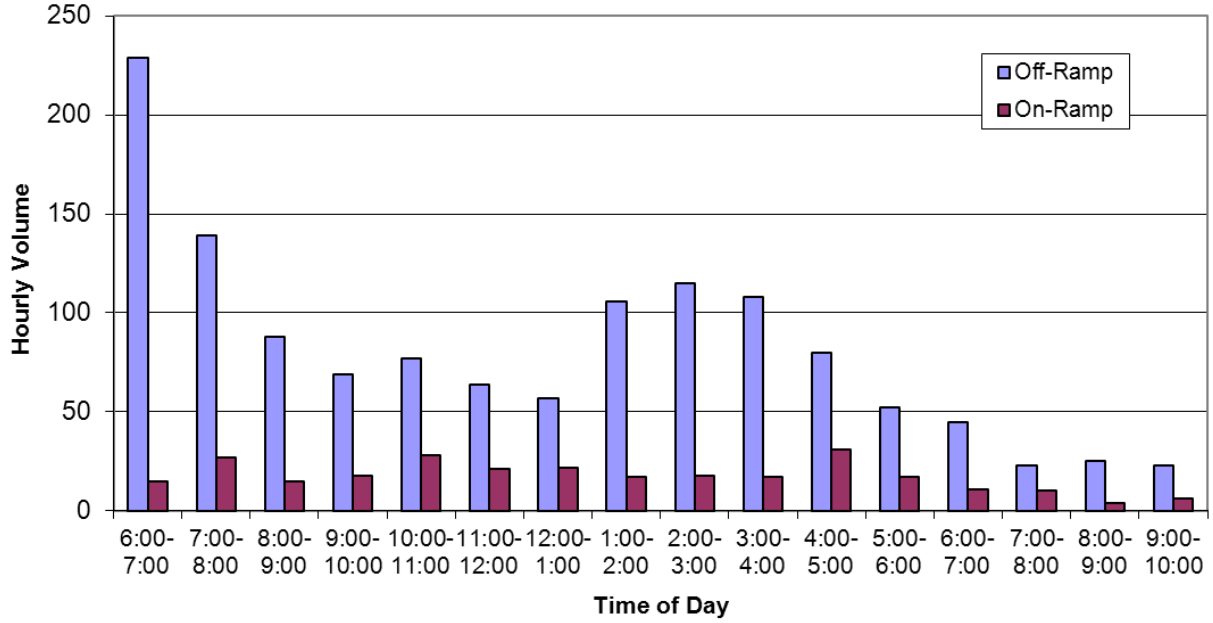


Figure 4-8 16-Hour Traffic Volume Profile for I-84 EB Ramps at Laurel Lane

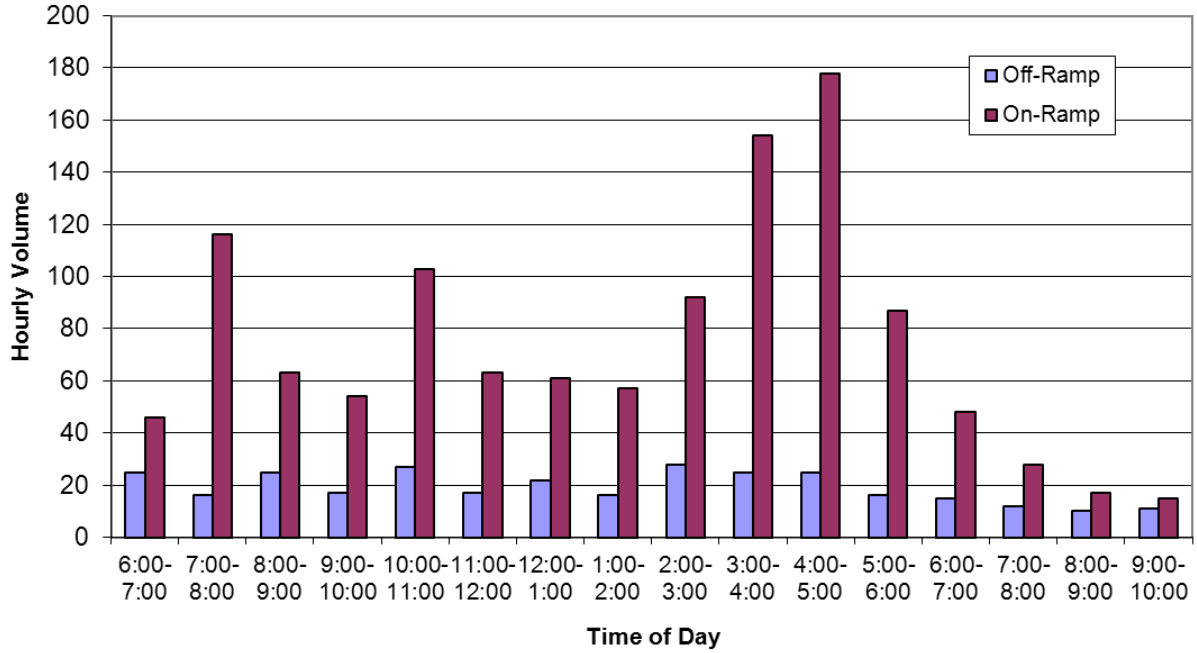
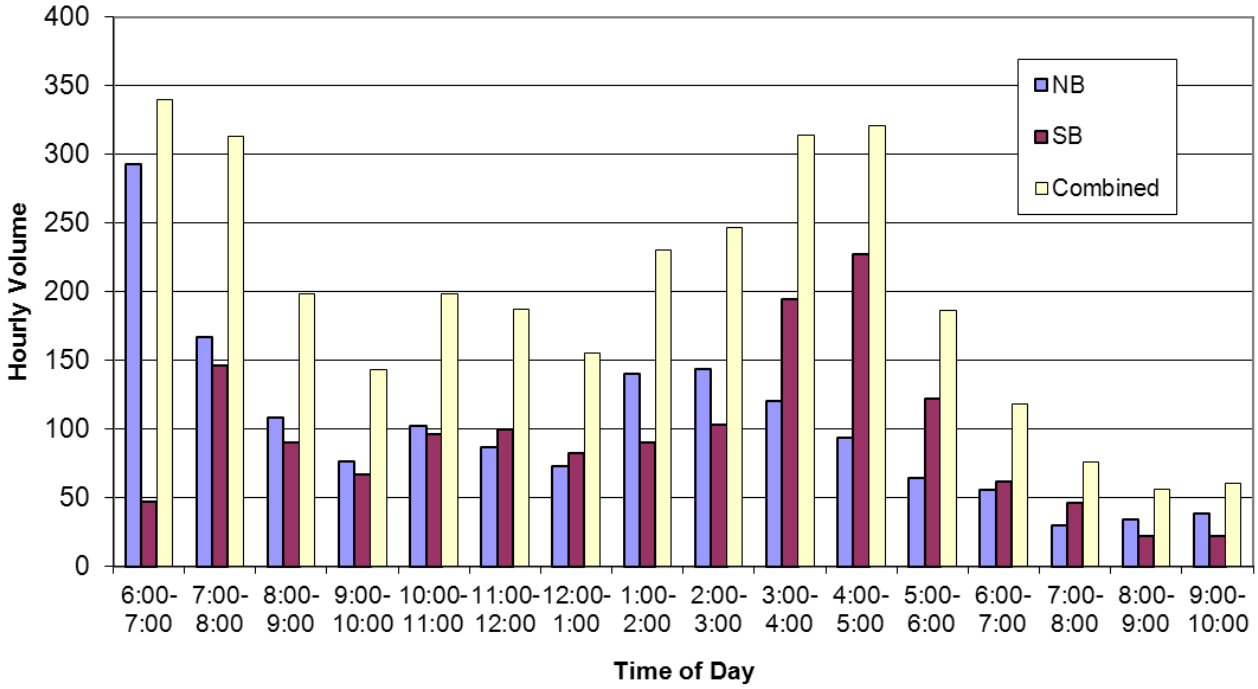


Figure 4-9 16-Hour Traffic Volume Profile for Laurel Lane North of I-84



Traffic traveling to and from I-84 significantly influences traffic volumes on Laurel Lane. As the figures show, the peak hour volumes on each of the I-84 ramps are approximately 80% of the volumes on Laurel Lane during that same period. Essentially, most of the traffic on Laurel Lane in the proximity of I-84 is traveling to or from the interstate.

Figures 4-7 and 4-8 show that the I-84 ramps at the POM interchange each have a dominant traffic pattern that lasts throughout the day. Traffic volumes on the I-84 westbound off-ramp are significantly higher than volumes on the westbound on-ramp throughout the 16-hour period that counts were conducted. The exact reverse pattern occurs on the eastbound ramps, where the off-ramp has significantly lower volumes than the on-ramp. This indicates that much of the traffic utilizing this interchange is coming from and going to the east on I-84.

The weekday 30th highest hour intersection turning movement counts used for the existing conditions analysis are shown in Figure 4-10.

Figure 4-10 Existing Traffic Conditions, 30th Highest Hour

Truck Traffic

Not shown in these figures is the amount of truck traffic on certain study roadways. Given the industrial nature of the Port of Morrow area, heavy truck traffic makes up a significant proportion of the total traffic volumes on roadways in the area. For instance, during the weekday p.m. peak hour, truck traffic makes up approximately 12-16% of all traffic on Columbia Avenue near Laurel Lane and 16-24% of all traffic on Laurel Lane from just south of the I-84 Eastbound ramp terminal to Columbia Avenue.

Existing Intersection Operations

All operations analyses described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual 2000* (Reference 5). The OHP sets operational standards based on volume-to-capacity (v/c) ratios for the interchange ramp terminals (v/c of 0.85 for the POM ramp terminals). These standards apply to the overall v/c ratio at signalized intersections and to the state highway approaches at unsignalized intersections. The minor street approaches that are stop-controlled at unsignalized intersections have a standard of a v/c ratio of 0.90.

The operational standard for intersections involving only City and County roadways is based on level-of-service (LOS). The City maintains a LOS standard of "C" or better for all intersections. The County's standard is LOS "D" or better for areas within a City's UGB (i.e., intersections along Columbia Avenue).

As shown in Figure 4-10, all study intersections currently meet applicable operation standards. The existing conditions operations worksheets are provided in the *Technical Appendix*.

TRAFFIC SAFETY

The crash histories at the study area intersections and along I-84 were reviewed in an effort to identify potential safety issues. Crash records were obtained from ODOT for the five-year period from January 1, 2005 through December 31, 2009. Table 4-2 contains the summary of reported crashes at the intersections and Table 4-3 contains the summary of reported crashes along the highways.

Table 4-2 Intersection Crash Histories (January 1, 2005 through December 31, 2009)

Intersection	# of Crashes	Crash Rate[1]	Crash Type				Severity		
			Angle	Rear-End	Turning	Other	PDO	Injury	Fatality
I-84 WB Ramp Terminal/Laurel Ln	No Crashes Reported								
I-84 EB Ramp Terminal/Laurel Ln	No Crashes Reported								
Columbia Ave/Laurel Ln	1	0.16	0	1	0	0	1	0	0
Columbia Ave/ Ulman Blvd	No Crashes Reported								
Columbia Ave/Olson Rd	No Crashes Reported								
Columbia Ave/Rippee Rd	No Crashes Reported								

[1]Crash rate is expressed in terms of crashes per million entering vehicles

Table 4-3 I-84 Segment Crash Histories (January 1, 2005 through December 31, 2009)

Roadway	# of Crashes	Crash Rate[1]	Crash Type					Severity		
			Angle/ Turning	Rear-End	Sideswipe	Fixed Object	Other	PDO	Injury	Fatality
I-84: Boardman – East of US 730	29	0.20	1	3	7	8	10	14	14	1

[1]Crash rate is expressed in terms of crashes per million vehicle miles

Table 4-2 shows that only one crash has been reported at the study intersections.

As Table 4-3 shows, just over half of all the crashes on I-84 result in an injury or fatality. The fatality was the result of a vehicle running off the road and overturning. The fatal crash occurred during daylight on dry roads. No other vehicles were involved in the crash. ODOT crash data summary sheets are provided in the *Technical Appendix*.

Truck Traffic Considerations

As was previously mentioned, truck traffic makes up a significant portion of traffic on the roadways around the POM interchange. Trucks generally take longer to accelerate and decelerate than passenger vehicles and need a larger turning radius at intersections. They also occupy more space when stopped at an intersection, thereby increasing queue lengths.

The combination of increased queue length and acceleration and deceleration needs should be considered when examining safety at interchange ramp terminals with relatively high truck volumes. A safety issue can arise if vehicles stopped on an exit ramp stack up into the space needed for a vehicle to safely decelerate. Generally, approximately 770-1320 feet of deceleration length is needed for vehicles decelerating from freeway speeds to a complete stop on a downgrade, such as is found on the POM interchange ramps (Reference 6). Currently, the eastbound off-ramp provides approximately 1600 feet

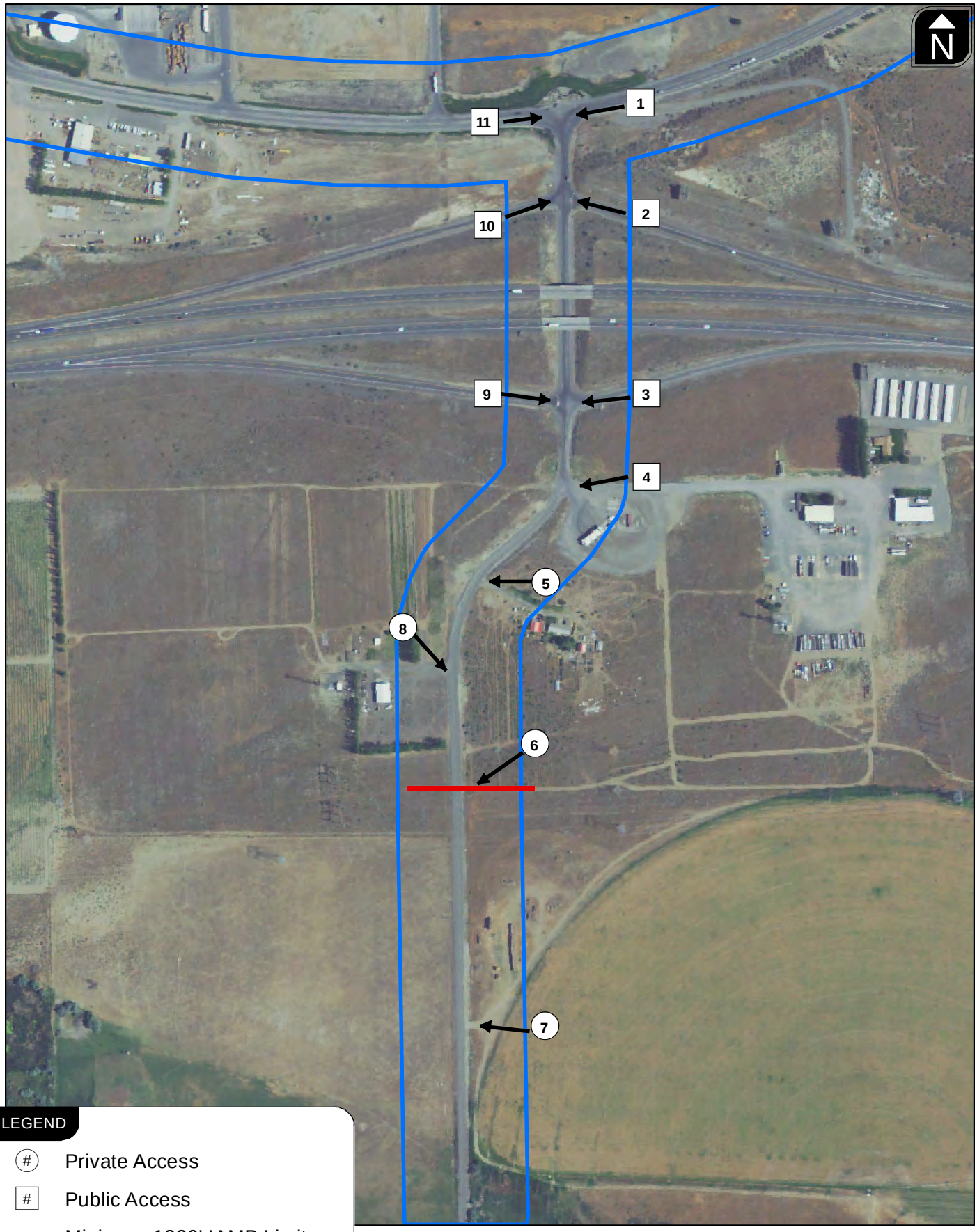
of deceleration length and the westbound off-ramp provides approximately 1400 feet. Based on the existing traffic volumes and truck traffic percentages, 95th-percentile queues are estimated to be no more than one vehicle length, or approximately 25-75 feet, depending on whether the vehicle is a passenger car or large truck. Therefore, queues are not currently estimated to back up to into the distance required for deceleration.

EXISTING ROADWAY ACCESS CONDITIONS

Existing roadway access conditions have been inventoried. This inventory was conducted along Laurel Lane. The inventory along US 730 north of the I-84 Westbound ramp terminal was provided by ODOT, which maintains detailed records regarding access to state highways. The inventory was conducted by the project team and is cursory. The following is a summary of the inventory.

There are currently 7 public and private access points (excluding the interchange ramp terminals) on Laurel Lane located within the Operations and Access Study Area (from roughly ½ mile south of the POM interchange to its terminus at Columbia Avenue). Of these access points, 2 are located north of the interchange, while the remaining 5 access points are located south of the interchange. Figure 4-11 illustrates the location and type (public or private) of each of the access locations along Laurel Lane within the Operations and Access Study Area. Table 4-4 summarizes the type of use served by the access point.

Oregon Administrative Rule 734, Division 51 and the Oregon Highway Plan (OHP) identify ODOT's access management standards within the vicinity of interchanges. Based on an outright application of the standards, no full public or private access is allowed within 1320 feet (¼ mile) from the ramp terminals. Figure 4-11 shows the 1320 feet access control area as measured from the Interstate-84 ramp terminal intersections. As shown, 3 private and 3 public accesses are located within the 1320-feet control area on either side of the POM interchange.



LEGEND

- (#) Private Access
- [#] Public Access
- Minimum 1320' IAMP Limits
- Operations/Access Study Area

ACCESS INVENTORY
POM INTERCHANGE
BOARDMAN, OREGON

FIGURE 4-11

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Table 4-4 Public/Private Approach Inventory

Figure 4-11 ID	Roadway	Approach Type	Side of Roadway	Type of Use Served
1	Laurel Lane	Public	East	Columbia Avenue
2	Laurel Lane	Public	East	I-84 Westbound Ramp Terminal (off-ramp)
3	Laurel Lane	Public	East	I-84 Eastbound Ramp Terminal (on-ramp)
4	Laurel Lane	Public	East	Yates Lane
5	Laurel Lane	Private	East	Residential
6	Laurel Lane	Private	East	Farm/Industrial
7	Laurel Lane	Private	East	Farm
8	Laurel Lane	Private	West	Residential
9	Laurel Lane	Public	West	I-84 Eastbound Ramp Terminal (off-ramp)
10	Laurel Lane	Public	West	I-84 Westbound Ramp Terminal (on-ramp)
11	Laurel Lane	Public	West	Columbia Avenue

EXISTING ROADWAY DEFICIENCIES

No significant existing roadway deficiencies were identified within the study area along the paved sections of roadway.

Environmental

The existing environmental conditions and potential issues were identified. The following is a summary of potential environmental issues, permits, and additional actions that may be required as the project moves forward. A more detailed description of these items and the baseline conditions may be found in the Technical Appendix.

WILDLIFE-HABITAT COMMUNITIES

The Area of Potential Impact (API) contains our general wildlife-habitat communities: urban & mixed environs; agriculture, pasture & mixed environs; herbaceous wetlands; and eastside (interior) riparian-wetlands, shown in Figure 4-12. These communities are described below:

- **Urban and mixed environs wildlife-habitat community** comprises approximately 99 acres within the POM 730 Interchange area. Vegetation within this community is almost entirely non-native. This community contains moderate road density and approximately 30% impervious surface cover.

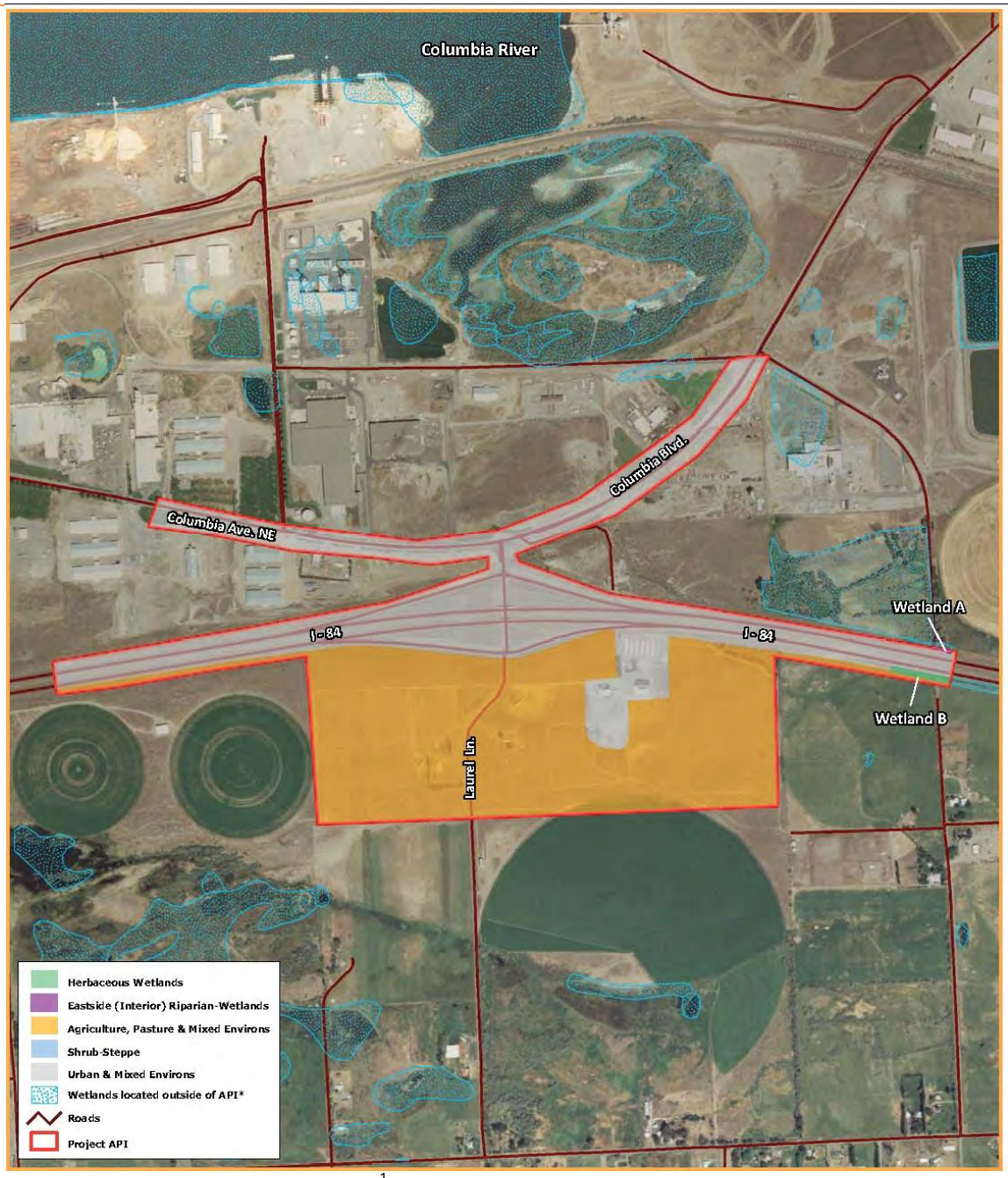


Figure 4-12 Natural Resources Map[1]

- **The agriculture, pastures and mixed environs wildlife-habitat community** is located adjacent to road ROWs. This community comprises approximately 122 acres within the POM Interchange area. Areas utilized for agriculture within the API are irrigated for cultivated crops and are also used for cattle grazing.

[1]Figure provided by Mason, Bruce & Girard, Inc.

- **The eastside (interior) riparian-wetlands wildlife-habitat community** is scattered throughout the API. This community comprises less than one acre within the POM Interchange area. Within the API, this habitat type is primarily composed of willow (*Salix sp.*), and broad-leaf cattail (*Typha latifolia*).
- **The herbaceous wetlands wildlife-habitat community** is located mainly in swales adjacent to roadways within the API. This community comprises less than one acre within POM Interchange area. This habitat type is a mix of emergent herbaceous plants with grasses. Within the API, this habitat type is scattered, and is composed primarily of broad-leaf cattail.

THREATENED AND ENDANGERED SPECIES

Data from the US Fish and Wildlife Service (USFWS), StreamNet, and Oregon Natural Heritage Program (ONHP) focused on a 2-mile radius of the API indicated that two wildlife and fisheries species that are listed as threatened or endangered under the federal and state Endangered Species Acts (ESA) have the potential to occur within the vicinity of the API (References 7-9). A listing of these species, including their federal and state status and whether critical habitat is designated, is shown in Table 4-5. No listed plant species were identified during the records review or site investigation.

Table 4-5 Threatened and Endangered Species with the Potential to Occur within the API

Scientific Name	Common Name	Federal Status	State Status	Critical Habitat?	Habitat
Oncorhynchus mykiss	Steelhead (Middle Columbia River DPS, spring run)	Threatened	Sensitive Vulnerable	Yes, within the Columbia River north of the project API	Columbia River and tributaries
Urocitellus washingtoni	Washington ground squirrel	Species of Concern	Endangered	No	Sagebrush grassland in silty loam soils, particularly soils in the Warden series

Although habitat for steelhead does not exist within the API, this species is known to inhabit the Columbia River, located north of the API. Steelhead is included due to the potential for indirect impacts to this species from contaminants contained in stormwater runoff flowing from the proposed interchange improvements.

No Washington ground squirrel habitat was observed within API in the Port of Morrow Interchange area.

NOXIOUS WEEDS

Twenty-one weed species listed by the Oregon Department of Agriculture (ODA) occur within Morrow County (Reference 10). During the December 16, 2011 site investigation, project team biologists observed an unidentified knapweed species (*Centaurea sp.*), which is likely listed on the ODA noxious weed list (Reference 11). Due to the timing of the site investigation outside the optimal blooming period for noxious weeds, not all weed species or populations may have been identified. In addition, only small portions of the API were traversed on foot, which likely further limited identification of weed species or populations. A complete noxious weed survey within the project footprint would be required during later design phases of the project to comply with ODOT requirements.

WETLANDS AND WATER RESOURCES

Two small potential wetlands were identified during the site investigation. One herbaceous and one scrub-shrub wetland, totaling 0.52 acre are located within the POM Interchange area. Due to the wetlands' proximity to agricultural fields, it is possible that the wetlands have increased in size or have been created by irrigation practices in the Boardman area.

No previous wetland delineations have been conducted within the API (Reference 13). The Boardman Canal does not appear on the 1870 General Land Office (GLO) survey, but is shown as an irrigation canal on the 1940 GLO survey (Reference 14). No historic streams are mapped on the GLO surveys within the API.

WATER QUALITY RESOURCES

Water quality parameters and standards have been established by the Department of Environmental Quality (DEQ) to protect the beneficial uses of Oregon's waterways. Development, agricultural activities, and industrial and commercial uses have affected the water quality within the Columbia River, the receiving waterbody for runoff from the API. As such, DEQ has listed the segment of the Columbia River located north of the API as a 303(d) water quality-limited waterbody because it does not meet water quality standards for pH and temperature. In addition, the segment of the Columbia River located north of the API has an approved total maximum daily load (TMDL) for dioxin and total dissolved gas. There are no water-quality-limited waterbodies located within the API (Reference 15).

DEQ declared the Lower Umatilla Basin a Groundwater Management Area (GMA) in 1990 due to elevated nitrate levels detected in groundwater samples. An action plan was published in 1997 that identifies point-source pollutants and plans to reduce groundwater contamination. The major point-source nitrate-nitrogen pollutants in the GMA include irrigated agriculture; food processing water;

confined animal feeding operations, domestic sewage where septic systems occur in high densities, and Umatilla Chemical Depot's washout lagoons (Reference 16).

REGULATORY SUMMARY

Table 4-6 provides details regarding the applicable permits, approvals, and clearances likely needed for potential projects in the API.

Table 4-6 Summary of Potential Applicable Permits, Approvals, and Clearances

Type of Permit / Approval/ Clearance	Issuing Agency	Permit / Approval / Clearance	Estimated Timeline (after submittal)
ESA Consultation for federally-listed fish species	NMFS	SLOPES Approval or Biological Opinion	30 days (SLOPES) 45 days (NLAA) 135 days (LAA)
ESA Consultation for state-listed wildlife species	ODFW	ODFW Project Approval	90 days
Migratory Bird Treaty Act Compliance for tree clearing	ODOT	None (if trees and shrubs are removed outside MBTA nesting period of March 1 – September 1)	N/A
Noxious Weed Clearance	ODOT	Botanical Clearance Report	N/A
Letter of Concurrence	DSL	Wetland/Waters Delineation Report approval	120 days
Jurisdictional Determination	ACOE	Wetland/Waters Delineation Report approval	60 days
Removal/Fill Permit	DSL	Joint Permit Application approval	GP: 40 days after Wetland/Waters Delineation Report concurrence Individual Permit: 120 days
Section 404 Clean Water Act Permit	ACOE	Joint Permit Application approval	Nationwide permit: 75 days, Individual permit: 120 days
Section 401 Clean Water Act Certification	DEQ	401 Water Quality Certification	Up to 1 year
Section 402 Clean Water Act Certification	DEQ	1200-C	30 days
Dewatering disposal approval	DEQ	Special letter permit or letter from DEQ	Several weeks to several months
Water rights	WRD	Limited license or water right	30 days to 1 year

Summary

- The primary roadways within the Interchange Management Study Area (IMSA) include Interstate-84, Laurel Lane, and Columbia Avenue.
- All of the study intersections meet their respective ODOT, City, or County mobility standard.
- There are no identified safety issues within the study area based on a review of the most recent five years of available crash data.
- Due to its rural nature, pedestrian and bicycle facilities are limited in the study area.
- There are currently 7 access points located on Laurel Lane within the Operations and Access Study Area. 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 (¼-mile) from the ramp terminals to any type of access (partial or full). Within this ¼-mile control area there are 3 private and 3 public accesses on Laurel Lane.
- Up to twelve Environmental permits, approvals, and clearances will be required for projects within the vicinity of the interchange.
- Two threatened and endangered species may be present near the API.
- There are two wetlands within the API.

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 POM interchange. The future traffic projections are based on anticipated future land uses. Future land use information was determined through working with the City, County, and POM.

Future Land Uses

The analysis of future land uses in the vicinity of the POM and I-84 / US 730 interchanges was focused on areas that are expected to have development or redevelopment potential that would generate traffic in the Interchange Management Study Area (IMSA). The IMSA defined in Figure 5-1 includes land both inside and outside the City of Boardman and its urban growth boundary (UGB) and contains a variety of zones, including commercial, rural residential, industrial, farm use, and exclusive farm use zones.

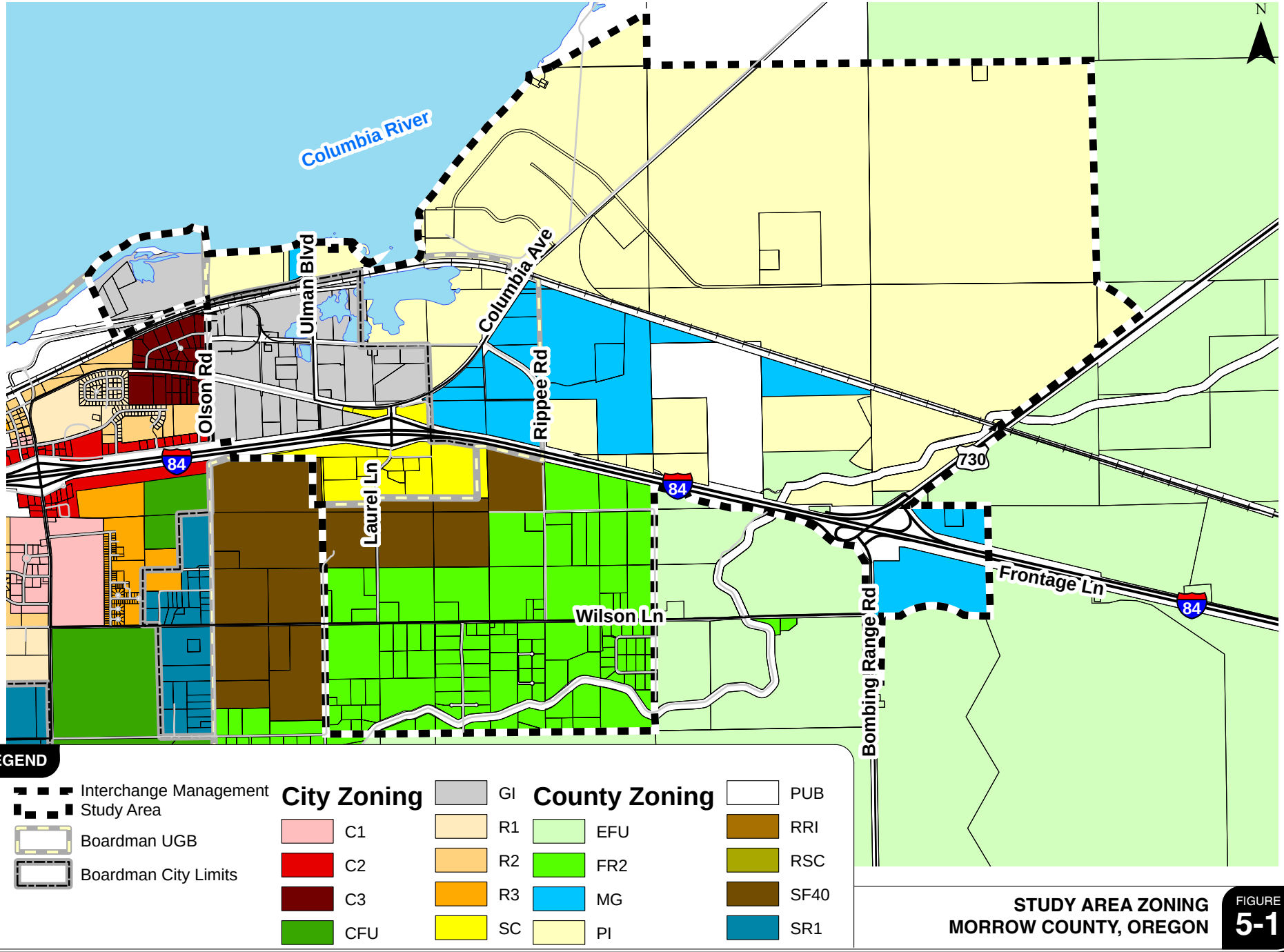
Based on conversations with Morrow County and POM staff, development is anticipated to occur within the IMSA in the POM properties, south of I-84 in the City and unincorporated Morrow County, and at the Naval Weapons System Testing Facility (NWSTF).

UNINCORPORATED MORROW COUNTY

Through consultation with Morrow County staff, new residential development is anticipated to occur in the IMSA south of I-84. This development would occur under the FR2 zoning, which requires a minimum lot size of two acres. The specific areas identified as likely to develop in the next 20 years are identified in Figure 5-2. This is expected to equate to about 81 additional single family homes, assuming these areas develop with according to approvals or minimum lot sizes.

CITY OF BOARDMAN

The area immediately south of I-84 adjacent to the POM interchange is located within Boardman City limits and is zoned as Service Center (SC), which is a sub-district of the Commercial district. This zone allows for highway-oriented commercial uses along the I-84 corridor. In order to be conservative, it



STUDY AREA ZONING
MORROW COUNTY, OREGON

FIGURE 5-1

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PROBABLE 20-YEAR DEVELOPMENT AREAS
MORROW COUNTY, OREGON

FIGURE 5-2

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was assumed that the area served by Yates Lane in the southeast quadrant of the POM interchange redeveloped under this zone (shown in Figure 5-2). Specifically, it was assumed that a full truck stop replaces the existing card-lock fueling station, given the location's proximity to the POM and uses allowed in the SC sub-district.

PORT OF MORROW

The POM industrial area is essentially split into two areas by the Union Pacific (UP) mainline railroad. Most of the existing development in the industrial park is located south of the UP mainline and much of this area is built out. Consequently, POM staff expects that this area will likely only experience a 15% increase in the amount of industrial related development over the next 20 years. The area north of the UP mainline is known as the East Beach area and is largely undeveloped. POM staff anticipates that most future development in the industrial park will occur in this area and that there could be a five-fold increase in the amount of industrial uses over the next 20 years.

NWSTF BOARDMAN

The US Navy is considering expanding its operations at its NWSTF Boardman site. This facility is located south of the IMSA between Bombing Range Road and Tower Road. Increased operations at the site would have an effect on operations at the I-84/US 730 interchange. The US Navy recently began the process of preparing an Environmental Impact Statement (EIS) for expanded operations. Currently this process is at the beginning stages and the potential traffic related impacts of the increased operations cannot be accurately assessed.

Future Traffic Conditions

Based on the potential levels of development and redevelopment in the IMSA, and factoring in regional growth from outside the IMSA, future year 2030 traffic conditions were estimated along the study area roadways and intersections.

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 POM and I-84 / US 730 interchanges and the surrounding transportation system. The year 2030 No-Build scenario was developed based on the currently adopted City of Boardman and Morrow County Comprehensive Plans and anticipated development within the POM. 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 related to regional growth within the larger context of the City of Boardman, Morrow County, and along the I-84 and US 730 corridors.
- Future traffic growth related to development and redevelopment of land in the IMSA.

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

Background Traffic Growth

The proposed annual growth rates were determined based on a review of future development assumptions within the study area.

Local Roadways

The local roadways in the vicinity of the POM interchange almost exclusively serve traffic related to the POM. Growth on these roadways was accounted for in the consideration of development in the POM in the manner described later in this section.

Development and Redevelopment Traffic

As was previously mentioned, development and redevelopment is anticipated to occur within the IMSA in the POM industrial area and in unincorporated Morrow County south of I-84. The traffic estimated from the specific development areas identified by the County and from growth in the POM industrial area was used to estimate the future year traffic volumes.

Unincorporated Morrow County

In order to be conservative, it was estimated that the areas shown in Figure 5-2 would develop under the minimum two-acre lot size allowed by the FR2 zone if developments of a certain size had not been approved yet. This estimation was applied to Areas 3 through 6. Table 5-1 summarizes the development potential of each area under the existing FR2 zoning.

Table 5-1 Development Potential of Unincorporated Morrow County Areas

Figure 6-2 Area #	Size (Acres)	# of Homes
1	33.5	14
2	13.8	5
3	21.7	10
4	38.7	19
5	34.2	17
6	33.1	16
Total	**175**	**81**

Using the information in Table 5-1, the trip generation potential for each area was calculated for the weekday p.m. peak hour using the 8th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE, Reference 17). Table 5-2 summarizes the estimated size and trip generation potential the areas identified in Figure 5-2 (all trip generation numbers in Table 5-2 have been rounded up to the nearest five).

Table 5-2 Trip Generation Potential of Unincorporated Morrow County Development

		Weekday PM Peak Hour Trips		
Size (Acres)	# of Homes	Total	In	Out
175	81	85	55	30

Table 5-2 shows that this development is estimated to generate approximately 85 trips during the weekday p.m. peak hour (55 in and 30 out). The assumed distribution patterns of trips generated within each area were based on the existing zoning, existing travel patterns, and relative attractions within the overall IMSA.

City of Boardman

The ITE *Trip Generation* manual does not contain information for truck stops. Therefore, the trip generation of a potential truck stop located on Yates Lane was calculated using site-specific data collected at other truck stops in the Northwest and California. Table 5-3 summarizes the estimated trip generation potential of a truck stop replacing the existing Pacific Pride fueling station in the location shown on Figure 5-2 (all trip generation numbers in Table 5-3 have been rounded to the nearest five).

Table 5-3 Trip Generation Potential of a Truck Stop

Use	Size	PM Peak Hour Trips		
		Total	In	Out
Truck Stop	6 Truck Fueling Positions	65	30	35
	8 Auto Fueling Positions	140	60	80
Total Trip Generation Potential		205	90	115
Existing Trips to Pacific Pride		*45*	*25*	*20*
Net New Driveway Trips		160	65	95
Pass-By Trips		*30*	*15*	*15*
Net New Trips		**130**	**50**	**80**

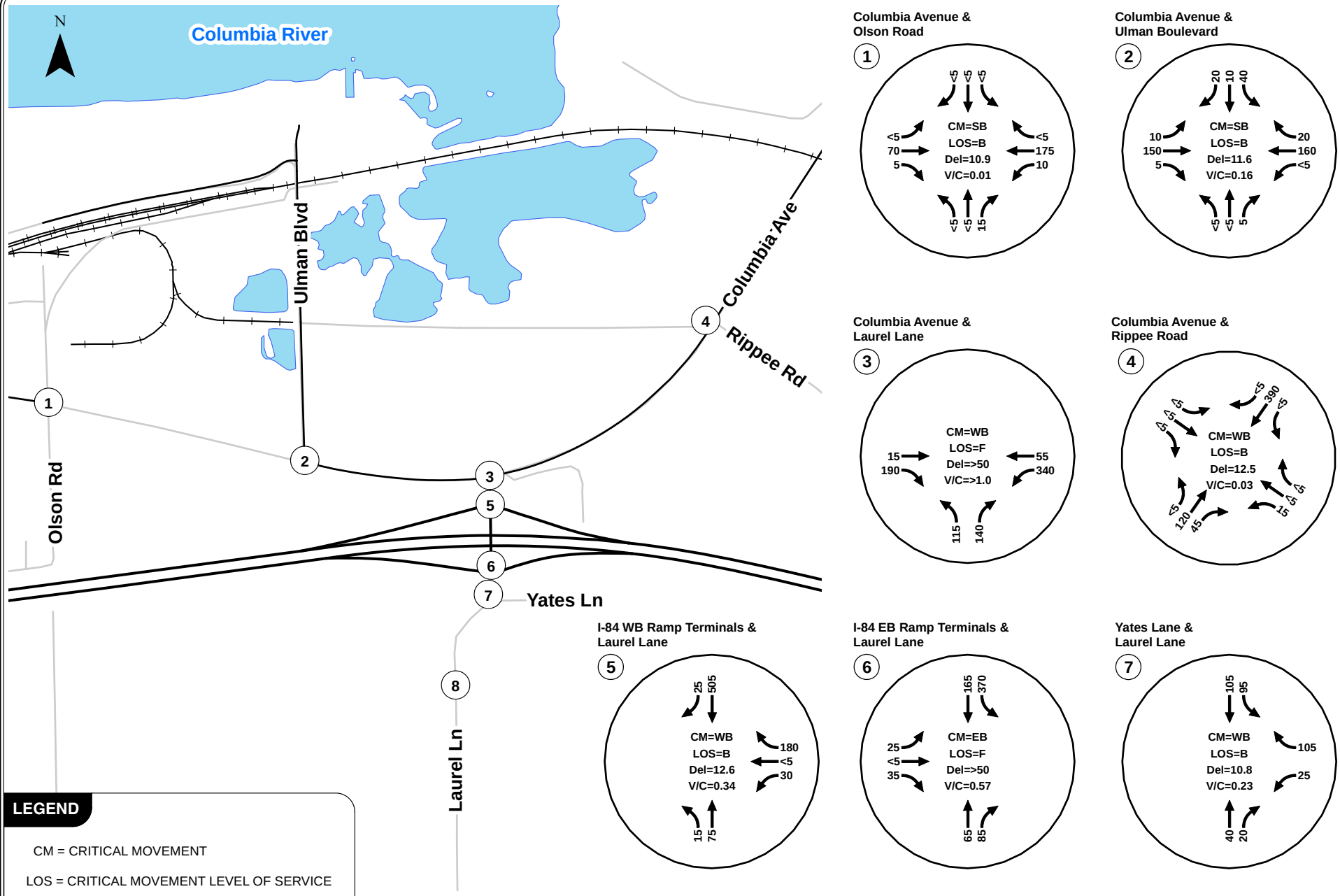
The table shows that the development of a truck stop with six truck fueling positions and eight passenger automobile fueling stations is anticipated to generate approximately 130 (50 in and 80 out) new trips to the area. Based on existing traffic patterns and the nature of traffic to and from the surveyed stops, many of these new trips will be from vehicles passing by on I-84 Eastbound and diverted POM traffic.

Port of Morrow

As was previously discussed, POM staff expects that development in POM properties south of the UP mainline will increase by approximately 15% over existing levels in the next 20 years. The East Beach area is expected to grow by about 500% over its existing level of development during this time. Recognizing that existing traffic volumes in the study area along Columbia Avenue and Laurel Lane are primarily related to activity on POM properties, it assumed that growth in development of POM properties will result in a proportional increase in traffic on these roadways. Therefore a total growth rate of 500% is applied to traffic volumes related to the East Beach area (i.e., northbound and southbound traffic on Columbia Avenue at Rippee Road) and a total growth rate of 15% is applied to traffic volumes related to the POM properties south of the UP mainline (i.e., all other movements on Columbia Avenue, Laurel Lane, and intersecting side streets).

YEAR 2030 NO-BUILD TRAFFIC CONDITIONS

Future year 2030 No-Build weekday p.m. peak hour traffic volumes were determined by applying the previously discussed growth rates and trip generation estimates to the existing traffic network. The resulting year 2030 No-Build weekday p.m. peak hour traffic volumes are shown in Figure 5-3.



LEGEND

CM = CRITICAL MOVEMENT

LOS = CRITICAL MOVEMENT LEVEL OF SERVICE

Del = CRITICAL MOVEMENT CONTROL DELAY

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2030 NO-BUILD TRAFFIC CONDITIONS
30TH HIGHEST HOUR
MORROW COUNTY, OREGON

FIGURE **5-3**

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The transportation operations analysis was performed according to the methodologies and standards previously outlined in Section 4.

Traffic operations analyses were performed for the study intersections using the forecast year 2030 "No-Build" weekday p.m. peak hour traffic volumes shown in Figure 5-3. This No-Build analysis assumes that no improvements have been made to the existing transportation system. The results of these analyses are also shown in the figure. As the figure shows, nearly all intersections are forecast to meet their applicable operational standard under year 2030 No-Build conditions. The Columbia Avenue/Laurel Lane intersection is the exception to this as it is forecast to operate at LOS "F" and have insufficient capacity to meet the projected demand. The I-84 Eastbound ramp terminal approach at Laurel Lane is also forecast to operate with significant delays; however, the OHP mobility standard is based on v/c ratio and this movement is forecast to have an acceptable v/c ratio. The failing operations at both intersections are due largely to the growth in traffic from the East Beach area. More detailed information on this analysis can be found in the *Technical Appendix.*

Queuing Analysis

As was mentioned in Section 4, the potential for trucks to stack up on the I-84 off-ramps into the area needed for deceleration is a concern as traffic volumes grow at the POM interchange. Generally, approximately 770-1,320 feet of deceleration distance is needed for vehicles decelerating from freeway speeds to a complete stop on a downgrade, such as is found on the POM interchange ramps. Currently, the eastbound off-ramp provides approximately 1,600 feet of deceleration length and the westbound off-ramp provides approximately 1,400 feet. Based on the year 2030 No-Build forecast traffic volumes and truck traffic percentages, 95th-percentile queues are estimated to be no more than two vehicle lengths, or approximately 50-150 feet, depending on whether the vehicle is a passenger car or large truck on the westbound off-ramp. On the eastbound off-ramp, 95th-percentile queues are estimated to be no more than three cars, or 75-225 feet. Therefore, queues are not currently estimated to back up to into the distance required for deceleration on either off-ramp; though they will be close, particularly on the westbound off-ramp.

PLANNED TRANSPORTATION IMPROVEMENTS

Morrow County's TSP identifies a few planned transportation improvements within the IMSA. Of these improvements, the one that is expected to occur within the next 20 years is a connection from the POM's East Beach area to US 730. This road will be called Lewis & Clark Drive and a segment of it has already been constructed from Columbia Avenue toward US 730. A potential alignment of the extension

of Lewis & Clark Drive is shown in Figure 5-4. Another possible alignment for the extension would be a direct connection to the I-84/US 730 interchange.

For comparison purposes, an operations analysis has been conducted assuming this connection and subsequent re-routing of traffic volumes to and from the East Beach area. The results of the year 2030 traffic operations analysis assuming that Lewis & Clark Drive is extended to US 730 are shown in Figure 5-5. As the figure shows, the extension of Lewis & Clark Drive is anticipated to serve the majority of traffic traveling to and from the East Beach area. Consequently, the intersections around the POM interchange would be expected to meet their applicable operational standard. The *Technical Appendix* includes a summary of the 2030 operational analyses with the Lewis & Clark Drive extension.

Lewis & Clark Drive / US 730 Intersection

A final configuration for the Lewis & Clark Drive/US 730 intersection has not been determined. The analysis shown in Figure 5-5 assumes a three-leg intersection with the Lewis & Clark Drive approach being stop-controlled and US 730 traffic allowed to flow freely. Per the ODOT Analysis Procedure Manual (APM, Reference 4), left-turn and right-turn lane warrants would be met on US 730 given the volumes shown in the figure. Therefore, this analysis assumes that US 730 has a northeast-bound left-turn lane and southwest-bound right-turn lane at this intersection.

Queuing Analysis

With the relief provided by the Lewis & Clark Drive extension, queues on either off-ramp at the POM interchange in 2030 are anticipated to be no more than one vehicle, similar to existing conditions.

THRESHOLD ANALYSIS

A rough sensitivity analysis was run in order to determine when, in terms of level of growth in the POM East Beach area, the at-grade Lewis & Clark Drive/US 730 intersection described above would no longer operate acceptably. This analysis showed that the Lewis & Clark Drive approach will fail to meet the applicable OHP mobility standard during the p.m. peak hour when development in the east beach area is approximately 1200% of, or 12 times greater than, what it is today. The northbound left-turn from US 730 into Lewis & Clark Drive is estimated to fail to meet its mobility standard during the a.m. peak hour when development reaches a level of 1400% of today. Grade separated interchanges would provide additional life for the connection. Due to the forecasted directionality of the traffic volumes, a diamond interchange's utility beyond an at-grade intersection would be limited. A Parclo-B loop ramp configuration for northbound US 730 would extend the functionality of the interchange until traffic volumes reached saturation levels, projected to be when development is nearing levels 30 times

LEGEND

- Potential Lewis & Clark Dr Extension
- Interchange Management Study Area

POTENTIAL ALIGNMENT OF LEWIS & CLARK DRIVE EXTENSION
MORROW COUNTY, OREGON

FIGURE 5-4

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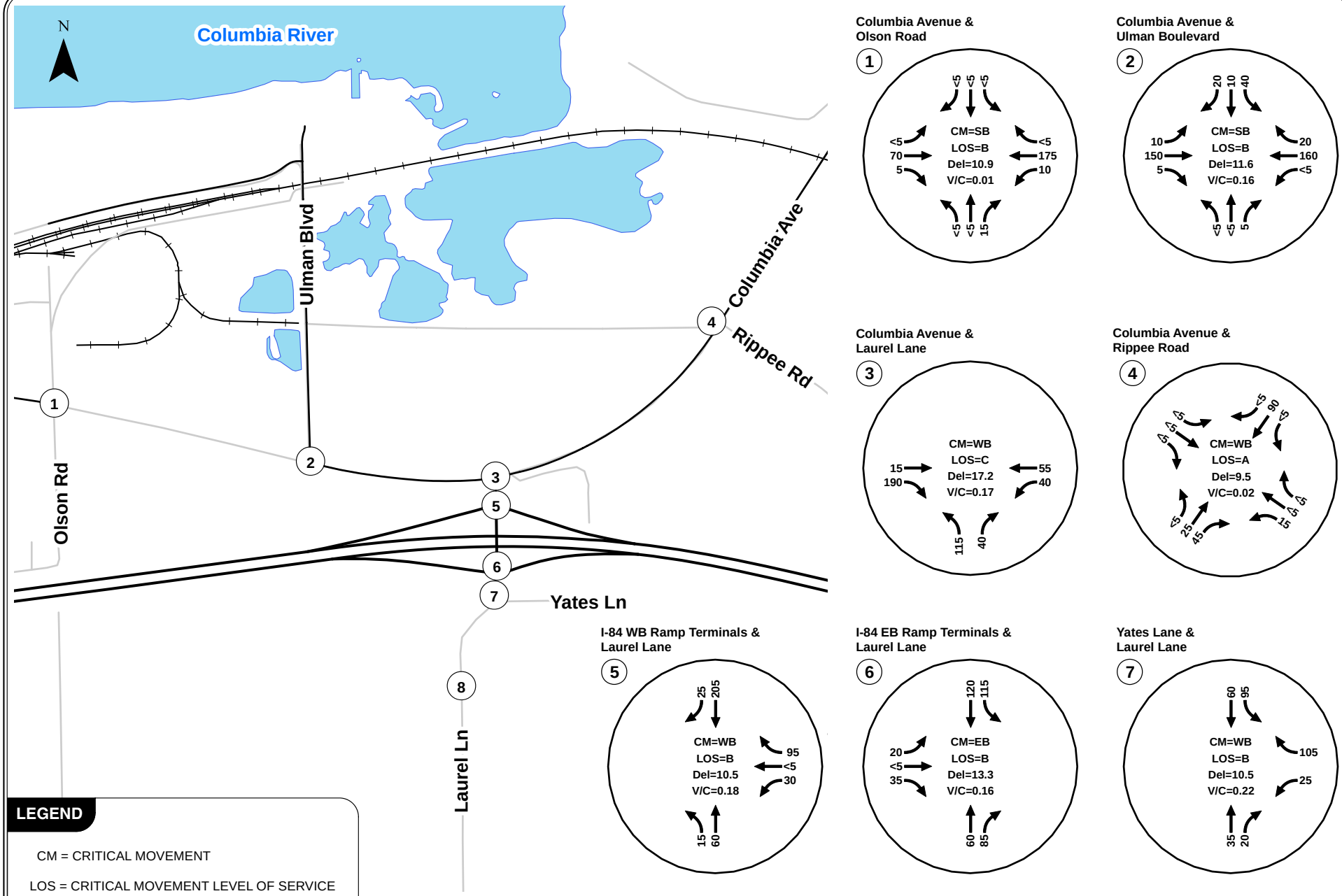

LEGEND

CM = CRITICAL MOVEMENT

LOS = CRITICAL MOVEMENT LEVEL OF SERVICE

Del = CRITICAL MOVEMENT CONTROL DELAY

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2030 TRAFFIC CONDITIONS WITH LEWIS & CLARK DRIVE EXTENSION
30TH HIGHEST HOUR
MORROW COUNTY, OREGON

FIGURE **5-5**

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greater than existing conditions. Such levels of development are not anticipated to occur within the 2030 horizon year of this plan. Therefore any concepts developed to address such growth will be considered part of the long-term vision for the area and not part of the 20-year plan.

SUMMARY OF YEAR 2030 FUTURE YEAR CONDITIONS

The forecasts and analysis for the year 2030 No-Build conditions, with and without the Lewis & Clark Drive extension, resulted in the following findings:

- Based on the growth assumptions described in this memo and without the Lewis & Clark Drive extension in place:
  - The westbound approach at the Columbia Avenue/Laurel Lane intersection will operate with lengthy delays and insufficient capacity;
  - The I-84 Eastbound off-ramp at the POM interchange will operate with lengthy delays, but with sufficient capacity; and
  - Forecast 95th-percentile queues on the I-84 Westbound off-ramp at the POM interchange will be close to encroaching on the deceleration distance required for vehicles exiting the freeway.
- The Lewis & Clark Drive extension to US 730 is anticipated to provide sufficient relief to the above mentioned problem areas, with all study intersections meeting their applicable operational standard.
  - The Lewis & Clark Drive connection to US 730 could operate acceptably as a minor-street stop-controlled intersection. Turn lanes would be warranted on US 730.

Section 6
Concept Development and Analysis

CONCEPT DEVELOPMENT AND ANALYSIS

This section documents the development and evaluation of the local circulation and access concepts for the IAMP. Ten unique concepts were developed and taken through a thorough screening process that included input from the TAC, PAC, 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 the preferred transportation improvement plan. The following subsections document the concepts that were evaluated and the results of the screening process.

Concept Development Process

The development of the initial interchange concepts for the IAMP began with three separate design workshops. The first two workshops were held for members of the TAC and PAC committees, while the third workshop was held for interested citizens, business owners, and landowners in a public open house setting. All three workshops were held on February 17th, 2011.

Within each workshop, participants were presented with an overview of applicable interchange design forms and basic design parameters. Following these presentation overviews, participants were asked to sketch their ideas for improving circulation at the interchange and within the immediate interchange study area.

Following the completion of the TAC, PAC, and public workshops, the project team took all of the individual design ideas and grouped them into common themes. After the initial grouping, each set was further sorted into common and unique interchange concepts. Based on this process, a representative concept diagram was developed from the common and unique interchange form concepts. As part of this process, the project team made some technical refinements to the interchange form concepts to ensure basic design parameters were being met. This process resulted in ten different concepts for the POM Interchange area.

Concept Summaries

Each of the concepts developed for the POM Interchange and their key design components are described below. Access management improvements around the interchange are essentially the same between most concepts and are described in greater detail in Section 7. Detailed double-line drawings of concepts that passed the initial screening and moved forward for more detailed analysis can be found later in this section. Single-line illustrations of the other concepts can be found in the *Technical Appendix*.

CONCEPTS #1

This concept would involve the following changes/improvements:

- The Columbia Avenue/Laurel Lane intersection would be realigned to the north, increasing the spacing from the I-84 Westbound ramp terminal from approximately 200 feet to approximately 700 feet.

CONCEPT #2

This concept would involve the following changes/improvements:

- Columbia Avenue would be widened to the north to provide an additional westbound through lane through the Laurel Lane intersection. This lane would be separated from the existing westbound lane and would act as a bypass lane allowing westbound through traffic to flow freely though the Laurel Lane intersection.
- Lindsay Way would no longer be able to access Columbia Avenue in its current location. Alternate access to the undeveloped parcels on the north side of Columbia Avenue would be provided via an access road connecting to Columbia Avenue on the east side of the property and south of Rippee Road.

CONCEPT #3

This concept would involve the following changes/improvements:

- Laurel Lane would be widened between Columbia Avenue and Yates Lane to provide a center turn lane.

CONCEPT #4

This concept would involve the following changes/improvements:

- Re-grading the east and west shoulders of Laurel Lane to provide intersection sight distance at Yates Lane (355 feet of intersection sight distance for southbound left-turning vehicles from Laurel Lane onto Yates Lane and 610 feet of intersection sight distance for westbound traffic on Yates Lane approaching Laurel Lane).
- A new Collector street connection to Yates Lane that would access Laurel Lane just north of the existing BPA transition easement.
- The existing Yates Lane Laurel Lane intersection would be restricted to right-in/right-out access only.
- Realigning Laurel Lane south of the I-84/Laurel Lane eastbound ramp terminal to improve the vertical and horizontal profile.

CONCEPT #5

This concept would involve the following changes/improvements:

- A roundabout would be constructed at the Yates Lane/Laurel Lane intersection along with modifications to the Laurel Lane and Yates Lane approaches.

CONCEPT #6

This concept would involve the following changes/improvements:

- Starting at its current intersection with Yates Lane, Laurel Lane would be realigned to the east of its existing alignment such that it travels straight up the grade instead of winding through it. Laurel Lane would curve around the existing residence south of the grade and then connect back to its existing alignment approximately 1,200 feet south of Yates Lane. The existing alignment of Laurel Lane would end in a cul-de-sac just before the downgrade. To improve spacing from the I-84 Eastbound ramp terminal, Yates Lane would be realigned further to the south.

CONCEPT #7

This concept would involve the following changes/improvements:

- The I-84 Westbound off-ramp, Laurel Lane from the I-84 Westbound ramp terminal to Columbia Avenue, and Columbia Avenue east of Laurel Lane would all be widened to allow for free-flowing right-turns for vehicles traveling from I-84 Westbound to eastbound Columbia Avenue (i.e., traffic exiting I-84 Westbound and destined for Columbia Avenue

eastbound would travel in a dedicated lane through the ramp terminal and Columbia Avenue intersections without needing to stop).

CONCEPT #8

This concept would involve the following changes/improvements:

- The I-84 Eastbound ramps would be reconstructed in a Parclo-A configuration with an entering loop ramp from Laurel Lane onto I-84 Eastbound and with the ramp terminal relocated south on Laurel Lane to approximately across from the existing Yates Lane intersection.
- Laurel Lane would be reconstructed south of the new ramp terminal to improve sight-distance and roadway grades.
- A new connection to Yates Lane would be constructed approximately 1,200 feet south of the existing Yates Lane intersection with Laurel Lane, as in Concept #4.
- The existing Yates Lane intersection with Laurel Lane would be closed due to the relocation of the I-84 ramp terminal.

CONCEPT #9

This concept would involve the following changes/improvements:

- The I-84 ramps would all be extended to provide additional room for vehicles to accelerate when entering the freeway and to decelerate safely before stopping at the ramp terminal when exiting the freeway.

CONCEPT #10

This concept would involve the following changes/improvements:

- The existing interchange would be relocated nearly ½-mile to the east.
- Columbia Avenue would be realigned south of Rippee Road to connect with the new interchange roadway. This realignment would result in traffic traveling to and from the southwest of the connection being stop-controlled at the new intersection while traffic on the new connecting roadway and Columbia Avenue to the northeast of the intersection would travel freely through the intersection.
- The new interchange roadway would connect with Laurel Lane approximately 1,200 feet south of Yates Lane.

Concept Screening

In order to arrive at the preferred transportation improvement plan, the concepts went through three levels of screening. The first level was a high-level screening to determine if any of the concepts did not meet the basic purpose of the project. After this, a second level was applied to the concepts involving a qualitative assessment of each concept based on the project's adopted evaluation criteria. Following this screening, the remaining concepts were examined quantitatively to determine the final preferred concepts.

The following section provides detailed explanation of this screening process and identifies which concept was selected by the TAC and PAC as the preferred transportation improvement plan. The *Technical Appendix* contains more details about the screening process.

PRELIMINARY PROBLEM STATEMENT SCREENING

The project team first performed a preliminary assessment to determine if any of the concepts were not meeting the basic intent of the project purpose and problem statement. The official Purpose and Problem Statement, as approved by the TAC and PAC is outlined below:

Purpose of the Project:

The IAMP is a strategic transportation plan that is designed to protect the long-term function of the Interstate 84 (I-84) / Laurel Lane (Exit 165, aka POM interchange) and the I-84 / US 730 interchanges by preserving the capacity of the interchange while providing safe and efficient operations between connecting roadways. The IAMP will identify land use management strategies, short-term and long-term transportation improvements, access management goals, and strategies to fund identified improvements.

Problem Statement:

Located in the eastern portion of the City of Boardman, the Port of Morrow (POM) is an intermodal transport hub for commodities throughout Oregon, Washington, and Idaho. The POM takes full advantage of its location at the crossroads of I-84, US 730, the Columbia River, and the Union Pacific Railroad.

Under House Bill 2001, the OTC allocated funds to the POM for extending Lewis & Clark Drive to US 730 and constructing Gar Swanson Drive to connect to Lewis & Clark Drive. Special condition of

approval for this funding was to complete an IAMP for the I-84/Laurel Lane (POM) and I-84/US 730 interchanges[2].

While sufficient to meet today's needs, it is recognized that long-term growth within the POM will likely cause the POM interchange ramp terminals to fall below ODOT's mobility standards through the year 2030. In addition, the proximity of the POM and its supporting local circulation network does not meet the desired access spacing standards for major interchange ramp terminals. As such, an IAMP is sought to identify opportunities to improve long-term operations at the ramp terminals, improve the close intersection spacing, and do so in a way that minimizes impacts to freight mobility and POM properties.

It was generally concluded that all of the interchange concepts met the basic intent of the project purpose and problem statement as reproduced above.

BASIC QUALITATIVE CONCEPT SCREENING

To assist in the evaluation process, the project team reviewed the adopted evaluation criteria and developed a screening level evaluation process by which each of the concepts could be evaluated at a high level qualitative perspective. As a part of this process, it was recognized that at this particular level of evaluation, certain evaluation criteria could not be applied to each concept because the criterion was determined to be too specific, required a higher level of detailed information, or was a non-differentiating factor. In these instances, a screening level evaluation was not applied to the concepts. The following outline lists the five screening level categories and the selected evaluation criteria within each category that were investigated as part of this process for each of the interchange areas.

Category #1 – Transportation

Evaluation Criteria – Addresses future operations issues if Lewis & Clark Drive is not extended to US 730

Category #2 – Land Use

Evaluation Criteria – Level of right-of-way (ROW) impacts

Category #3 – Cost/Implementation

Evaluation Criteria – Level of construction costs

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[2]The IAMP for the I-84/US 730 interchange is contained in a separate plan, *I-84/US 730 Interchange Area Management Plan*.

Evaluation Criteria – Construction challenges

Category #4 – Environmental

Evaluation Criteria – Level of environmental impacts

Category #5 – Accessibility

Evaluation Criteria – Meets or moves in the direction of the access spacing standards

Based on the criteria outlined above, an evaluation matrix for each concept was created. These matrices are contained within Attachment "B." A summary of the qualitative screening process is provided in Table 6-1 below. *(Note: In general, a "+" indicates the interchange concept is positively meeting the basic parameters of the evaluation criterion, a "-" indicates the interchange concept is not meeting the basic parameters of the evaluation criterion, and a "0" indicates the interchange concept is neither positively nor negatively meeting the basic intent of the evaluation criterion. See the Technical Appendix for a detailed explanation of the screening level scoring definitions).*

Table 6-1 Summary of Qualitative Screening Process

Evaluation Criteria	Concept									
	#1	#2	#3	#4	#5[1]	#6	#7	#8	#9	#10
Operations	0	0	0	0		0	0	+	0	+
ROW Impacts	-	0	+	-		-	0	-	+	-
Cost	0	0	0	0		0	0	-	0	-
Construction Feasibility	+	+	-	+		-	-	-	+	+
Environmental Impacts	+	+	+	+		+	+	+	+	-
Access Spacing	0	0	-	+		0	-	+	-	+

[1] Concept #5 was considered fatally flawed (see the *Technical Appendix* for an explanation)

INITIAL SCREENING RESULTS

At a meeting on April 7, 2011, the TAC and PAC were presented with general descriptions, graphical layout illustrations, and a qualitative assessment of the various advantages/disadvantages of the concepts. Upon reviewing the preliminary interchange layouts and advantages and disadvantages of each, both the TAC and PAC committee members assisted in the screening of concepts that would move forward for a more detailed quantitative evaluation.

After going through the screening process, the TAC and PAC committees determined that a number of concepts either did not adequately address current and future operational issues, had significant impacts, or posed significant cost/constructability/policy problems. Those concepts and the main issues behind their elimination for further study are detailed in the *Technical Appendix.* For summary purposes, they are briefly outlined in Table 6-2 below.

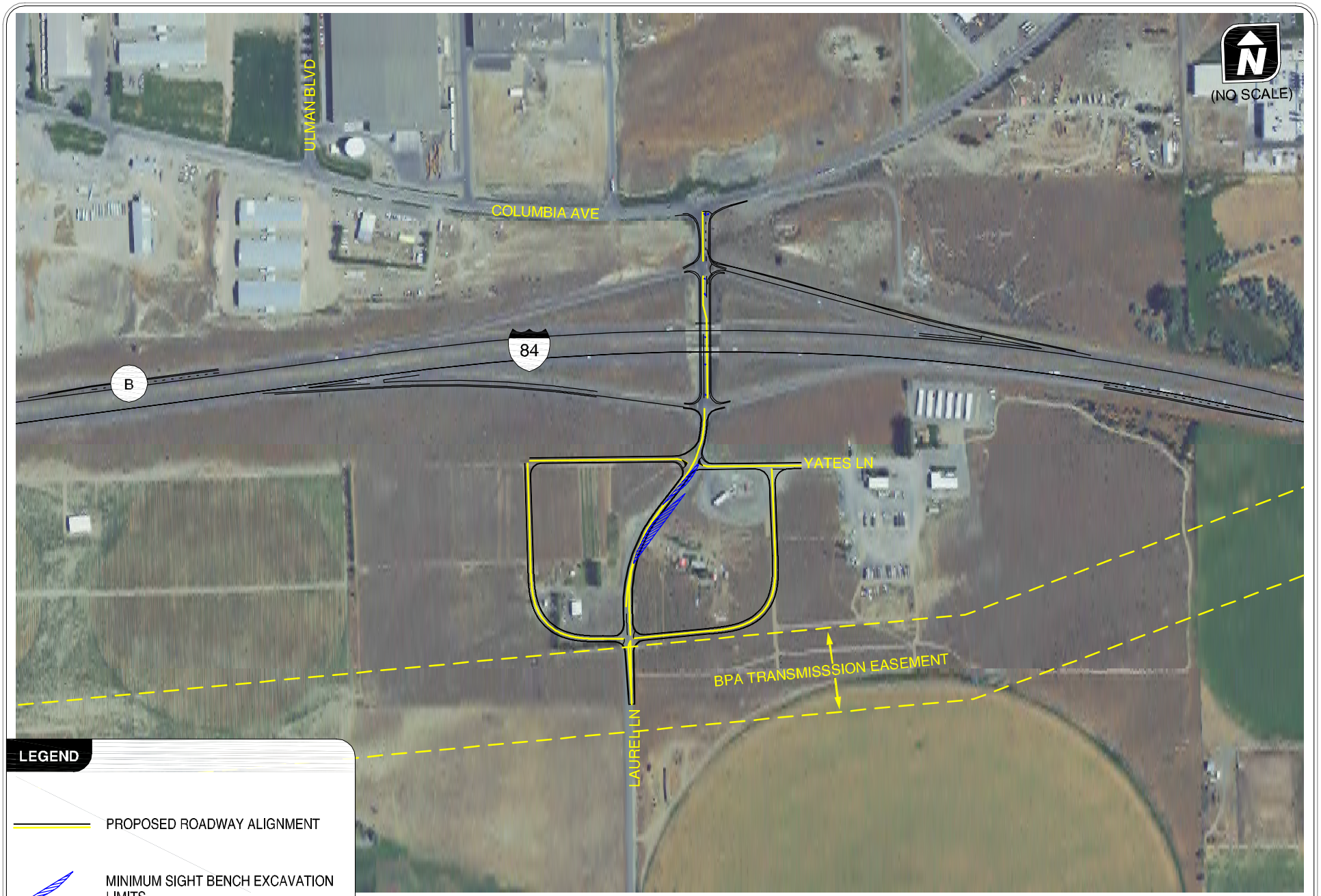
Table 6-2 Recommended List of Concepts to Move Forward in the Evaluation Process

Concepts	Recommended for Further Evaluation by the TAC and PAC	Final Selection/ Primary Disadvantages to Concept
1	No	No – Operations, Land Use Impacts
2	No	No – Cost, Operations
3	Yes	Yes
4	Yes	Yes
5	No	No – Constructability
6	No	No – Cost, Land Use Impacts
7	No	No – Cost, Operations
8	No	No – Cost
9	Yes	Yes
10	No	No – Cost

Based on these findings and feedback from the PAC and TAC, Concepts 3, 4 and 9 were moved forward for detailed evaluation. Furthermore, based on direction from the TAC and PAC and their complimentary nature, all three concepts were combined into an overall concept for evaluation. This overall concept is shown in Figure 6-1, with proposed lane configurations and traffic control devices shown in Figure 6-2.

DETAILED QUANTITATIVE EVALUATION

A more detailed evaluation was performed of the concepts remaining after the basic qualitative screening process was completed. This analysis consisted of quantitative operational and cost evaluations. A more detailed description of this evaluation process may be found in the *Technical Appendix*.



LEGEND

PROPOSED ROADWAY ALIGNMENT

MINIMUM SIGHT BENCH EXCAVATION LIMITS

PORT OF MORROW INTERCHANGE CONCEPTS
BOARDMAN, OREGON

FIGURE **6-1**

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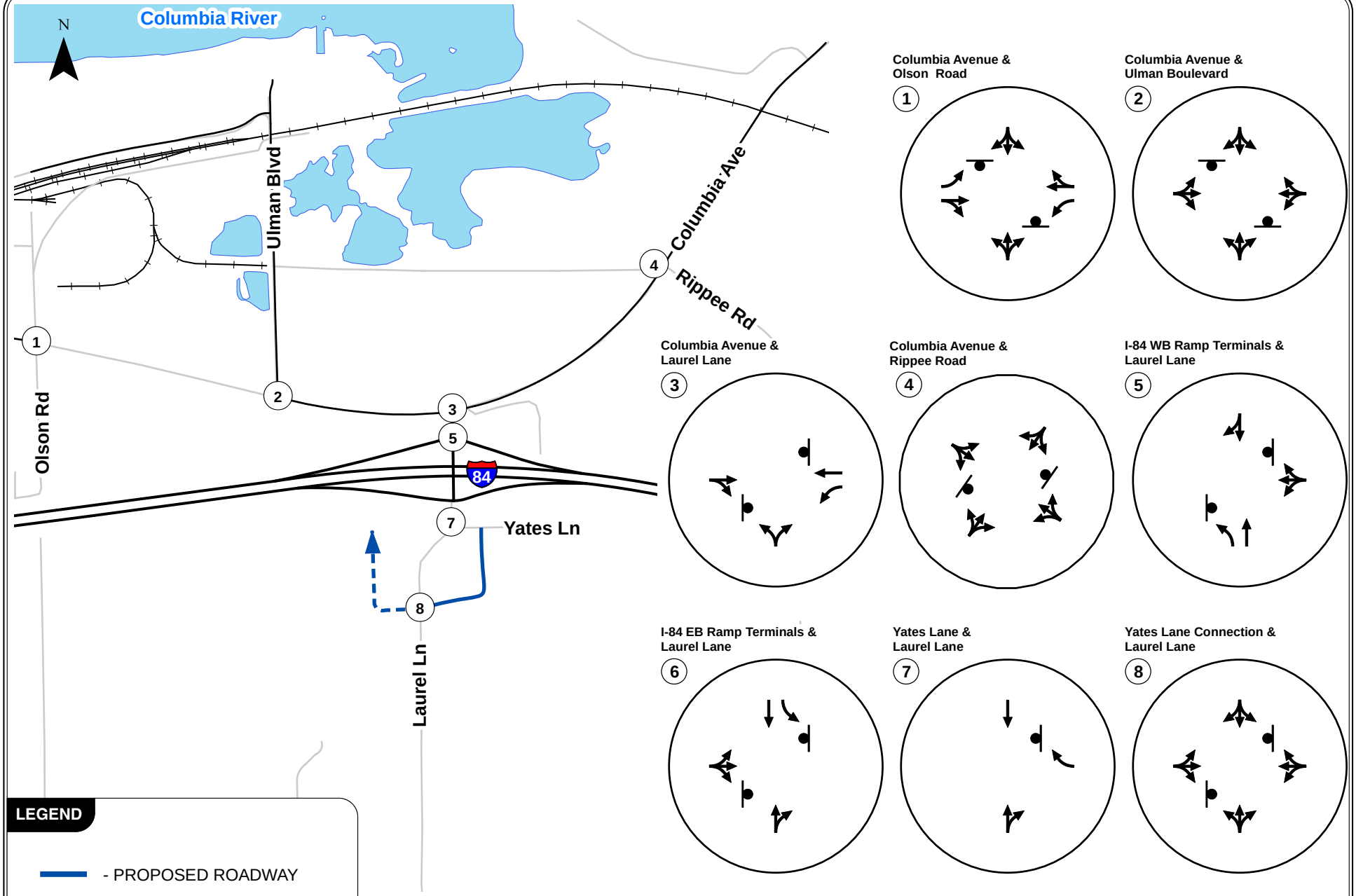
C:\Documents and Settings\nfoster\My Documents\11253 - Port of Morrow IAMP\dwgs\figs\IAMP\POMSection7.dwg Nov 02, 2011 - 2:51pm - nfoster Layout Tab: FIG6-1



LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
COMBINED CONCEPTS
MORROW COUNTY, OREGON

FIGURE **6-2**

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Transportation Operations

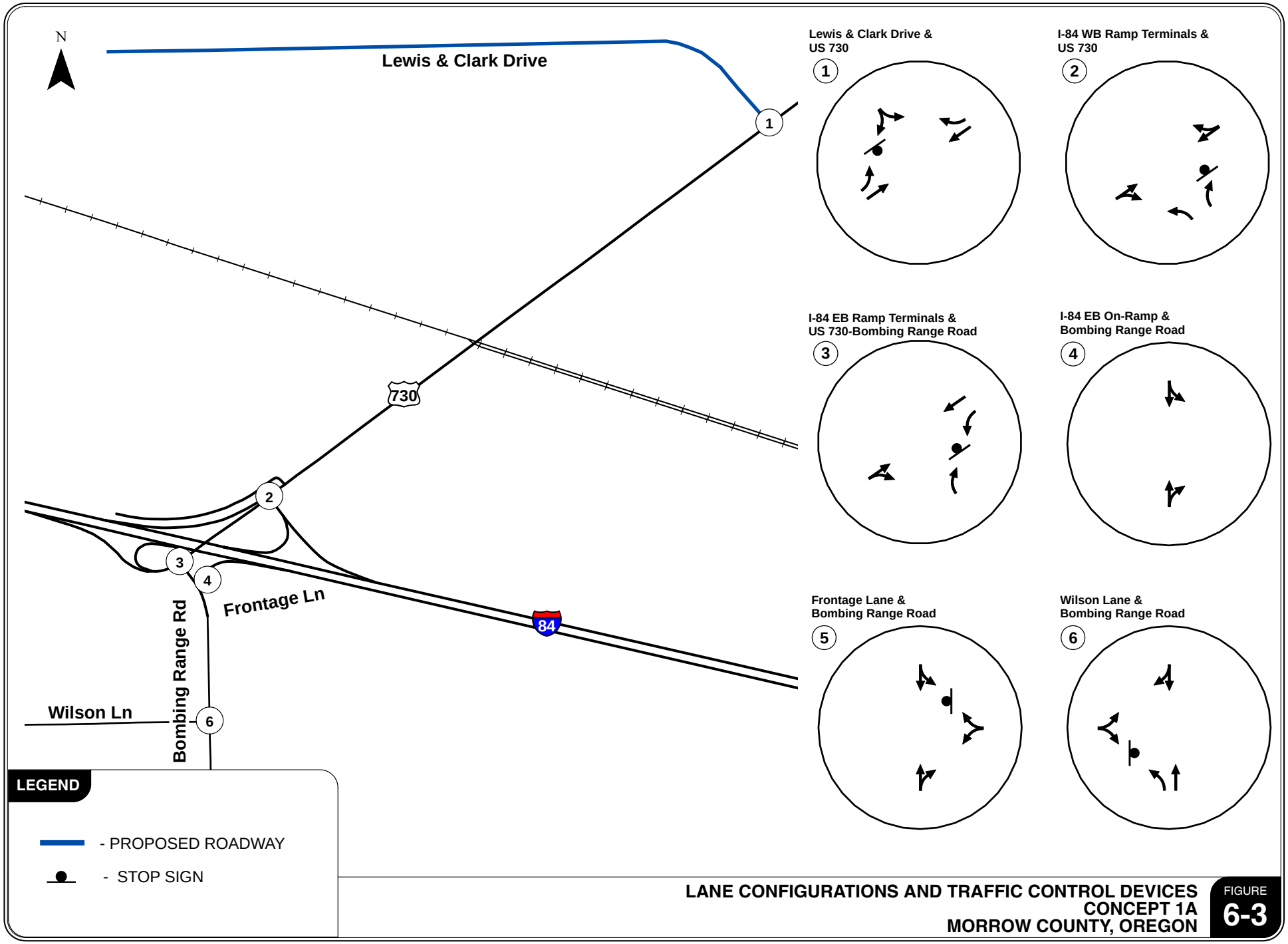
A transportation operations analysis was performed on the remaining concepts according to the methodologies and standards previously outlined in Section 4. Figures 6-3 and 6-4 show the resulting traffic operations analysis without and with an extension of Lewis & Clark Drive to US 730. Operational analysis results without and with this extension are shown in order to demonstrate the affect that improvements at the I-84/US 730 interchange will have on the POM interchange.

These figures show that the POM concepts alone will not be enough to improve forecast operations at the Columbia Avenue/Rippee Road intersection and I-84 Eastbound ramp terminals to acceptable levels without an extension of Lewis & Clark Drive. However, the center turn lane from POM Concept 3 will provide some operational benefit at the I-84 ramp terminals and minimize the possibility of queues of left-turning vehicles blocking through movements on Laurel Lane around the ramp terminals. Concept 4's relocation of the full movement access to the businesses on Yates Lane further south on Laurel Lane away from the I-84 Eastbound ramp terminals will reduce the possibility of vehicular queues on Laurel Lane backing up in front of the ramp terminals. The lengthening of the I-84 ramps from Concept 9 will improve freeway operations by providing vehicles more distance to accelerate onto I-84 and improve safety on the off-ramps by providing longer deceleration distances and more room for vehicles to stack up before they back into the deceleration distance.

Figure 6-4 shows that all intersections are forecast to operate acceptably assuming that Lewis & Clark Drive is extended to US 730.

Preliminary Cost Estimates

Preliminary cost estimates were prepared for each concept. These estimates are preliminary and subject to change as the concepts move into more detailed development. Table 6-3 summarizes the preliminary construction and ROW cost estimates for the concepts. The *Technical Appendix* contains the detailed cost estimate sheets.



LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
CONCEPT 1A
MORROW COUNTY, OREGON

FIGURE **6-3**

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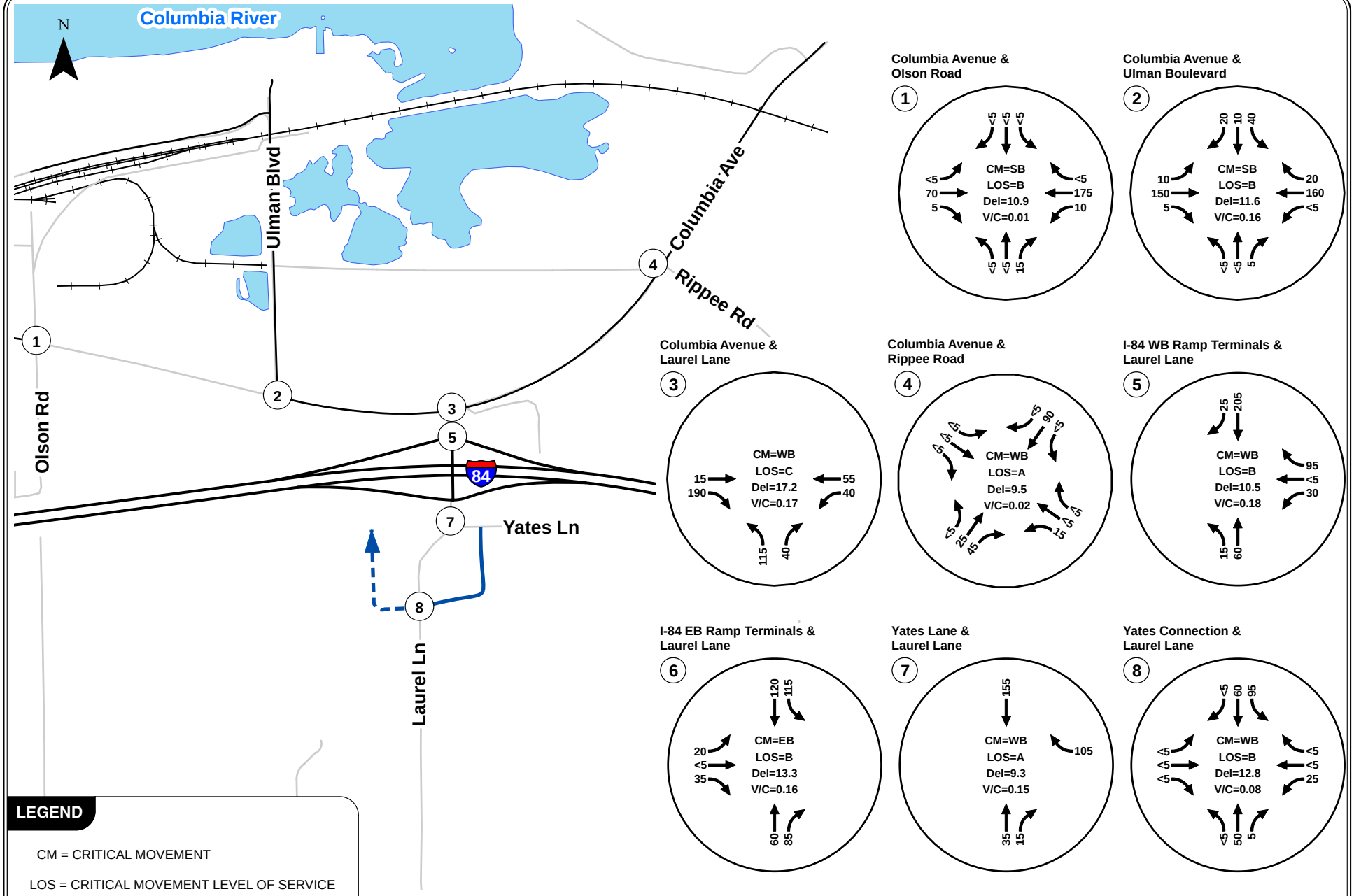

LEGEND

CM = CRITICAL MOVEMENT

LOS = CRITICAL MOVEMENT LEVEL OF SERVICE

Del = CRITICAL MOVEMENT CONTROL DELAY

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2030 CONCEPT BUILD TRAFFIC CONDITIONS WITH LEWIS & CLARK DRIVE EXTENSION
30TH HIGHEST HOUR
MORROW COUNTY, OREGON

FIGURE **6-4**

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Table 6-3 Preliminary Cost Estimates

Concept	Preliminary Cost Estimate		
	Construction	ROW[1]	Total
3	$800,000	0[2]	$800,000
4	$2,500,000	$160,000	$2,660,000
9	$1,500,000	$0[2]	$1,500,000
Combined Concepts	**$4,800,000**	**$160,000**	**$4,960,000**

[1]ROW costs are estimated by the project team based on area property values and are unofficial
[2]The identified improvements are anticipated to occur within existing ODOT Right-of-Way

The concepts are estimated to cost from approximately $0.8 to $2.7 million each. Constructing all three concepts would cost approximately $5.0 million. These costs are primarily construction costs as much of the improvements would likely take place on property already owned by ODOT.

After reviewing this analysis the TAC and PAC concluded that the combined concepts should be moved forward as the preferred improvement plan. They are complimentary in nature and could be phased in as they are warranted.

Interchange Area Access Management Improvements

Access to the parcels on the west side of Laurel Lane across from Yates Lane would need to be addressed under any of the concepts. These currently vacant parcels will require access when they develop. As discussed below, access to these parcels could be provided directly across from Yates Lane in the near-term. However, in the long-term, access would need to be provided via a new Collector Street connection that would access Laurel Lane just north of the existing BPA transmission easement, similar to the proposed connection to Yates Lane.

Phasing of Laurel Lane Access Improvements

As shown in Figure 6-1, the preferred group of concepts would improve access spacing on Laurel Lane by constructing new public street connections that would access Laurel Lane just north of the BPA transmission easement. These connections would provide access to the parcels immediately south of the interchange and allow for Yates Lane, and any access constructed across from it, to be restricted to right-in/right-out movements. This improved spacing would decrease the likelihood of queues of vehicle waiting to turn into Yates Lane from backing up in front of the ramp terminal, as well as decrease the number of conflict points in a relatively short amount of space.

In order to determine when these new connections would be warranted, the project team analyzed potential development scenarios on the parcels immediately south of the interchange. This analysis assumed development that would be allowed under the current zoning of the parcels. It does not consider whether such levels of development are likely to occur in the next 20 years. This analysis is performed by adding trips from these development scenarios, calculated in accordance with the ITE *Trip Generation* manual for the weekday p.m. peak hour, on to the volumes shown in Figure 6-4 (with Lewis & Clark Drive extension). Table 6-4 summarizes the results of this analysis.

Table 6-4 Access Spacing Improvement Triggers

Connection	Trigger	Approximate Level of Development Required to Meet Trigger
East Side (Yates Lane)	Peak southbound left-turn 95th-percentile queue backs up to the I-84/Laurel Lane eastbound ramp terminal	• 135,000 square feet of retail space; and • Truck stop with 8 truck and 12 auto fueling positions; or • Any development producing approximately 360 southbound left-turns onto Yates Lane during the peak hour
West Side (Currently Undeveloped)	Eastbound approach to Laurel Lane (assuming one is constructed) operates at LOS "E" or worse.	• 90,000 square feet of retail space; • 161 room motel with restaurant; and • 60 space RV park; or • Any development producing approximately 215 eastbound left-turning vehicles onto Laurel Lane from the west side

Section 7
Interchange Area Management Plan

INTERCHANGE AREA MANAGEMENT PLAN

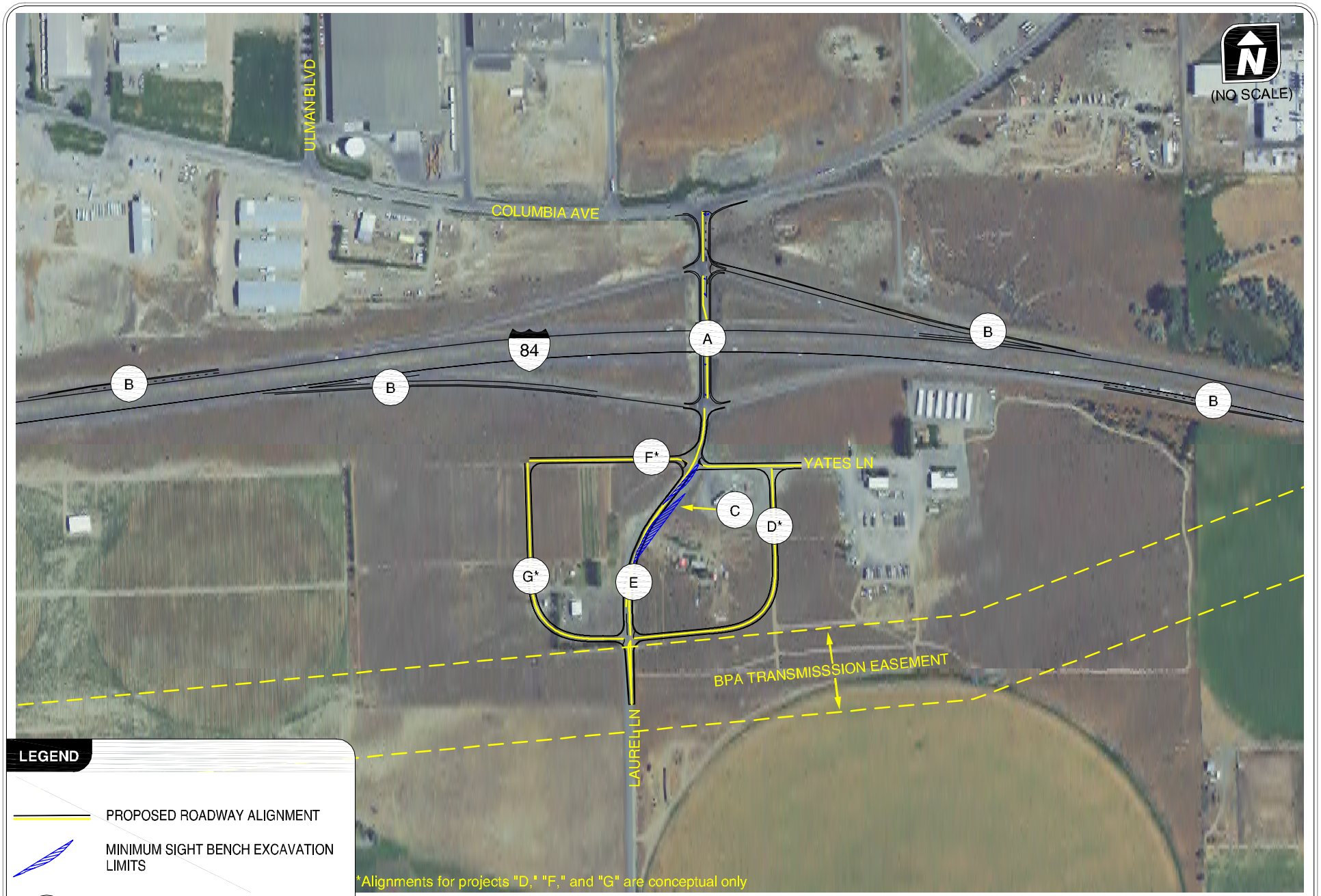
The POM IAMP provides a transportation improvement plan and an Access Management Plan (AMP). The transportation improvement plan includes interchange and local circulation improvements, right-of-way requirements, as well as a phasing schedule. The AMP documents the justification for the necessary deviations to ODOT's access management standards.

Through adoption by the City of Boardman, Morrow County, and ODOT, future development located within the Interchange Management Study Area (IMSA) will be required to make circulation and access improvements, 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 that proper coordination between the various stakeholders occur to allow the IAMP to serve as a long-term dynamic 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 concept screening and evaluations outlined in Section 6. Figure 7-1 illustrates the new transportation facilities and the near- and long-term transportation improvement plans, while Figure 7-2 provides a closer look at improvements south of the interchange. This plan includes the development of new collector roadways to serve future development south of I-84, realigning and widening Laurel Lane, and modifying other existing roadways, ramps, and intersections. Each transportation improvement identified in the figure is described in Table 7-1.

The following section provides details on the major improvements identified in the Transportation Improvement Plan, including possible deviations from standards that may be required.



LEGEND

PROPOSED ROADWAY ALIGNMENT

MINIMUM SIGHT BENCH EXCAVATION LIMITS

X — IMPROVMENT (SEE TABLE 7-1 FOR DESCRIPTION & COST ESTIMATE)

PORT OF MORROW IAMP OVERALL TRANSPORTATION IMPROVEMENT PLAN
BOARDMAN, OREGON

FIGURE **7-1**

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H:\projfile\11253 - Port of Morrow IAMP\dwgs\figs\IAMP\POMSection7.dwg Nov 01, 2011 - 3:08pm - nfoster Layout Tab: FIG7-1

LEGEND

- PROPOSED ROADWAY ALIGNMENT
- MINIMUM SIGHT BENCH EXCAVATION LIMITS
- (X) IMPROVMENT (SEE TABLE 7-1 FOR DESCRIPTION & COST ESTIMATE)

PORT OF MORROW IAMP TRANSPORTATION IMPROVEMENT PLAN
SOUTH OF POM INTERCHANGE
BOARDMAN, OREGON

FIGURE **7-2**

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Table 7-1 POM IAMP Transportation Improvement Plan

Figure 7-1 Label	Near-Term Improvement Description	Trigger for Improvement	Estimated Cost	Potential Funding Source
A	• Widen Laurel Lane to include a 16' wide center turn lane between Columbia Avenue and the I-84 Eastbound ramp terminal.	Southbound or northbound 95th percentile vehicle queues exceed the available storage between the I-84 ramp terminals.	$0.8M	PDF STIP
B	• Lengthen the I-84 eastbound and westbound on- and off-ramps (to current design standards) to provide additional room for vehicles to accelerate when entering the freeway and to decelerate when exiting the freeway.	In conjunction with future I-84 mainline resurfacing projects.	$1.5M	STIP PDF
C	• Acquire right-of-way and re-grade the east and west shoulders of Laurel Lane to provide intersection sight distance at Yates Lane (355 feet of intersection sight distance for southbound left-turning vehicles from Laurel Lane onto Yates Lane and 610 feet of intersection sight distance for westbound traffic on Yates Lane approaching Laurel Lane).	New development along Yates Lane that generates 25 or more daily trips.	$0.06M[1]	PDF
	Long-Term Improvement Description			
D	• Construct a new Collector street connection to Yates Lane that would access Laurel Lane just north of the existing BPA transmission easement. • Restrict the Laurel Lane/Yates Lane intersection to right-in/right-out access only.	Peak southbound left-turn 95th-percentile queue backs up to the I-84/Laurel Lane eastbound ramp terminal.	$1.2M	PDF
E	• Realign Laurel Lane south of the I-84/Laurel Lane eastbound ramp terminal to improve the vertical and horizontal profile. Provide a southbound left-turn lane along Laurel Lane at the new Yates Lane access described in Project "D" above.	Peak southbound left-turn 95th-percentile queue backs up to the I-84/Laurel Lane eastbound ramp terminal. -- or -- Eastbound approach to Laurel Lane (described in Project "F" below) operates at LOS "E" or worse.	$1.4M	PDF
F	• Construct a new Collector Street connection to the parcels in the southwest quadrant of the interchange. This connection would access Laurel Lane directly across from Yates Lane.	New development requiring access east of Laurel Lane.	$0.03M	PDF
G[2]	• Construct a new Collector Street connection to the remaining parcels in the southwest quadrant of the interchange. The connection would access Laurel Lane just north of the existing BPA transmission easement. • Restrict the access described in Project "F" above to right-in/right-out access only.	Eastbound approach to Laurel Lane (described in Project "F" above) operates at LOS "E" or worse.	$1.8M	

STIP – State Transportation Improvement Project
PDF – Private Development Funds
[1] - Construction costs only, does not include right-of-way costs
[2] – New Collector roadway may be waived by the City if all parcels to the east or west of Laurel Lane are consolidated, developed, and owned by a single entity.

NEAR-TERM IMPROVEMENTS

The following near-term improvements are identified for Laurel Lane and the I-84 ramps.

A). Laurel Lane Widening (Yates Lane to I-84 Westbound Ramp Terminal)

Laurel Lane will be widened to include a center turn lane between Yates Lane and the I-84 Westbound ramp terminal. A 16' wide center turn lane will allow left-turning vehicles on Laurel Lane to wait for a gap in traffic to make their turn without impeding free flowing through or right-turning traffic; thereby improving operations and reducing the likelihood of vehicles stacking from one ramp terminal through another. *This improvement would be constructed when one of the ramp terminal intersections along this section of Laurel Lane fails to meet its operational standard or when the 95th-percentile queue from one intersection stacks in front of another.*

B). I-84 Ramp Improvements

The I-84 eastbound and westbound on- and off-ramps do not meet current acceleration and deceleration design standards. These ramps will be lengthened to provide additional room for vehicles to accelerate when entering the freeway and to decelerate when exiting the freeway. The extensions will improve safety on I-84 and at the ramp terminal intersections. *The ramp improvements will be constructed in conjunction with future I-84 mainline resurfacing projects.*

C). Laurel Lane Sight Distance Improvements

To improve intersection sight distance at the Laurel Lane/Yates Lane intersection, existing embankment will be re-graded. The embankments alongside Laurel Lane will be excavated to provide approximately 355 feet of intersection sight distance for southbound left-turning vehicles from Laurel Lane onto Yates Lane and 610 feet of intersection sight distance for westbound approach vehicles on Yates Lane approaching Laurel Lane. *This improvement will be conditioned upon the approval of new development on Yates Lane that generates 25 or more daily trips.*

LONG-TERM IMPROVEMENTS

Long-term improvements to the transportation system involve developing new connections to the properties immediately south of the interchange to improve access spacing and operations along Laurel Lane.

D). Yates Lane Access Connection

A new connection to Yates Lane from Laurel Lane will be constructed (at City Collector standards) just north of the existing BPA transmission easement. The existing Yates Lane intersection will remain as a

right-in/right-out access. *This improvement will be warranted when the southbound left-turn 95th-percentile queue backs up to the I-84/Laurel Lane eastbound ramp terminal.*

E). Laurel Lane Realignment

To support long-term commercial growth on the south side of the interchange, Laurel Lane will be realigned within the sight distance grading identified under Project "C" to improve the horizontal and vertical alignment. *The need for the realignment will be triggered by the need for the new Yates Lane connection described in Project "D."*

F). Near-Term SW Quadrant Access

To serve potential future development in the southwest quadrant of the interchange, a new access to Laurel Lane (constructed at City Collector standards) will be provided across from Yates Lane.

G). Long-Term SW Quadrant Access

A new Collector street connection will be constructed off of Laurel Lane just north of the BPA power transmission easement to provide access to the parcels in the southwest quadrant of the interchange. *The need for this improvement is dependent upon additional development within the southwest quadrant of the interchange and the operational threshold of Project "F". When this connection is made, the near-term access described in Project "F" will be restricted to right-in/right-out access.*

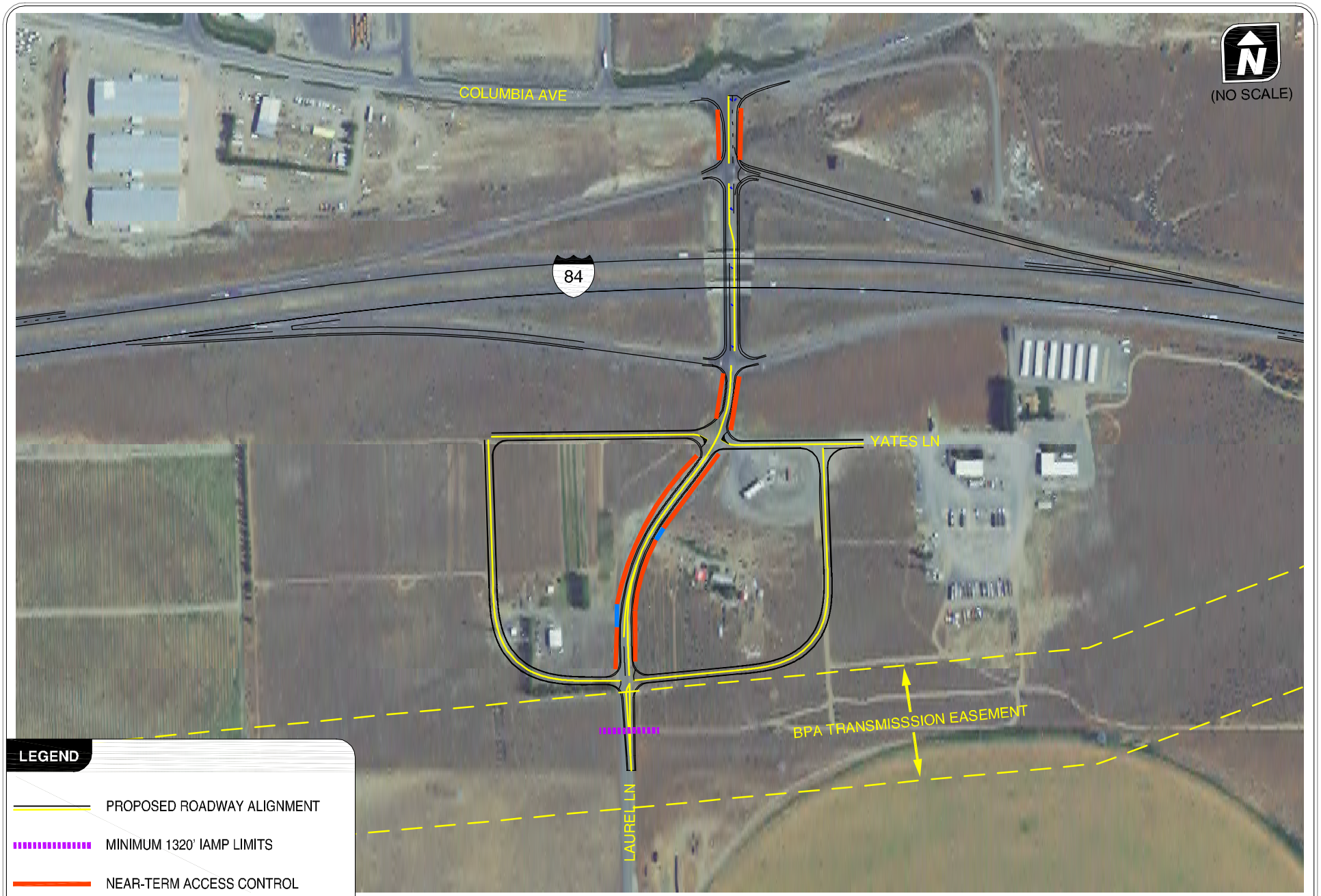
POSSIBLE EXCEPTIONS/DEVIATIONS FROM STANDARDS

The deviations that will be required for the IAMP transportation improvement plan are related to the access spacing standards outlined under Oregon Administrative Rule 734, Division 51 and the Oregon Highway Plan (OHP). These deviations are discussed in the access management subsection below.

Access Management Plan

Access locations within the IMSA were evaluated based on ODOT's Division 51 Access Management standards and an assessment of traffic operations and safety as described in Action 3C.3 of the 1999 Oregon Highway Plan. Accordingly, the Access Management Plan (AMP) will preserve the operational integrity and safety of the interchange and primary roadways (e.g. Laurel Lane) serving it, while maintaining viable access to all parcels in the IMSA. The AMP contains a plan for actions to be taken on a City of Boardman roadway (i.e., Laurel Lane) and adopted into the City's TSP.

An AMP is identified for near- and long-term timeframes. The overall AMP is illustrated in Figure 7-3. Justification is also provided for locations where deviations from ODOT's access management standards



LEGEND

- PROPOSED ROADWAY ALIGNMENT
- MINIMUM 1320' IAMP LIMITS
- NEAR-TERM ACCESS CONTROL
- LONG-TERM ACCESS CONTROL

PORT OF MORROW IAMP ACCESS MANAGEMENT PLAN
BOARDMAN, OREGON

FIGURE **7-3**

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H:\projfile\11253 - Port of Morrow IAMP\dwgs\figs\IAMP\POMSection7.dwg Nov 01, 2011 - 3:10pm - nfoster Layout Tab: FIG7-3

are necessary. Access management will be implemented as part of ODOT and City project development and delivery processes or as future land use actions occur.

GENERAL 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 full approach (public or private) on the crossroad should be a minimum of 1,320 feet (¼-mile). The first right-in/right-out access should be a minimum of 750 feet from the ramp terminal. Currently, there are three (3) private and three (3) public approaches within 1,320 feet of the interchange ramp terminals, as was previously documented in Figure 4-6.

EXISTING PRIVATE APPROACH POLICY

ODOT guarantees Access Permit protection, as allowed within ORS 374.305 & 310, to all existing private accesses. Each will remain a valid access as long as the existing uses remain on property/site and there is no capital improvement project that would trigger review of the access (per OAR 734.051.0285). An access evaluation will be required when any of the following land use actions leads to a peak hour increase in 50 trips or more over the prior use, a daily increase of 500 trips or more over the prior use, or the increase represents a 20 percent or more increase in trips on a typical day/peak hour; if there is an identified safety or operational problem related to the approach; if the approach does not meet sight distance requirements; or if the daily traffic using the approach increases by 10 or more vehicles with a gross vehicle weight equal to or greater than 26,000 pounds:

- Modifications to existing 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;
- Changes to internal site circulation design or inter-parcel circulation; or
- Reestablishment of a property's use (after discontinuance for four years or more that trigger a Traffic Impact Assessment as defined below) that occurs on the parcels served by the approaches.

In general, the types of improvements identified for accesses within the IMSA include:

- Modifying, mitigating, consolidating, or removing existing approaches pursuant to an access management plan as part of the highway project development and delivery process (OAR 734-051);
- Improving traffic safety and operations by improving the local street network to provide alternate access and reduce conflict points; and,
- Restricting highway access but improving local roadway access by introducing shared access, cross-over easements, and/or consolidated access when separate parcels are assembled for redevelopment, and access via collector or local streets.

The time period over which the following measures will be implemented will depend on the rate of redevelopment within the IMSA and when the transportation improvement plan projects identified previously are constructed. As each parcel redevelops, or upon capital improvement, accesses will be evaluated to determine how they will be modified in order 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.

ACCESS MANAGEMENT

Figure 7-3 illustrates the AMP for the IMSA. The AMP is divided into two timeframes: near-term and long-term. The near-term plan is to not allow new access to Laurel Lane within the ¼-mile limits, except in the southwest quadrant where it may be the only feasible access point for those properties in the near-term. Long-term, the current Yates Lane access will be restricted to right-in/right-out access only, as would any access constructed opposite from it, when the new connections shown in Figure 7-3 are built. As the other properties along this section of Laurel Lane develop, their access will be provided off of either the new Yates Lane collector street or the new southwest quadrant collector street and not on Laurel Lane. The long-term plan would be implemented once the long-term improvements are constructed.

DEVIATIONS TO THE DIVISION 51 ACCESS MANAGEMENT STANDARDS

Six accesses will not meet the applicable OAR Division 51 access spacing standard. A deviation is required under the provisions of OAR 734-51-0135(3) as described below. These deviations will be reviewed by the Region Access Management Engineer. 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;

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

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

(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;

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

(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

(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

(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.)

The following is a description of the justification for deviation for each of the public accesses requiring a deviation.

Public Access to Columbia Avenue

A deviation to the access spacing requirements identified in OAR Division 51 is required at the Columbia Avenue/Laurel Lane intersection, which is located approximately 275 feet north of the I-84 Westbound ramp terminal, as shown in Figure 7-3. As was mentioned above, a deviation may be approved if:

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

Response: The Columbia Avenue approach cannot be moved further away due to existing development patterns. Removing the connection would force all POM related traffic to utilize the Boardman interchange, which would cause traffic operations issues at that interchange.

Public Access to Yates Lane

A deviation to the access spacing requirements identified in OAR Division 51 is required at the Yates Lane/Laurel Lane intersection, which is located approximately 225 feet south of the I-84 Eastbound ramp terminal, as shown in Figure 7-3. The approach will be restricted to right-in/right-out access only. As was mentioned above, a deviation may be approved if:

(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: Yates Lane and any future road built opposite it will serve multiple properties via the new connections described in Table 7-1. This will allow other access points to be consolidated onto the new connections and utilize this approach.

Public Access to the Yates Lane Collector and the SW Quadrant Collector

A deviation to the access spacing requirements identified in OAR Division 51 is required where the new connecting roadways identified in Table 7-1 and shown in Figure 7-3 access Laurel Lane. This new intersection will be approximately 1,200 feet south of the I-84 Eastbound ramp terminal. As was mentioned above, a deviation may be approved if:

(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: The new connections will allow other access points to be consolidated onto them and utilize this approach and the Yates Lane right-in/right-out access.

(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: The new access cannot be placed further south due to the presence of transmission lines.

Section 8
Implementation

IMPLEMENTATION

This section describes the IAMP implementation strategy, which includes a POM Interchange Function and Policy Definition and Management Area. 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 is 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 following actions at the State and local level are recommended:

- Amend the City of Boardman and Morrow County transportation system plans (TSPs), which are the transportation elements of the respective comprehensive plans, to include the recommendations of the IAMP;
- Amend the Oregon Highway Plan (OHP);
- Codify and map an IAMP Management Area that defines the area wherein regulations and requirements associated with protecting the interchange apply (see Figure 8-1);
- Coordinate planning activities pursuant to the Transportation Planning Rule (OAR 660-012);
- Review the IAMP and mobility standards for the interchange prior to adopting local plan amendments.

Plan Elements

In addition to adoption of the IAMP described in Section 7, implementation of the POM IAMP requires adoption of an "Interchange Function and Policy Definition" and IAMP Management Area.

INTERCHANGE FUNCTION AND POLICY DEFINITION

The City of Boardman and Morrow County should adopt a clear definition of the POM Interchange function into their respective comprehensive plan and TSP as a policy to provide direction for management of the interchange area and achieve the objectives and goals of this IAMP. This will help to ensure consistency between future policy decisions with the interchange's intended function.

The POM interchange provides connections between the I-84, the adjacent POM, and Laurel Lane. I-84 is classified as an Interstate Highway by the OHP and designated as an Expressway and Statewide

IAMP MANAGEMENT AREA AND OVERLAY DISTRICT
MORROW COUNTY, OREGON

FIGURE 8-1

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Freight Route. Laurel Lane is an arterial that provides local connectivity between to the POM, eastern portions of Boardman, and rural areas of Morrow County.

Based on this description, the following function and policy definition was developed for the POM Interchange:

"The primary function of the POM interchange is to provide truck and vehicular access to the POM, allowing goods to be transported between the Port and destinations in Oregon, Washington, and Idaho via I-84. A secondary function is to provide access to the residential areas and farm lands on the south side of I-84 and east of the City of Boardman via Laurel Lane, a City arterial."

INTERCHANGE AREA MANAGEMENT PLAN (IAMP) MANAGEMENT AREA

The City of Boardman is the land use regulatory authority for most of the Interchange Management Study Area (IMSA); for land that is located outside of the City's UGB, Morrow County is the land use regulatory authority. To ensure the continued operation and safety integrity of the interchange, both the City of Boardman and Morrow County should adopt and map an IAMP Management Area based on the IMSA. Because the City of Boardman already has an adopted and mapped IAMP Overlay District, the can achieve this objective by amending the City's Comprehensive Plan and Zoning map to include an IAMP Overlay District that encompasses the POM interchange. Future development and land use actions within the IAMP Management Area (the IAMP Overlay District for areas within the City), will be monitored to ensure that volume-to-capacity ratios do not exceed the adopted Oregon Highway Plan mobility standards at the ramp terminals. This can be accomplished through Development Review guidelines included within the proposed amendments to the City and County's land use and development ordinances as described in the following sections.

Adoption Elements

Implementation of the POM IAMP will occur at several levels of government. Consistent with OAR 734-051, the City of Boardman and Morrow County will identify legislative amendments to adopted transportation system plans and comprehensive plans to incorporate elements of the POM IAMP. In addition, new land use ordinances or amendments to existing ordinances, resolutions, and Inter-Governmental Agreements (IGAs) will be required to ensure 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 POM 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 being constructed.

To implement the POM IAMP, the following actions shall occur:

1. The City of Boardman shall adopt the POM IAMP as part of the City of Boardman Transportation System Plan and Comprehensive Plan. The IAMP, and more specifically the transportation improvements identified in Table 7-1 of Section 7, 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. Morrow County shall adopt the POM IAMP as part of the Morrow County 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.

3. The City of Boardman shall amend its Comprehensive Plan and Zoning Map to include the POM IAMP Management Area boundary as part of the City's IAMP Overlay District (see Figure 8-1). In addition, the City shall amend Development Code Chapter 2.5 – Interchange Area Management Plan (IAMP) Overlay District to include the POM IAMP Management Area so that future development in the vicinity of this interchange is subject to requirements pertaining to transportation impact analysis, access management, and agency coordination.

4. Morrow County shall amend its Comprehensive Plan Map and Zoning Map to include the IAMP Management Area boundary. In addition, the County shall amend the Zoning Ordinance and Subdivision Ordinance to include development and land use application requirements pertaining to transportation impact analysis, access management, and agency coordination.

5. The ODOT Regional Access Management Engineer will review and approve the access deviations described in the IAMP.

6. The OTC shall amend the OHP to include the POM IAMP.

TSP 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 POM IAMP.

City of Boardman

- The City shall adopt the POM 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 Boardman Transportation System Plan: "The primary function of the POM interchange is to provide truck and vehicular access to the POM, allowing goods to be transported between the Port and destinations in Oregon, Washington, and Idaho via I-84. A secondary function is to provide access to the residential areas and farm lands on the south side of I-84 and east of the City of Boardman via Laurel Lane, a City arterial."
- 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.

Morrow County

- The County shall adopt the POM Interchange Area Management Plan by reference as an element of the County's Transportation System Plan.
- 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 Morrow County Transportation System Plan: "The primary function of the POM interchange is to provide truck and vehicular access to the POM, allowing goods to be transported between the Port and destinations in Oregon, Washington, and Idaho via I-84. A secondary function is to provide access to the residential areas and farm lands on the south side of I-84 and east of the City of Boardman via Laurel Lane, a City arterial."
- 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 Morrow County Transportation System Plan.

- The IAMP Access Management Plan elements as illustrated in Figure 7-3 shall be included in the transportation improvement project list of the Transportation System Plan.

Oregon Transportation Commission

- The POM IAMP shall be adopted by the OTC as part of the Oregon Highway Plan.

Monitoring Elements

The purpose of the IAMP is to ensure that capacity at the interchange is preserved for its intended function. While a long-range plan, the IAMP needs to remain dynamic and responsive to development and changes to the adopted land use and transportation plans and may need to be periodically reviewed and updated. To accomplish this goal, a monitoring program is included that identifies triggers for reviewing the IAMP and assessing how development approval within the IAMP Management Area will be reviewed and coordinated.

IAMP REVIEW TRIGGERS

Periodically, the implementation program shall be evaluated by the City, County, and ODOT, to ensure it is accomplishing the goals and objectives of the IAMP. Events that may trigger an IAMP review include:

- Plan map and zone changes that have a "significant affect" pursuant to the Transportation Planning Rule, Section -0060 and impact the POM Interchange, or that are located within the IAMP Management Area.
- Mobility measures at the I-84 ramp terminals exceed the adopted volume-to-capacity ratios.

In addition to the established triggers for IAMP review, the agencies may 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 Boardman City Council, Morrow 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 Boardman Transportation System Plan and

will be adopted by Morrow County Court (if affected) and the Oregon Transportation Commission as an update to the Oregon Highway Plan.

DEVELOPMENT REVIEW WITHIN THE OVERLAY DISTRICT

The following outlines the transportation requirements for development and zone change applications within the POM Interchange Overlay District and describes how The City of Boardman and Morrow County will coordinate with ODOT.

Traffic Impact Analysis

All development applications located within the POM 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 change in zoning or plan amendment designation; and

b) The proposal is projected to cause one or more of the following effects, which can be determined by field counts, site observation, traffic impact analysis or study, field measurements, crash history, Institute of Transportation Engineers Trip Generation manual; and information and studies provided by the local reviewing jurisdiction and/or ODOT:

a. An increase in site traffic volume generation by 500 Average Daily Trips (ADT) or more (or as required by the City Engineer). The latest edition of the Trip Generation manual, published by the Institute of Transportation Engineers (ITE) shall be used as standards by which to gauge average daily vehicle trips; or

b. An increase in ADT volume of a particular movement to and from the State highway by 20% or more; or

c. An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 20 vehicles or more per day; or

d. The location of the access driveway does not meet minimum intersection sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or vehicles queue or hesitate, creating a safety hazard; or

e. A change in internal traffic patterns that may cause safety problems, such as back up onto the highway or traffic crashes in the approach area; or.

f. For development in the POM IAMP Management Area, the location of the access driveway is inconsistent with the Access Management Plan in Section 7 of the IAMP.

The determination of impact or effect, and the scope of the TIA, shall be coordinated with the City of Boardman, Morrow County, and ODOT. The developer shall be required to mitigate impacts attributable to the project.

ODOT Coordination

- The City shall consult the Oregon Department of Transportation (ODOT) on TIA requirements when the site of the proposal is adjacent to or otherwise affects a State roadway.
- The City shall provide written notification to ODOT once a land use application within the IAMP Overlay District is deemed complete.
- ODOT shall have at least 20 days, measured from the date notice to agencies 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.
- The County shall invite ODOT to participate in a pre-application review for applications within an Interchange Management Area Plan (IAMP) Management Area or within a ¼ mile of any ODOT facility. Notice of actions requiring a public hearing shall be provided to ODOT at least twenty days prior to the date of the hearing.

Section 9
OAR and OHP Compliance

OAR AND OHP COMPLIANCE

The following section discusses the OAR and 1999 OHP policy based compliance issues that pertain to the development of the POM IAMP.

OAR Compliance

The POM IAMP was developed in collaboration with the POM, City of Boardman, Morrow 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 POM 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 improvements that would enhance the efficiency and safety of the interchange. The plan was completed before the identified Lewis & Clark Drive extension from the Port of Morrow or any of the identified improvements to the interchange moved into project development phases.	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 management, transportation improvement plan, and Overlay District (City of Boardman) and IAMP Management Area (Morrow County) identified in this plan will result in operational, safety, and capacity improvements.	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 and access management elements that cover the short and long-term time timeframes.	Section 7 Section 8
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 and geometric conditions was conducted for this planning effort. The future volumes were developed based on current zoning and comprehensive plan designations. All approaches, existing and planned, were examined.	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

OAR 734-0051-0155 Requirement	How Addressed	Report Reference
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 potential was performed based on the current comprehensive plan designations and zoning.	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 POM Interchange Area Management Plan is consistent with the 1999 OHP. (See following subsection). 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 Boardman and Morrow County amending their respective Transportation System Plasn to incorporate the transportation improvements associated with the IAMP. In addition, implementation of the IAMP will occur through the City of Boardman and Morrow County amending their Land Use and Development Ordinances to include the Overlay District (City of Boardman) and IAMP Management Area (Morrow County). This area 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. 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 OHP mobility standards. These amendments include coordination between agencies, traffic impact analysis requirements, monitoring of traffic operations, and access management requirements.	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 POM Interchange, including all key intersections that have potential to affect traffic operations in the interchange area over the planning period. The resulting Access Management element moves toward the ¼ mile spacing requirement.	Section 7
Local street connections to ensure adequate access to properties and off-highway circulation	The IAMP maintains much of the existing local circulation network and includes improvements to it (Figures 7-1 through 7-4).	Section 7
Median treatments	No median treatments are proposed as part of the access management plan.	Section 7
Location and type of traffic control devices needed to ensure safe and efficient operations in the operational area of the interchange	Figures 7-1 and 7-2 show all necessary traffic control within the IMSA.	Section 7

THE PLAN WILL DETERMINE		
OAR 734-051-0155 Requirement	**Determination**	**Report Reference**
Location of sidewalks and bicycle lanes	Sidewalks and bicycle lanes will be constructed with roadway improvements where they are part of the standard cross-section.	Section 7
Sidewalk and bicycle lane crossings (highway and ramp crossings)	See above.	See above
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 IMSA.	N/A
Is new policy language needed in the City of Boardman's and Morrow County's Comprehensive Plans to support adequate long-term interchange operations?	Both agencies will amend their respective comprehensive plans, land use and development ordinance to implement the Overlay District (City of Boardman) and IAMP Management Area (Morrow County).	Section 8
Are any land use changes/comprehensive plan (including TSP) amendments needed to implement the Interchange Area Management Plan?	The City of Boardman and Morrow County will amend their respective Transportation System Plans to incorporate the transportation improvements associated with the IAMP. The City and County will amend their Land Use and Development Ordinances to include an Overlay District (City of Boardman) and IAMP Management Area (Morrow County) that contains the submittal requirements and review standards for land use amendment and development proposals within the district. 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 OHP 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, as described in Section 7. The Access Management element describes 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 POM 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 POM IAMP and how the IAMP satisfies the requirements.

<u>Policy 1A: State Highway Classification System</u>. 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.

Within the IMSA, there are two ODOT highways. Interstate-84 is an Interstate Highway and is part of the National Highway System (NHS). US 730 is a Regional Highway in the vicinity of I-84. It is also a federally designated truck route.

> *How Addressed:* The POM IAMP recognized the respective functions of each highway. The preferred concept includes extending the I-84 ramps in order to provide more acceleration and deceleration distance for trucks.

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 Boardman, Morrow County, POM, ODOT, and DLCD. The IAMP will be implemented by the City of Boardman through an overlay district and Morrow County through IAMP Management Area that will require coordinated agency review on all future development or land use actions within the Area.

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 and US 730 is a designated truck route.

> *How Addressed:* The transportation improvement plan improves traffic operations and safety for vehicles accessing the POM, a major destination for freight activity.

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 POM IAMP demonstrates that the interchange will be able to meet ODOT mobility standards through the 20-year horizon. It also provides an access management element that improves access management within the IMSA.

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

> *How Addressed:* The POM IAMP provides measures to increase efficiency through access management and provides improvements to the local street system.

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:* Specific access management responsibilities have been set according to State and City responsibilities.

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:* Safety is a key component of the concept improvements, including providing more deceleration and acceleration space on the I-84 ramps, improving sight distance, and providing a left-turn lane on Laurel Lane. The access management element was also 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.

> *How Addressed:* See Policy 3C below.

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 contains the minimum spacing standards applicable to the I-82/US 730 Interchange, a freeway interchange that has 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.
750 feet (230 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 (left turns allowed).
990 feet (300 m)	Distance between the last right in/right out approach road and the start of the taper for the on-ramp.

How Addressed: The POM IAMP includes an access management element that consolidates access points and improves access spacing over the existing conditions. Ultimately, upon land redevelopment, access on either side will be improved but it will not meet the standards outlined above. Section 7 outlines where deviations will be necessary and describes how each of the necessary deviations meets the requirements of Division 51.

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 and US 730 is a designated truck route.

How Addressed: The transportation improvement plan improves traffic operations and safety for vehicles accessing the POM, a major destination for freight activity.

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. Kittelson & Associates, Inc. *City of Boardman Transportation System Plan*. 1999. (Updated in 2001 by TriLand Design Group, Inc.).
3. Port of Morrow. *Transportation*. http://www.portofmorrow.com/transportation.htm. March 2011.
4. Oregon Department of Transportation. *Analysis Procedures Manual*. 2006.
5. Transportation Research Board. *Highway Capacity Manual*. 2000.
6. AASHTO. *A Policy on Geometric Design of Highways and Streets*. 2004
7. U.S. Fish and Wildlife Service (USFWS). *Federally Listed, Proposed, Candidate Species and Species of Concern under the Jurisdiction of the Fish and Wildlife Service Which May Occur within Morrow County, Oregon*. 2011.
8. StreamNet. *Fish Data for the Northwest*. http://www.streamnet.org. 2011.
9. Oregon Natural Heritage Program. Query of ORHNIC database within a 2-mile radius of API conducted January 25, 2011.
10. Cherry, Steve. Personal communication in a phone call with Kristen Currens, MB&G. Wildlife Biologist, Oregon Department of Fish and Wildlife. January 27, 2011.
11. Department of Rangeland Ecology & Management. *Weedmapper 2011.* http://www.weedmapper.org/morrow_maps.html. January 2011.
12. Oregon Department of Agriculture. *Noxious Weed Policy and Classification System.* 2010.
13. Oregon Geospatial Enterprise Office. *Spatial Data Library. Wetlands: OR Wetlands Geodatabase.* http://www.oregon.gov/DAS/EISPD/GEO/alphalist.shtml#W. January 2011.
14. Downing, Andrea. Personal communication in an email to Kristen Currens, MB&G. Department of State Lands Wetlands Support Assistant. January 26, 2011.
15. University of Oregon Libraries. *General Land Office Maps*. http://libweb.uoregon.edu/map/GIS/Data/Oregon/GLO/Quadrant_7.htm#4n. 2011.
16. Oregon Department of Environmental Quality. *Water Quality Assessment – 2004/2006 Integrated Report Database*. http://www.deq.state.or.us/wq/assessment/rpt0406/search.asp. January 2011.
17. Institute of Transportation Engineers. *Trip Generation* (8th Edition). 2008.