November 2010

I-84/US 395 Interchange Area Management Plan

Pendleton, Oregon

Prepared by:

Kittelson & Associates, Inc.

In association with:

Angelo Planning Group
CH2MHill

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

I-84/US 395 Interchange Area Management Plan

Pendleton, Oregon

November 2010*

**Figures 7-3 and 7-5 updated – June 2011*

I-84/US 395 Interchange Area Management Plan

Pendleton, Oregon

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Project No. 9627.00

November 2010

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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 PMT, TAC, and PAC members are identified below, along with members of the consultant team. The PMT members were all part of the TAC and primarily coordinated between meetings on project management tasks related to project schedule and meeting logistics. The PMT included representation from ODOT, the City of Pendleton, and the consultant team. 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 I-84/US 395 Interchange Area Management Plan (IAMP), and their participation was instrumental in the development of the recommendations that are presented in this plan.

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Dave Byrd
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Don Russell
Time-to-Wash

Eric Fanciullo
Denny's Restaurant

Harry Snyder
Dean's Market

Jef Farley
Real Estate and Housing

John Brenne
City of Pendleton City Council

Justin Pearce
City of Pendleton City Council

Loren Schmucker
Keystone RV

Phil Houk
City of Pendleton City Council

Rich Britton
Bank of the West

Rick Oliver
First Church of God

Stacey Bowen
Safeway

Vern Wilcox
Wilcox Furniture

Vince Crawford
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Glossary of Frequently Used Acronyms

AMP – Access Management Plan

HDM – Oregon Department of Transportation Highway Design Manual

IAMP – Interchange Area Management Plan

IMSA – Interchange Management Study Area

LOS – Level of Service

OHP – Oregon Department of Transportation Oregon Highway Plan

PAC – Public Advisory Committee

PMT – Project Management Team

TAC – Technical Advisory Committee

TSP – Transportation System Plan

V/C – Volume to Capacity Ratio

Section 1
Introduction

Introduction

An Interchange Area Management Plan (IAMP) has been prepared for the Interstate-84 (I-84) / US 395 Interchange in Pendleton, 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 Technical Advisory Committee (TAC) and Public Advisory Committee (PAC).

PURPOSE AND INTENT

The IAMP is a strategic and dynamic transportation plan that is designed to protect the long-term function of the I-84/US 395 interchange by preserving the capacity of the interchange while providing safe and efficient operations between connecting roadways. The IAMP identifies land use management strategies, short-, medium-, and long-term transportation improvements, access management plans, and strategies to fund identified improvements.

The IAMP planning efforts have resulted in policies, ordinances, and other provisions that will be adopted into the City of Pendleton's Transportation System Plan (TSP) and Comprehensive Plan. The IAMP will be adopted by the Oregon Transportation Commission (OTC) as an amendment to the Oregon Highway Plan.

PROBLEM STATEMENT

Because of topographic constraints and the construction of I-84, there are only two existing opportunities for access between the areas of Pendleton to the north and south of I-84: US 395 and OR 11. The resulting level of cross-town traffic, especially in the vicinity of the I-84 interchange with US-395, makes it very difficult for motorists exiting the freeway to access downtown, and subsequently, both of the ramp termini operate over capacity. Queues on the eastbound off-ramp are forecast to back onto the mainline of I-84 by the year 2025. Traffic operations within the vicinity of the interchange are also poor. In particular, the operations of the Tutuilla Creek-Hailey Road/US 395 and the 20th Street/Court Place intersections will all need to be improved. There are several direct accesses from commercial properties onto US 395 south of the interchange. The Oregon Department of Transportation (ODOT) initiated the IAMP process to ensure that growth and development will occur in the interchange study area without compromising the operation of the interchange. The IAMP identifies transportation improvements, land-use strategies, and implementation policies. It also satisfies the requirements of Oregon Administrative Rule (OAR) 734-051 and has been developed according to the ODOT IAMP guidelines.

INTERCHANGE DESCRIPTION

The I-84/US 395 interchange is an urban interchange that connects US 395, a statewide highway and freight route, with I-84. It is one of five interchanges serving Pendleton. US 395 serves as a major connection between the north and south sides of the Pendleton community. It is a five-lane facility through the I-84 interchange area and then transitions into a couplet facility north of the freeway comprised of SW Frazer and SW Emigrant Avenues. This couplet provides access to downtown Pendleton. Much of the traffic flow in this area is focused on the SW Emigrant Ave/SW 20th St intersection, with traffic coming to and from the US 30 couplet of SW Court Avenue and SW Dorion Avenue and US 30 (Westgate Avenue). These roads also provide access to downtown, as well as to the Eastern Oregon Correctional Facility, Eastern Oregon Regional Airport at Pendleton, Pendleton Round-up grounds, and other industrial and residential areas. The couplet also connects to OR 11, which travels north into Milton-Freewater, Oregon and Walla Walla, WA. To the south, US 395 serves commercial uses and connections to residential areas before continuing south through the communities of John Day and Burns.

The land uses within the immediate vicinity of the interchange are primarily commercial. Residential areas are located off local streets connecting to US 395 and along the Frazer-Emigrant couplet.

Interchange Function Statement

Following is the function and policy definition for the I-84/US 395 Interchange:

> *"The transportation function of the I-84/US 395 Interchange is principally to provide safe and efficient access to downtown Pendleton and the residential areas south of I-84, including local traffic traveling between these two areas. In addition to this primary function, the I-84/US 395 Interchange remains an important facility for accessing the Eastern Oregon Correctional Facility, Blue Mountain Community College, and the residential areas north of downtown. The interchange also serves regional traffic coming from/going to US 395 south of Pendleton and OR 11 northeast of downtown."*

INTERCHANGE MANAGEMENT STUDY AREA

To provide a comprehensive study and to achieve effective results, the Interchange Management Study Area (IMSA) includes developable and re-developable properties and major roadways that would significantly affect the interchange function over the next 20 years. The IMSA includes properties within ½-mile, and in some cases beyond, from the existing I-84 interchange as defined by the IAMP Guidelines. The IMSA also takes 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.

The IMSA map is shown in Figure 1-1. Figure 1-1 identifies key features and boundaries of the area included in the IAMP. As shown on the IMSA map, two study boundaries are identified: the IAMP Operations and Access Study area and the Land Use Study Area. The following describes the criteria used to create the IMSA map.

LEGEND

- MINIMUM 1,320-FOOT IAMP LIMITS
- IAMP OPERATION/ACCESS STUDY AREA
- INTERCHANGE MANAGEMENT STUDY AREA (IMSA)

INTERCHANGE MANAGEMENT STUDY AREA (IMSA)
PENDLETON, OREGON

FIGURE 1-1

H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-01.dwg Aug 16, 2010 - 4:03pm - jsommerville Layout Tab: Fig_1-1

Operations and Access Study Area

The Operations and Access Study Area includes all access points and intersections within ¼-mile from the existing I-84 interchange and encompass key intersections that have potential to affect traffic operations in the interchange area over the planning period. This study boundary identifies the area for which operational analysis was completed and specifically requires an Access Management Plan (AMP). The study intersections included:

- I-84/US 395 Eastbound Ramp Terminal
- I-84/US 395 Westbound Ramp Terminal
- SW Dorian Avenue / SW 20th Street
- SW Court Avenue / SW 20th Street
- SW Emigrant Avenue / SW 17th Street
- SW Frazer Avenue / SW 17th Street
- SW Emigrant Avenue / SW 18th Street
- SW Emigrant Avenue / SW 19th Street
- SW Frazer Avenue / SW 19th Street
- SW Emigrant Avenue / SW 20th Street
- US 395 / SW Hailey Avenue
- US 395 / SW 30th Street

Land Use Study Area

The Land Use Study Area includes all properties located roughly within a ½-mile of the interchange. The Land Use Study Area extends beyond a ½-mile in places to incorporate developable and re-developable properties that are expected to significantly affect the interchange function over the next 20 years. Properties identified with potential to affect the interchange include those that are expected to utilize the interchange as their primary connection to I-84 or those that may be necessary to examine to improve local circulation.

GOALS AND OBJECTIVES

The IAMP process is intended to protect the function of the interchange for the next 20 years while accounting for changes in land use and traffic patterns. Potential capacity for additional residential development south of the interchange will impact the traffic patterns over this period. As stated in Policy 3C of the 1999 Oregon Highway Plan, "it is the policy of the State of Oregon to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways." From this definition, the goals and objectives of the I-84/US 395 IAMP are to:

- Protect the function and operation of the existing local street network within the IMSA.

- Ensure changes to the planned land use are consistent with protecting the long-term function of the interchange and the local street system.
- Ensure that the interchange will function to support future local economic development.
- Identify the existing and potential land use designations, intensities, conditions, and actions that could have a *favorable* effect on the facility, or an *adverse* effect on the facility.
- Manage the allowed land uses within the vicinity of the interchange to provide for future economic growth over the next 20 years.
- Identify and prioritize transportation improvements needed to maintain acceptable traffic operations at the proposed interchange while providing safe access to adjacent land uses.
- Apply access management techniques and develop a planned local-roadway infrastructure.
- Collaborate throughout the planning process with design professionals, jurisdictional representatives, developers, and local property owners and citizens.
- 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.
- Develop implementation policies to be adopted into the City comprehensive plans, transportation system plans, interchange access standards, and zoning ordinances, as appropriate.

EVALUATION CRITERIA

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

- Transportation Operations: This category consists of those criteria that assess the ability for vehicles to travel through and within the IMSA. Special considerations within this category include safety, local connectivity and mobility, including freight mobility.
- Land Use: This category consists of those criteria that assess right-of-way impacts, consistency with adopted land use and economic development plans, transportation capacity impacts of changes in land use intensity, impacts to utilities, and impacts to existing and proposed developments.
- Economic Development: This category consists of those criteria that assess the potential for near-term growth (1-5 years), mid-term growth (5-15 years), and long-term growth (15-25 years)
- Cost: This category consists of those criteria that assess the practicality of a design concept from a construction cost and feasibility perspective.
- Environmental, Social, and Equity 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 impacts (i.e., storm water drainage and hazardous waste) and socio-economic impacts (i.e., stakeholders' needs).

- Accessibility: This category consists of those criteria that assess the ability to access properties and businesses within the IMSA to/from the regional transportation network including the balance between local access and roadway function, future access for undeveloped properties, and adherence to the access spacing standards.

DEVELOPMENT OF THE IAMP

The I-84/US 395 IAMP has been guided by the Technical Advisory Committee (TAC) and Public Advisory Committee (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 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 fact, a number of area business and property owners attended the final PAC meetings and provided feedback that was instrumental to the development of the preferred transportation improvement plan. In addition, adoption of the plan will have included public hearings before the City of Pendleton Planning Commission and Council and the Oregon Transportation Commission.

IAMP ORGANIZATION AND METHODOLOGY

The development of the I-84/US 395 IAMP began in May 2009 with the first meeting of the Project Management Team (PMT) and City and ODOT staff. Work with the TAC and PAC began shortly thereafter in June 2009. Since June 2009, 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 I-84/US 395 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 I-84/US 395 IAMP complies with the Oregon Administrative Rules for the development of an interchange area management plan as well as the Oregon Highway Plan.

Section 2
Interagency and Public Involvement Program

Interagency and Public Involvement Program

As part of the I-84/US 395 Interchange Area Management Plan (IAMP), interagency and public involvement occurred through: a kick-off meeting with agency staff; a Technical Advisory Committee (TAC) and a Public Advisory Committee (PAC) that had regular meetings; three public workshops involving local citizens, property owners, and business owners; a joint work session of the City of Pendleton Planning Commission and City Council that was open to the public; and public adoption hearings in front of the City of Pendleton Planning Commission and Council and the Oregon Transportation Commission. An overview of the TAC and PAC meetings and public workshops is summarized 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, a Project Management Team (PMT) performed a coordination function, planning and executing project management tasks related to project schedule and meeting logistics. The PMT included representation from ODOT, the City of Pendleton, and the consultant team and were all members of the TAC.

Membership on the TAC and PAC was established through input from City and ODOT representatives. A proposed TAC and PAC membership roster was presented and finalized at a project kick-off meeting held May 13th, 2009. A list of TAC and PAC members is included in Table 2-1 and 2-2.

TABLE 2-1 TECHNICAL ADVISORY COMMITTEE

Agency	Name	Position / Title	Role
City of Pendleton	Evan MacKenzie	City of Pendleton Senior Planner	City Project Manager PMT and TAC
	Bob Patterson	City of Pendleton Public Works Director	TAC
	Tim Simmons	City of Pendleton City Engineer	TAC
	Pete Wells	City of Pendleton City Attorney	TAC
	Larry Dalrymple	City of Pendleton Eastern Oregon Regional Airport Manager	TAC
	Larry Lehman	City of Pendleton City manager	TAC
DLCD	Grant Young	DLCD Field Representative	TAC
Economic Revitalization Team	Scott Fairley	Eastern Oregon Coordinator	TAC
ODOT Region 5	Patrick Knight	ODOT Region 5 Planner	ODOT Project Manager PMT and TAC
	Donald Fine	ODOT Region 5 Traffic Operations & Analysis	TAC
	Tom Kuhlman	ODOT Region 5 Traffic Section Manager	TAC
ODOT District 12	Ken Patterson	ODOT District 12 Area Manager (Interim)	TAC
ODOT Statewide Office	Dave Warrick	ODOT Interchange Engineer	TAC
Umatilla County	Oliver Pahl / Tamra Mabbott	Umatilla County	TAC

TABLE 2-2 PUBLIC ADVISORY COMMITTEE

Name	Representing
Bill Arrington	D&B Supply
Chuck Wood	City of Pendleton Planning Commission
Craig Smith	St. Anthony's Hospital
Dan Ball	Pendleton Bicycle Club
Dan Ceniga	City of Pendleton City Council
Dan Mitzimberg	City of Pendleton Transportation Commission
Dave Byrd	City of Pendleton Parks & Recreation
Don Russell	Time-to-Wash
Eric Fanciullo	Denny's Restaurant
Harry Snyder	Dean's Market
Jef Farley	Real Estate and Housing
John Brenne	City of Pendleton City Council
Justin Pearce	City of Pendleton City Council
Loren Schmucker	Keystone RV
Phil Houk	City of Pendleton City Council
Rich Britton	Bank of the West
Rick Oliver	First Church of God
Stacey Bowen	Safeway
Vern Wilcox	Wilcox Furniture
Vince Crawford	City of Pendleton Planning Commission

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 officials, area property and business owners, and other interested citizen groups. In addition to the PAC members, a number of area property and business owners regularly attended PAC meetings and actively 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 I-84/US 395 IAMP, a series of TAC and PAC meetings, public workshops, and public joint work sessions were held over the course of the project. The City of Pendleton 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 Event	Date/Location	Meeting Purpose/Objectives
Kick-off Meeting	May 13th 2009/ Pendleton – City Hall	- Review Project Goals - Review TAC and PAC Membership - Review Project Schedule
TAC/PAC Meeting #1	June 25th, 2009/ Pendleton – Vert Club Room	- 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 395 IAMP project 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	August 26, 2009/ Pendleton – Vert Club Room	- Review Tech Memorandums #3/4 and #5/6 (Existing and Future Conditions) - Presentation: Interchange Design 101/Local Circulation 101 - Brainstorm Design Concepts The purpose of Meeting #2 was to review the existing and future land use and traffic operations 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	August 26, 2009/ Pendleton – Vert Club Room	- Project Overview - Summary of Existing and Future Conditions - Presentation: Interchange Design 101/Local Circulation 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	January 7, 2010/ Pendleton – Convention Center	- Review Concepts 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	January 7, 2010/ Pendleton – Convention Center	- Review Concepts Analysis 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	February 18, 2010/ Pendleton – Convention Center	- Review Evaluation of Refined Concepts - Determine Preferred Concepts The purpose of Meeting #4 was to review the evaluation of the refined concepts developed at the last set of PAC, TAC, and public workshops and determine preferred concepts. Feedback from this meeting resulted in further refined concepts for detailed analysis.
City Council/Planning Commission Joint Presentation	March 30, 2010/ Pendleton – City Hall	- Review Project Purpose and Process - Review Refined Concepts The purpose of the joint presentation was to update the City Council and Planning Commission on the project's purpose, process, and progress to date and to present the concepts that had been moved forward for further analysis.

Meeting Event	Date / Location	Meeting Purpose / Objectives
TAC/PAC Meeting #5	March 31, 2010/ Pendleton – Convention Center	- Review Detailed Analyses and Cost Estimates - Determine Preferred Concepts The purpose of Meeting #5 was to review the evaluation of the refined concepts and determine preferred concepts. Feedback from this meeting resulted in new and refined concepts to be further evaluated.
TAC/PAC Meeting #6	April 15, 2010/ Pendleton – Vert Club Room	- Review Detailed Analyses and Cost Estimates - Gather Feedback The purpose of Meeting #6 was to review the evaluation of the refined and new concepts and gather feedback on them. These meetings provided direction for additional refinement and information gathering on the potential concepts.
TAC/PAC Meeting #7	May 6, 2010/ Pendleton – Vert Club Room	- Review Refined Analyses and Cost Estimates - Gather feedback The purpose of Meeting #7 was to review the evaluation of the refined and new concepts and gather feedback on them. Feedback from the meetings indicated that preferred concepts that can be supported by both committees and area business and property owners may exist.
TAC/PAC Meeting #8	July 22, 2010/ Pendleton – City Council Chambers	- Summary of Draft IAMP The purpose of Meeting #8 was to review the draft IAMP.
Public Workshop #3	July 22, 2010/ Pendleton – City Council Chambers	- Summary of Draft IAMP The purpose of the third Public Workshop was to review the draft IAMP.
Planning Commission Hearing	October 21, 2010/ Pendleton – City Council Chambers	The Draft IAMP was presented to the Planning Commission for adoption. The public hearing was continued until all members of the Commission had reviewed the document thoroughly.
Planning Commission Hearing	November 4, 2010/ Pendleton – City Council Chambers	The Draft IAMP was approved and forwarded to the City Council with a recommendation for approval.
City Council Hearing	TBD	
OTC Hearing	TBD	

Section 3
Plan and Policy Review

Plan and Policy Review

One of the project objectives of the IAMP is to ensure that the plan is consistent with local and state transportation policies and standards. To meet this objective, a review and evaluation of existing plans, policies, standards, and laws that are relevant to the 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 I-84/US 395 Interchange.

Federal

- CFR 23 Subchapter G – Section 625 (Interstate System Access)

State/ODOT

- Statewide Planning Goal 1 (Public Involvement), Goal 2 (Land Use Planning), Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces), Goal 6 (Air, Water and Land Resources Quality), Goal 7 (Areas Subject to Natural Hazards), Goal 8 (Recreational Needs), Goal 9 (Economic Development), Goal 10 (Housing), Goal 12 (Transportation), and Goal 14 (Urbanization)
- Oregon Transportation Plan (1992)
- Oregon Highway Plan (1999)
- Oregon Administrative Rule 660, Division 12 (Transportation Planning Rule)
- Oregon Administrative Rule 734, Division 51 (Access Management Rule)
- Highway Design Manual

Local

- City of Pendleton Comprehensive Plan (1983)
- City of Pendleton Development Code (Last amended 2009)
- City of Pendleton Transportation System Plan (Updated 2007)
- City of Pendleton System Development Charges
- City of Pendleton Capital Improvement Program (CIP)
- Pendleton Downtown Resource Team Report (2006)

CONSISTENCY WITH EXISTING PLANS

The IAMP has been developed to be consistent with local and state transportation policies. The review of local policies and regulations did not reveal conflicts with the primary goal of the IAMP to protect the function of the interchange but, at the same time, the existing regulatory tools also do not adequately address the future transportation needs in the area. Additional requirements regarding access management, local street connectivity, and transportation financing must be adopted if the transportation system in this area of Pendleton 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 / Land Use Conditions

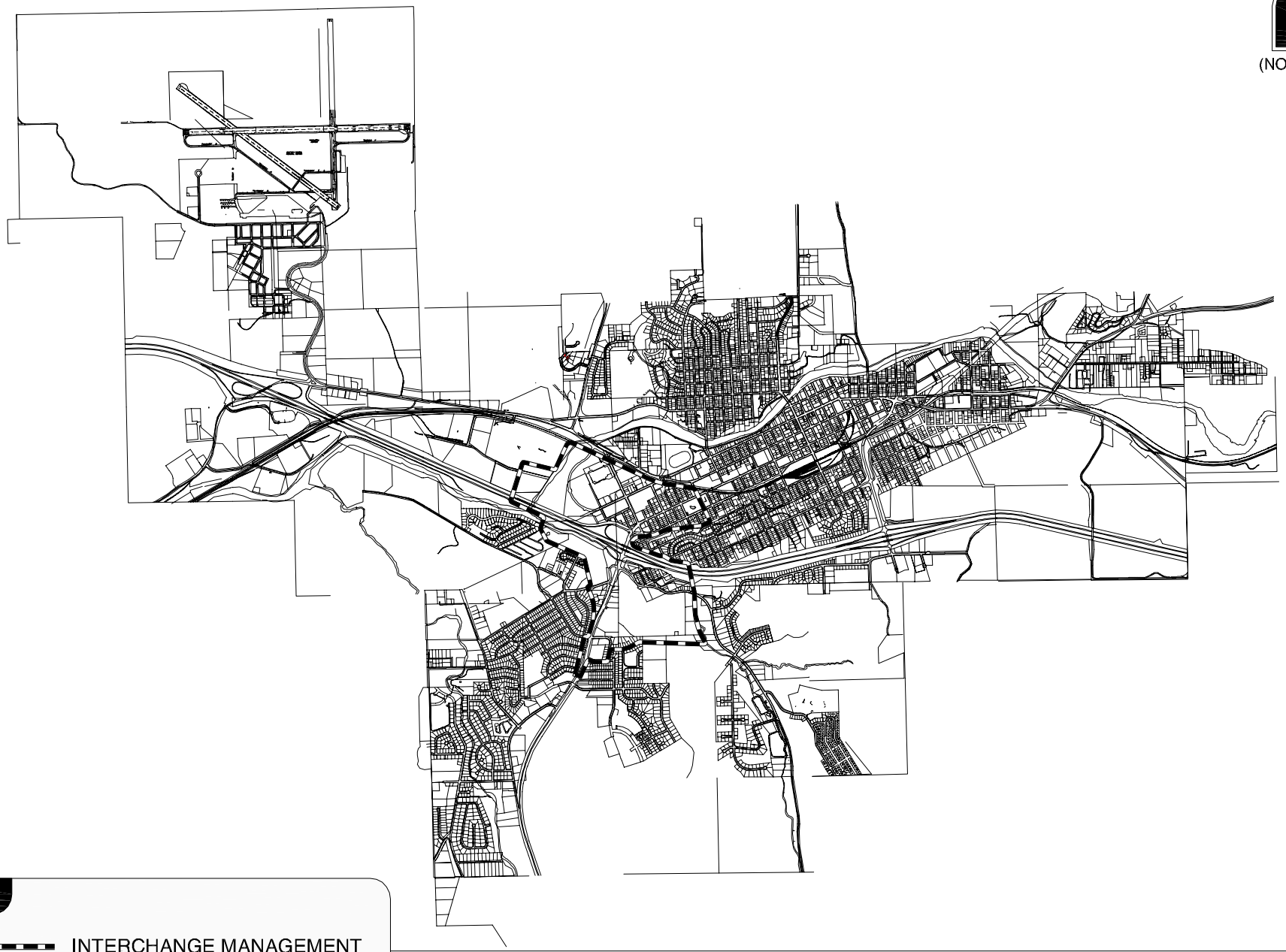
Existing Transportation / Land Use Conditions

This section provides a review of existing land uses and transportation facilities as well as natural and cultural resources within the vicinity of the I-84/US 395 interchange. As shown in Figure 4-1, this interchange is the one of the five interchanges serving Pendleton that is central to the urban core of the city. 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. As the figure shows, the study includes an Operations and Access Study Area and a Land Use Study Area. The Land Use Study Area includes the areas with trip generation potential that are expected to have a direct affect on the design and function of the interchange. Generally speaking, land uses outside of the Land Use Study area are not anticipated to directly impact the function of the interchange because they are already developed, have limited redevelopment potential, are already accounted for in forecasted citywide growth, or are outside of Pendleton's Urban Growth Boundary (UGB).

Figure 4-2 also outlines the Interchange Operations/Access Review Area. The operations and access management of intersections and driveways within this area is the subject of analysis described later in this section.



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LEGEND

INTERCHANGE MANAGEMENT STUDY AREA

STUDY AREA VICINITY MAP
PENDLETON, OREGON

FIGURE
4-1

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

LEGEND

- MINIMUM 1,320-FOOT IAMP LIMITS
- IAMP OPERATION/ACCESS STUDY AREA
- INTERCHANGE MANAGEMENT STUDY AREA (IMSA)

INTERCHANGE MANAGEMENT STUDY AREA (IMSA)
PENDLETON, OREGON

FIGURE **4-2**

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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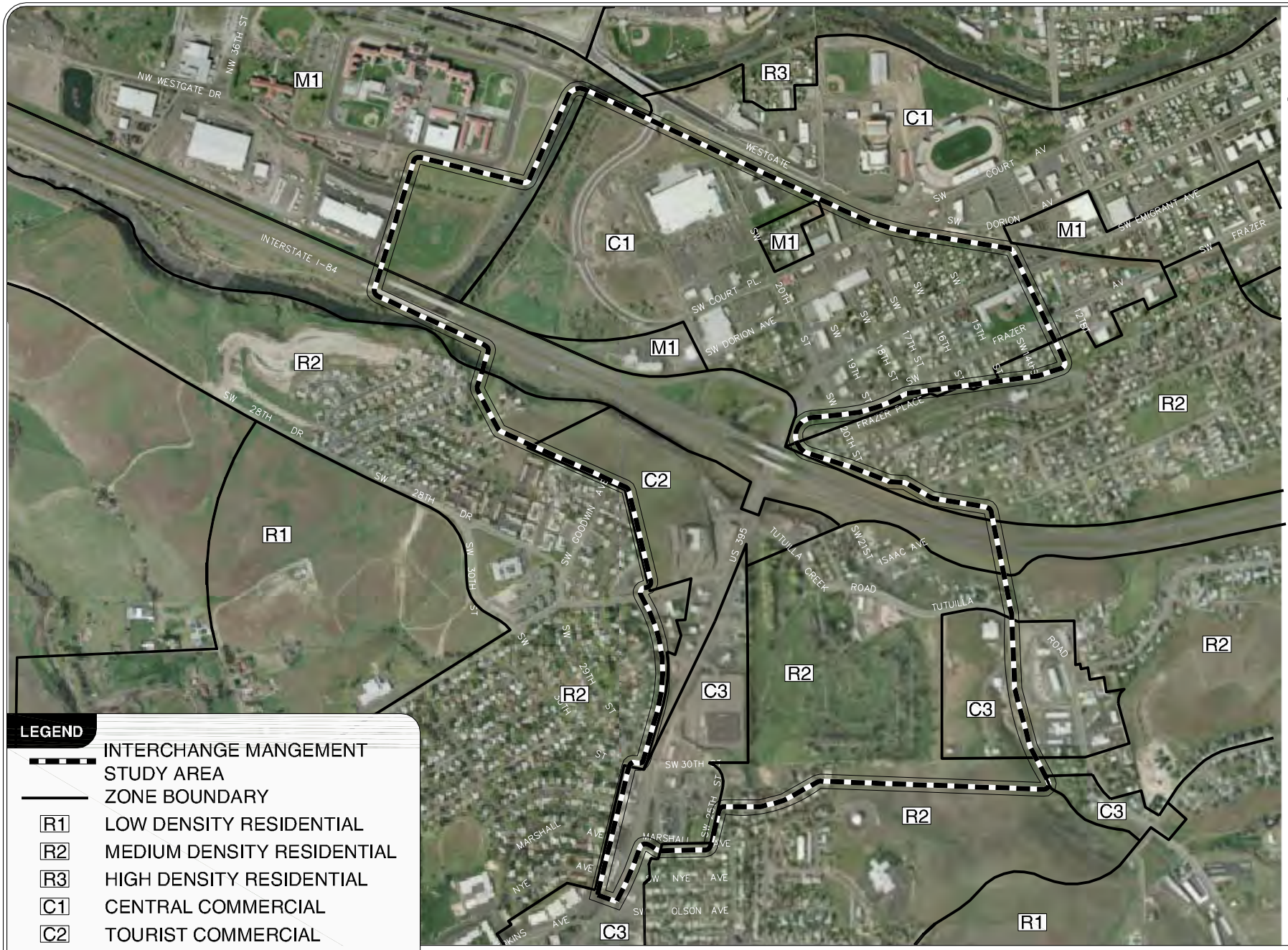
EXISTING LAND USE

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

Existing Zoning

As shown in Figure 4-3, zoning in the IMSA primarily consists of commercial zones and secondarily of residential and industrial zones. Articles IV through IX of the City of Pendleton Zoning Ordinance 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.

- C-1 (Central Commercial)
    - Uses: vehicle services, business and personal services, housing (subject to conditions), eating and drinking establishments, general retail, public and health services, parking areas, garages, and transit facilities permitted outright; city parks, housing in the Central Parking District (subject to conditions), hospitals, cultural facilities, and transportation services permitted conditionally.
    - Development standards: no minimum lot size, maximum lot coverage, or maximum height.
- C-2 (Tourist Commercial)
    - Uses: eating and drinking establishments, lodging, vehicle services, and information centers permitted outright; transit facilities and transportation services permitted conditionally.
    - Development standards: no minimum lot size or maximum lot coverage; maximum building height is 50 feet or five stories.
- C-3 (Service Commercial)
    - Uses: vehicle services, business and personal services, housing (subject to conditions), eating establishments, food stores, general retail, health services, and transit facilities permitted outright; drinking establishments, housing (subject to conditions), public services, hospitals, lodging, cultural facilities, warehousing, railroad facilities, and transportation services permitted conditionally.
    - Development standards: no minimum lot size or maximum lot coverage; maximum building height is 50 feet or five stories.



(NO SCALE)

LEGEND

- INTERCHANGE MANGEMENT STUDY AREA
- ZONE BOUNDARY
- R1 LOW DENSITY RESIDENTIAL
- R2 MEDIUM DENSITY RESIDENTIAL
- R3 HIGH DENSITY RESIDENTIAL
- C1 CENTRAL COMMERCIAL
- C2 TOURIST COMMERCIAL
- C3 SERVICE COMMERCIAL
- M1 LIGHT INDUSTRIAL

EXISTING ZONING CLASSIFICATIONS
PENDLETON, OREGON

FIGURE **4-3**

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- R-2 (Medium Density Residential)
    - Uses: detached and attached single-family housing, duplexes, townhouses, manufactured homes, residential homes and facilities, and city parks permitted outright; multi-family housing, neighborhood commercial uses, schools, churches, cemeteries, and transportation facilities permitted conditionally.
    - Development standards: minimum lot sizes range from 5,000 to 8,000 square feet depending on slope; 5 to 18 units per acre permitted; maximum lot coverage is 40%; maximum building height is 40 feet or three stories.
- M-1 (Light Industrial)
    - Uses: vehicle services, contractors and construction retail, light industrial, business services, repair services, wholesaling, solid waste transfer stations (subject to conditions), and transportation services and facilities permitted outright; eating and drinking establishments, public services, lodging, junk and wrecking yards, light industrial, landfills and waste treatment or disposal facilities, animal clinics and hospitals, mining, utilities, and transportation equipment permitted conditionally.
    - Development standards: minimum lot size established site-by-site in Zoning Ordinance but minimum lot sizes not identified in IMSA; no maximum lot coverage; landscaping required for screening.

LAND USE INVENTORY

The following is a summary of existing land uses within the IMSA, including commercial, residential, and other uses north and south of the interchange.

Commercial Uses (North of the Interchange)

Zoning north of the interchange in the IMSA is mostly C-1 (Central Commercial). Existing uses in the zone include large to small retail as well as residential. As mentioned in the zoning section above, housing is allowed in the C-1 (Central Commercial) zone given adequate public facilities and services and conformance with other city requirements. Immediately north/northeast of the interchange between SW 20th Street and SW 23rd Street are a mini-mart, bank, furniture store, a shopping plaza, and housing, primarily single-family. Directly north of the interchange loop ramp, south/southwest of SW 20th Street is housing and a Safeway store. West/southwest of Safeway is a glass business with a storage yard and a hotel. Across SW Court Avenue from Safeway is a Wal-Mart store, with access onto SW Court Avenue and SW 20th Street. Beyond SW 23rd Street to the northern border of the IMSA is a combination of downtown businesses, services, and housing. The railroad forms the northern border, and the Round-Up Grounds and Convention Center lay just on the other side of the border.

Commercial Uses (South of the Interchange)

Unlike the commercial development north of the interchange, which reflects the city's transition to downtown, the development in the C-2 (Tourist Commercial) zone south of the interchange reflects this area's orientation to the freeway and is comprised of fast, convenient, and motor vehicle-

oriented businesses. Immediately south of the interchange along US 395, SW Hailey Avenue, and SW Tutuilla Creek Road are a Burger King , Denny's, and motel.

Commercial zoning lines US 395 as it travels south from the interchange. Between the SW Hailey Ave/SW Tutuilla Creek Rd intersection and SW 30th Street are a series of retail businesses and professional services including a gas station, oil change shop, car wash, Wendy's, McDonald's, Subway, Starbucks, Abby's Pizza, a mini-mart, and two realtors. There is also a retailer on a large lot – D&B – a farm store that took over the building and property from K-Mart.

Residential Uses (North of the Interchange)

There are areas of residential zoning and housing in the IMSA. The IAMP process and the preferred transportation improvement plan for the IAMP and interchange-related transportation improvements need to be sensitive to existing residential areas. The homes in the IMSA tend to be "stick-built" and "site-built" and not mobile or manufactured homes, according to City staff, even though mobile homes are allowed in the C-1 and R-2 zones.

As noted earlier, housing is allowed in the C-1 (Central Commercial) zone and existing housing is found interspersed with commercial uses north of the interchange. In particular, there is a large block of housing between the northern interchange loop ramp and SW 20th Street, across from the Safeway. There is also housing in the R-2 (Medium Density Residential) zone in the northeast quadrant of the interchange. This area's direct impact on future interchange operations is assumed to be minimal because of the lack of developable land, the grade differences, and lack of direct access to US 395. While traffic from this area will be included in the transportation analysis, this area is not included in the IMSA for purposes of land use analysis or access management.

Residential Uses (South of the Interchange)

Housing south of the interchange is located in the only residential zoning district within the IMSA, the R-2 (Medium Density Residential) zone. There is an area of housing adjacent to the freeway and east of the Denny's and motel on SW Tutuilla Creek Road. There is also a large area of residentially zoned land (R-2) in this southeast quadrant of the interchange and IMSA that is vacant. This area is included in the IMSA because planned roads shown in the City's Transportation System Plan (TSP) will connect SW Ladow Avenue and SW Tutuilla Creek Road. This will create another connection between SW Tutuilla Creek Road and US 395. There are large developed neighborhoods southwest of the interchange, but as with the areas north of the interchange, these neighborhoods have not been included in the IMSA because of grade differences and only indirect access to US 395 and the interchange. Traffic from these and other areas of the city, however, will be captured in transportation analyses conducted over the course of this project through regional growth projections.

Other Uses

Other uses and features in the IMSA include industrial uses, institutional uses, open space, the Umatilla River and Tutuilla Creek. Light industrial uses are found in the IMSA in areas of light industrial (M-1) zoning. For example, the M-1 zone directly to the northwest of the westbound I-84 loop ramp is the site for a glass business, which also uses the site for storage. A larger area of M-1

zoning is found in the IMSA west of the Umatilla River, adjacent to and north of the freeway. This area was included in the IMSA because of planned roadways across the river shown in the City's TSP. This industrially zoned land is currently vacant and owned by the City. North of it is the Eastern Oregon Correctional Institution, a 1,600-bed facility and the city's fourth largest employer, according to the Oregon Department of Corrections.

Institutional uses in the IMSA include a church, cemetery, and a US Forest Service (USFS) building, all to the south of the interchange. The USFS building that is directly south of the eastbound I-84 off-ramp and the Burger King is the headquarters for the Umatilla National Forest. This land is not owned by the USFS or federal government. Olney Cemetery occupies a large area southeast of the interchange. The 55-acre site and associated facilities are owned and managed by the City and its Parks Department. According to the City's website, of the 70,000 available graves, 17,000 people have thus far been interred there, including transfers from a former pioneer cemetery.

On the west side of US 395, there are two churches across SW Hailey Avenue from each other. Only the church on the south side of SW Hailey Avenue (behind the realtor office, gas station, and Starbucks) has access to US 395 and is included in the IMSA. At the south tip of the IMSA and directly south of SW 30th Street is a medical center. City staff report that it functions as a regional facility, drawing visitors and patients from outside the city and not just inside the city.

Vacant Land

The most significant areas of vacant land in the IMSA are found north of the interchange west of the Wal-Mart and then across the Umatilla River on the City-owned property south of the Eastern Oregon Correctional Institution. These areas are zoned C-1 (Central Commercial) and M-1 (Light Industrial) respectively. The land west of Wal-Mart in particular has the potential to generate traffic given its commercial zoning and existing roads and infrastructure in the area. The City-owned land across the river is planned to be accessible via a new bridge and roads shown in the City's TSP, but these are long-term projects, so this land can be considered developable but later in a 20-year planning horizon.

South of the interchange, there is land in the southeast section of the IMSA that is vacant residentially zoned land. The land was included in the IMSA because of planned roads and connections to SW Ladow Avenue and SW Tutuilla Creek Road, which connect to US 395. Development here would likely occur later in the planning period, given the need to first, or concurrently, build these connecting roads. Residential development is assumed for future land use scenarios.

There is also vacant land included in the IMSA that is residentially zoned and is adjacent to the freeway and interchange in its southwest quadrant. This land is steeply sloped and less likely to be developed any time soon, if at all. If developed, this area would likely be homes rather than employment (commercial or industrial) uses. The area is not well suited to employment uses, which tend to seek flatter land and might conflict with adjacent residential neighborhoods.

City staff identified the potential for infill development amongst existing commercial development along US 395 south of the interchange. However, there has been no recent indication of private interest.

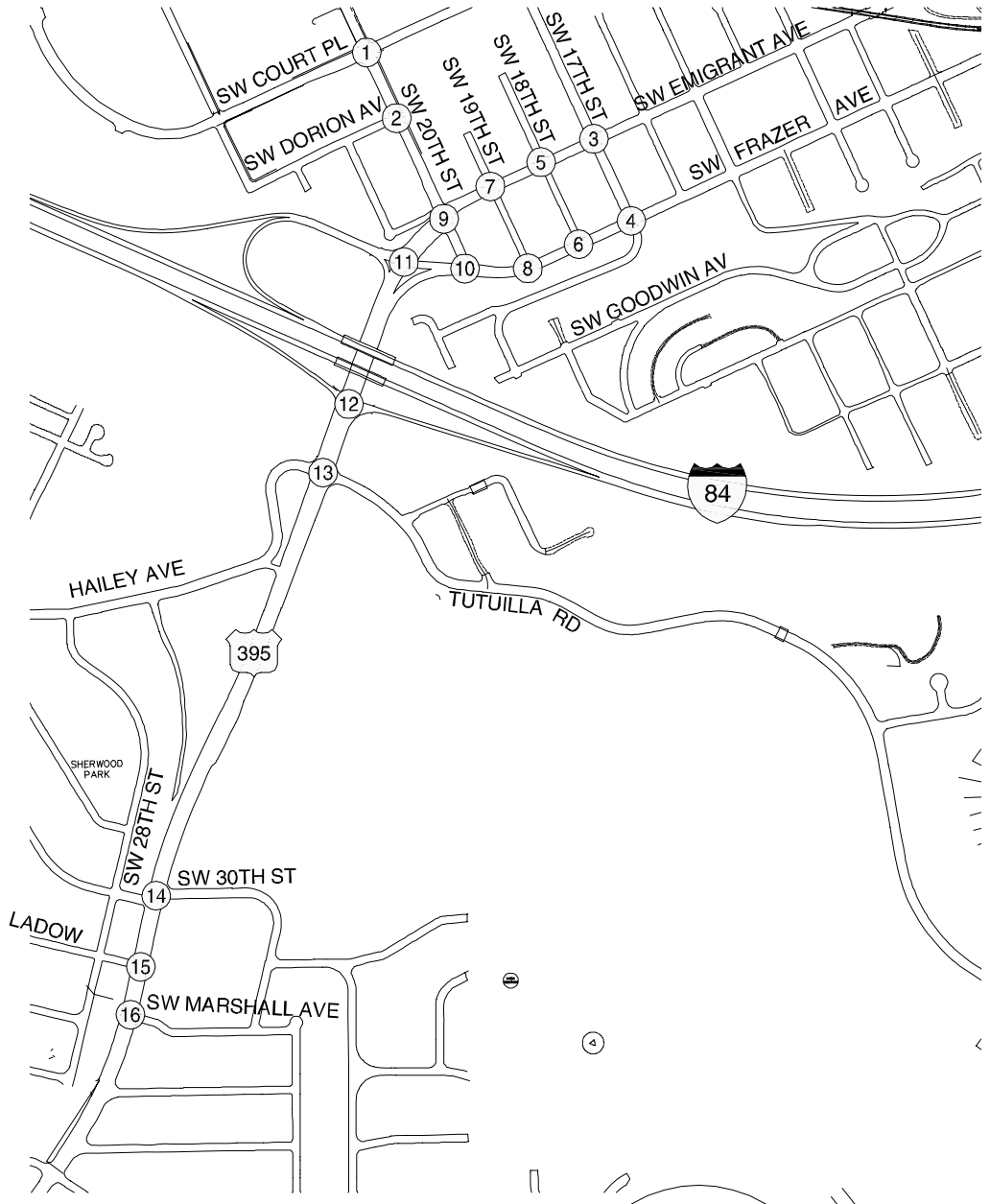
Despite the vacant land and development opportunities documented here, City planning staff report that there were no submitted or pending development applications in the IMSA at the time that the IAMP was developed, nor had there been informal inquiries or conversations with staff about development in the vicinity of the interchange.

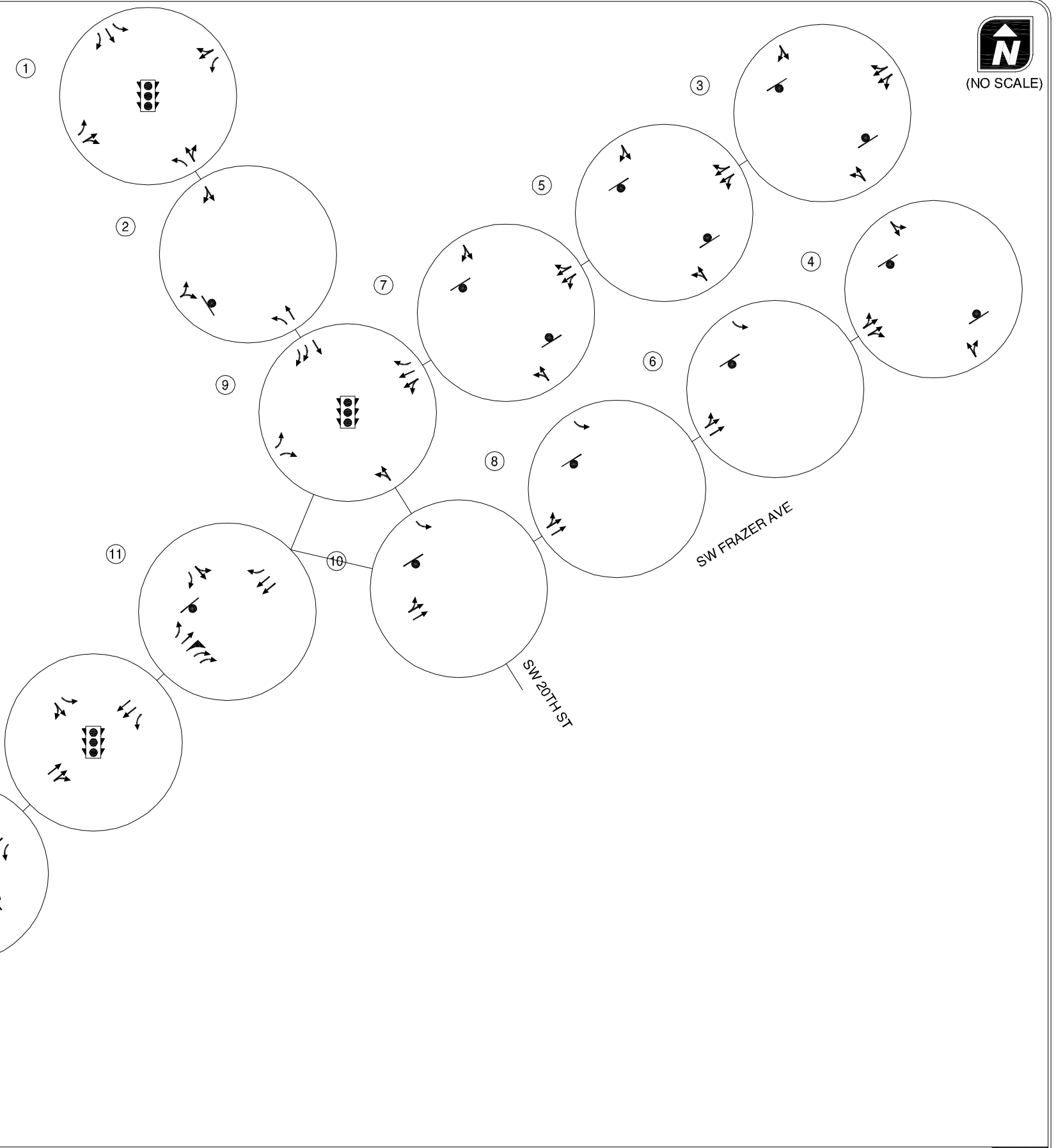
EXISTING TRANSPORTATION INVENTORY

The second major component of the I-84/US 395 IAMP existing conditions evaluation process is the transportation system. The existing transportation inventory provides a detailed description of all transportation facilities and travel modes within the IMSA. In addition, the inventory identifies the current operational, traffic control, and geometric characteristics of roadways and other transportation facilities.

ROADWAY FACILITIES

The roadways within the IMSA include state and city roadways. A description of each of the functionally classified roadway facilities is summarized in Table 4-1. The remaining roadways (e.g. SW 19th Street, SW 18th Street, etc…) are classified as local roads and typically are 25 mph, two-lane sections with sidewalks and on-street parking but no bike lanes. Figure 4-4 illustrates the existing lane configurations and traffic control devices at the respective study intersections.





LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

EXISTING LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PENDLETON, OREGON

FIGURE **4-4**

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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TABLE 4-1 EXISTING TRANSPORTATION FACILITIES AND ROADWAY DESIGNATIONS

Roadway	Existing Roadway Ownership / Functional Classification[1]	Cross-section	Posted Speed (mph)	Side-walks?	Bicycle Lanes?	On-Street Parking?
Interstate-84	ODOT/ Interstate Highway-Freight Route-Truck Route	4-lane	65	No	No	No
US 395 (Southgate)	ODOT/ Statewide Highway-Freight Route	5-lane	30	Yes	Yes	No
SW Emigrant Avenue (OR 37)	ODOT/District Highway	2-lane	30	Yes	Yes	No
SW Frazer Avenue (OR 37)	ODOT/District Highway	2-lane	30	Yes	Yes	No
SW 17th Street	City/Minor Arterial – Local[2]	2-lane	25	Yes	No	Yes
SW 20th Street	City/Minor Arterial – Local[3]	3-lane	25	Yes	No	No
SW Tutuilla Creek Road	City/Minor Arterial	2-lane	25	Yes	Yes	No
SW Hailey Avenue	City/Urban Collector	2-lane	25	Yes	No	No
SW 30th Street	City/Urban Collector[4]	2-lane	25	Yes	No	Yes
Local Streets[4]	City/Local Streets	2-lane	25	Partial	No	Partial

[1]Functional classifications of ODOT roadways are from the 1999 Oregon Highway Plan and classifications of City roadways are from the Oregon Transportation Map for Pendleton, drawn by ODOT
[2]SW 17th Street is classified as a minor arterial northwest of SW Frazer Avenue and a local road to the southeast
[3]SW 20th Street is classified as a minor arterial northwest of SW Emigrant Avenue and a local road to the southeast
[4]SW 30th Street is classified as an urban collector west of US 395 and a local road to the east
[5]Local Streets include SW 19th Street, SW 18th Street, SW Dorion Avenue, SW Court Place, SW Ladow Avenue, SW Nye Avenue, SW Olson Avenue, and SW Perkins Avenue

Interstate-84

I-84 is a four-lane interstate highway that runs east-west through Pendleton. 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 (Reference 1) as an Interstate Highway, Freight Route, and Truck Route.

Interstate-84 Ramps

The eastbound ramps are a diamond configuration. They include a single-lane on and a single-lane off the interstate in the eastbound direction between the right travel lane of I-84 and US 395. The eastbound off-ramp provides approximately 900 feet for deceleration and queue storage from the ramp gore to the ramp terminal intersection. Its intersection with US 395 is signalized and there is approximately 100 feet of storage for the added eastbound right-turn lane.

The westbound ramps consist of an exiting loop ramp and a conventional on-ramp located in the northwest quadrant of the interchange. They include a single-lane on and a single-lane off the interstate in the westbound direction between the right travel lane of I-84 and US 395. The westbound off-ramp provides approximately 1,300 feet for deceleration and queue storage from the ramp gore to the ramp terminal intersection. There is approximately 400 feet of storage for the added eastbound right-turn lane from the off-ramp onto US 395.

Due to the area's topography, I-84 is elevated over US 395, which slopes downward from south to north. Consequently vehicles entering I-84 must travel up a grade while accelerating to merge onto I-84. Exhibit 4-1 shows the eastbound on-ramp.

Exhibit 4-1 Eastbound I-84 On-Ramp from US 395

The partial cloverleaf configuration of the westbound ramps allows for their intersection with US 395 to be spaced further away from I-84 than the eastbound ramps. There is approximately 650 feet between the ramp terminal intersections on US 395. This allows for nearly 300 feet of storage for left-turning vehicles between the ramp terminals. There is approximately 250 feet between the westbound ramp terminal and the SW Emigrant Avenue/SW 20th Street intersection. This spacing can be used exclusively for northbound left-turn storage at the SW 20th Street intersection because there is no southbound left-turn at the ramp terminal.

US 395 (Southgate)

US 395, the Pendleton-John Day Highway, is classified by the Oregon Highway Plan as a Statewide Highway. It travels north-south across the state of Oregon from Washington to California through cities such as Lakeview, John Day, Pendleton, and Hermiston. Locally, it is known as Southgate from I-84 to the south city limits. US 395 proceeds to become the SW Emigrant Avenue-SW Frazer Avenue couplet, northeast of I-84. Within the IMSA, it has signalized intersections at the eastbound I-84 ramp terminals, SW Hailey Ave-SW Tutuilla Creek Road, SW 30th Street, and SW Perkins

Avenue. The Southgate corridor is primarily occupied by commercial uses, with highway-oriented uses near the interchange. It is also a major commuter route providing one of the few north-south connections across the interstate between downtown Pendleton and the southern residential areas.

SW Emigrant Avenue-SW Frazer Avenue (OR 37) Couplet

The SW Emigrant Avenue-SW Frazer Avenue couplet is also OR 37 from its junction with US 395 to SW 17th Street. OR 37 is classified as a District Highway by the Oregon Highway Plan and is not a National Highway System (NHS) route. The couplet provides access to downtown Pendleton business and residences. SW Emigrant Avenue (one-way southwestbound) is primarily fronted by commercial uses and SW Frazer Avenue (one-way northeastbound) is primarily accessed by residential uses within the IMSA. Both roadways have two-lane sections with sidewalks and bicycle lanes.

SW 17th Street (OR 37)

SW 17th Street is also OR 37 from the SW Emigrant Avenue-SW Frazer Avenue couplet to SW Court Avenue. This section of OR 37 is classified as a district highway by the Oregon Highway Plan and is not a National Highway System (NHS) route. SW 17th Street is a minor arterial and provides a connection from the SW Emigrant Avenue-SW Frazer Avenue couplet to the SW Dorion Avenue-SW Court Avenue couplet, as well as West Gate Avenue (US 30), which travels west across the Umatilla River and provides access to the Eastern Oregon Correctional Institution , Blue Mountain Community College, and Eastern Oregon Regional Airport.

SW 20th Street

SW 20th Street is a three-lane City roadway. It connects the SW Emigrant Avenue-SW Frazer Avenue couplet to SW Court Place, a relatively newer roadway that has more recently experienced new large-scale retail and hotel development.

SW Tutuilla Creek Road

SW Tutuilla Creek Road is a two-lane minor arterial with sidewalks and bike lanes along most of the roadway within the IMSA. It provides access to the City's cemetery and residential and industrial areas in the southeast portion of Pendleton. The road extends much further out into rural county land. It also provides connections to other roadways (SW Marshall Ave-SW Nye Ave) that access the easternmost I-84 interchange in Pendleton.

SW Hailey Avenue

SW Hailey Avenue is a two-lane urban collector with sidewalks. It provides access into residential areas in southwest Pendleton. It also connects to SW 37th Street, which provides access to Pendleton Community Park.

SW 30th Street

SW 30th Street is a two-lane urban collector to the west of US 395. It provides access to residential areas and connects to SW Hailey Avenue. SW 30th Street terminates just to the east of US 395, where it functions as a local road.

Local Streets

SW 19th Street, SW 18th Street, SW Dorion Avenue, SW Court Place, SW Ladow Avenue, SW Nye Avenue, SW Olson Avenue, and SW Perkins Avenue all function as local streets providing access to local properties. Most of theses streets have sidewalks and allow on-street parking.

PUBLIC TRANSPORTATION FACILITIES

There are no public transportation facilities that operate within the IMSA. Through a grant from ODOT, the City of Pendleton operates a demand-responsive bus service from 1:00 p.m. to 5:30 p.m. Monday through Friday. The City also contracts with local taxi service to provide transportation options for senior and disabled citizens.

PEDESTRIAN AND BICYCLE FACILITIES

Sidewalks and bicycle lanes make up the exclusive pedestrian and bicycle facilities inventory in the IMSA. Sidewalks are present on nearly every functionally classified roadway within the IMSA, with the exception of I-84. Generally, pedestrian activity in the IMSA is the highest on SW Emigrant Avenue (it should be noted that pedestrian and bicycle counts were only conducted north of SW 30th Street). The SW 17th Street/SW Emigrant Avenue intersection had the highest amount of pedestrian activity, with 163 pedestrians walking through the intersection from 6 a.m. to 10 p.m., with the highest hour occurring from 3:00 p.m. to 4:00 p.m. when 31 pedestrians walked through. The I-84 eastbound ramp terminals had the second highest level of pedestrian activity, with 133 pedestrians from 6:00 a.m. to 10 p.m. Pedestrian activity was the lowest along SW Frazer Avenue, most notably at the SW 18th and 19th Street intersections.

Bicycle lanes are present on many of the classified roadways. US 395 and the SW Emigrant Avenue-SW Frazer Avenue couplet have bicycle lanes, thereby providing a route from the southwestern portion of Pendleton into the downtown core. The highest bicycle volumes were observed at the SW 17th Street intersections of the SW Emigrant Avenue-SW Frazer Avenue couplet 15 and 13 bicycles during the 16-hour period described above, respectively), followed by the SW 20th Street intersections of the couplet, as well as SW Dorion Avenue (16-hour volumes ranged from 11 to 13 bicycles). On this note, bicycle lanes are noticeably absent from SW 20th Street, which provides a connection to SW Court Place and West Gate Avenue (US 30).

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 IMSA. These counts were conducted on mid-week days in April 2007 and May 2009. A description of the analysis conducted with this data is summarized in the following sections.

Peak Hour Intersection Volumes

Turning movement counts at each intersection were recorded from 6:00 a.m. to 10:00 p.m. Because of the close proximity of the intersections, a system-wide peak hour is identified based on the volumes at all study intersections. The weekday p.m. peak hour in the IMSA is from 4:30–5:30 p.m. The turning movement volumes at each study intersection are balanced during this hour to account

for the differences in data collection dates and locations where some data is missing. Exhibit 4-2 through Exhibit 4-4 illustrate the daily volume peaking characteristics of the I-84 ramp and through traffic. Exhibit 4-5 5 illustrates the daily volume peaking characteristics of US 395 south of I-84.

Exhibit 4-2 Daily Traffic Volume Profile for I-84 Westbound Ramps at US 395

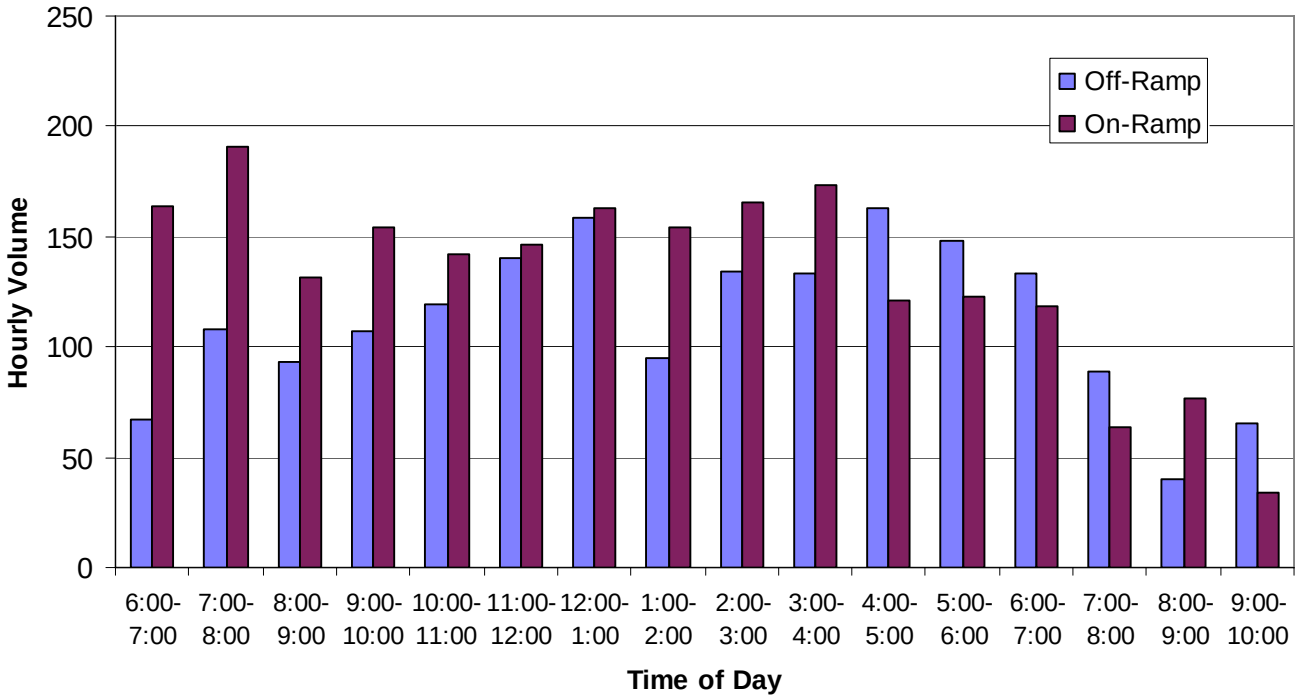


Exhibit 4-3 Daily Traffic Volume Profile for I-84 Eastbound Ramps at US 395

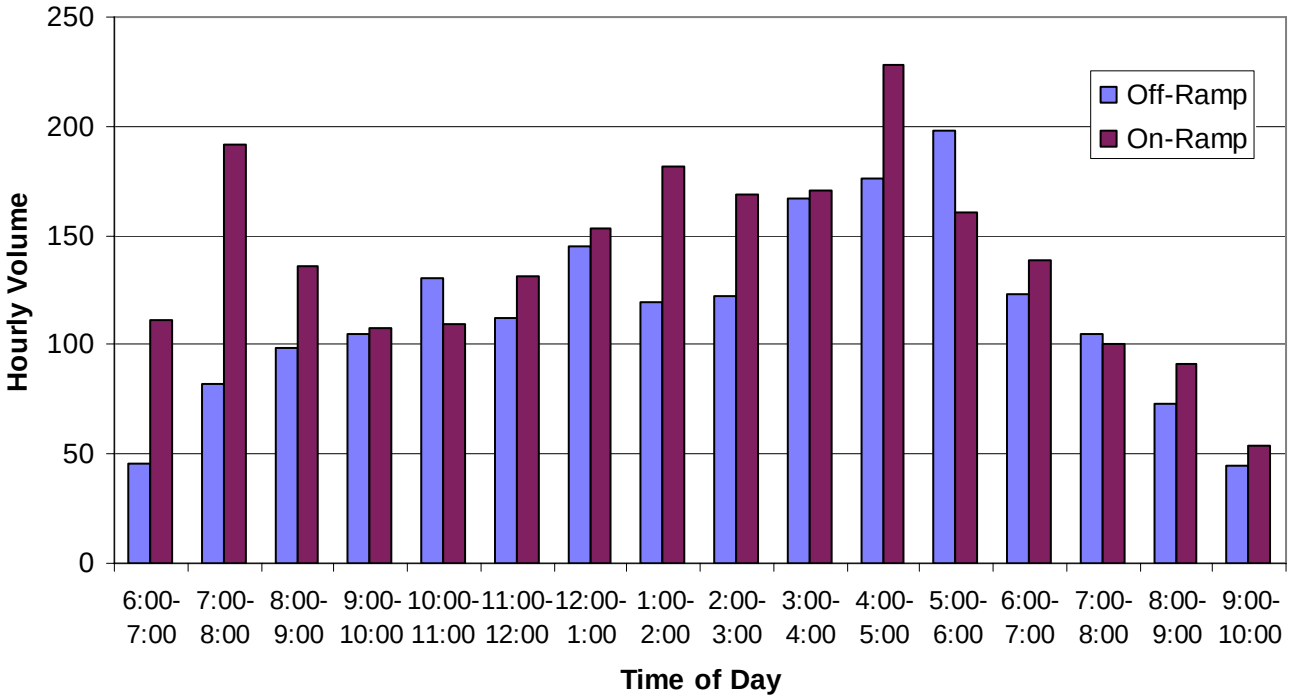


Exhibit 4-4 Daily Traffic Volume Profile for I-84 West of US 395

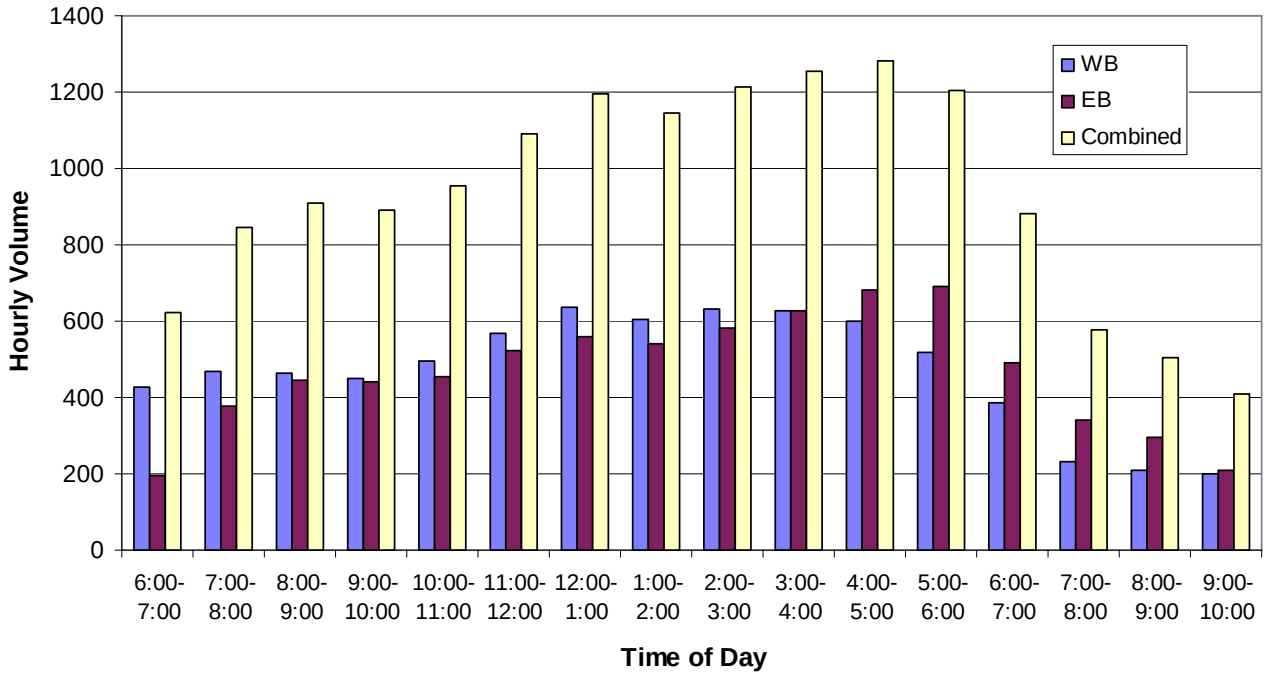
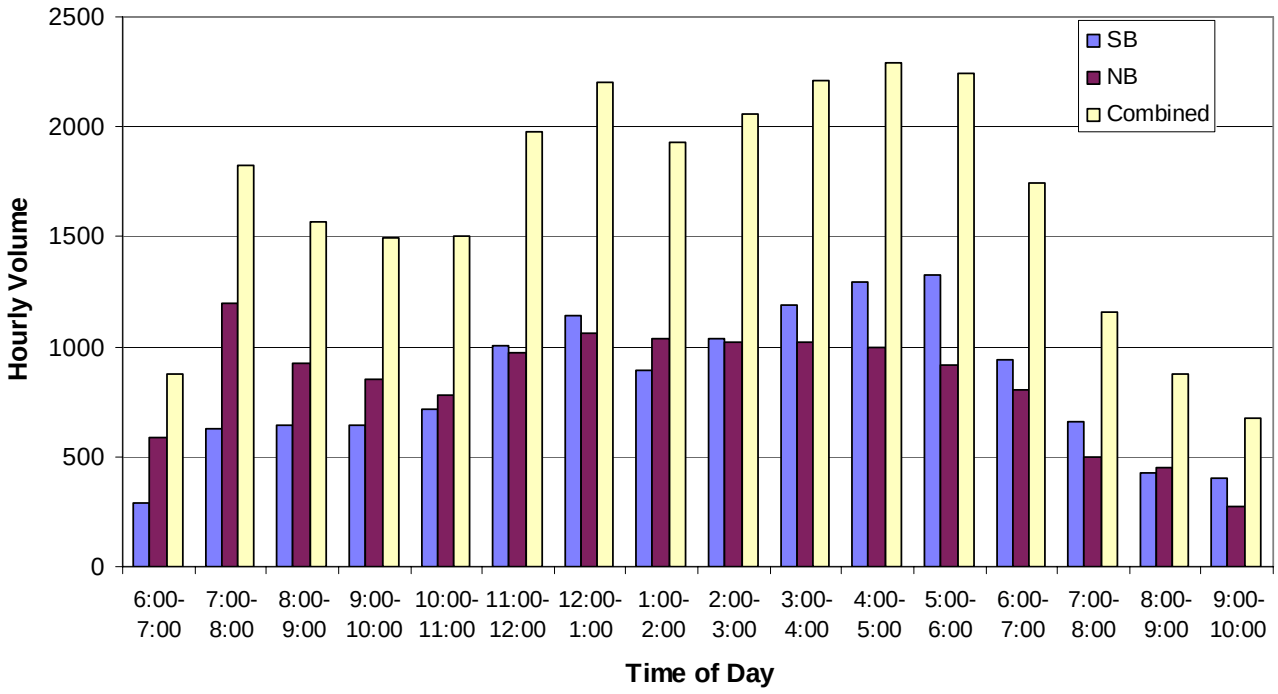


Exhibit 4-5 Daily Traffic Volume Profile on US 395 South of I-84

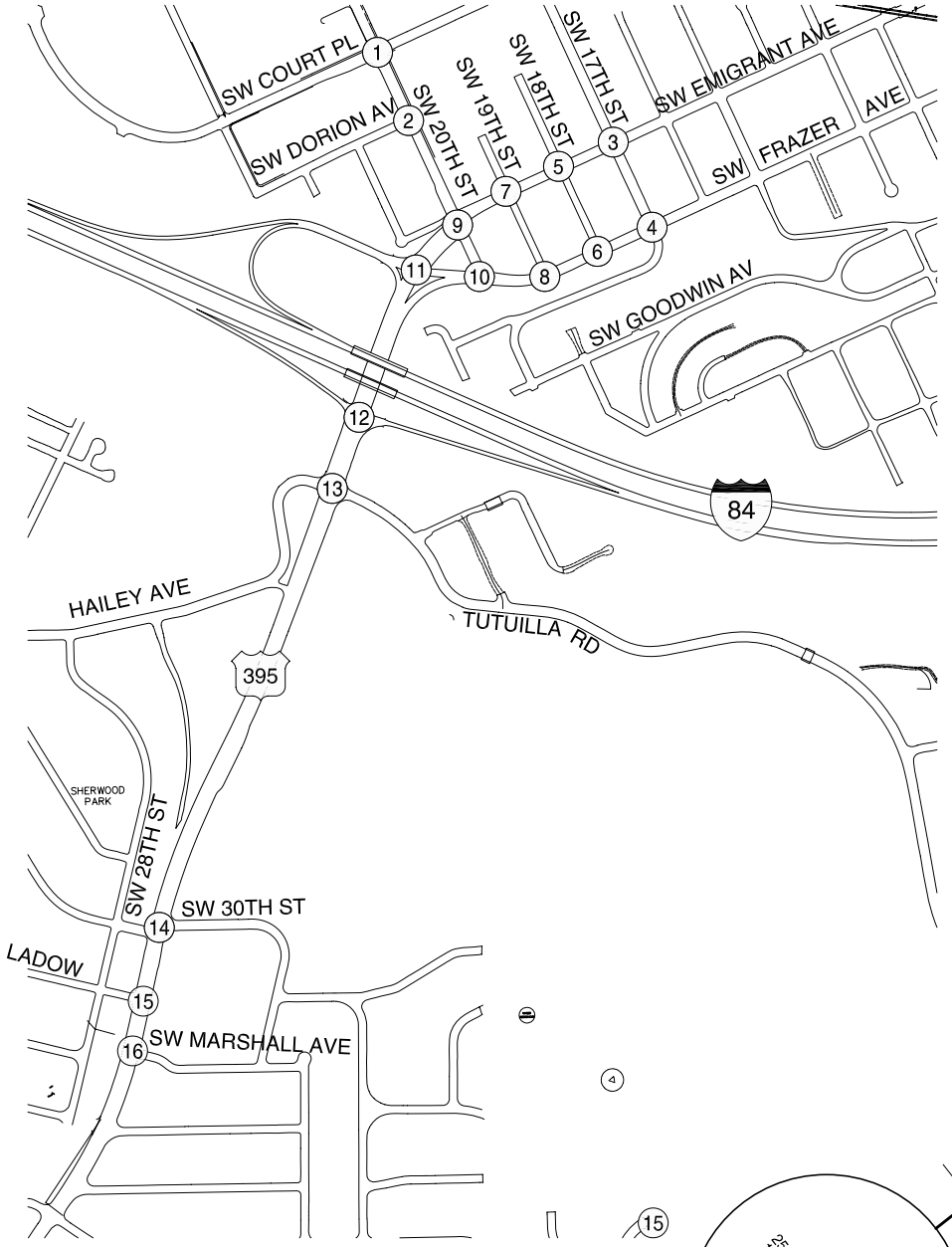


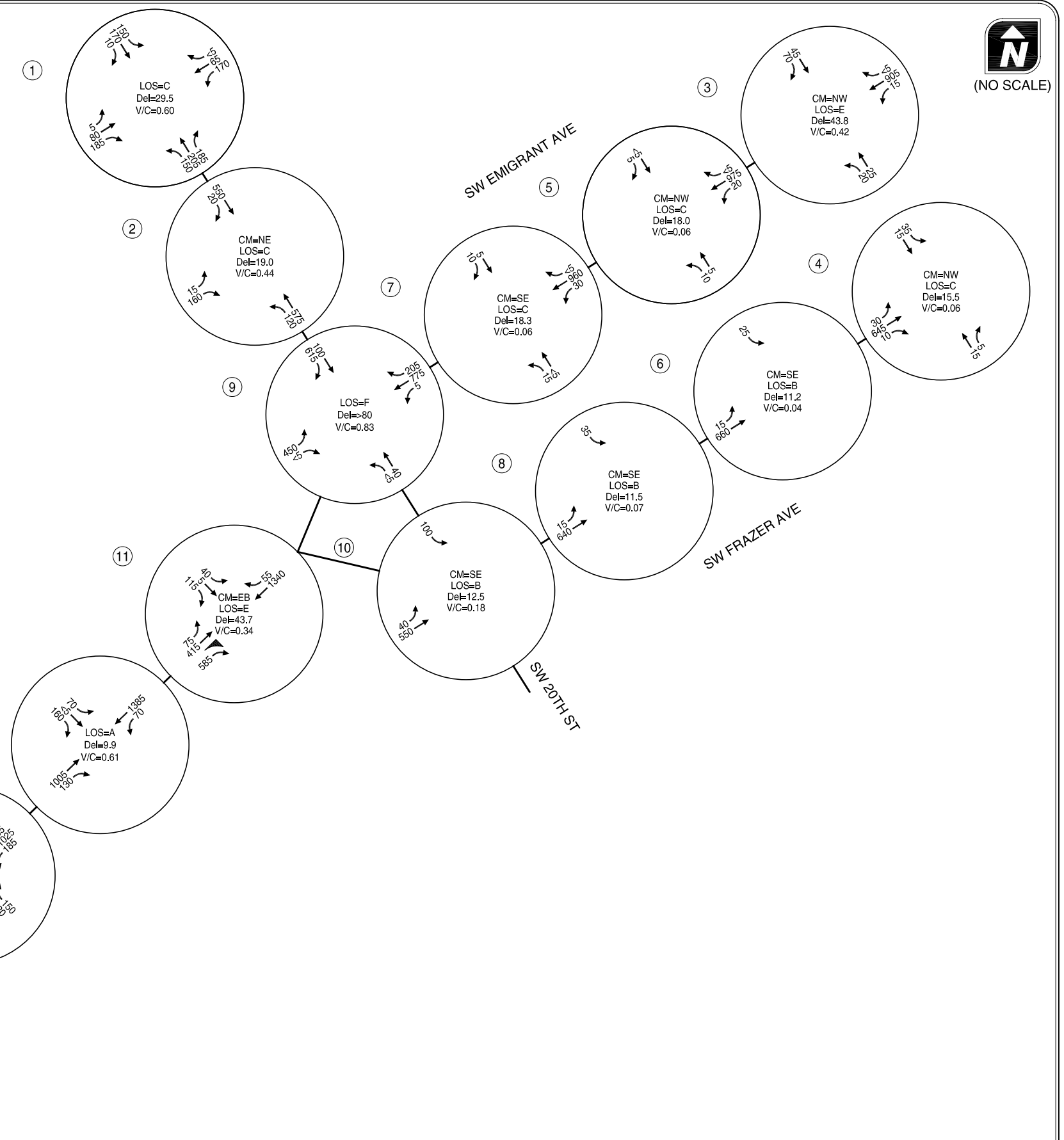
Seasonal Adjustments

Following the methodology outlined by ODOT's Analysis Procedures Manual (Reference 2), 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 counts were collected in April and May, so seasonal adjustment factors were calculated for both months. I-84 and US 395 exhibit different characteristics so separate factors were calculated for each roadway. The seasonal adjustment factor for I-84 volumes is calculated from ODOT automatic traffic recorder (ATR) #30-004, which is located on I-84, approximately 6.20 miles west of US 395. Meanwhile, the seasonal adjustment factor for US 395 and other roads in Pendleton is based on data from ATR #30-008, which is located on US 395, approximately 0.09 miles south of I-84. The factors for I-84 for April and May are 1.17 and 1.13, respectively and they are 1.01 for both months on US 395. The factor is much smaller on US 395 since its traffic is mostly local commuter traffic. This traffic pattern minimizes the seasonal fluctuations when compared to I-84, which sees a substantial amount of summertime recreational travel. The weekday 30th highest hour intersection turning movement counts used for the existing conditions analysis are shown in Figure 4-5.

Existing Intersection Operations

All level of service analyses described in this analysis was performed in accordance with the procedures stated in the 2000 *Highway Capacity Manual* (Reference 3). The OHP sets operational standards based on volume-to-capacity (v/c) ratios for the interchange ramp terminals (v/c of 0.80), intersections of US 395 (v/c of 0.85), and OR 37 (v/c of 0.90). These standards apply to the overall v/c ratio at the signalized intersections and to the state highway approaches at unsignalized intersections. The minor street approaches that are stop-controlled at signalized intersections have a standard of a v/c ratio of 0.90. The operational standard for all other study intersections is the City





LEGEND

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

EXISTING 30TH HOUR TRAFFIC CONDITIONS
PENDLETON, OREGON

FIGURE **4-5**

standard of LOS "D." As shown in Figure 4-5, currently meet applicable operation standards. The existing conditions operations worksheets are provided in the Technical Appendix. While overall intersection standards are met, there are certain movements that operate without sufficient capacity and with excessive delay. These intersections are described below.

SW 20th Street/SW Emigrant Avenue (I-84 WB Ramp Terminal)

This intersection has a v/c ratio of 0.83, which meets the ODOT standard of 0.90 for this intersection. However, the northbound left-turn and the southbound through movement on SW Emigrant Avenue operate with v/c ratios greater than 1.0 and LOS "F." The lack of capacity for the northbound left-turn movement is particularly problematic as it induces long queues (95th-percentile queue of greater than 475 feet) that spillback in front of the westbound I-84 off-ramp and block the left-turn/through lane from the ramp. This means that the westbound I-84 ramp terminal intersection likely operates with greater delay and less capacity than is reported in this analysis.

SW 20th Street/SW Court Place-Avenue

The southbound left-turn from SW 20th Street onto SW Court Avenue currently operates with a v/c ratio greater than 1.0 and at LOS "F." Currently there are 150 vehicles making this movement during the 30th-highest hour, while 390 vehicles in one lane oppose it on the opposite approach. The *Signalized Intersections: Informational Guide* published by the Federal Highway Administration (Reference 4) provides guidance that left-turn phasing (e.g. protected-permissive) should be considered when the product of the left-turning and opposing volumes exceeds 45,000 vehicles. For this approach, the product is over 58,000. Providing some sort of left-turn phasing would provide sufficient capacity at this intersection.

US 395/SW Hailey Avenue-SW Tutuilla Creek Road

While it does not show up as a problem when the intersection is examined in isolation, field observations of existing conditions reveal that the close spacing between the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection and the I-84 Eastbound ramp terminal does create operational and potential safety issues. The southbound left-turn from US 395 onto SW Tutuilla Creek Road occasionally stacks back through the I-84 Eastbound ramp terminal. As this occurs more frequently, this could lead to vehicles stacking back on the I-84 Eastbound off-ramp itself.

TRAFFIC SAFETY

The crash histories at key intersections were reviewed in an effort to identify potential intersection safety issues. Crash records were obtained from ODOT for the five-year period from January 1, 2003 through December 31, 2007. Table 4-2 contains the summary of reported crashes at these intersections.

TABLE 4-2
INTERSECTION CRASH HISTORIES (JANUARY 1, 2005 THROUGH DECEMBER 31, 2007)

Intersection	# of Crashes	Crash Rate[1]	Crash Type				Severity		
			Angle	Rear-End	Turning	Other	PDO	Injury	Fatality
I-84 WB Ramps/ US 395	8	0.2	1	2	3	2	4	4	0
I-84 EB Ramps/ US 395	16	0.3	3	6	7	0	8	8	0
SW 20th Street/SW Emigrant Avenue	11	0.3	2	3	5	1	8	3	0
SW 20th Street/SW Frazer Avenue	2	0.1	0	0	1	1	2	0	0
SW 19th Street/SW Emigrant Avenue	1	0.1	0	1	0	0	0	1	0
SW 19th Street/SW Frazer Avenue	1	0.1	0	0	1	0	1	0	0
SW 18th Street/SW Emigrant Avenue	None Reported								
SW 18th Street/SW Frazer Avenue	None Reported								
SW 17th Street/SW Emigrant Avenue	9	0.4	5	0	3	1	7	2	0
SW 17th Street/SW Frazer Avenue	4	0.2	0	0	4	0	3	1	0
SW Hailey Ave-SW Tutuilla Creek Rd/ US 395	17	0.3	3	9	5	0	9	8	0
SW 30th Street/ US 395	5	0.2	0	2	2	1[2]	3	2	0

[1]Crash rate is expressed in terms of crashes per million entering vehicles
[2]Two pedestrians were struck by a vehicle and injured

The SW 17th Street/SW Emigrant Avenue intersection exhibits the highest crash rate in Table 4-2. Six of the nine reported crashes involve northwest bound vehicles leaving the stop-controlled SW 17th Avenue approach and failing to yield the right-of-way to southwest bound vehicles on uncontrolled SW Emigrant Avenue. This type of pattern is consistent with an intersection where there is a heavy uncontrolled through movement and the side street experiences moderate to high delay.

The SW Hailey Ave-SW Tutuilla Creek Rd/US 395 intersection has the highest number of crashes. Over half of these are rear-end crashes and nearly all of these occurred on US 395. This pattern is fairly typical at a signalized intersection.

The I-84 EB Ramps/US 395 intersection has the second highest number of reported crashes, but the data was collected before the signal was installed. Prior to the installation of the signal, there was a high proportion of rear-end crashes on the off-ramp. There were also two crashes at this intersection involving a bicycle traveling northeast. The addition of protected phasing for the southbound left-turn would have likely prevented one of these crashes. The installation of the right-

turn island on the northbound approach will help prevent certain types of right-turning crashes with bicyclists.

A review of the crash data at the I-84 WB Ramps/US 395 intersection reveals that the reported crashes are fairly evenly split amongst different types and movements, with none being particularly high.

EXISTING ROADWAY ACCESS CONDITIONS

There are currently 98 public and private access points located within the US 395/SW Emigrant Avenue/SW Frazer Avenue Operations and Access Study Area (roughly ½ mile to the north and south of the interchange). Of these access points, 73 are located north of the interchange while the remaining 25 access points (excluding the interchange ramp terminals) are located south of the interchange. As the summary illustrates, there is a proportionally larger number of access points on the north side of the interchange. This is due to the presence the city street grid that begins immediately north of the interchange, the compounding effect of the SW Emigrant Avenue and SW Frazer Avenue couplet (which provides access opportunities on both sides of the roadways), and geography constraints which limit access on the south side of the interchange. Figures 4-6 and 4-7 illustrate the location and type (public or private) of each of the access locations within the Operations and Access Study Area. Table 4-3 summarizes the tax lots and existing businesses served by each of the access points as well as other miscellaneous descriptive information such as driveway width, mile point location, and permit number (if applicable).

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 1,320 feet (¼ mile) from the ramp terminals. Figures 4-6 and 4-7 show the 1,320 foot access control area as measured from the Interstate-84 ramp terminal intersections. As shown, 28 private and 19 public accesses are located within the 1,320-foot control area north of the interchange. As previously noted, this proliferation of access points is related to the presence of the existing city street grid and multiple property access afforded by the roadway couplet.

On the south side of the interchange, 8 private and 5 public accesses are located within the 1,320-foot control area. Due to geography constraints, some level of access consolidation has naturally occurred which has reduced the number of private driveways. However, the presence of the signalized SW Hailey Avenue/Tutuilla Creek Road intersection located only several hundred feet south of the eastbound ramp terminal along with the existing private driveways will be an important access planning element to be explored as part of future concepts analyses.

TABLE 4-3 EXISTING PUBLIC/PRIVATE ACCESS APPROACH INVENTORY

Figure ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner/ Business Name	Mile Point	Approach Width/ Type	Permitted?/ Permit #	Date of Permit
1	SW Emigrant Ave	Public	West	-	SW 13th St.	1.17	32' Type C	Not Permitted	-
2	SW Emigrant Ave	Private	West	2n32e10ca, 200	Vacant Business	1.18	24' Type C	Not Permitted	-
3	SW Emigrant Ave	Private	West	2n32e10ca, 200	Vacant Business	1.186	30' Type C	Not Permitted	-
4	SW Emigrant Ave	Private	West	2n32e10ca, 200	Residential	1.196	27' Type C	Not Permitted	-
5	SW Emigrant Ave	Private	West	2n32e10ca, 600	Residential				
6	SW Emigrant Ave	Public	West	-	SW 14th St.	1.22	30' Type C	Not Permitted	-
7	SW Emigrant Ave	Private	West	2n32e10ca, 1700	Residential	1.244	16' Type C	Not Permitted	-
8	SW Emigrant Ave	Private	West	2n32e10ca, 1900, 2001	Vacant Business	1.252	30' Type C	#19097	7/27/1971
9	SW Emigrant Ave	Public	West	-	SW 15th St.	1.27	30' Type C	Not Permitted	-
10	SW Emigrant Ave	Private	West	2n32e10ca, 3800	Residential	1.294	16' Type C	Not Permitted	-
11	SW Emigrant Ave	Private	West	2n32e10ca, 3900	Residential	1.304	16' Type C	Not Permitted	-
12	SW Emigrant Ave	Public	West	-	SW 16th St.	1.32	30' Type C	Not Permitted	-
13	SW Emigrant Ave	Private	West	2n32e10ca, 5700, 5800	Business – KFC	1.348	26' Type C	Not Permitted	-
14	SW Emigrant Ave	Public	West	-	SW 17th St.	1.37	40' Type C	Not Permitted	-
15	SW Emigrant Ave	Private	West	2n32e10cb, 5800	Business - Cadillac Jack's	1.38	14' Type C	Not Permitted	-
16	SW Emigrant Ave	Private	West	2n32e10cb, 5800	Business - Cadillac Jack's	1.39	32' Type C	Not Permitted	-
17	SW Emigrant Ave	Public	West	-	SW 18th St.	1.42	50' Type C	Not Permitted	-
18	SW Emigrant Ave	Private	West	2n32e10cb, 4400	Business – Jump Start Espresso	1.429	22' Type C	Not Permitted	-
19	SW Emigrant Ave	Private	West	2n32e10cb, 4400	Business – Jump Start Espresso	1.441	32' Type C	Not Permitted	-
20	SW Emigrant Ave	Private	West	2n32e10cb, 4300	Business - Vision Source	1.447	16' Type C	Not Permitted	-
21	SW Emigrant Ave	Public	West	-	SW 19th St.	1.47	50' Type C	Not Permitted	-

Figure ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner/ Business Name	Mile Point	Approach Width/ Type	Permitted?/ Permit #	Date of Permit
22	SW Emigrant Ave	Private	West	2n32e10cb, 3600	Business - Wilcox Furniture	1.493	25' Type C	Not Permitted	-
23	SW Emigrant Ave	Private	West	2n32e10cb, 3600	Business - Wilcox Furniture	1.506	25' Type C	Not Permitted	-
24	SW Emigrant Ave	Private	West	2n32e10cb, 3600	Business - Wilcox Furniture	1.519	25' Type C	Not Permitted	-
25	SW Emigrant Ave	Public	West	-	SW 20th St.	1.438	50' Type C	Not Permitted	-
26	SW Emigrant Ave	Public	East	-	SW 13th St.	1.17	32' Type C	Not Permitted	-
27	SW Emigrant Ave	Public	East	-	SW 15th St.	1.27	30' Type C	Not Permitted	-
28	SW Emigrant Ave	Private	East	2n32e10ca, 9100	Business	1.304	16' Type C	Not Permitted	-
29	SW Emigrant Ave	Public	East	-	SW 16th St.	1.32	30' Type C	Not Permitted	-
30	SW Emigrant Ave	Private	East	2n32e10ca, 8800	Residential	1.337	12' Type C	Not Permitted	-
31	SW Emigrant Ave	Private	East	2n32e10ca, 8900	Residential	1.345	12' Type C	Not Permitted	-
31	SW Emigrant Ave	Public	East	-	SW 17th St.	1.37	40' Type C	Not Permitted	-
32	SW Emigrant Ave	Private	East	2n32e10ca, 7500	Business - ARCO	1.38	35' Type C	Not Permitted	-
33	SW Emigrant Ave	Private	East	2n32e10ca, 7500	Business - ARCO	1.399	40' Type C	Not Permitted	-
34	SW Emigrant Ave	Public	East	-	SW 18th St.	1.42	50' Type C	Not Permitted	-
35	SW Emigrant Ave	Private	East	2n32e10cb, 5900	Business – Pendleton Plumbing	1.438	18' Type C	Not Permitted	-
37	SW Emigrant Ave	Private	East	2n32e10cb, 6800	Business – Laundromat	1.452	20' Type C	Not Permitted	-
38	SW Emigrant Ave	Public	East	-	SW 19th St.	1.47	50' Type C	Not Permitted	-
39	SW Emigrant Ave	Private	East	2n32e10cb, 6900	Business – West Ranch Hometown Cleaners	1.492	20' Type C	Not Permitted	-
40	SW Emigrant Ave	Private	East	2n32e10cb, 7003	Business – Dean's Market	1.516	35' Type C	Not Permitted	-
41	SW Emigrant Ave	Public	East	-	SW 20th St.	1.52	50' Type C	Not Permitted	-
42	SW Emigrant Ave	Public	East	-	SW Frazer Ave				
43	US 395	Public	West	-	I-84 Offramp/ Onramp				

Figure ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner/ Business Name	Mile Point	Approach Width/ Type	Permitted?/ Permit #	Date of Permit
44	US 395	Public	West	-	I-84 Offramp				
45	US 395	Public	West	-	Hailey Ave.	1.77	60' Type C	Not Permitted	-
46	US 395	Public	West	-	Leg to Hailey Ave.	1.86	32' Type C	Not Permitted	-
47	US 395	Private	West	2n32e09dd, 600, 701	Business - 76 Station	1.874	35' Type C	#19097	7/28/1971
48	US 395	Private	West	2n32e09dd, 600, 701	Business - 76 Station	1.895	35' Type C	#19097	7/28/1971
49	US 395	Private	West	2n32e16aa, 202	Business - Pendleton Southgate Realty	1.913	18' Type C	#19497	3/10/1972
50	US 395	Private	West	2n32e16aa, 202	Business - Pendleton Southgate Realty	1.919	18' Type C	#19497	3/10/1972
51	US 395	Private	West	2n32e16aa, 203	Business - Starbucks	1.931	38' Type C	Not Permitted	-
52	US 395	Private	West	2n32e16aa, 800	Business - Subway	1.945	30' Type C	Not Permitted	-
53	US 395	Private	West	2n32e16aa, 801, 802	Business - MiniMart	1.967	41' Type C	Not Permitted	-
54	US 395	Public	West	-	SW 30th St.	2.26	44' Type C	Not Permitted	-
55	US 395	Private	West	2n32e16ad, 101, 200	Business - Tim's Toys	2.268	34' Type C	Not Permitted	-
56	US 395	Private	West	2n32e16ad, 101, 200	Business - Tim's Toys	2.276	34' Type C	Not Permitted	-
57	US 395	Public	West	-	SW Ladow Ave.	2.32	34' Type C	Not Permitted	-
58	US 395	Public	West	2n32e16ad, 300	Business – Thompson RV	2.33	34' Type C	Not Permitted	-
59	US 395	Public	West	2n32e16ad, 301	Business – Thompson RV	2.341	36' Type C	Not Permitted	-
60	US 395	Public	East	-	SW Marshall Ave.	2.38	36' Type C	Not Permitted	-
61	US 395	Private	East	2n32e16ad, 500	Medical and Inerpath Lab	2.306	34' Type C	Not Permitted	-
62	US 395	Public	East	-	SW 30th St.	2.26	44' Type C	Not Permitted	-
63	US 395	Private	East	2n32e16aa, 1102	Business - D & B Supply	2.00	50' Type C	Not Permitted	-

Figure ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner/ Business Name	Mile Point	Approach Width/ Type	Permitted?/ Permit #	Date of Permit
					/ Abby's Legendary Pizza				
64	US 395	Private	East	2n32e16aa, 101	Business - Luis S Wells Reality	1.927	30' Type C	#17572	4/30/1969
65	US 395	Private	East	2n32e16aa, 101	Business - Quis and Wells Reality				
66	US 395	Private	East	2n32e16aa, 100, 103, 2n3209dd, 500, 502	Business - Wendys / Car Wash / Kube Lube	1.892	50' Type C	#25979	12/14/1979
67	US 395	Public	East	-	Tutuilla Rd.	1.77	60' Type C	Not Permitted	-
68	US 395	Public	East	-	I-84 Onramp				
69	SW Frazer Ave	Private	East	2n32e10cb, 13302	Business	1.56	32' Type C	Not Permitted	-
70	SW Frazer Ave	Private	East	2n32e10cb, 13302	Business	1.543	16' Type C	Not Permitted	-
71	SW Frazer Ave	Private	East	2n32e10ca, 14302, 14301, 14200	Business - State Farm Insurance	1.466	20' Type C	Not Permitted	-
72	SW Frazer Ave	Private	East	2n32e10ca, 14302, 14301, 14200	Business - State Farm Insurance	1.461	20' Type C	Not Permitted	-
73	SW Frazer Ave	Public	East	-	SW 17th St.	1.44	40' Type C	Not Permitted	-
74	SW Frazer Ave	Private	East	2n32e10ca, 13700	Residential	1.347	12' Type C	Not Permitted	-
75	SW Frazer Ave	Private	East	2n32e10ca, 13300	Business	1.336	30' Type C	Not Permitted	-
76	SW Frazer Ave	Public	East	-	SW 16th St.	1.32	16' Type C	Not Permitted	-
77	SW Frazer Ave	Private	East	2n32e10ca, 13100	Residential	1.298	12' Type C	Not Permitted	-
78	SW Frazer Ave	Public	East	-	SW 15th St.	1.27	30' Type C	Not Permitted	-
79	SW Frazer Ave	Private	East	2n32e10ca, 12500	Residential	1.253	16' Type C	Not Permitted	-
80	SW Frazer Ave	Private	East	2n32e10ca, 11900	Residential	1.238	12' Type C	Not Permitted	-
81	SW Frazer Ave	Public	East	-	SW 14th St.	1.22	35' Type C	Not Permitted	-
82	SW Frazer Ave	Private	East	2n32e10ca, 10500, 11700	Residential	1.198	27' Type C	Not Permitted	-

Figure ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner/ Business Name	Mile Point	Approach Width/ Type	Permitted?/ Permit #	Date of Permit
83	SW Frazer Ave	Public	East	-	SW 13th St.	1.17	32' Type C	Not Permitted	-
84	SW Frazer Ave	Public	West	-	SW 20th St.	1.59	40' Type C	Not Permitted	-
85	SW Frazer Ave	Private	West	2n32e10cb, 7000	Business - Bank of the West	1.571	22' Type C	Not Permitted	-
86	SW Frazer Ave	Public	West	-	SW 19th St.	1.53	40' Type C	Not Permitted	-
87	SW Frazer Ave	Private	West	2n32e10cb, 6300	Residential	1.502	16' Type C	Not Permitted	-
84	SW Frazer Ave	Public	West	-	SW 18th St.	1.474	40' Type C	Not Permitted	-
89	SW Frazer Ave	Private	West	2n32e10ca, 6900	Residential	1.462	16' Type C	Not Permitted	-
90	SW Frazer Ave	Private	West	2n32e10ca, 7000	Residential	1.448	32' Type C	Not Permitted	-
91	SW Frazer Ave	Public	West	-	SW 17th St.	1.44	40' Type C	Not Permitted	-
92	SW Frazer Ave	Private	West	2n32e10ca, 8100	Residential	1.347	16' Type C	Not Permitted	-
93	SW Frazer Ave	Private	West	2n32e10ca, 8200	Residential	1.338	16' Type C	Not Permitted	-
94	SW Frazer Ave	Public	West	-	SW 16th St.	1.32	30' Type C	Not Permitted	-
95	SW Frazer Ave	Private	West	2n32210ca, 9600		1.303	18' Type C	Not Permitted	-
96	SW Frazer Ave	Private	West	2n32e10ca, 9600	Residential	1.303	18' Type C	Not Permitted	-
97	SW Frazer Ave	Public	West	-	SW 15th St.	1.27	30' Type C	Not Permitted	-
98	SW Frazer Ave	Public	West	-	SW 13th St.	1.17	32' Type C	Not Permitted	-

EXISTING ACCESS LOCATIONS (NORTH OF I-84) PENDLETON, OREGON

FIGURE 4-6

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EXISTING ACCESS LOCATIONS (SOUTH OF I-84) PENDLETON, OREGON

FIGURE 4-7

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EXISTING ROADWAY DEFICIENCIES

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

NATURAL AND CULTURAL RESOURCES

Tutuilla Creek is a prominent natural feature in the IMSA, running east-west and located between the eastbound I-84 ramps, and development on the south side of I-84. It is a tributary of the Umatilla River, which is also included in the IMSA and intersects with Tutuilla Creek west of the interchange. The City has also identified that there is "good" wildlife habitat in the Tutuilla Creek corridor around US 395. Among other reasons, these natural resources are important for habitat, management of water quantity and quality, and recreation in the city. Long-term transportation plans show the River Parkway path being built along and connecting both water bodies. Most of the River Parkway has been built along the Umatilla River already. City staff has identified Tutuilla Creek as potentially salmon-bearing and Umatilla River as salmon-bearing, so one or both of the water bodies will also be subject to federal endangered species protection. The City's Comprehensive Plan's resource inventory does not identify any archaeological, historic, or other cultural sites in the IMSA, but it should be noted that this document was adopted in the 1980s and may not reflect current conditions or present-day community values or policies. This element of the City's Comprehensive Plan will likely be revised as part of the City's 2009-2013 plan update.

Exhibit 4-6 Tutuilla Creek (east of US 395 and South of I-84)

SUMMARY

- The primary roadways within the Interchange Management Study Area (IMSA) include Interstate-84, US 395, and the SW Emigrant Avenue-SW Frazer Avenue couplet.
- All of the study intersections meet their respective ODOT mobility standard; however, specific movements at the SW 20th Street/SW Emigrant Avenue and SW 20th Street/SW Court Place intersections are over capacity. This issue is especially problematic at the SW Emigrant

Avenue intersection, where queue spillback blocks movements from the I-84 Westbound off-ramp. Queue spillback from the US 395/SW Tutuilla Creek Road-SW Hailey Avenue intersection also blocks movements from the I-84 Eastbound off-ramp.

- There are no identified safety issues within the IMSA based on a review of the most recent five years of available crash data.
- Pedestrian facilities are provided along all functionally classified roads. Bicycle lanes are also provided on the major facilities, however they are missing along SW 20th Street.
- There are currently 98 access points located within the Operations and Access Study Area (roughly ½-mile to the north and south of the interchange) along SW Emigrant Avenue, SW Frazer Avenue, and US 395. 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, 28 private access points and 19 public accesses reside on the north side of the interchange. On the south side of the interchange, 8 private access points and 5 public access points reside within the ¼ mile control area.
- Natural resources in the IMSA include Tutuilla Creek, Umatilla River, and "good" wildlife habitat in the Tutuilla Creek corridor around US 395. City staff has identified Tutuilla Creek as potentially salmon-bearing and Umatilla River as salmon-bearing, so one or both of the water bodies will also be subject to federal endangered species protection.

Section 5
2030 Future Conditions

2030 Future Conditions

This section documents the future land use as well as the forecast traffic operations in the vicinity of the I-84/US 395 interchange. The future traffic projections are based on a travel demand model for Pendleton that is maintained by ODOT. Future land uses planned for by the City were updated in this model as a part of this project.

YEAR 2030 NO-BUILD TRAFFIC VOLUMES FORECAST METHODOLOGY

Year 2030 "No-Build" traffic volume forecasts for intersection turning movements and street segments are based on projected growth in traffic volumes from the Pendleton travel demand model maintained by ODOT's Transportation Planning Analysis Unit (TPAU). ODOT maintains both a base year and a future year model. The volume outputs from these models are post-processed according to the methods described in the Analysis Procedures Manual to arrive at the turning movement volumes shown in Figure 5-1.

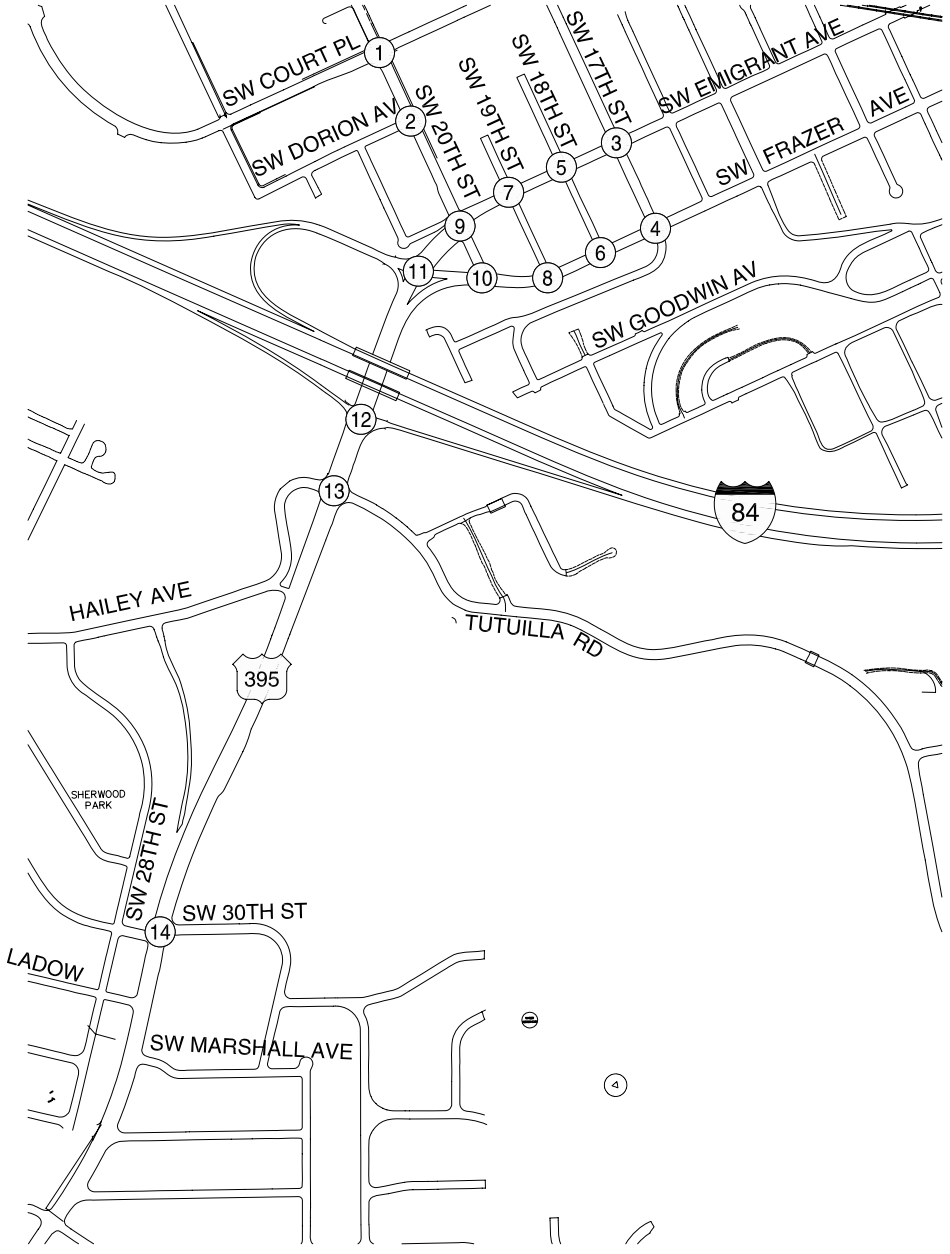
As a part of this project, the future year model has been updated to reflect the most current land-use and transportation system plans for Pendleton. These changes are described below. More detailed information about these modifications may be found in the Technical Appendix.

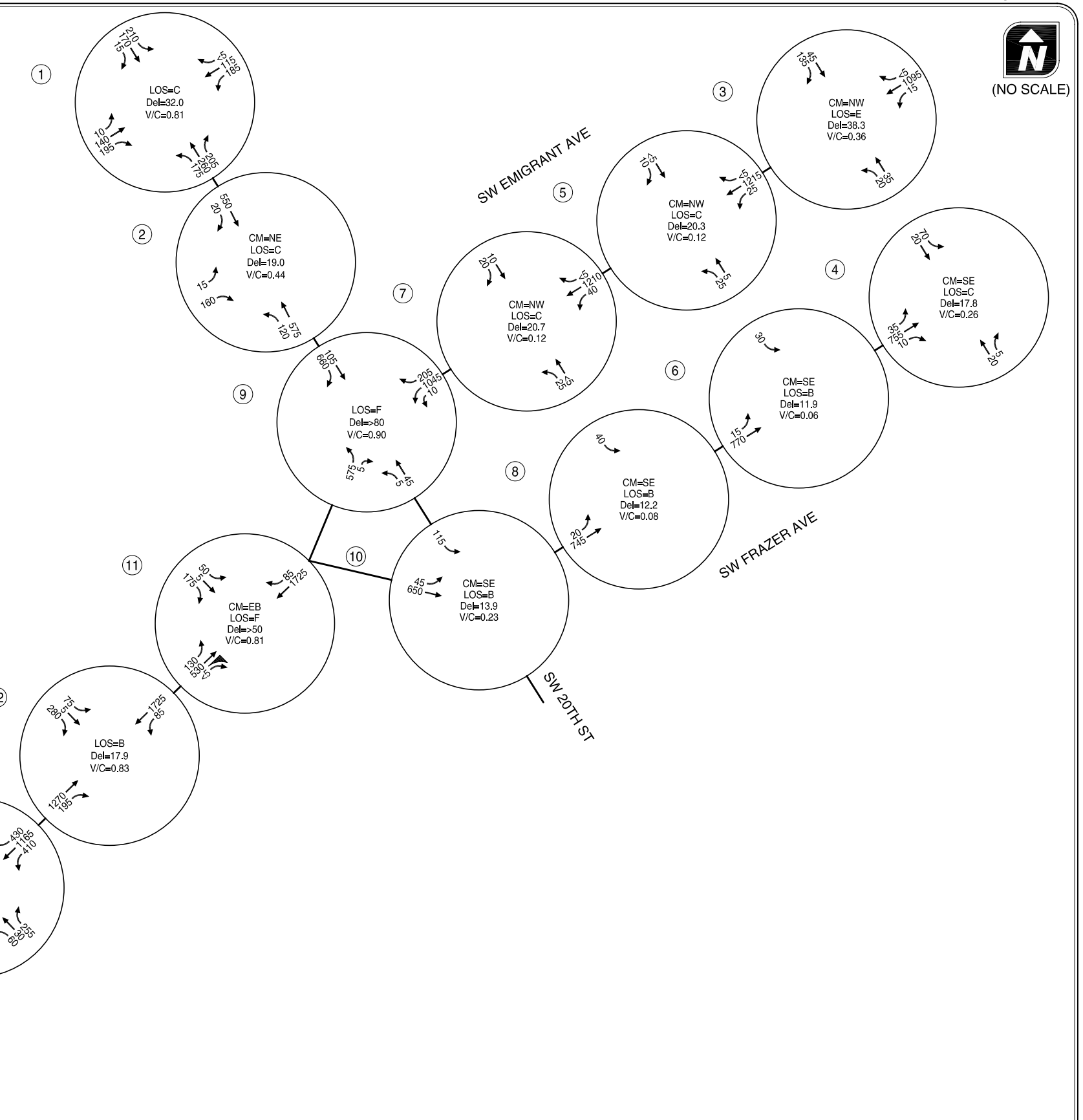
Future Land Uses

ODOT's travel demand model for Pendleton assumes future land uses as they are planned for in the City's Comprehensive Plan. Since this plan was last completed, the City has approved new zone changes and other development plans that require the model to be updated for this project. These changes include increasing the amount of expected future industrial employment near the airport due the rezoning of land from EFU to Light Industrial; increasing the amount of future housing assumed in the SW Tutuilla Road area due to recently approved development plans; and relocating St. Anthony's Hospital to south of I-84, as the hospital has indicated it plans to do.

Future Roadway Network

The future roadway network in ODOT's travel demand model represents the network planned for in the City's Transportation System Plan (TSP). This plan has been updated since the future model was originally created, and therefore had to be updated for this project. The City also identified roadway connections that it anticipates to be constructed by 2025 by new development. These modifications to the future roadway network include the addition of Airport Road, which has recently been constructed, and the addition of several new local street connections in the SW Tutuilla Road area, where new residential development is anticipated.





LEGEND

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

YEAR 2030 TRAFFIC CONDITIONS
30TH HIGHEST HOUR
PENDLETON, OREGON

FIGURE **5-1**

YEAR 2030 NO-BUILD TRAFFIC CONDITIONS

The volumes shown in Figure 5-1 are used to determine the year 2030 "No Build" traffic conditions. All level of service analyses are performed in accordance with the procedures stated in the 2000 *Highway Capacity Manual*. The operational standards are the same as those described in the Existing Condition section. Figure 5-1 shows the results of this analysis.

I-84 Westbound Ramp Terminal and SW 20th Street/SW Emigrant Avenue

As shown in Figure 5-1, the I-84 Westbound ramp terminal is forecast to have a v/c ratio greater than the standard of 0.80. The eastbound left-turn/through movement from the I-84 Westbound off-ramp is forecast to operate with significant delays, which will lead to vehicles stacking up on the off-ramp. This condition will be worsened at times when the northbound left-turn at the SW 20th Street/SW Emigrant Avenue intersection backs up and blocks these movements from the I-84 Westbound off-ramp. The SW 20th Street/SW Emigrant Avenue intersection is forecast to operate with a v/c ratio right at the standard of 0.90, meaning queues will back up more frequently in front of the Westbound ramp terminal than they do today.

I-84 Eastbound Ramp Terminal and US 395/SW Hailey Avenue-SW Tutuilla Creek Road

The I-84 Eastbound ramp terminal is forecast to have a v/c ratio greater than the standard of 0.80. In addition, the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection is forecast to have a v/c ratio greater than 1.0. Currently the southbound left-turn from US 395 onto SW Tutuilla Creek Road occasionally backs up in front of the Eastbound ramp terminal. Given that congestion will increase at this intersection, this occurrence will happen more frequently and could lead to vehicles stacking back on the I-84 Eastbound off-ramp.

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. Thirty unique concepts, plus seven options on certain concepts, were developed and taken through a thorough screening process that included input from Technical Advisory Committee (TAC), Public Advisory Committee (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 concepts for the I-84/US 395 Interchange 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 August 26, 2009.

Within each workshop, participants were presented with an overview of the existing and future traffic demand within the Interchange Management Study Area (IMSA), the identified operational and safety deficiencies, and the 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 IMSA.

After the completion of the TAC, PAC, and public workshops, the project team took all of the individual design ideas and grouped them into various interchange forms. Each group was further sorted into common and unique interchange form and local circulation concepts. Based on this process, the project team made some technical refinements to the interchange form and local circulation concepts to ensure basic design parameters and principles were being met.

Following the initial design workshops, additional concepts were developed beyond the original designs (Concepts N1-N12, S1-S9, and W1-W2). These concepts were based on feedback from members of the TAC and PAC, as well as local property and business owners and the general public. The additions included:

- Concept N11 was refined to include three options (N11a, N11b, and N11c) for the relocation of the I-84 westbound ramp terminals in order to determine which area would be the least impactful to existing and future businesses;

- Concept N13 was developed as a combination of N1 and N11a;
- Concepts S10-S13 were added with the goal of avoiding significant impacts to the Olney Cemetery; and
- Concepts S14-15 were developed to avoid the Olney cemetery and minimize impacts to existing businesses along US 395 south of I-84.

The concepts listed above were developed by members of the TAC and PAC, the general public, and the project team.

CONCEPT SUMMARIES

The concepts developed for the I-84/US 395 Interchange can be grouped into three different geographic groups based on which side of the interchange they are located on. Thirteen concepts are located on the north side of the interchange, fifteen are on the south side, and two are to the west of the interchange. Each of the concepts and key design components are described below.

North Side Concepts

The following is a description of the concepts that affect the north side of the interchange, including the I-84 Westbound ramp terminal.

N1

This concept, shown in Figure 6-1, aligns the SW 20th Street and US 395 travel corridors. A new I-84 WB ramp terminal/SW Emigrant Avenue intersection will be developed at the junction of these two alignments. It includes options for two different underpasses to relieve congestion at the consolidated intersection. Option A, shown in Figure 6-2, provides an underpass connecting SW Court Place directly to SW Frazer Avenue and Option B, shown in Figure 6-3, allows traffic on SW Emigrant Avenue bound for US 395 to bypass the intersection and continue southbound on US 395.

N2

In this concept, shown in Figure 6-4, SW Emigrant Avenue is rerouted between the I-84 WB ramp terminals and SW 20th Street. Traffic traveling from either I-84 WB or US 395 bound for SW 20th Street would enter the SW Emigrant Ave/SW 20th Street intersection at the existing southeastern SW 20th Street approach in front of Dean's Market. This converts what is a left-turning movement today into a through movement. The I-84 WB ramp terminals would also be signalized.

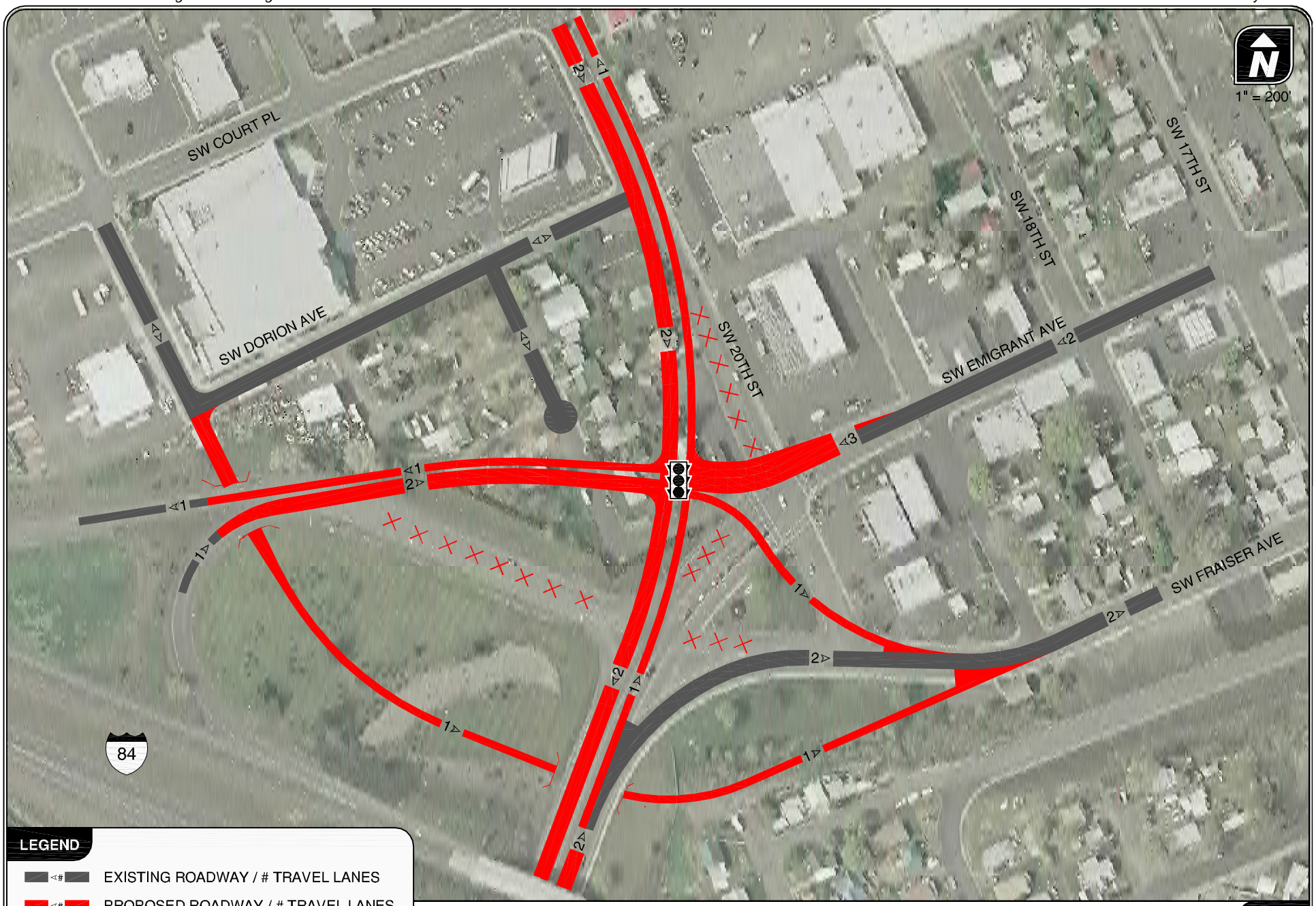
N3

Concept N3, shown in Figure 6-5, is similar to Concept N1, but includes a roundabout instead of a signal at the consolidated I-84 WB ramp terminals/SW Emigrant Ave-SW Frazer Ave/SW 20th St intersection. The consolidated intersection would also be located further south at the existing I-84 WB ramp terminals intersection under this concept.

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N1
SINGLE LINE TAPING

FIGURE 6-1

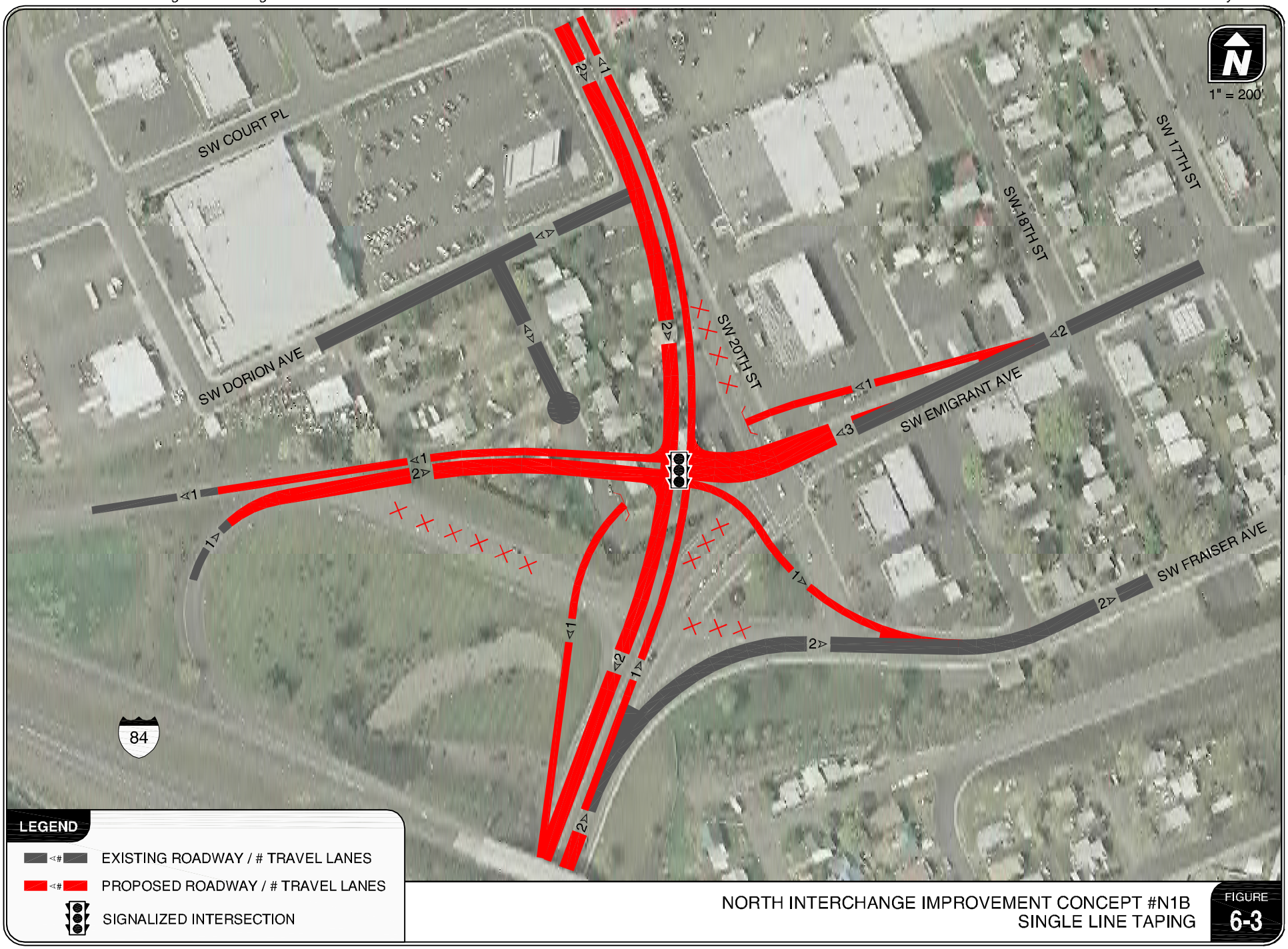
H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_NorthTaplngs.dwg Aug 19, 2010 - 9:51am - jsommerville Layout Tab: 6-1



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N1A
SINGLE LINE TAPING

FIGURE 6-2

H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_NorthTapings.dwg Aug 19, 2010 - 9:53am - jsommerville Layout Tab: 6-2



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N1B
SINGLE LINE TAPING

FIGURE 6-3

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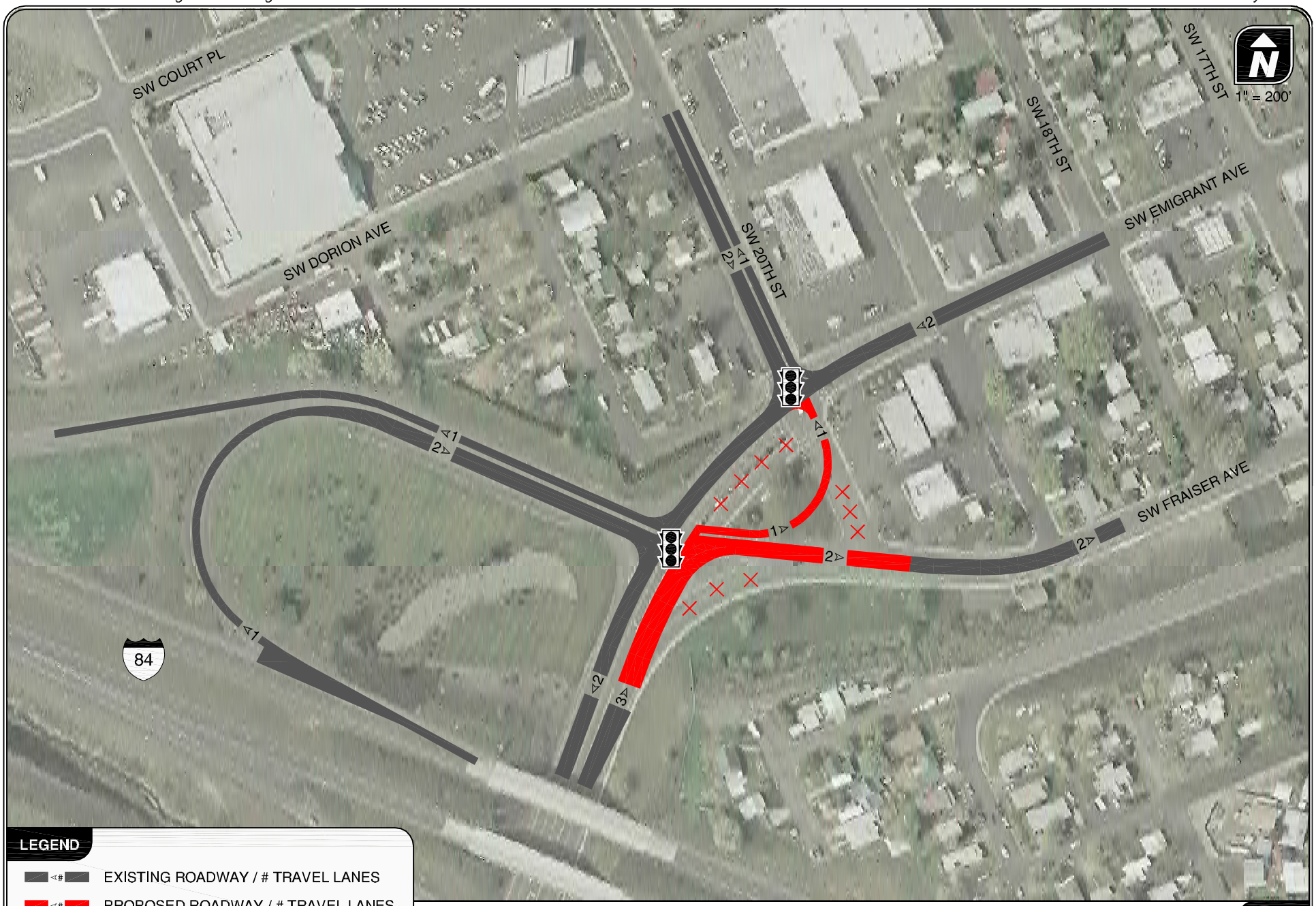
H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_NorthTaplngs.dwg Aug 19, 2010 - 9:54am - jsommerville Layout Tab: 6-3



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N2
SINGLE LINE TAPING

FIGURE 6-4

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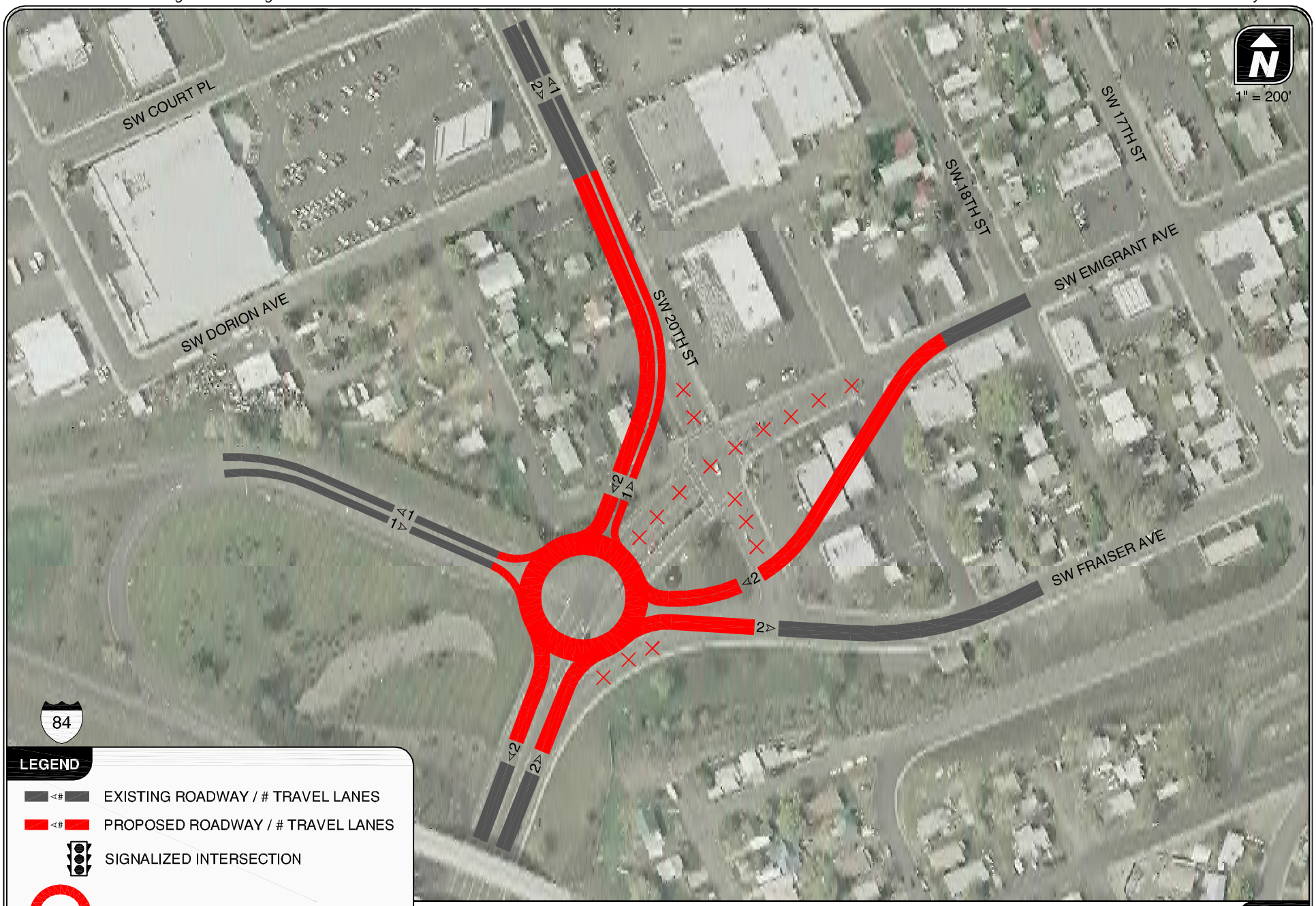

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N3
SINGLE LINE TAPING

FIGURE 6-5

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N4

This concept, shown in Figure 6-6, is similar to Concept N3, but with the roundabout in the same location as the signalized intersection in Concept N1.

N5

Concept N5, shown in Figure 6-7, features a large "pinched" roundabout that would connect the I-84 WB ramp terminals/US 395 and SW Emigrant Ave/SW 20th Street intersections.

N6

This concept, shown in Figure 6-8, is similar to Concept N4, but also includes a grade-separated bypass connecting SW Court Place to SW Frazer Avenue as in N1 Option A.

N7

In this concept, shown in Figure 6-9, SW Emigrant Avenue and SW Frazer Avenue are de-coupled between SW 20th Street and SW 17th Street. The connections from US 395 and the I-84 WB ramp terminals to SW Frazer Avenue are severed, thereby making SW Frazer Avenue serve as a local access road southwest of SW 17th Street. This also makes the I-84 WB ramp terminals/US 395 intersection a 3-legged intersection. Side-street access onto SW Emigrant Avenue southwest of SW 17th Street is limited to a right-in/right-out connection from the northwest SW 20th Street approach only.

N8

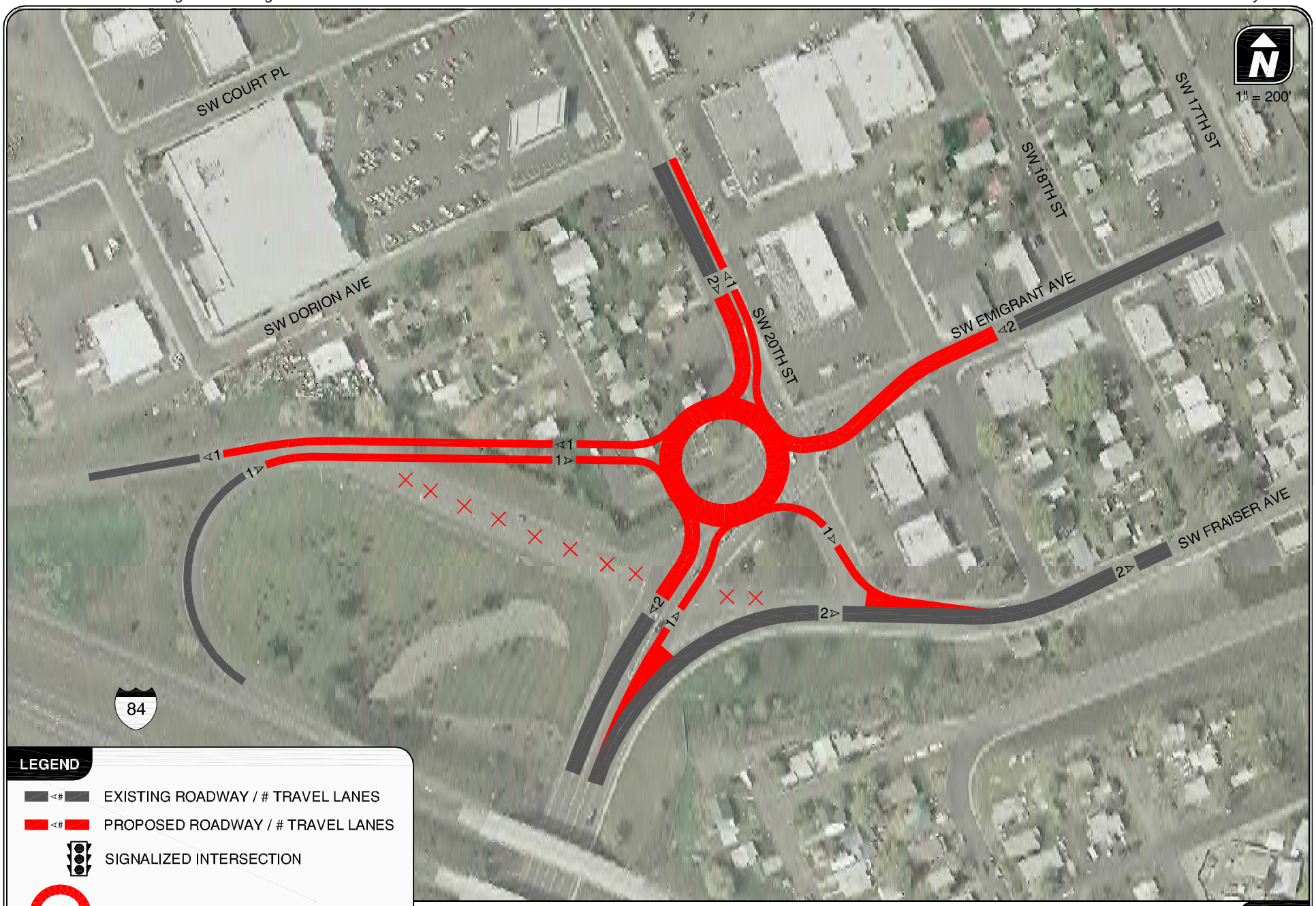
Concept N8, shown in Figure 6-10, is similar to Concept N1. The difference between the two is that this concept includes a loop ramp onto I-84 WB from northbound US 395 south of the existing ramp terminals intersection. This loop ramp would climb a steep grade to connect with I-84 WB at the bridge over US 395.

N9

This concept, shown in Figure 6-11, eliminates the existing I-84 WB ramps and replaces them with a diamond configuration that intersects US 395 just north of the I-84 bridge. This creates a new signalized intersection on US 395 where the ramps come in. Similar to Concept N2, US 395 is rerouted to connect with SW Emigrant Avenue via the existing southeast SW 20th Street approach.

N10

Concept N10, shown in Figure 6-12, does not make any substantial changes to the built environment. This concept seeks to maximize the efficiency of the existing infrastructure by converting SW 20th Street and SW 17th Street into a couplet between SW Court Avenue and SW Frazer Avenue. SW 20th Street would be one-way southeast-bound, while SW 17th Street would be one-way northwest-bound.



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N4
SINGLE LINE TAPING

FIGURE 6-6

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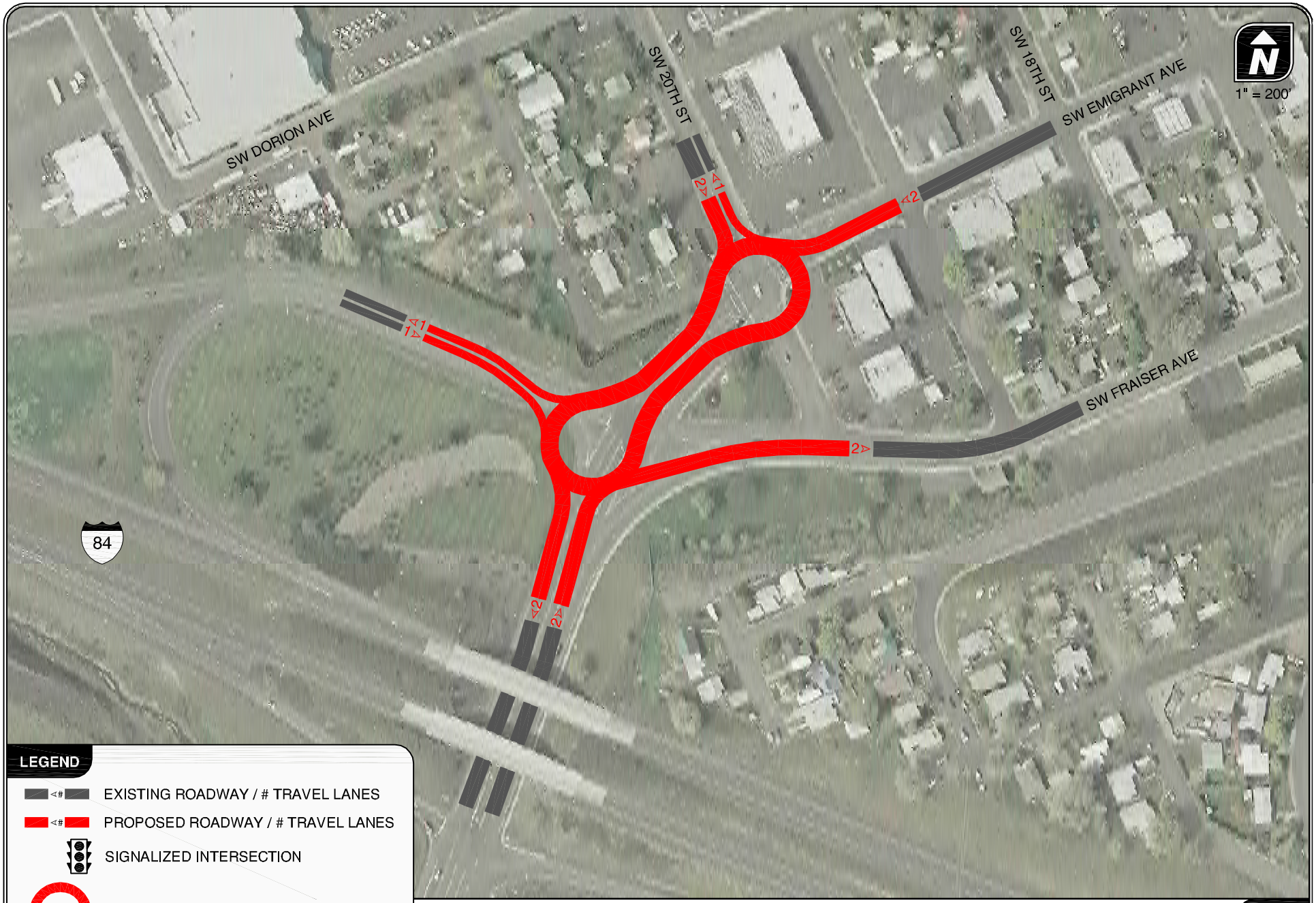
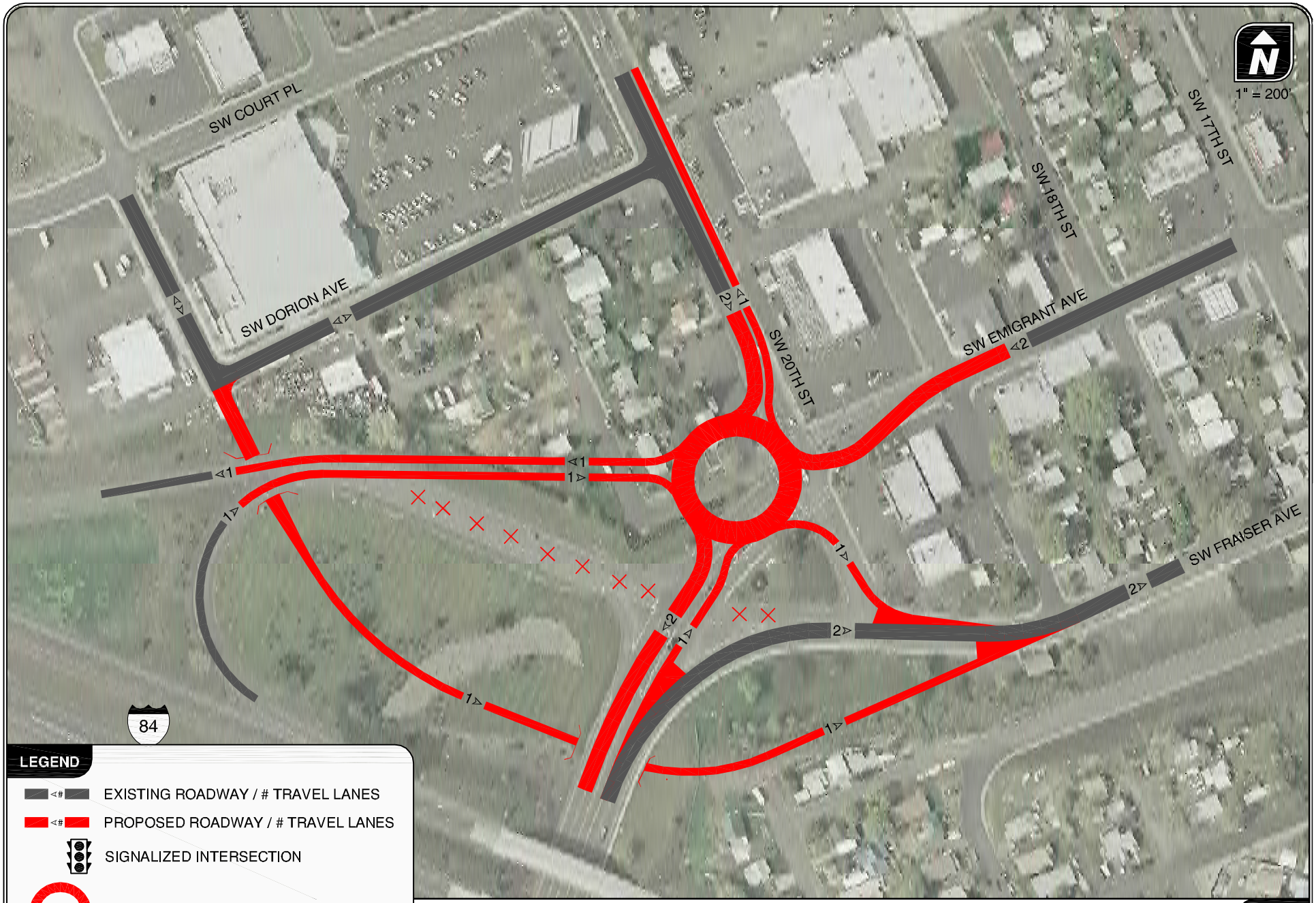


NORTH INTERCHANGE IMPROVEMENT CONCEPT #N5
SINGLE LINE TAPING

FIGURE 6-7



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N6
SINGLE LINE TAPING

FIGURE 6-8

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NORTH INTERCHANGE IMPROVEMENT CONCEPT #N7
SINGLE LINE TAPING

FIGURE 6-9

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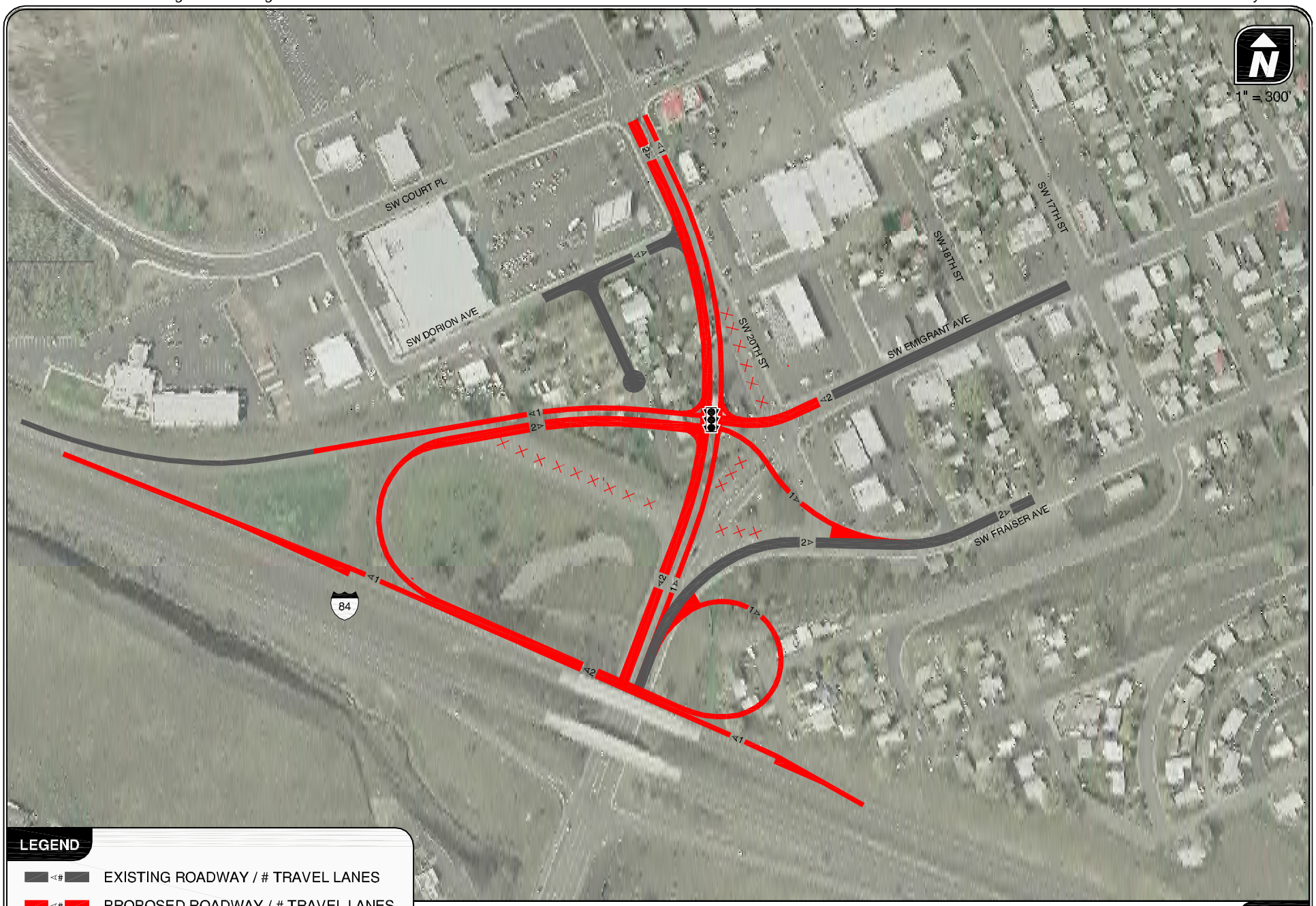

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N8
SINGLE LINE TAPING

FIGURE 6-10

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NORTH INTERCHANGE IMPROVEMENT CONCEPT #N9
SINGLE LINE TAPING

FIGURE 6-11

H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_NorthTaplngs.dwg Aug 19, 2010 - 9:59am - jsommerville Layout Tab: 6-11

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N10
SINGLE LINE TAPING

FIGURE 6-12

H:\projfile\9627 - I-84 US 395 IAMP\dwgs\Figs\9627_NorthTaplngs.dwg Aug 19, 2010 - 9:59am - jsommerville Layout Tab: 6-12

N11 (A, B, and C)

In this concept, the I-84 WB ramp terminals are relocated to one of three locations northwest of their existing intersection with US 395. Under Option A, shown in Figure 6-13, the ramp terminals would be located property currently occupied by Cummins Northwest. SW Court Place is realigned to form the northern and eastern approaches to the realigned ramp terminals intersection.

The western approach to this intersection is a new roadway (called SW 23rd Street for the purpose of this analysis) connecting the ramp terminal to the US 395/SW Emigrant Avenue intersection. The ramp terminals intersection could also be configured with offsetting "T" intersection where the I-84 Westbound ramp terminals would intersect the SW 23rd Street extension in approximately the same location as described above, while SW Court Place would connect to SW 23rd Street to the northwest of the ramp terminals. This would avoid locating a local roadway directly across from a freeway ramp terminal.

The ramp terminals would be located at the existing SW 23rd Street/SW Dorion Avenue intersection under Option B, shown in Figure 6-14, though SW Dorion Avenue would not connect with the new intersection. SW 23rd Street would connect the ramp terminals to SW Court Place.

Option C, shown in Figure 6-15, would have the ramp terminals connect with SW Court Place to the northwest of the Oxford Suites hotel. SW 23rd Street would be extended east to the existing I-84 WB ramp terminals intersection to provide a connection between US 395 and the new I-84 WB ramp terminals.

N12

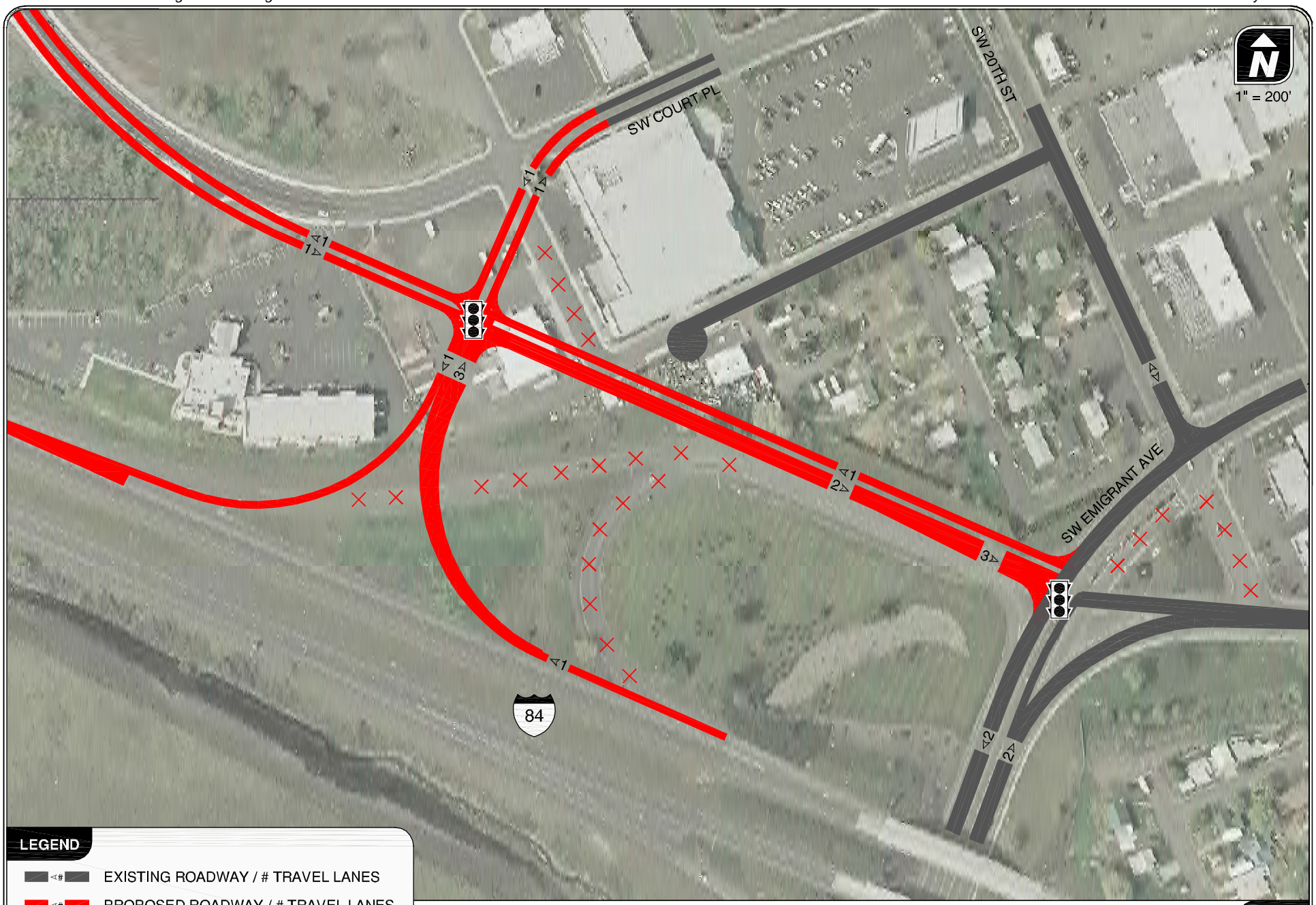
Concept N12, shown in Figure 6-16 is a single-point urban interchange (SPUI). Under this concept, both the EB and WB ramp terminals intersections with US 395 would come into a single intersection underneath the I-84 bridge over US 395.

N13

Concept N13, shown Figure 6-17, is a combination of Concepts N1 and N11a. In this concept, the I-84 Westbound ramp terminal is relocated to the west to the property currently occupied by Cummins Northwest. SW Court Place is realigned to form the northern and eastern approaches to the realigned ramp terminals intersection. The western approach to this intersection is a new roadway (called SW 23rd Street for the purpose of this analysis) connecting the ramp terminal to the new realigned intersection of US 395, SW 20th Street, and the SW Emigrant Avenue-SW Frazer Avenue couplet. The free right-turn movement from US 395 onto SW Frazer Avenue would be maintained.

South Side Concepts

The following is a description of the concepts that affect the south side of the interchange, including the I-84 Eastbound ramp terminal.



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N11A
SINGLE LINE TAPING

FIGURE 6-13

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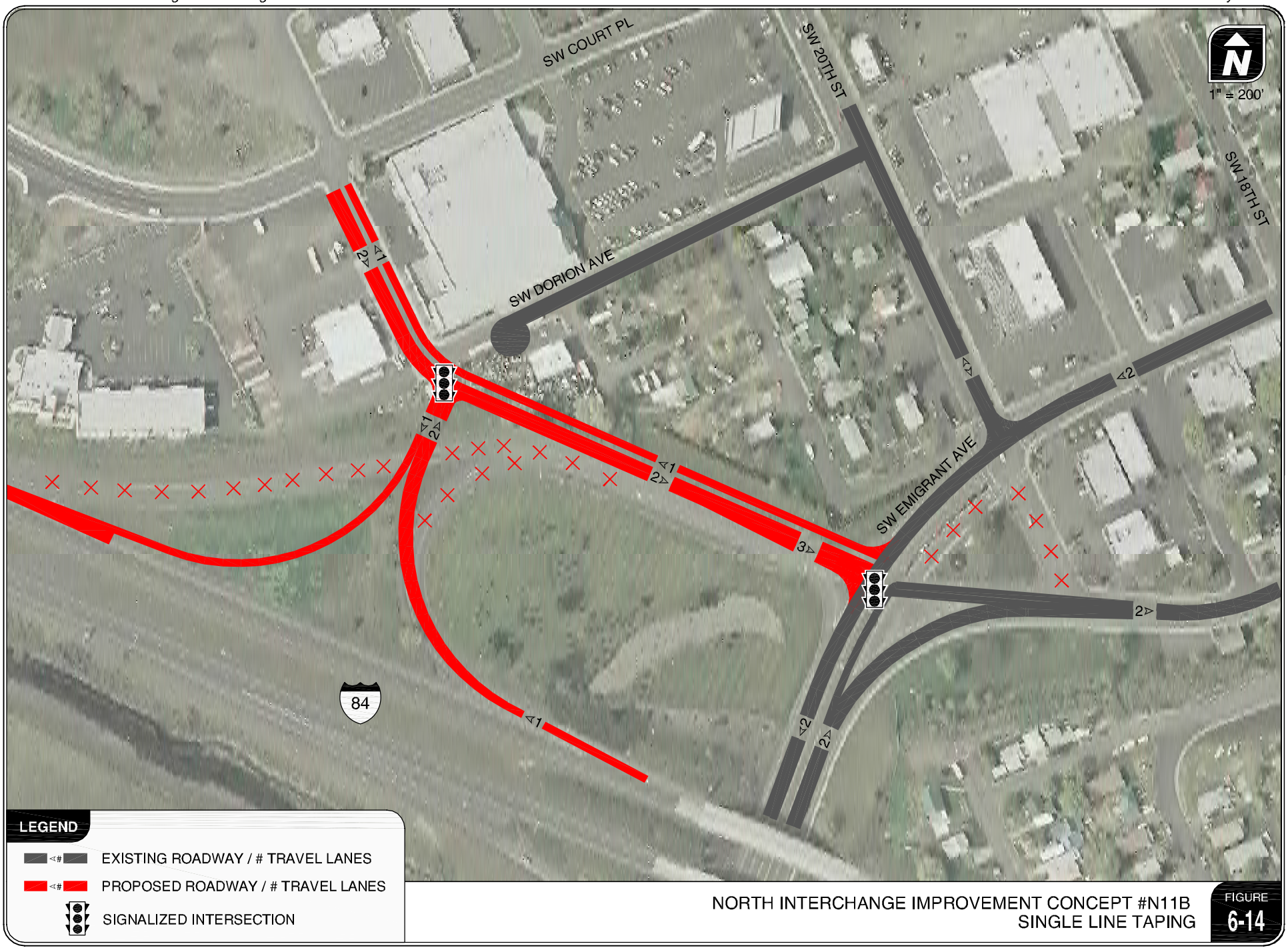

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N11B
SINGLE LINE TAPING

FIGURE 6-14

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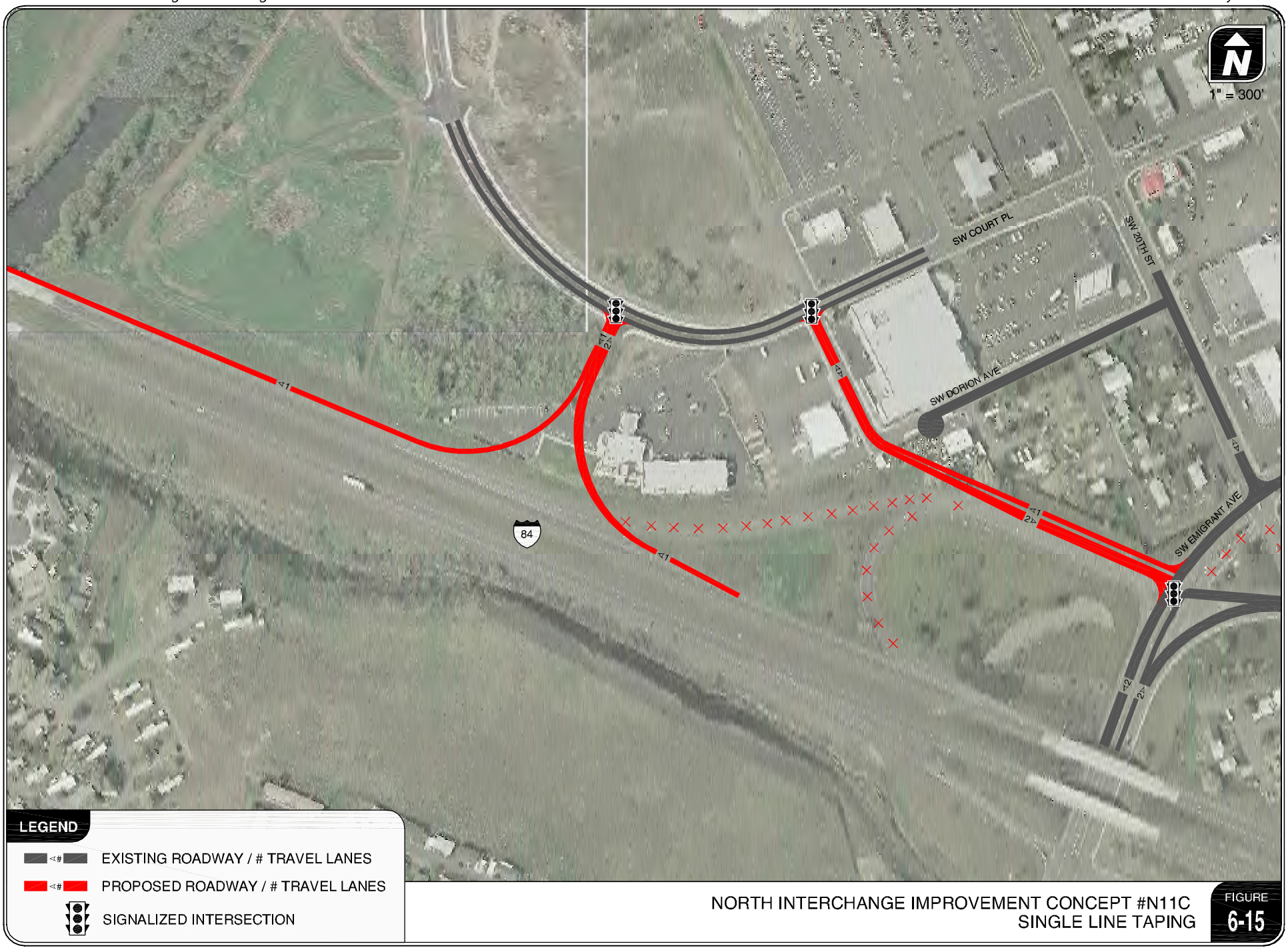
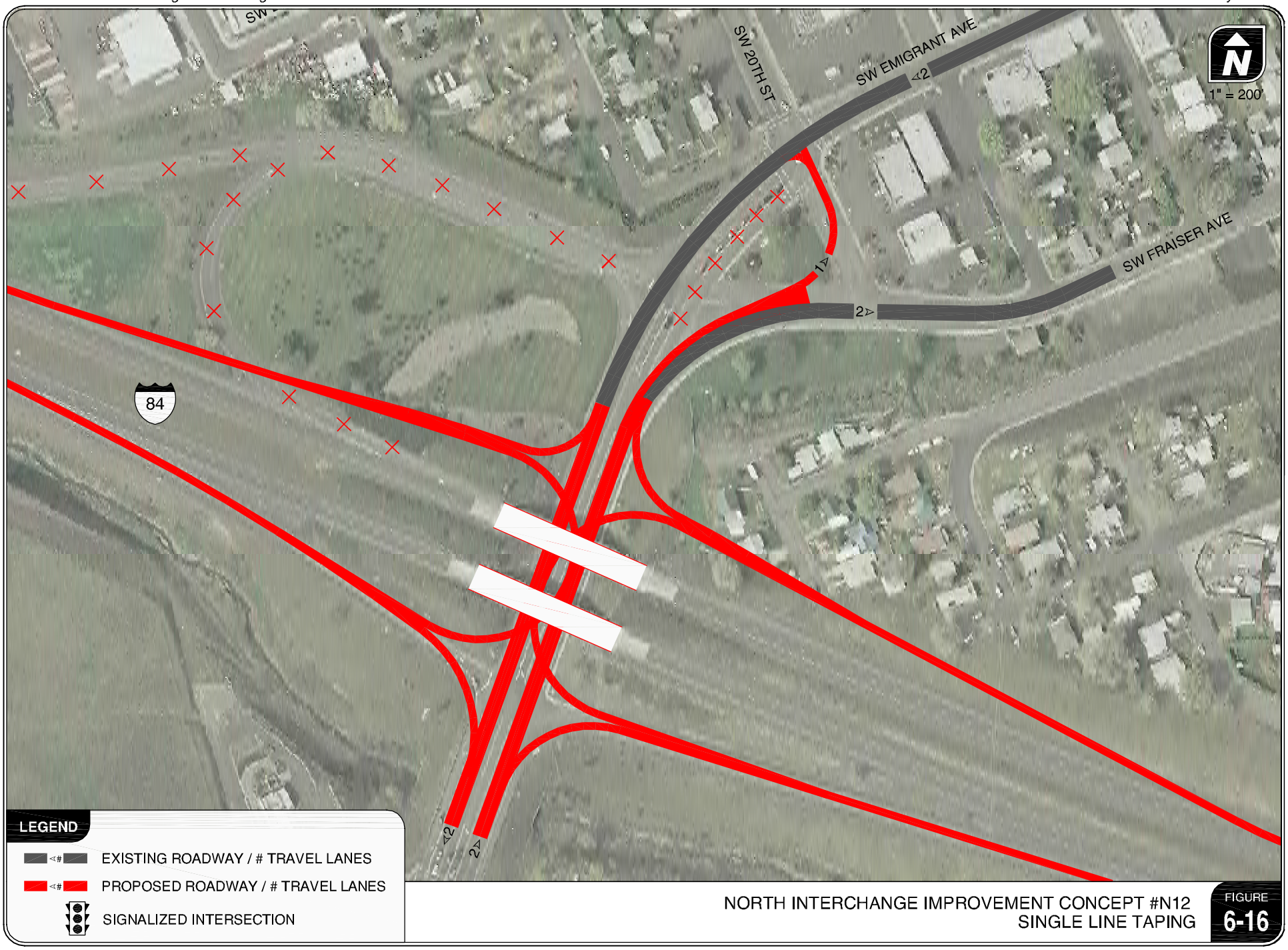


NORTH INTERCHANGE IMPROVEMENT CONCEPT #N11C
SINGLE LINE TAPING

FIGURE 6-15



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N12
SINGLE LINE TAPING

FIGURE 6-16

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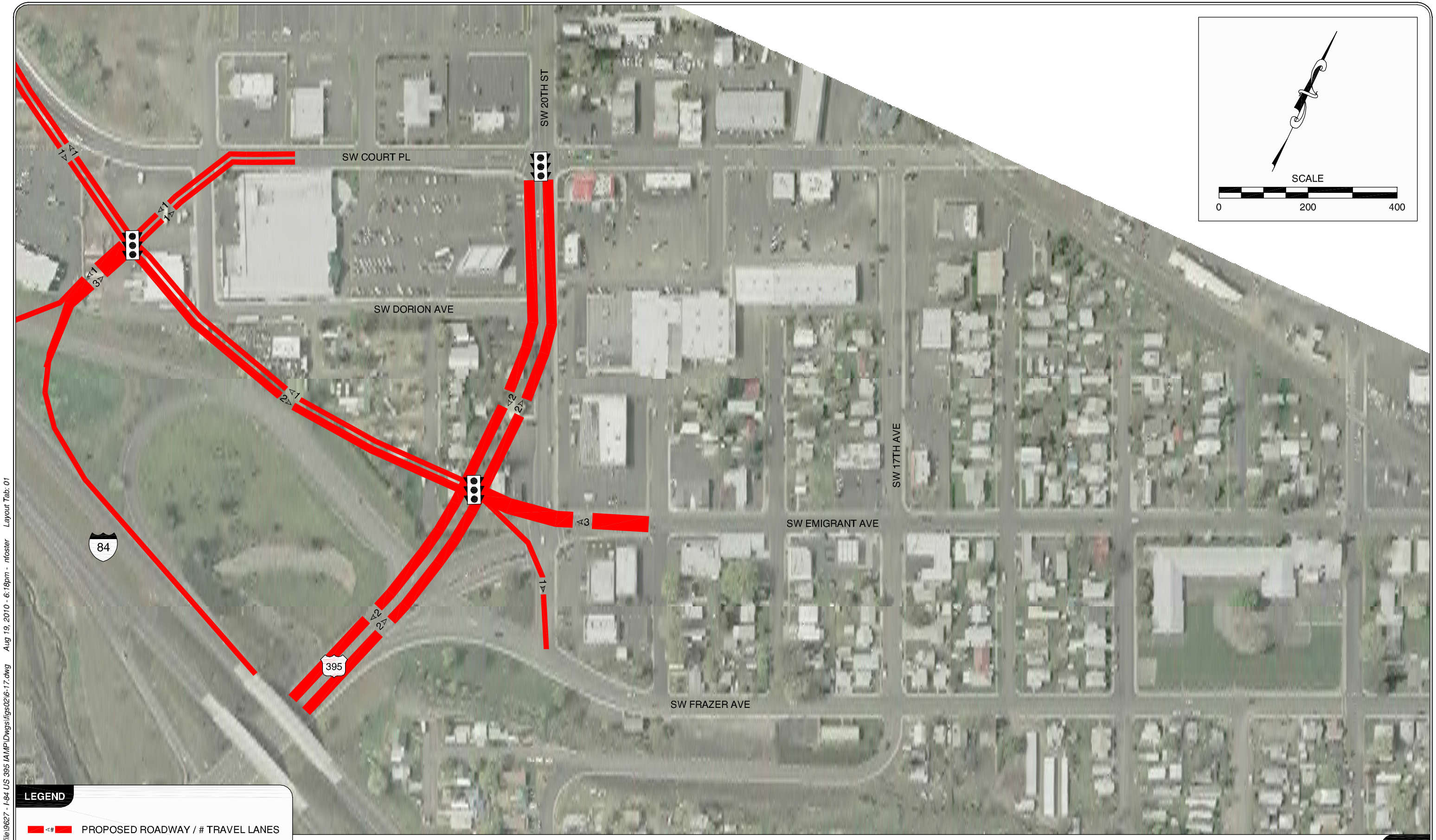


NORTH INTERCHANGE IMPROVEMENT CONCEPT #N13
SINGLE LINE TAPING

FIGURE 6-17

S1

Concept S1, shown in Figure 6-18, would realign SW Tutuilla Creek Road and SW Hailey Avenue such that they would intersect with US 395 approximately 1,000 feet south of the I-84 EB ramp terminals. The existing SW Hailey Avenue roadway would remain and its existing access to US 395 would be restricted to right-in/right-out movements. SW Tututilla Creek Road would dead-end west of the Denny's access.

S2

This concept, shown in Figure 6-19, would realign SW Tutuilla Creek Road and SW Hailey Avenue to approximately 800 feet south of the I-84 EB ramp terminals. This location would allow the SW Hailey Avenue approach to be aligned over an existing right-out only public access onto US 395. SW Hailey Avenue would maintain a right-in/right-out access onto US 395 at the existing intersection location; however, the roadway would dead-end just south of the Burger King access. Likewise, SW Tutuilla Creek Road would also have a right-in/right-out access onto US 395 at the existing intersection. Unlike Concept S1, SW Tutuilla Creek Road would retain its existing alignment as well under this concept.

S3

Under this concept, shown in Figure 6-20, SW Tutuilla Creek Road and SW Hailey Avenue would be realigned to approximately 1,100 feet south of the existing EB ramp terminals. Unique to this concept is that the EB ramp terminals would also be realigned approximately 300 feet south of their existing location in a Parclo B configuration. Due to relocation of the EB ramp terminals, the existing SW Hailey Avenue and SW Tutuilla Creek Road roadways would no longer have access to US 395 at their existing location.

S4

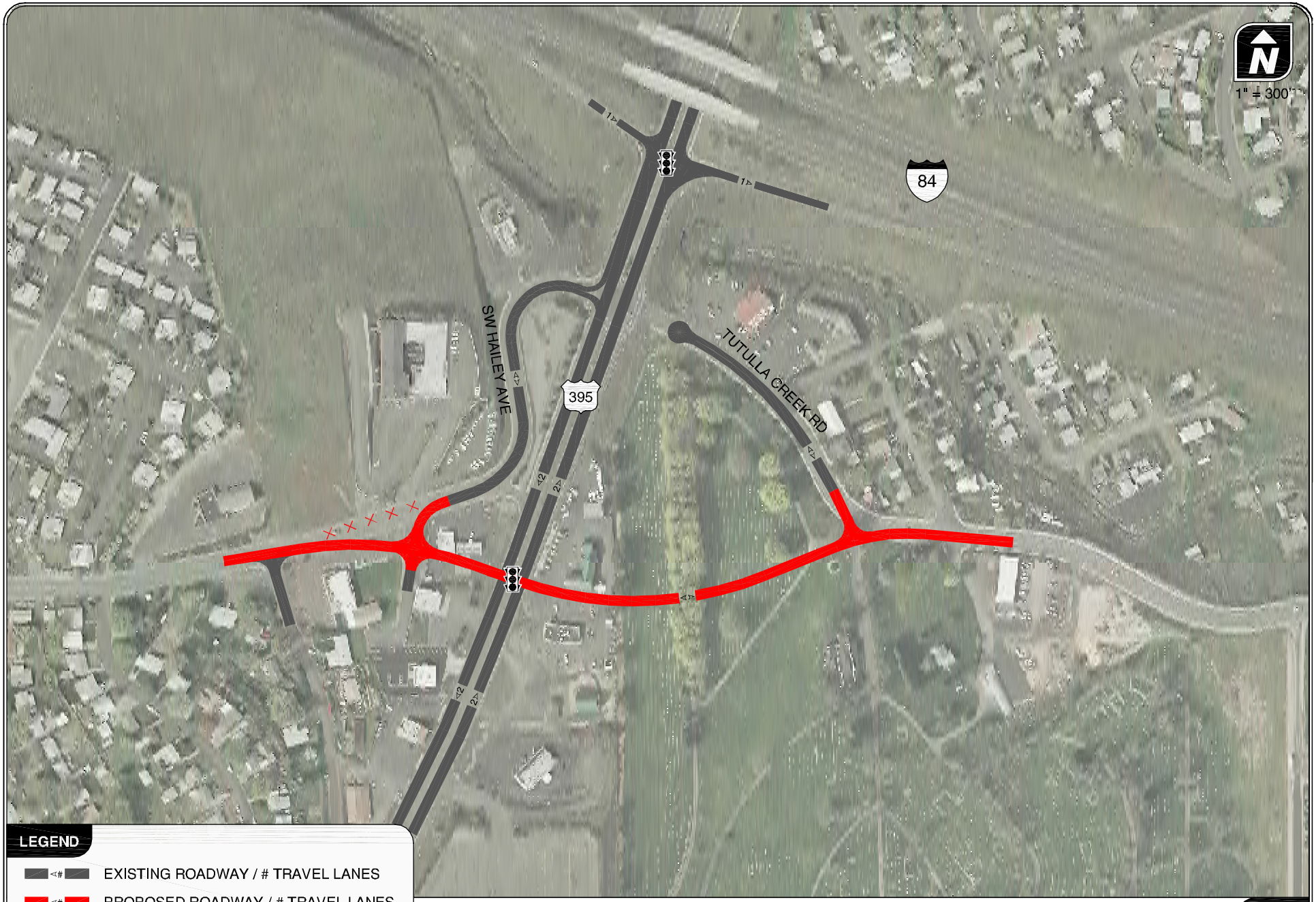
Concept S4, shown in Figure 6-21, would relocate SW Tutuilla Creek Road and SW Hailey Avenue to nearly the same location as in Concept S1. This relocated intersection would have a roundabout instead of a traffic signal. Likewise, the EB ramp terminals would also have a roundabout at their intersection with US 395. the existing SW Tutuilla Creek Road and SW Hailey Avenue alignments would remain with right-in/right-out access onto US 395.

S5

This concept, shown in Figure 6-22, would realign SW Tutuilla Creek Road and SW Hailey Avenue to the same location as in Concept S1, with a roundabout at the intersection. Unlike in Concept S4, the existing SW Tutuilla Creek Road and SW Hailey Avenue roadways would dead-end prior to their existing intersection with US 395. The EB ramp terminals would remain a signalized intersection.

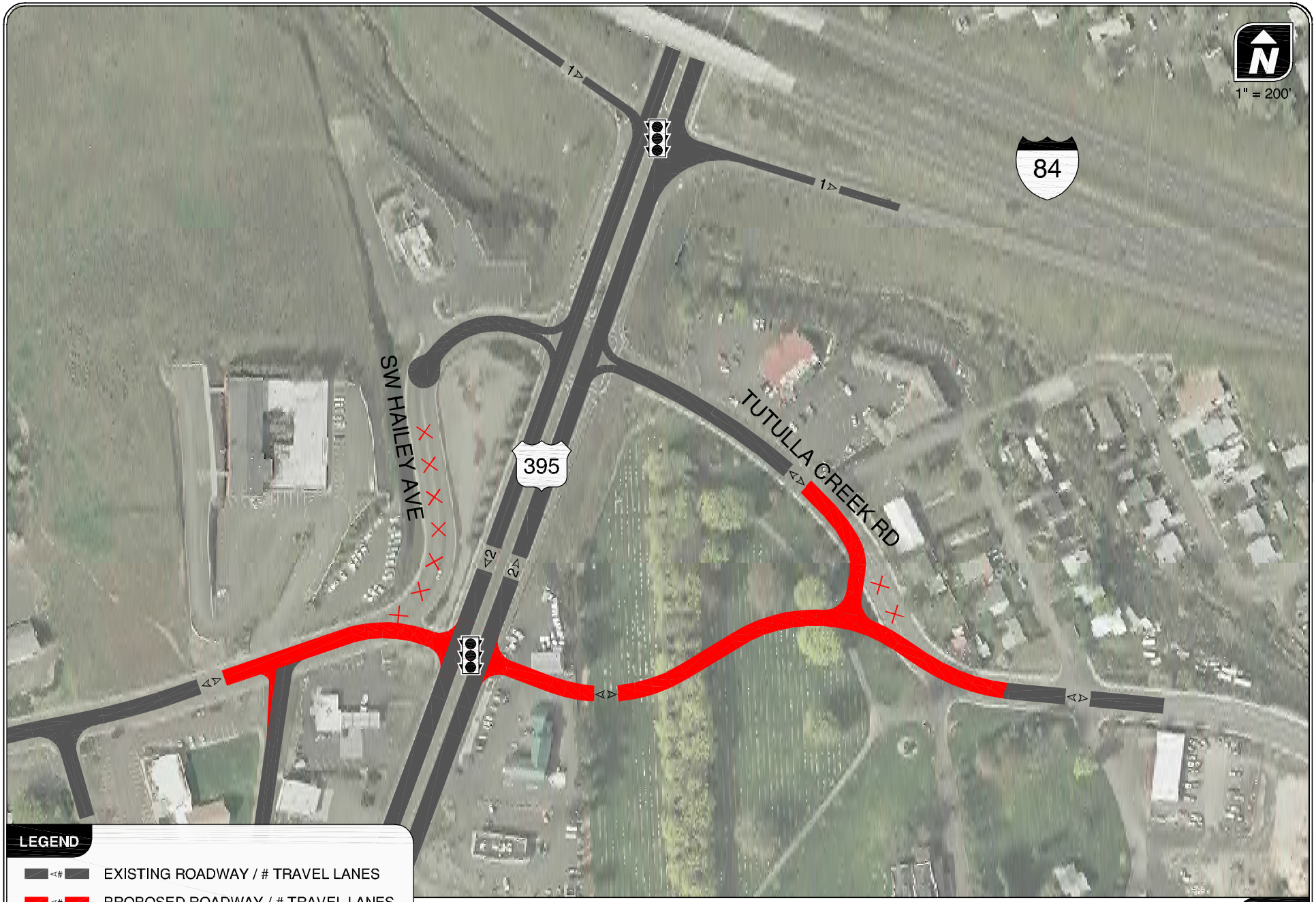
S6

Concept S6, shown in Figure 6-23, would relocate SW Hailey Avenue to the same spot as Concept S1; however, it would be a three-legged roundabout intersection as SW Tutuilla Creek Road would



SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S1
SINGLE LINE DRAWING

FIGURE 6-18



SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S2
SINGLE LINE DRAWING

FIGURE 6-19

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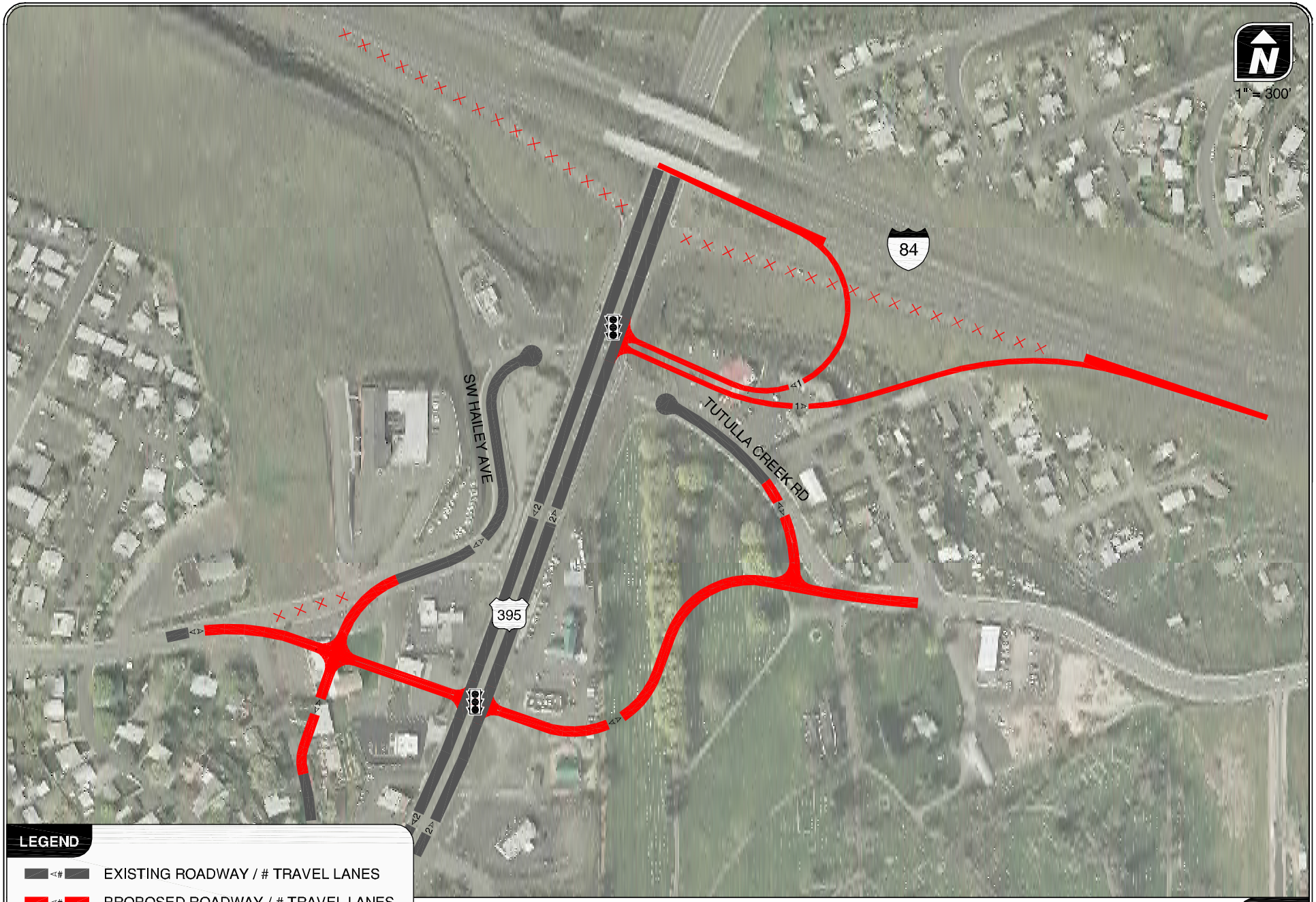

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S3
SINGLE LINE DRAWING

FIGURE 6-20

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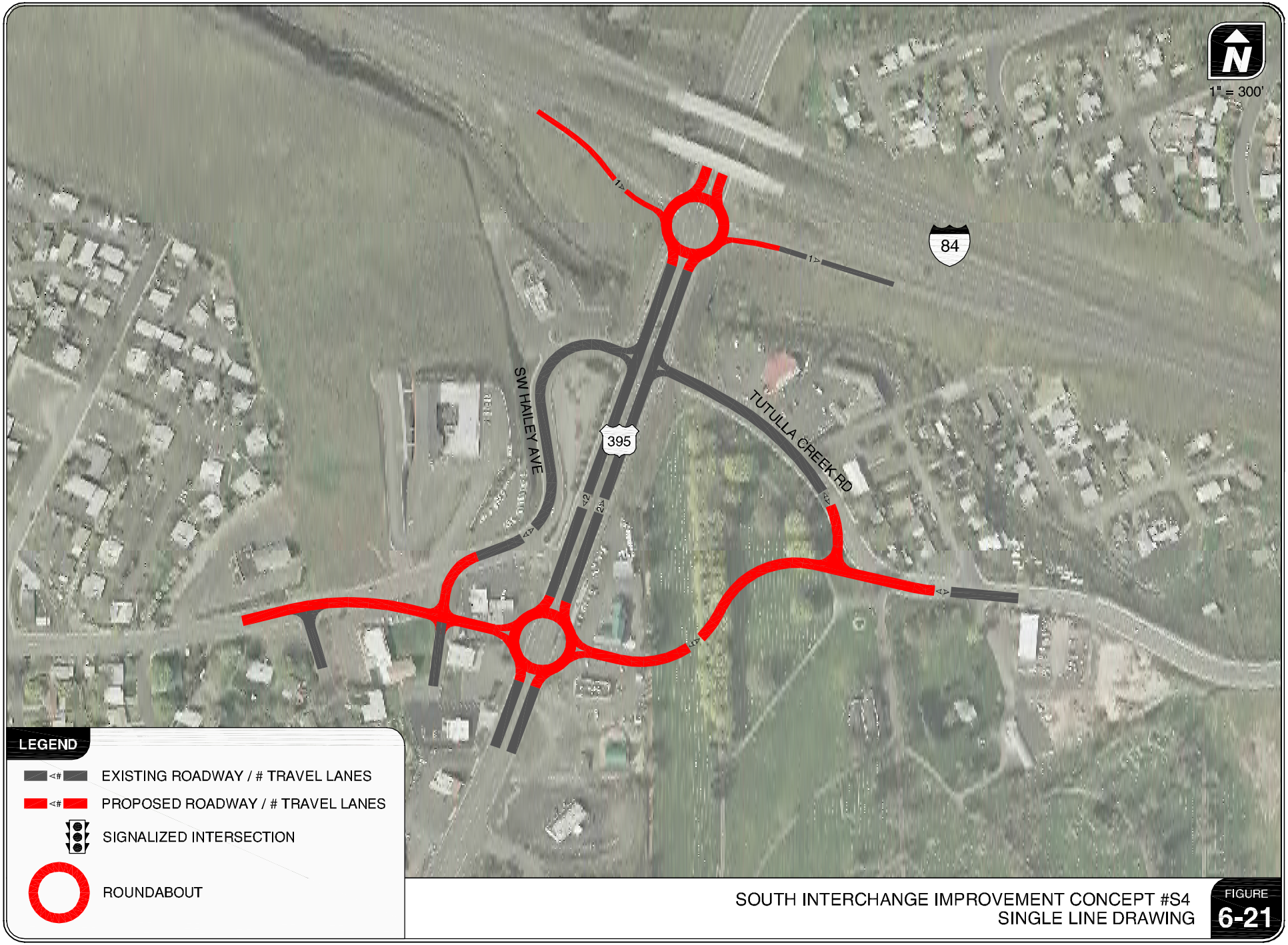

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S4
SINGLE LINE DRAWING

FIGURE 6-21

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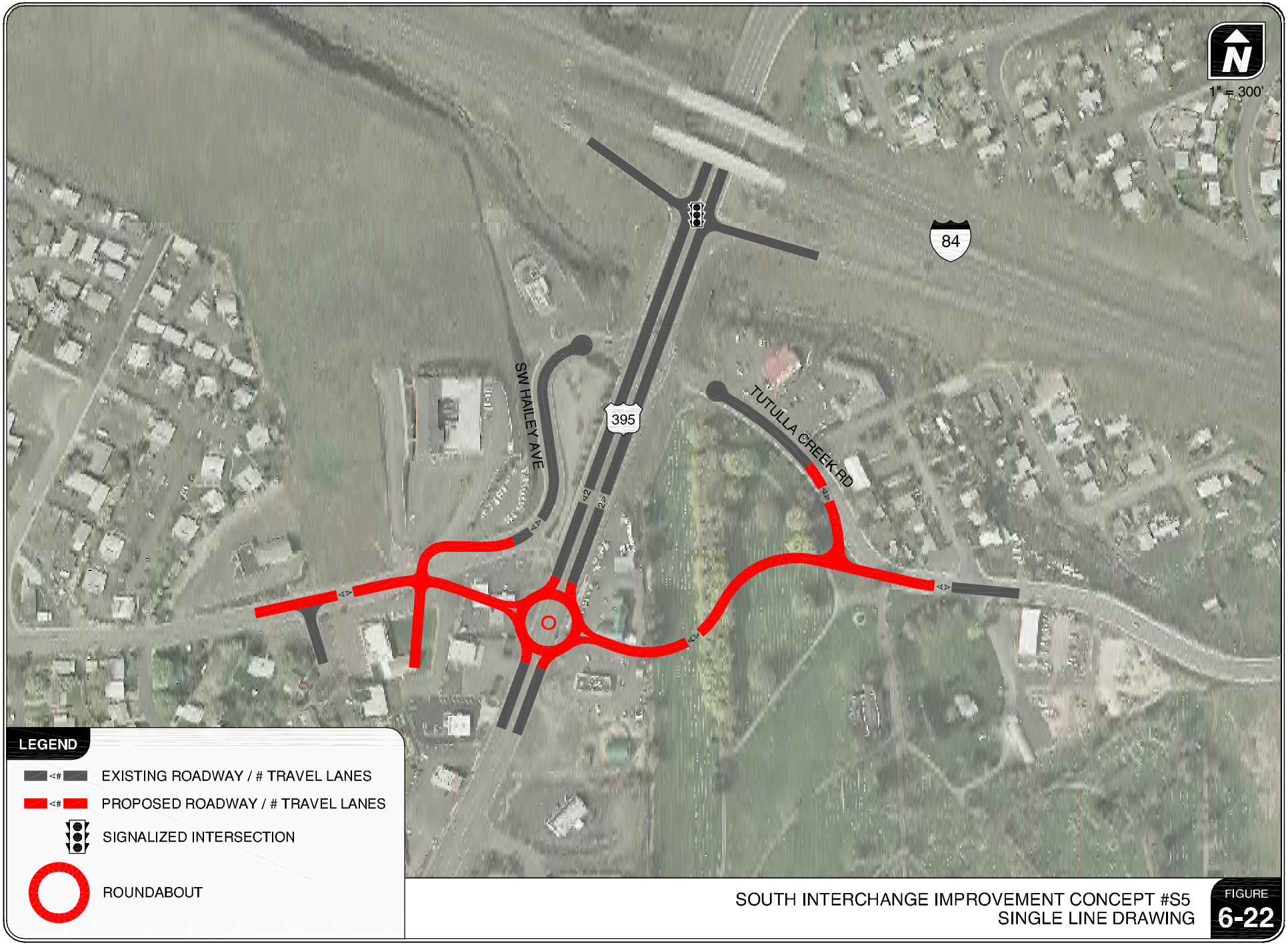
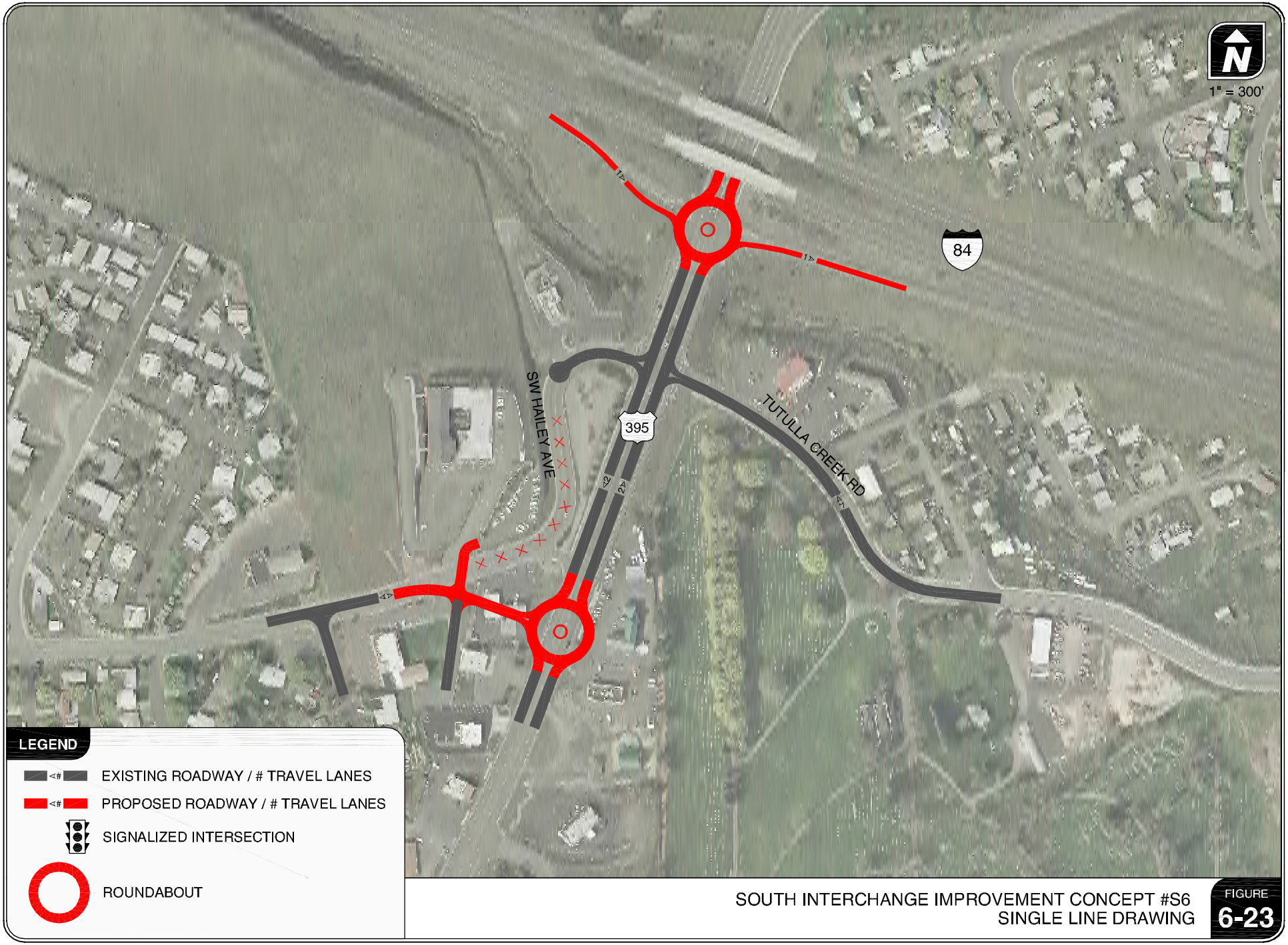


SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S5
SINGLE LINE DRAWING

FIGURE 6-22



SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S6
SINGLE LINE DRAWING

FIGURE 6-23

retain its existing alignment with a right-in/right-out access onto US 395. The existing SW Hailey Avenue roadway would maintain a right-in/right-out access onto US 395, but it would dead-end beyond the Burger King access. The EB ramp terminals would have a roundabout.

S7

SW Tutuilla Creek Road and SW Hailey Avenue are realigned to the same location as in Concept S3 under this concept, shown in Figure 6-24. The unique component of this concept is a new on-ramp onto WB I-84 for northbound traffic on US 395. This on-ramp would depart US 395 approximately 100 feet south of the realigned SW Tutuilla Creek Road-SW Hailey Avenue intersection, pass over I-84 and US 395 at the I-84 bridge, and connect in with the existing on-ramp. This would require the existing SW Tutuilla Creek Road to dead-end west of the Denny's access. The existing SW Hailey Avenue access would be restricted to right-in/right-out movements.

S8

In Concept S8, shown in Figure 6-25, SW Tutuilla Creek Road and SW Hailey Avenue would be realigned the same as in Concept S3. The I-84 EB ramp terminals would retain their diamond configuration, but would move approximately 300 feet south, which would necessitate the existing SW Tutuilla Creek Road and SW Hailey Avenue accesses to be removed. A new loop ramp onto I-84 EB for southbound US 395 traffic that departs from US 395 just south of the I-84 bridge and connects to I-84 at the bridge would be constructed.

S9

In this concept, shown in Figure 6-26, SW Tutuilla Creek Road and SW Hailey Avenue would be relocated to approximately ¼-mile south of the I-84 EB ramp terminals. The existing SW Hailey Avenue roadway would dead-end just east of Burger King, with its access to US 395 removed. SW Tutuilla Creek Road would retain its existing access as a right-in/right-out access. The realigned SW Tutuilla Creek Road would use the alignment of the existing internal roadway within the cemetery.

S10

This concept, shown in Figure 6-27, seeks to avoid rerouting SW Tutuilla Creek Road through the Olney Cemetery while still addressing the forecast demand for southbound left-turns from US 395 onto SW Tutuilla Creek Road by creating an under- or overpass of US 395. In this concept, southbound left-turns from US 395 would instead make a free right-turn onto a loop ramp that would cross US 395 at a separate grade and then merge back onto SW Tutuilla Creek Road. The creation of this ramp would require that SW Hailey Avenue be closed just west of Burger King, though it would retain signalized access onto US 395 at the existing location. Consequently a new signalized access for through traffic on SW Hailey Avenue would be provided at the location of the existing right-out access onto US 395 that was discussed under Concept S2. Traffic from SW Tutuilla Creek Road traveling to US 395 would retain full signalized access at its current location.

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S7
SINGLE LINE DRAWING

FIGURE 6-24

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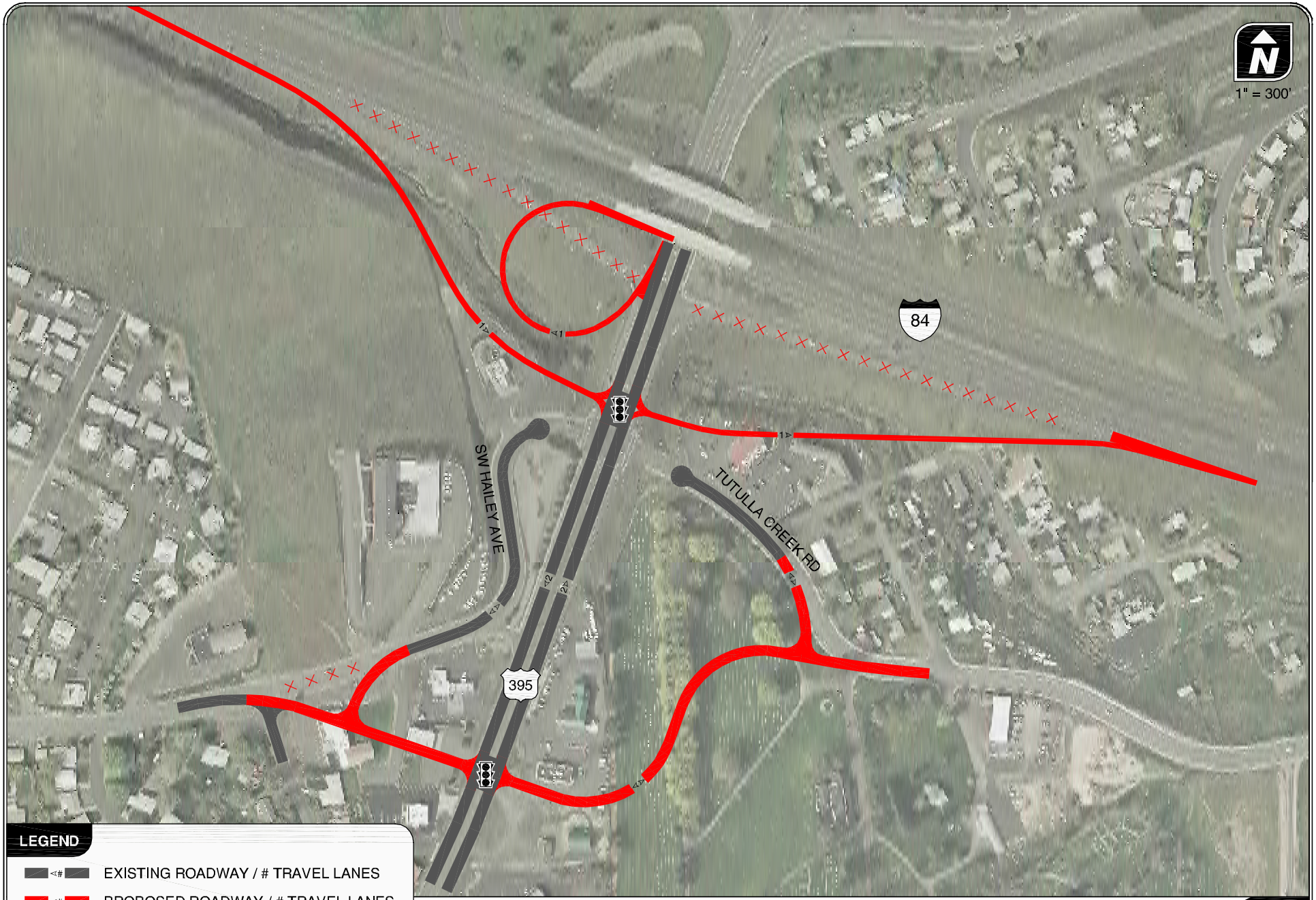
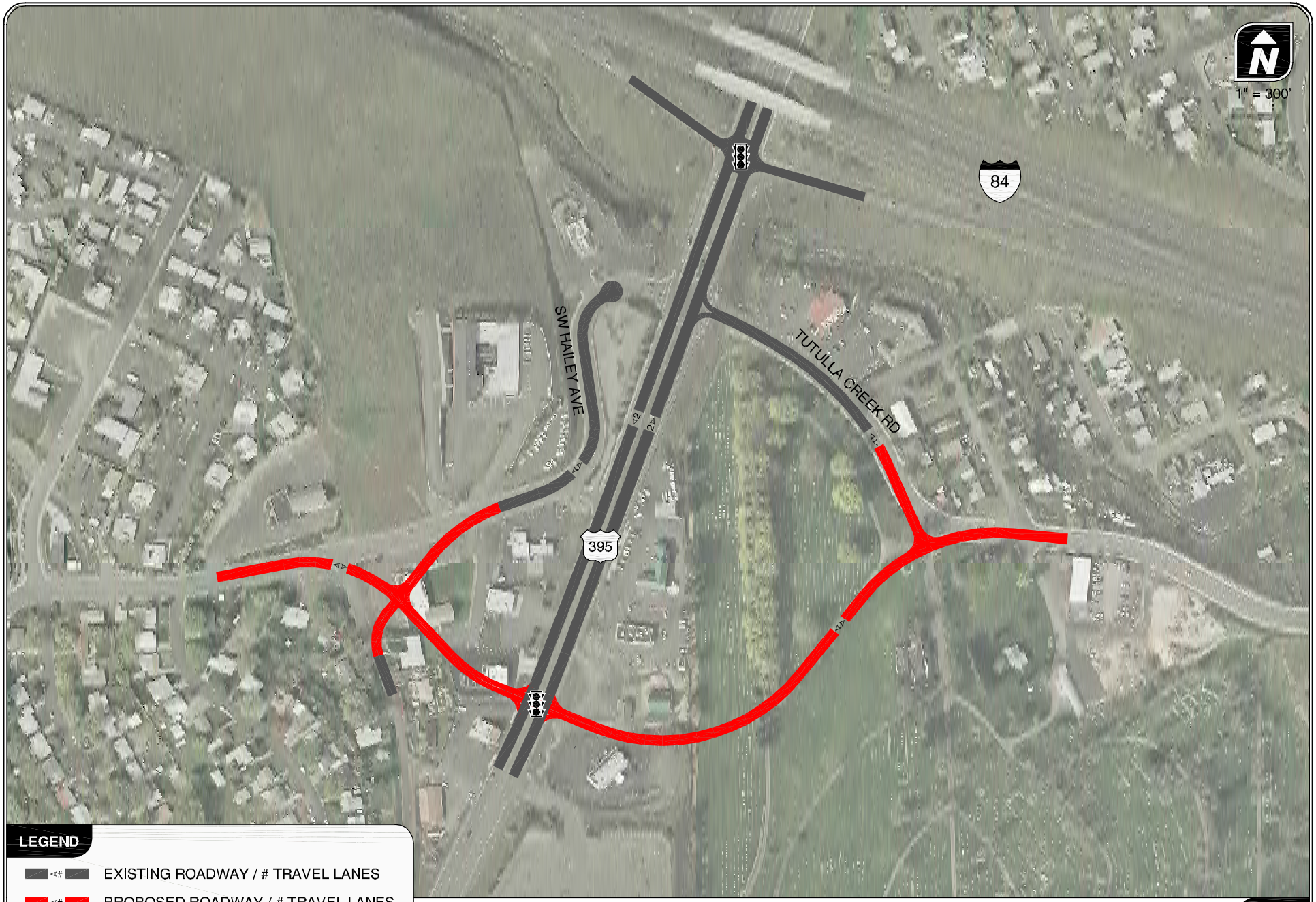


SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S8
SINGLE LINE DRAWING

FIGURE 6-25



SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S9
SINGLE LINE DRAWING

FIGURE 6-26

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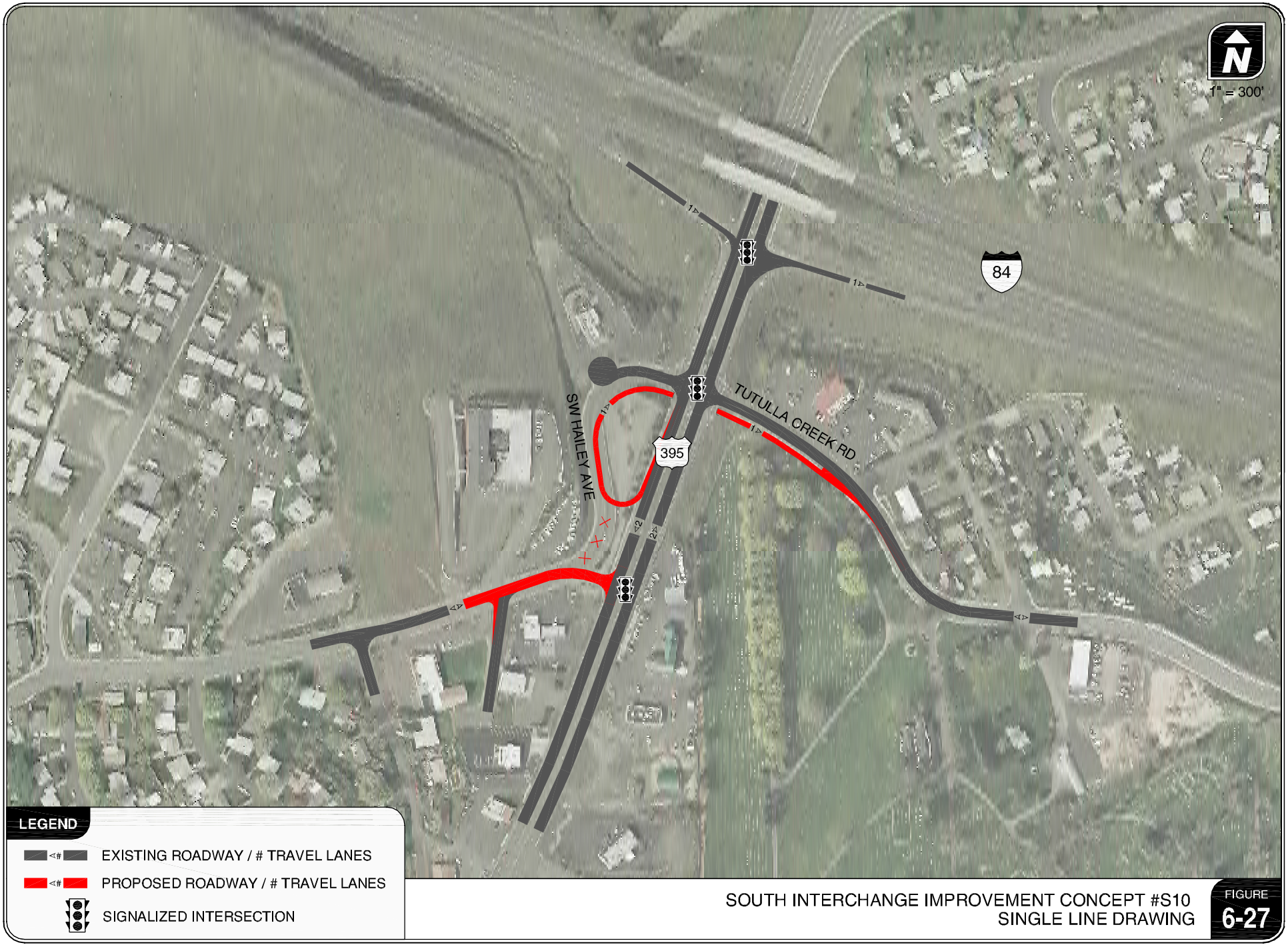


SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S10
SINGLE LINE DRAWING

FIGURE 6-27

S11 (A and B)

Concept S11 creates a new frontage roadway paralleling US 395 to the east from a relocated SW Tutuilla Creek Road-SW Hailey Avenue intersection (approximately the same location as in Concept S1) to the existing SW Tutuilla Creek Road. This roadway would primarily use the existing space between US 395 and the Olney Cemetery. There are two options for this new roadway. Under Option A, shown in Figure 6-28, it would serve one-way traffic from US 395 onto SW Tutuilla Creek Road, with traffic from SW Tutuilla Creek Road bound for US 395 using the existing signalized intersection. Option B, shown in Figure 6-29, would have the new roadway serve two-way traffic traveling to and from SW Tutuilla Creek Road. The existing SW Tutuilla Creek Road approach to US 395 would be replaced by a right-turn only from SW Tutuilla Creek Road onto US 395.

Under both options, SW Hailey Avenue would retain some form of access at the existing signalized intersection, though under Option B it is likely that it would be a right-in/right-out access.

S12

This concept, shown in Figure 6-30, would create a tunnel under I-84 and the neighborhoods in the northeast quadrant of the interchange to connect SW Tutuilla Creek Road to SW Frazer Avenue at some point between SW 20th Street and SW 17th Street. This would allow traffic traveling between SW Tutuilla Creek Road and the north side of the interchange to bypass US 395 altogether. The existing SW Tutuilla Creek Road-SW Hailey Avenue signalized intersection would be restricted to right-in/right-out access.

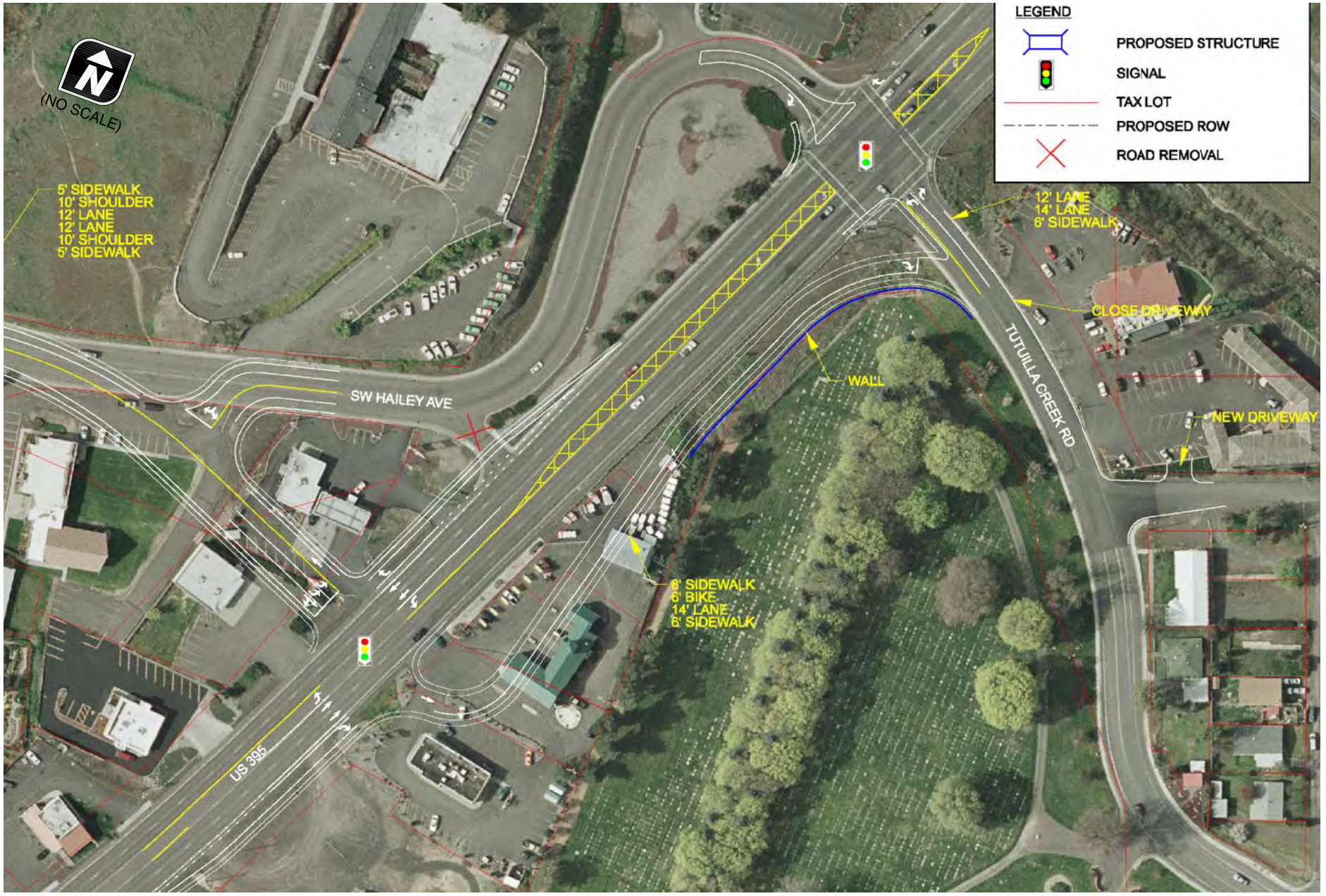
S13

Concept S13, shown in Figure 6-31, would feature a realigned SW Hailey Avenue across from a jug handle allowing SB US 395 traffic to make a u-turn to access SW Tutuilla Creek Road in the near-term. This realignment would be relocated in approximately the same location as S3. In the long-term, it would include the construction of a new road connecting SW 30th Street to SW Tutuilla Creek Road.

S14 (A and B)

Under Option A, shown in Figure 6-32, Concept S14A realigns the I-84 EB off-ramp south of its existing alignment to connect with US 395 at the location of the existing SW Hailey Avenue. SW Hailey Avenue would be realigned to the south on US 395 as it is in Concept S11B, approximately 1,320 feet south of the existing I-84 Eastbound ramp terminals. There would be no modifications to the alignment of SW Tutuilla Creek Road under this concept. Likewise the I-84 EB on-ramp would remain in its current location.

Under Option B, shown in Figure 6-33, of this concept, the existing I-84 Eastbound ramp terminals are both moved to the location of the existing SW Hailey Avenue approach to US 395. In order to accomplish this, the on-ramp to I-84 Eastbound would be constructed as an entering Parclo-A loop ramp in the southwest quadrant of the interchange. The existing alignment of SW Hailey Avenue would become a cul-de-sac to the northeast of the existing US Forest Service building where the current right-out access onto US 395 is provided. A new connection from SW Hailey Avenue to US

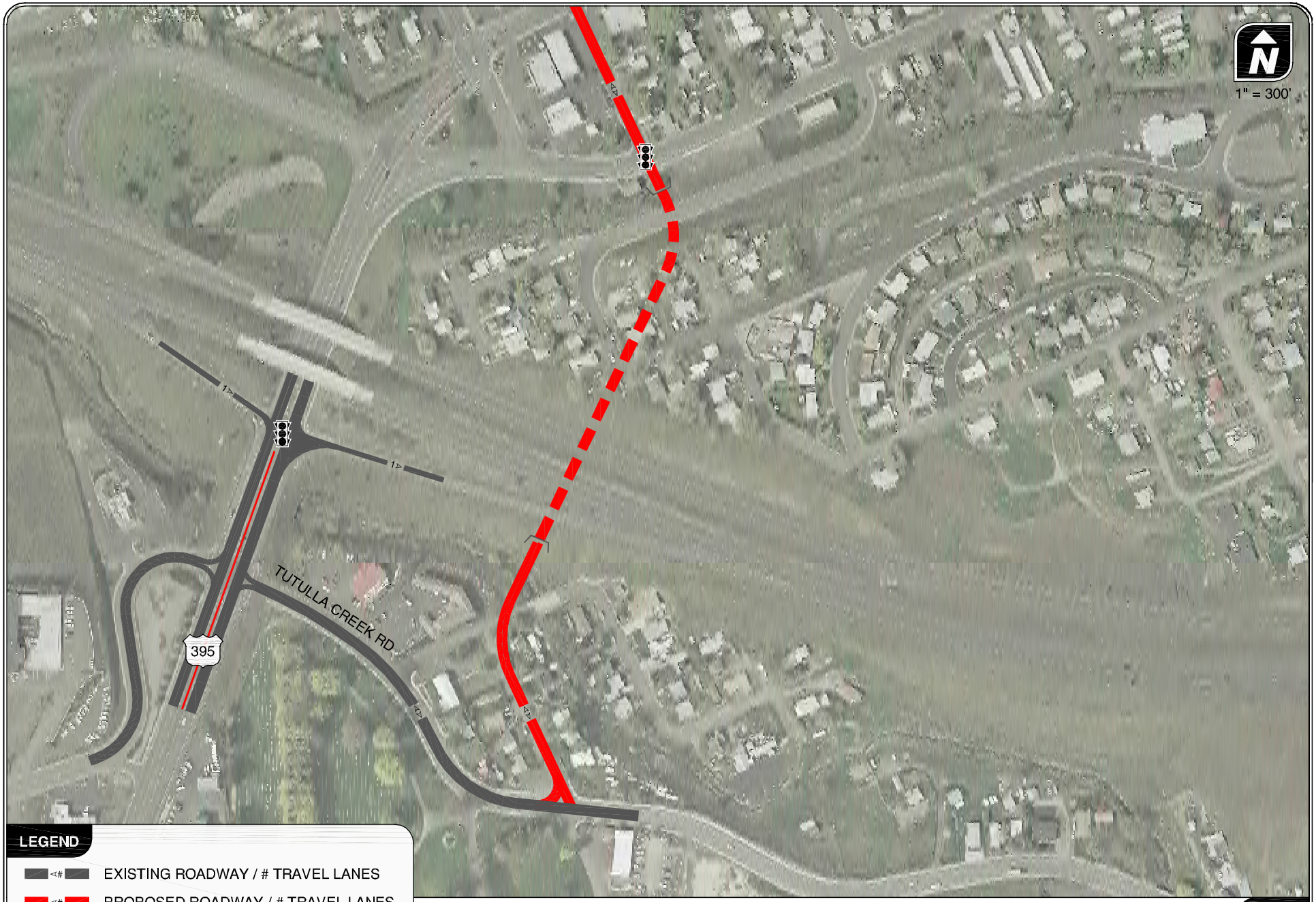


SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S11A
PENDLETON, OREGON

FIGURE
6-28

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S11B
PENDLETON, OREGON

FIGURE **6-29**



SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S12
SINGLE LINE DRAWING

FIGURE 6-30

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SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S13
SINGLE LINE DRAWING

FIGURE 6-31

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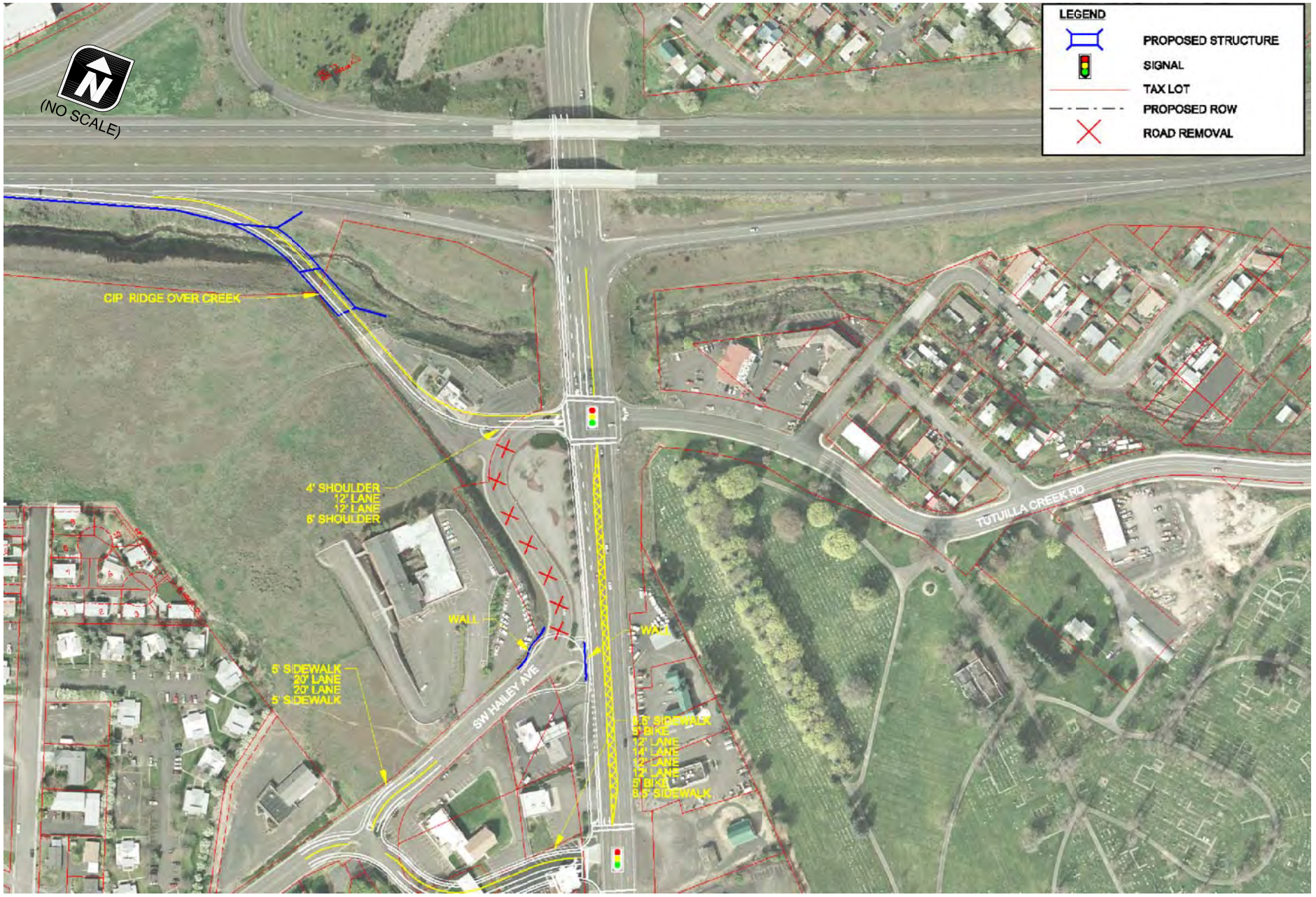

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S14A
PENDLETON, OREGON

FIGURE
6-32

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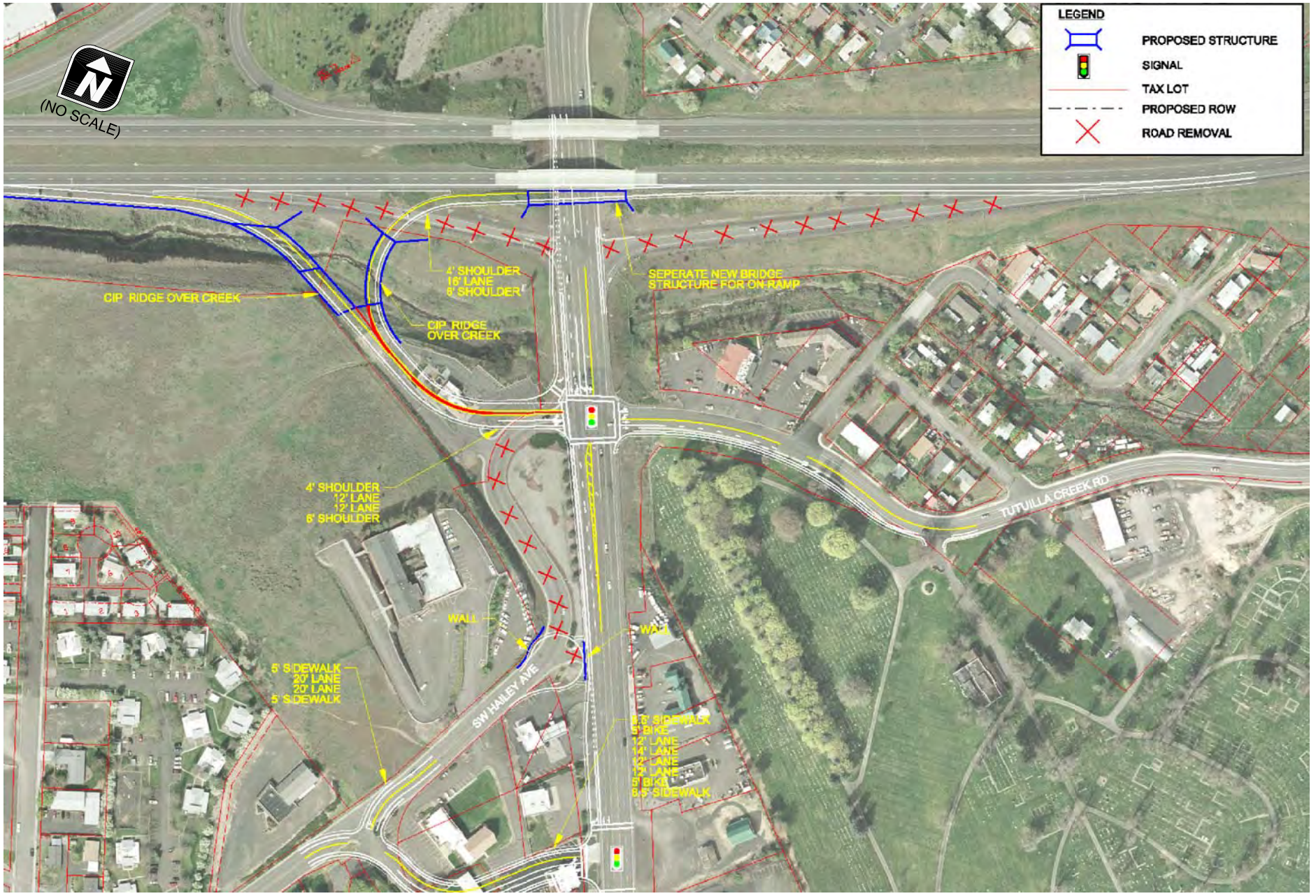

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S14B
PENDLETON, OREGON

FIGURE
6-33

395 would be constructed approximately 800 feet south of the I-84 Eastbound ramp terminals. The alignment of Tutuilla Creek Road would remain unchanged and would form a four-legged signalized intersection of US 395 with the I-84 Eastbound ramp terminals.

S15 (A and B)

Concept S15 has two options that could be constructed in phases. Option A, shown in Figure 6-34, does not realign any roadways. This concept seeks to maximize the existing roadway system on the south side of I-84 through enhancing the existing US 395/SW Hailey Ave-Tutuilla Creek Road intersection. Under this concept, there would be dual left-turns from SW Hailey Avenue onto US 395 and from southbound US 395 onto Tutuilla Creek Road. The Tutuilla Creek Road approach would be widened to provide for one lane for each turning movement (left, through, and right).

Under Concept S15B, shown in Figure 6-35, nearly the same improvements would be made to the US 395/SW Hailey Ave-SW Tutuilla Creek Road intersection as in Concept S15A. The difference between the two is that the existing SW Hailey Avenue approach would be restricted to right-in only access from US 395 under Concept S15B. A new connection from SW Hailey Avenue to US 395 would be constructed approximately 1,100 feet south of the I-84 Eastbound ramp terminals The existing alignment of SW Hailey Avenue would allow two way traffic from the new roadway north to the existing Burger King access approach, where it would transition to one-way only traffic from southbound US 395.

West Side Concepts

W1

This concept, shown in Figure 6-36, would create a new roadway between the neighborhoods on the southwest side of the interchange to the north side of the interchange. The roadway would connect SW Court Place to SW 28th Street, with a side-street connection to SW Goodwin Avenue. A new overpass of I-84 would be constructed for the new roadway.

W2

Concept W2, shown in Figure 6-37, would create a split-diamond interchange configuration. The western section of the new interchange would include a north-south roadway similar to the one included in Concept W2. SW Tutuilla Creek Road and SW Hailey Avenue would also be realigned in manner similar to Concept S2.

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 these concepts were screened out, a second level was applied to the remaining concept 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.

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S15A
PENDLETON, OREGON

FIGURE 6-34

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SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S15B
PENDLETON, OREGON

FIGURE
6-35

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WEST INTERCHANGE IMPROVEMENT CONCEPT #W1
SINGLE LINE TAPING

FIGURE 6-36

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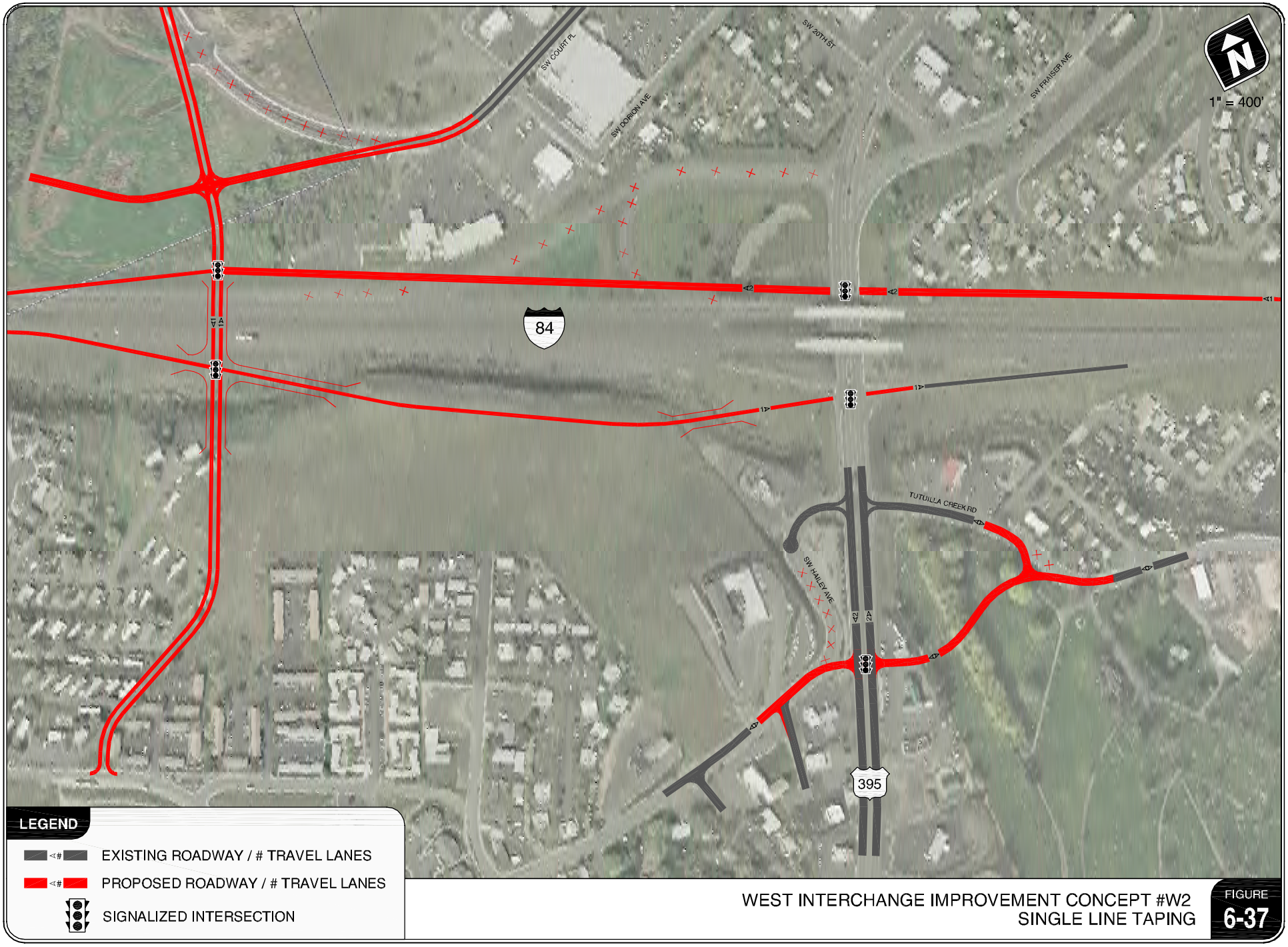

WEST INTERCHANGE IMPROVEMENT CONCEPT #W2
SINGLE LINE TAPING

FIGURE 6-37

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KITTELSON & ASSOCIATES, INC.
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The following section provides detailed explanation of this screening process and identifies which concepts were selected by the TAC and PAC as the preferred transportation improvement plan. The Technical Appendix contains more details about the screening process.

Preliminary Purpose and Problem Statement Screening

Once the initial set of interchange concepts were developed, a preliminary assessment was performed 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) / US 395 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.*
>
> ***Problem Statement:***
>
> *Because of topographic constraints and the construction of I-84, there are only two existing opportunities for access between the areas of Pendleton to the north and south of I-84: US 395 and OR 11. The resulting level of cross-town traffic, especially in the vicinity of the I-84 interchange with US-395, makes it very difficult for motorists exiting the freeway to access downtown, and subsequently, both of the ramp termini operate over capacity. Queues on the eastbound off-ramp are forecast to back onto the mainline of I-84 by the year 2025. Traffic operations within the vicinity of the interchange are also poor. In particular the operations of the Tutuilla Creek/Hailey and 20th Street intersections of US 395 and the 20th Street/Court Place intersection will all need to be improved. There are several direct accesses from commercial properties onto US 395 south of the interchange. The Oregon Department of Transportation (ODOT) initiated the IAMP process to ensure that growth and development will occur in the IMSA without compromising the operation of the interchange. The IAMP will identify long-term transportation improvements, land-use strategies, and implementation policies. The IAMP will satisfy the requirements of Oregon Administrative Rule (OAR) 734-051 and will be developed according to the ODOT IAMP guidelines.*

Based on this initial screening it was determined that concepts that did not provide sufficient capacity for the long-term operations of the interchange did not meet the project's purpose. These concepts include those with a roundabout at the I-84 WB ramp terminals (N3, N4, N5, and N6), the single-point interchange (N12), and concepts with a roundabout at the US 395/SW Hailey Ave-SW Tutuilla Creek Road intersection (S4, S5, and S6). *Detailed operational assessments are available in the Technical Appendix.*

Basic Qualitative Concept Screening

After the initial Purpose and Problem Statement screening, a basic qualitative screening of the remaining concepts was conducted. To assist in the evaluation process, the adopted evaluation criteria was reviewed and a screening level evaluation process by which each of the interchange form and local circulation concepts could be evaluated at a high level qualitative perspective was developed. 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.

Category #1 – Transportation

Evaluation Criteria #1 – Improves the operations of the interchange and the adjacent local system

Evaluation Criteria #2 – Improves non-vehicular travel

Category #2 – Land Use

Evaluation Criteria #1 – Level of right-of-way (ROW) impacts

Category #3 – Cost

Evaluation Criteria #1 – Level of construction costs and feasibility

Category #4 – Environmental, Social, and Equity Factors

Evaluation Criteria #1 – Environmental impacts

Evaluation Criteria #2 – Compatibility

Category #5 – Accessibility

Evaluation Criteria #1 – Spacing standards

Based on the criteria outlined above, an evaluation matrix for each concept was created. These matrices are contained within the Technical Appendix. A summary of the qualitative screening process is provided in Tables 6-1 through 6-3 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 criteria, 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 more detailed information about the scoring criteria).

TABLE 6-1 SUMMARY OF QUALITIATIVE SCREENING PROCESS (NORTH OF I-84 CONCEPTS)

Evaluation Criteria	Concept									
	N1	N2	N7	N8	N9	N10	N11a	N11b	N11c	N13
Operations	+	+	+	+	+	+	+	+	+	+
Non-Vehicular Travel	0	0	+	-	0	0	-	-	-	0
ROW Impacts	-	+	-	-	0	+	0	+	+	-
Cost and Feasibility	-	+	-	-	-	+	-	-	-	-
Environmental Impacts	+	+	+	-	+	+	+	+	+	+
Compatibility	+	+	-	-	-	+	-	-	-	+
Access Spacing	0	-	0	0	0	-	0	0	-	0

TABLE 6-2 SUMMARY OF QUALITATIVE SCREENING PROCESS (SOUTH OF I-84 CONCEPTS)

Evaluation Criteria	Concept														
	S1	S2	S3	S7	S8	S9	S10	S11a	S11b	S12	S13	S14a	S14b	S15a	S15b
Operations	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
Non-Vehicular Travel	0	0	0	-	-	0	-	0	0	0	0	0	0	0	0
ROW Impacts	-	0	-	-	-	-	0	0	-	0	-	0	0	+	0
Cost and Feasibility	-	-	-	-	-	-	-	-	-	-	-	-	-	+	0
Environmental Impacts	-	-	-	-	-	-	0	+	+	-	+	-	-	+	+
Compatibility	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
Access Spacing	0	0	0	0	0	+	-	0	0	0	0	0	0	-	0

TABLE 6-3 SUMMARY OF QUALITATIVE SCREENING PROCESS (WEST OF I-84 CONCEPTS)

Evaluation Criteria	Concept	
	W1	W2
Operations	+	+
Non-Vehicular Travel	+	+
ROW Impacts	0	-
Cost and Feasibility	-	-
Environmental Impacts	-	-
Compatibility	-	-
Access Spacing	-	0

Based on this qualitative screening process, a number of concepts were eliminated from consideration. Generally the eliminated concepts present substantial costs and impacts relative to the remaining concepts recommended for further evaluation. These concepts required:

1) the I-84 WB ramps to be realigned through a severe grade in the northeast quadrant of the interchange (N8, N9, and W2),

2) SW Emigrant Avenue and SW 17th Avenue to be widened, causing multiple property impacts and acquisitions (N7),

3) new ramp connections to be introduced that provided minimal operational benefit (S3, S7, S8, and N1 Option A bypass),

4) SW Tutuilla Creek Road to be rerouted through the Olney Cemetery (S1, S2, and S9),

5) features which posed significant engineering challenges that may make them economically infeasible to construct (S10), or

6) cost-prohibitive improvements (N1 Option B bypass and S12).

In addition, Concepts N2 and W1 did not effectively address the existing and future capacity and access issues. Concept N10 was eliminated from consideration later on in the process due to the out-of-direction travel that the couplet would create for northbound US 395 traffic trying to reach the SW Court Place area. Fatal flaws related to the potential design of Concept N11B were identified and the TAC and PAC members preferred Concept N11A over Concept N11C based on its lower level of impacts, so only Concept N11A was moved forward. Concept S11A was also eliminated since it had similar impacts to Concept S11B, but less benefits. Finally, Concept S13 was eliminated due to the out-of-direction travel it created; however, the SW 30th Street extension element was carried forward as an add-on to other south-side concepts.

Detailed Quantitative Evaluation

A more detailed evaluation was performed of the concepts remaining after the basic qualitative screening process was completed. Similar to the qualitative screening process, this detailed evaluation centered on the formally adopted set of evaluation criteria developed during the initial stages of the I-84/US 395 IAMP study process. These evaluation criteria were assembled to ensure that each concept would be evaluated for consistency with the overall adopted evaluation criteria. Five broad evaluation criteria were formally adopted as outlined below:

- Transportation Operations – This category consists of those criteria that assess the ability for motorized and non-motorized vehicles to travel through and within the IMSA.
- Land Use – This category consists of those criteria that assess right-of-way impacts, the consistency with adopted land use plans, and economic development impacts.
- Cost – This category consists of those criteria that assess the practicality of a concept from a construction cost and feasibility perspective.
- Environmental, Social, and Equity – This category consists of those criteria that assess the degree to which a concept is compatible with the natural and built environment.
- Accessibility – This category consists of those criteria that assess the degree to which a concept meets or moves toward ODOT's access spacing standards within the vicinity of an interchange.

Detailed descriptions of the five broad evaluation criteria along with the accompanying sub-criteria are provided in the Technical Appendix

To help determine how to rank each of the Concepts according to the evaluation criteria, a scoring system was developed. In essence, each evaluation criterion was assigned a range of numerical values (+2, +1, 0, -1, -2 for example). A definition specific to the evaluation criterion was then assigned to each value, (i.e. "+2" for a "Significant Increase…" and a "-2" for a "Significant Decrease…"). The specific scoring definitions for each criterion are also provided in the Technical Appendix. Using the unique scoring system for each evaluation criterion, Concepts N1, N11a, N13, S11b, S14a, S14b, S15a, and S15b were carefully evaluated and scored by the consultant team. The following paragraphs summarize the results of this evaluation. *A more detailed description of the evaluation process may be found in the Technical Appendix.*

Transportation Operations

From a transportation operations perspective, the detailed assessment of each concept revealed the following:

- On the north side, all three concepts would improve the operations and safety of the existing interchange. Concept N1 would provide sufficient capacity, but the resulting interchange ramp would not meet ODOT's Highway Design Manual (HDM) capacity standard of 0.70. Concepts N11a and N13 would provide similar operations at the I-84 Westbound ramp terminals; however, Concept N11a would provide additional capacity at the US 395/SW Emigrant Avenue intersection.

- On the south side, Concepts S11b and S14b would completely address the existing queue spillback issue on US 395 southbound from SW Hailey Avenue back through the I-84 Eastbound ramp terminal beyond the planning horizon. Both options would provide similar levels of capacity. Concept S11b is not subject to the HDM capacity standard mentioned above since it does not alter the configuration of the interchange. Concept S14a would address some of the safety concerns associated with existing queue spillback issue by relocating the I-84 Eastbound off-ramp terminal. However, southbound left-turn queues on US 395 are still forecast to occasionally back up into the southbound through lanes at the US 395/SW Tutuilla Creek Road intersection.
- Concept S15b was forecasted to provide enough capacity at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection that queues of southbound left-turning vehicles should not back up in front of the Eastbound ramp terminal within the planning horizon. The extension of SW 30th Street may help prolong the lifespan of this concept. Additional improvements may be needed beyond year 2030 with this concept in place.
- While Concept S15a would provide similar levels of long-term capacity at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection, vehicle queue spillback would still be a safety and operational problem given the close spacing to the Eastbound ramp terminal. In addition, the lack of spacing would lead to the potential for vehicle queue spillback on the Eastbound ramp terminal. For these reasons, Concept S15a is only a short-term solution to immediate issues.
- The north-side concepts should all improve bicycle and pedestrian comfort around the existing I-84 WB ramp terminals by providing signalized crossings. On the south side, Concept S11b eliminates the signalized crossing of US 395 at the existing SW Tutuilla Creek Road intersection, so a multi-use path along the east side of US 395 between SW Tutuilla Creek Road and the I-84 EB ramp terminals may be needed so bicyclists can avoid out-of-direction travel up a steep grade.
- While each of the concepts have impacts to the local circulation network, the goal of maintaining access to/from local streets can be achieved at varying levels. On the north-side, all three concepts would require some restrictions and modifications. On the south-side, realignments of SW Hailey Avenue and SW Tutuilla Creek Road in Concept S11b requires re-routing of traffic, but all local street access and connectivity can be achieved with relatively minimal impacts.

Land Use

- Table 6-4 provides a summary of the preliminary right-of-way impacts associated with each concept.

TABLE 6-4 PRELIMINARY RIGHT-OF-WAY IMPACTS

Concept	Number of Properties Directly Impacted	Preliminary Right-of-Way Acquisition Estimate
N1	17	$4M
N11a	10	$3M
N13	27	$7M
S11b	12	$9M
S14a	5	$3M
S14b	5	$3M
S15a	1	$0.5M
S15b	4	$3M

From a land use perspective, the detailed assessment of each concept revealed the following:

- On the north side, Concept N1 and N11a have fairly substantial right-of-way impacts that are compounded under the N13 concept.

On the south side, Concept S11b has the greatest amount of right-of-way needs as improvements would impact both sides of US 395.

Cost

Table 6-5 provides a summary of the total cost estimate for each concept.

TABLE 6-5 CONSTRUCTION COST ESTIMATES

	North Side Concepts			South Side Concepts				
	N1	**N11a**	**N13**	**S11b**	**S14a**	**S14b**	**S15a**	**S15b**
Preliminary Construction Cost	$4M	$9M	$12M	$4M	$8M	$16M	$3M	$3M
Preliminary Right-of Way Cost	$4M	$3M	$7M	$9M	$3M	$3M	$0.5M	$3M
Total	**$8M**	**$12M**	**$19M**	**$13M**	**$11M**	**$19M**	**$3.5M**	**$6M**

From a cost and constructability perspective, the detailed assessment of each concept revealed the following:

- Concept N1 and S15a represent the lowest overall cost between the north and south sides.
- Compared to Concept N1, the construction costs of Concept N11a are estimated to be twice as expensive.
- Concept N13, which is essentially a combination of N1 and N11a, is the most expensive north side concept.
- On the south side, Concept S14b is the most expensive due to the construction of new EB ramps.

- Concepts S14a and S14b would have some construction challenges associated with the EB ramps through, along, and over Tutuilla Creek.

Environmental/Social

From an environmental/social impacts perspective, the detailed assessment of each concept revealed the following:

- There are no significant environmental issues associated with any of the north side concepts.
- All three north side concepts would have varying degrees of social impacts associated with the residential properties located along SW 20th Street and SW Dorion Avenue.
- On the south side, Concepts S14a and S14b are likely to have substantial environmental impacts to Tutuilla Creek.

Accessibility

From an accessibility perspective, the detailed assessment of each concept revealed the following:

- On the north side, Concept N1 does the best job at balancing local property access with the overall function of US 395.
- On the south side, Concept S11b works toward the OHP access spacing standards and ensures the best long-term function of US 395.

After applying the specific evaluation criteria to each concept and applying equal weighting to each sub-category evaluation, an average score for each of the five primary evaluation criteria was calculated. Table 6-6 summarizes the primary evaluation criteria scoring for each concept and also provides an overall total score based on the total of the averages of the five primary evaluation criteria. This process was followed to provide a basis for comparison between each concept for the TAC and PAC.

TABLE 6-6 EVALUATION CRITERIA SCORING SUMMARY

Evaluation Criteria	North Side Concepts			South Side Concepts				
	Concept N1	**Concept N11a**	**Concept N13**	**Concept S11b**	**Concept S14a**	**Concept S14b**	**Concept S15a**	**Concept S15b**
Transportation Operations	1.0	1.0	1.25	0.75	0.25	0.5	-2.0	0.0
Land Use	0.0	0.0	0.0	-1.0	0.5	0.5	1.5	0.5
Cost/Implementation	0.0	-0.5	-0.5	0.0	-1.0	-1.0	1.0	0.5
Environmental/Social	0.5	0.0	0.0	-1.0	-1.5	-1.5	0.5	0.0
Accessibility	1.0	-0.5	-0.5	1.5	1.0	1.0	-0.5	-0.5
Total Score	**2.5**	**0.0**	**0.25**	**0.25**	**-0.75**	**-0.5**	**0.5**	**0.5**

In reviewing the summary evaluation information presented above, the following conclusions can be made:

North Side Concepts

Concepts N1, N11a, and N13 can all adequately serve the long-term traffic demands on the interchange and surrounding land uses. As a result, the north side concepts can essentially be broken down to which concept has the fewest land use impacts, is the least costly, and best meets the accessibility and access needs of the interchange and surrounding local street network. When reviewed from a cost/implementation and accessibility perspective, Concept N1 starts to stand out more than the others. This is particularly true when you consider the construction costs of Concepts N11a and N13 are more than double that of Concept N1 and have no substantial benefits in any of the other evaluation categories.

South Side Concepts

Although it scores well in the cost and land use categories, Concept S15a has significant operational and safety concerns that are considered to be fatally flawed in the long-term. As a result, only Concepts S11b, S14a, S14b, and S15b have long-term potential. Amongst these four remaining concepts, Concept S15b has the least amount of impacts while still providing adequate capacity for the year 2030 planning horizon. Concept S15a could be constructed in the near-term and then Concept S15b could be constructed to provide longer-term benefits with little construction effort lost. Looking beyond the planning horizon, one of the other three concepts may need to be constructed. Amongst these three concepts, Concept S11b has a lower overall cost but a considerably higher land use impact. Concepts S14a and S14b have comparably lower land use impacts with considerably higher costs and environmental impacts.

CONCEPT DEVELOPMENT AND SCREENING SUMMARY

Exhibit 6-1 summarizes the timeframe of when concepts were developed and removed from consideration and Table 6-7 summarizes the reasoning for concepts being dismissed from consideration.

Exhibit 6-1 Concept Development and Screening Summary

North Side

TAC/PAC #3	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	
TAC/PAC #4	N1, N1a, N1b	N2					N7	N8	N9	N10	N11a, b, c		
TAC/PAC #5	N1									N10	N11a, b, c		
TAC/PAC #6	N1										N11a		N13
TAC/PAC #7	N1										N11a		N13
DRAFT IAMP	**N1**												

South Side

TAC/PAC #3	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12			
TAC/PAC #4	S1	S2	S3				S7	S8	S9	S10		S12			
TAC/PAC #5											S11a, b		S13	S14	
TAC/PAC #6											S11b			S14	
TAC/PAC #7														S14a, b	S15a, b
DRAFT IAMP															**S15a, b**

N# = Concept Name = Concept Dropped

TABLE 6-7 CONCEPT DEVELOPMENT AND SCREENING SUMMARY

Concept	Recommended for Inclusion in the IAMP by the TAC/PAC	Final Selection/ Primary Disadvantages to Concept
North Side		
N1	Yes	Yes
N1a	No	No – Does not address capacity issues, Constructability
N1b	No	No – Constructability, Cost
N2	No	No – Capacity, Safety
N3	No	No – Capacity
N4	No	No – Capacity
N5	No	No – Capacity
N6	No	No – Capacity, Does not address issues
N7	No	No – Land use impacts
N8	No	No – Constructability, Land use impacts
N9	No	No - Constructability, Land use impacts
N10	No	No – Circuitous routing
N11a	No	No – Constructability, Cost
N11b	No	No – Policy, Constructability
N11c	No	No – Constructability, Cost
N12	No	No – Capacity, Constructability
N13	No	No – Constructability, Cost
South Side		
S1	No	No – Impacts to Olney Cemetery
S2	No	No – Impacts to Olney Cemetery
S3	No	No – Impacts to Olney Cemetery
S4	No	No - Capacity, Constructability, Impacts to Olney Cemetery
S5	No	No - Capacity, Constructability, Impacts to Olney Cemetery
S6	No	No - Capacity, Constructability, Impacts to Olney Cemetery
S7	No	No – Does not address issues, Constructability
S8	No	No – Constructability, Impacts to Olney Cemetery
S9	No	No – Impacts to Olney Cemetery
S10	No	No – Constructability
S11a	No	No – Land use impacts
S11b	No	No – Land use impacts

Concept	Recommended for Inclusion in the IAMP by the TAC/PAC	Final Selection/ Primary Disadvantages to Concept
S12	No	No – Constructability
S13	No	No – Circuitous routing
S14a	No	No – Constructability, Cost
S14b	No	No – Constructability, Cost
S15a	Yes	Yes
S15b	Yes	Yes
W1	No	No - Does not address interchange issues
W2	No	No – Constructability, Land use impacts

Figures 6-38 through 6-40 provide detailed double-line illustrations of the concepts recommend by the PAC and TAC to be considered as the transportation improvement plan of the IAMP.

OTHER IMPROVEMENTS

In addition to the concepts described above, the PAC and TAC supported the inclusion of two additional improvements not directly related to the interchange to be included in the IAMP. These improvements are the SW 30th Street extension and the north-south connection proposed in Concept W1.

SW 30th Street Extension

Concept S13 introduced the idea of extending SW 30th Street from its current terminus east of US 395 all the way to SW Tutuilla Creek Road near SW Marshall Avenue. While Concept S13 was screened out, the SW 30th Street extension is supported by members of both committees since it provides a valuable east-west connection. Since it is not directly related to the interchange, it will need to be adopted into the City's transportation system plan (TSP). Therefore, the preferred south side concepts are all analyzed with and without the extension of SW 30th Street. In order to be conservative, the analysis results scored in the section above were done without the extension.

The PAC and TAC raised questions regarding the location of the eastern end of the extension. Two different alignments were discussed. The first alignment would involve the SW 30th Street extension aligning directly across from SW Marshall Avenue. This alignment would directly impact the existing Herr Lumber business. The second alignment would involve the SW 30th Street extension skirting the southern Herr Lumber property line. This would create an offset intersection with SW Marshall Avenue, so the second alignment would also involve a more southerly realignment of SW Marshall Avenue so that it would connect to Tutuilla Creek Road across from the 30th Street alignment. Based on a preliminary assessment of right-of-way costs, it was found that the second scenario would be less than half the cost of the first scenario.

CONCEPT N1
DETAILED DRAWING
PENDLETON, OREGON'

FIGURE 6-38

CONCEPT S15A
DETAILED DRAWING
PENDLETON, OREGON

FIGURE
6-39

CONCEPT S15B
DETAILED DRAWING
PENDLETON, OREGON

FIGURE
6-40

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Concept W1 North-South Connection

Concept W1, previously described in this section, included a new north-south connection from the residential neighborhoods west of US 395 to the SW Court Place area. US 395 is the primary north-south connection for the majority of residents of southern Pendleton. This additional connection would reduce traffic demand along US 395 and is therefore supported by the PAC and TAC.

PREFERRED CONCEPT DETAILED CAPACITY ANALYSIS

The concept screening process described above resulted in the selection of preferred concepts for the north and south sides of the interchange. TAC and PAC members selected Concept N1 as the preferred concept for the north side and Concepts S15a and S15b, along with the SW 30th Street extension, for the south side. Concepts S15a and S15b are to be implemented in a phased approach with Concept 15a being constructed first, followed by Concept S15b being implemented when warranted. The SW 30th Street extension will need to be integrated in the City of Pendleton Transportation System Plan (TSP).

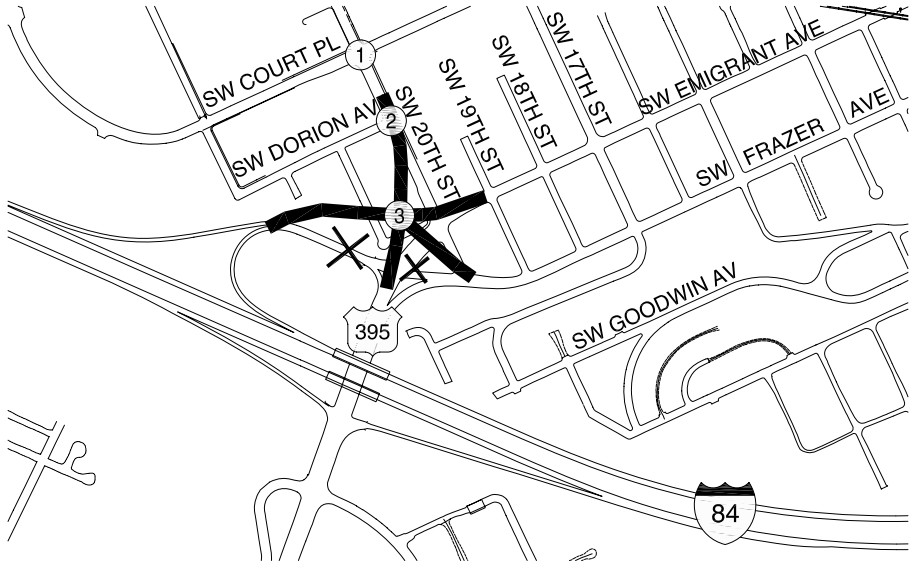
A detailed capacity analysis of these concepts is presented in Figures 6-41 through 6-43. The south side concepts are analyzed with and without the SW 30th Street extension in place. Since the S15a concept is not anticipated to have sufficient capacity over the entire 20-year planning horizon, it is analyzed under interim year 2020 conditions.

North Side Capacity Analysis

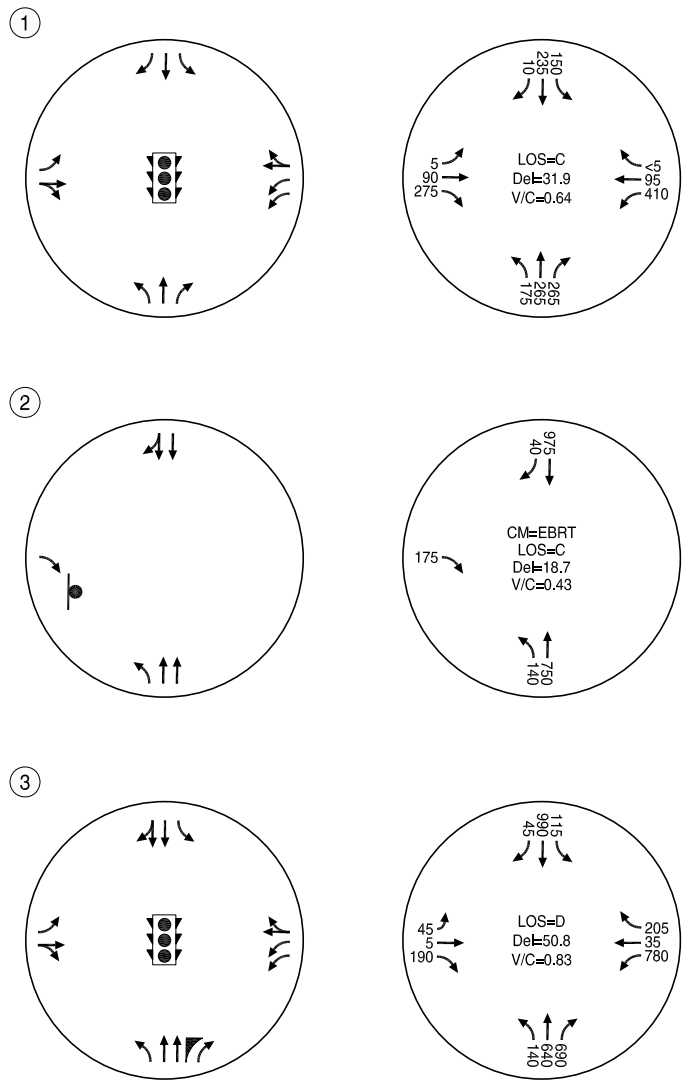
As Figure 6-41 shows, the study intersections on the north side are forecast to operate with adequate capacity. The new I-84 Westbound ramp terminal is forecast to operate with a volume-to-capacity (v/c) ratio of 0.83 in the year 2030. This is higher than the ODOT Highway Design Manual (HDM) standard of a v/c ratio of 0.70 for new ramp terminals. It should also be noted that in order to achieve the operations shown in Figure 6-41, a second southwest-bound left-turn lane from SW Court Avenue onto SW 20th Street will need to be constructed and SW 20th Street will need to be a five-lane section with a raised median from SW Court Avenue to the Westbound ramp terminal. A left-turn into SW Dorion Avenue may be allowed in the near- and mid-term timeframes. However, as traffic volumes increase, it will likely be restricted if queues on SW 20th Street begin to spill back from the US 395 intersection.

South Side Capacity Analysis

Concept S15a was analyzed under interim year 2020 conditions in order to determine the expected lifespan of the improvement. Year 2020 volumes assume linear growth between existing volumes and forecast year 2030 volumes, which are based on the Pendleton travel demand model. Figure 6-42 shows the results of this analysis. As the figure shows, the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection is forecast to have adequate capacity when examined in isolation. The analysis also reveals that the 95th-percentile queue for the southbound left-turn on US 395 at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection is projected to be at its capacity, assuming the SW 30th Street extension is not constructed at this time. Thus, Concept S15a is



(NO SCALE)



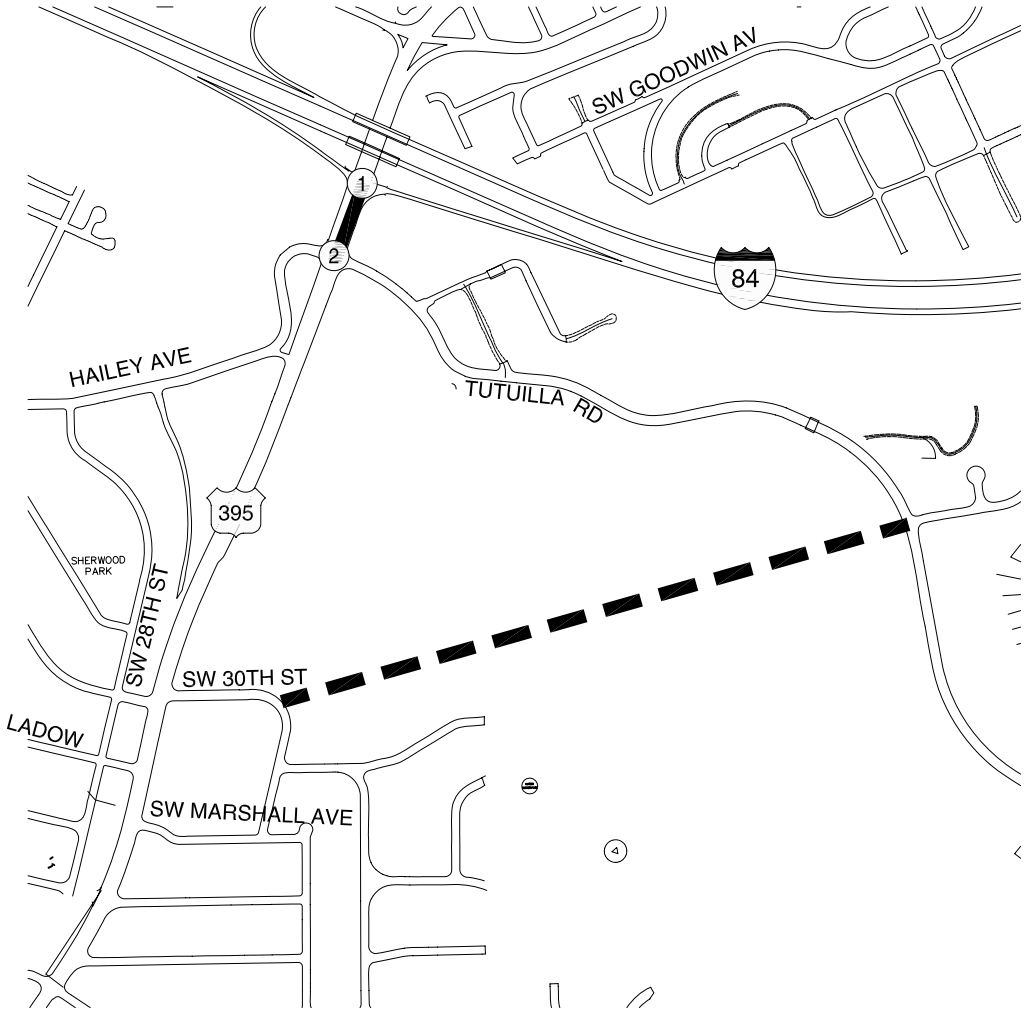
LEGEND

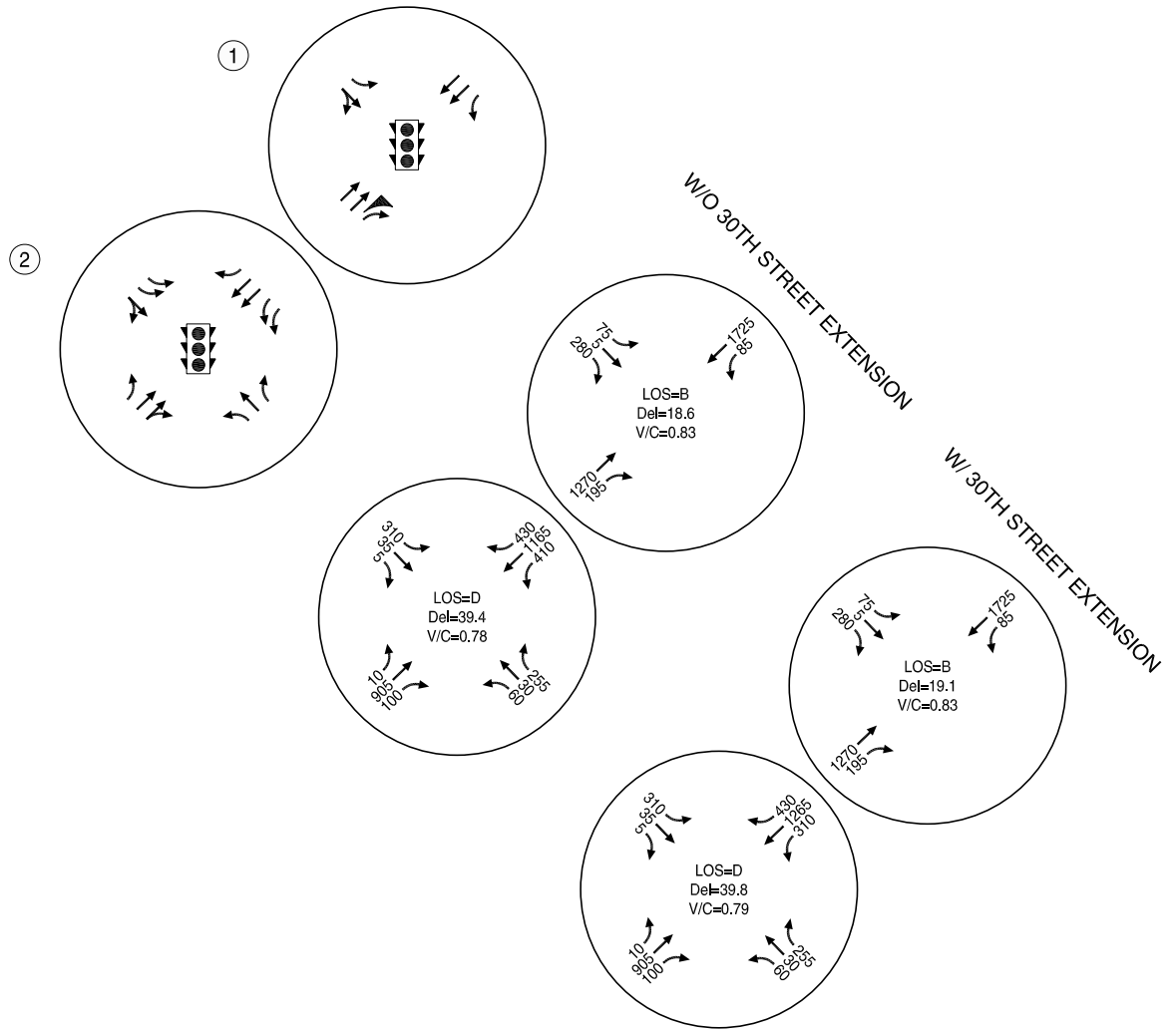
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

CONCEPT N1 OPERATIONS UNDER YEAR 2030 30TH HIGHEST HOUR VOLUMES LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PENDLETON, OREGON

FIGURE 6-41

(NO SCALE)





LEGEND

LOS = INTERSECTION LEVEL OF SERVICE

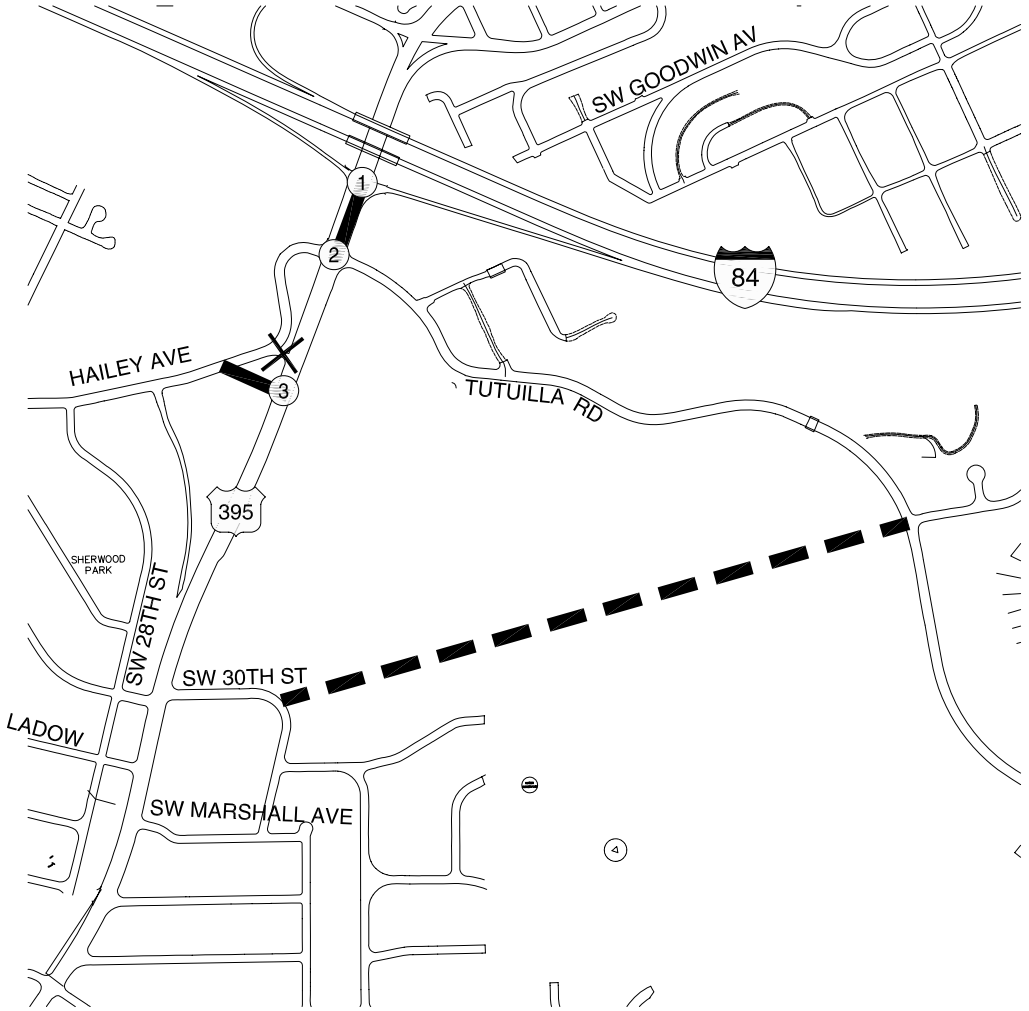
Del = INTERSECTION AVERAGE CONTROL DELAY

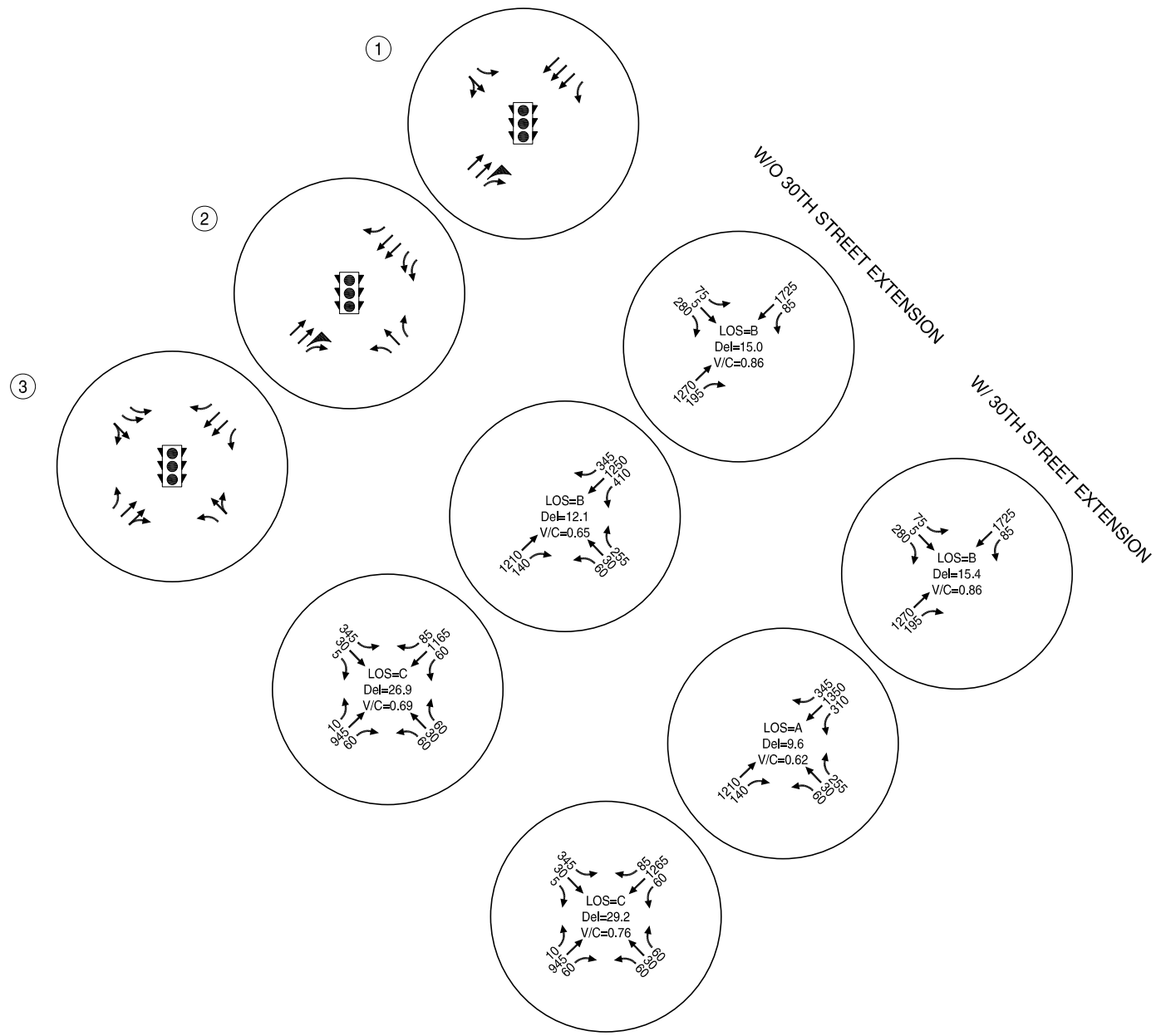
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

CONCEPT S15a OPERATIONS UNDER YEAR 2030 30TH HIGHEST HOUR VOLUMES LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PENDLETON, OREGON

FIGURE 6-42

(NO SCALE)





LEGEND

LOS = INTERSECTION LEVEL OF SERVICE

Del = INTERSECTION AVERAGE CONTROL DELAY

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

CONCEPT S15b OPERATIONS UNDER YEAR 2030 30TH HIGHEST HOUR VOLUMES LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PENDLETON, OREGON

FIGURE 6-43

anticipated to have a lifespan of approximately 8-10 years before additional improvements, such as the SW 30th Street extension or Concept S15b, will be needed.

Figure 6-42 also shows the anticipated operational conditions assuming that the SW 30th Street extension is constructed in this timeframe. The analysis shows that this additional east-west connectivity in the SW Tutuilla Creek Road area will likely provide enough relief at this intersection that southbound left-turn queues will not back-up through the I-84 Eastbound ramp terminals. As the analysis of Concept S15b shows below, this enhanced connectivity is projected to be sufficient through 2030 only if Concept S15b improvements are in place. Therefore it is likely that when combined with Concept S15a, the enhanced connectivity provided by the extension of SW 30th Street will increase the lifespan of the improvements by five years or less.

Figure 6-43 illustrates the projected year 2030 conditions for Concept S15b with and without the SW 30th Street extension. As the figure shows, either with or without the SW 30th Street extension it is anticipated that the storage for southbound left-turns from US 395 onto SW Tutuilla Creek Road will be at capacity. Therefore, it can be assumed that additional improvements may be needed beyond Concept S15b sometime shortly after 2030.

Section 7
Interchange Area
Management Plan

Interchange Area Management Plan

The I-84/US 395 IAMP provides a transportation improvement plan and an Access Management Plan (AMP). The transportation improvement plan includes interchange and local circulation improvements, as well as a phasing schedule. The AMP contains an access management plan and documents the justification for the necessary deviations to ODOT's access management standards.

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

TRANSPORTATION IMPROVEMENT PLAN OVERVIEW

A comprehensive transportation improvement plan including a local circulation and access plan within the interchange management study area (IMSA) has been developed based on the concept screening and evaluations outlined in Section 6. Figure 7-1 illustrates the transportation improvement plan for the north side of the IMSA, which will likely be Phase 1 of the overall improvement program described in this section, while Figures 7-2 and 7-3 illustrate Phases 2 and 3 of the transportation improvement plan, which address the south side of the IMSA. These plans include alignments of new roadways and intersections and modifications to existing roadways and intersections. Each transportation improvement identified in Figures 7-1 through 7-3 is described in Table 7-1. This table also contains preliminary cost estimates for each phased set of improvements[1].

[1] The inclusion of proposed projects and actions in this plan does not obligate or imply obligations of funds by any jurisdiction for project level planning or construction. The inclusion of proposed projects and actions does serve as an opportunity for the projects to be included, if appropriate, in the State Transportation Improvement Program (STIP) and the City of Pendleton Capital Improvements Program (CIP), but such inclusion is not automatic. It is incumbent on the state, county, city, and general public to take action to encourage and support inclusion into the STIP or CIP at the appropriate time. Because a project must have actual identified funding to be included in the STIP or CIP, the ultimate number of projects that can be included in these documents is constrained by available funding.

IAMP TRANSPORTATION IMPROVEMENT PLAN, NORTH SIDE - PHASE 1
PENDLETON, OREGON

FIGURE
7-1

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IAMP TRANSPORTATION IMPROVEMENT PLAN, SOUTH SIDE - PHASE 2
PENDLETON, OREGON

FIGURE
7-2

*Planning concept potentially reduces vehicle-carrying capacity of the highway; further evaluation of the project design will be required at the time of implementation to ensure compliance with ORS 366.215.

IAMP TRANSPORTATION IMPROVEMENT PLAN, SOUTH SIDE - PHASE 3
PENDLETON, OREGON

FIGURE 7-3

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TABLE 7-1 IAMP TRANSPORTATION IMPROVEMENTS

	Improvements	Cost Estimate[1]
Phase 1 (North Side)	A. Realign the westbound ramp terminal, SW 20th Street, SW Emigrant Avenue, and US 395 into a single signalized intersection.	$8.0M
	B. Widen SW 20th Street to a five-lane cross section between SW Emigrant Avenue and SW Court Street.	
	C. Widen southwest-bound SW Court Avenue to accommodate dual left-turn lanes at the SW 20th Street intersection.	
Phase 2 (South Side)	A. Widen US 395 to develop dual southbound left-turn lanes at the SW Hailey Avenue-SW Tutuilla Creek Road intersection.	$4.5M
	B. Widen SW Tutuilla Creek Road to receive the dual left-turns from US 395	
	C. Widen SW Hailey Avenue to accommodate dual eastbound left-turn lanes at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection.	
	D. Modify the traffic signal at US 395/SW Hailey Avenue-SW Tutuilla Creek Road to accommodate east-west split signal phasing.	
Phase 3 (South Side)	E. Close the eastbound SW Hailey Avenue approach at the US 395/SW Hailey Avenue- SW Tutuilla Creek Road intersection.	$6.0M
	F. Realign SW Hailey Avenue to intersect US 395 approximately 800 feet to the south and signalize.	

[1]Includes preliminary construction and right-of-way cost estimates based on 2010 dollars.

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

Phase 1 - North Side Improvements

The improvements planned for the north side of the IMSA are shown in Figure 7-1 (previously referenced to as Concept N1). These improvements will be needed first given that the existing queue spill back on US 395 from the SW 20th Street/SW Emigrant Avenue intersection is the most prevalent safety and operational issue in the field today. As such, the north side improvements are herein referred to in the IAMP as the Phase 1 North Side Improvements. These improvements align the SW 20th Street and US 395 travel corridors. A new signalized I-84 Westbound ramp terminal will be developed at the junction of these two alignments. The US 395-SW 20th Street alignment will need two northbound through travel lanes resulting in a full five-lane cross section on SW 20th Street. Ultimately, a raised median will be needed along the new SW 20th Street alignment between SW Court Place and SW Emigrant Avenue. A northbound left-turn into SW Dorion Avenue from SW 20th Street could be maintained initially at the time of construction. However, as traffic volumes increase, it will likely need to be restricted to right-in/right-out if queues on SW 20th Street begin to spill back from the I-84 westbound ramp terminal. The SW 20th Street/SW Court Place intersection will also need to be modified to provide dual left-turns from southwest-bound SW Court Avenue to SW 20th Street.

Possible Exceptions/Deviations from Standards

There are two exceptions/deviations that will be required as part of the north side improvements. First, the realigned US 395-SW 20th Street corridor and its intersection with I-84 Westbound ramp

terminal/ SW Emigrant Avenue will be the new interchange access point. The development of this intersection will be new construction and as such, the operational performance standard falls under the guidance of the Oregon Highway Design Manual (HDM). The applicable volume to capacity (v/c) ratio for a new interchange ramp terminal in the HDM is 0.70. As was shown in Section 6, the projected operational performance of the intersection is forecast to be a v/c ratio of 0.83 under 2030 volumes. This difference will require an alternative mobility standard for the I-84 Westbound ramp terminal to be adopted as part of the IAMP.

The second major deviation is related to the access spacing standards outlined under Oregon Administrative Rule 734, Division 51 and the Oregon Highway Plan (OHP). This is discussed later in this section in the access management plan subsection.

Phase 2 and 3 - South Side Improvements

The need for improvements on the south side are anticipated to occur after the north side. As such, the south side improvements are herein referred to in the IAMP as the Phase 2 and 3 South Side Improvements. Unlike the north side improvements which will be implemented as one complete project, south side improvements will likely occur in incremental (or phased) steps in order to minimize impacts to existing businesses, while still providing sufficient mobility and safety. Table 7-2 summarizes the south side interchange improvement phasing plan. The table shows the approximate timeframe that each phase will need to be constructed and provides an estimate for the expected lifespan of the improvement, assuming that it is constructed when it becomes needed. A more detailed description of the analysis completed to determine the phasing plan shown below is contained within the Technical Appendix.

TABLE 7-2 SOUTH SIDE PHASING

Overall Project Phase	Implementation Timeframe	Anticipated Lifespan (from Existing Conditions)
Phase 2	Near-term (1-3 years)	8-10 years
Phase 3	Mid/Long-term (8-10 years)	15-20 years

As Table 7-2 shows, Phases 2 (previously referenced as Concept S15a) and 3 (previously referenced as Concept S15b) will address the forecasted 20-year demand.

These implementation estimates are based on current traffic projections and assume linear growth in traffic volumes. The forecasted future volumes and the pace in which they grow over the next 20 years may shorten or extend the anticipated lifespans for Phases 2 and 3 (e.g., east-west connectivity improvements, such as SW 30th Street, have a greater or lesser effect than anticipated, development patterns change from what is currently planned, etc…). Thus, operational triggers will be adopted (see Section 8) to monitor the need and ultimate implementation of each phase based on the 95th-percentile southbound left-turn queue at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection.

Phase 2

Phase 2, as shown in Figure 7-2, involves the widening of the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection. Widening the intersection would increase its capacity and reduce the potential for southbound left-turn queues to back up on US 395 from this intersection through the I-84 Eastbound ramp terminal. This phase is projected to last approximately 8-10 years if it were built in 2010. If an extension of SW 30th Street from its current eastern terminus to SW Tutuilla Road is constructed, then the Phase 2 improvements would be adequate for a slightly longer period of time. This additional period of time is anticipated to be less than five years.

Phase 3

Phase 3, as shown in Figure 7-3, involves the relocation of the SW Hailey Avenue approach to US 395 from its current location to approximately 800 feet to the south. This would create a new signalized intersection on US 395 at this location. The benefit of this phase is that by removing the eastbound SW Hailey Avenue approach from its existing location, additional green time at the existing signal may be allocated to the southbound US 395 approach; thereby reducing the possibility of queues backing up through the I-84 Eastbound ramp terminal. This phase is anticipated to be adequate until approximately the year 2030, with or without the extension of SW 30th Street.

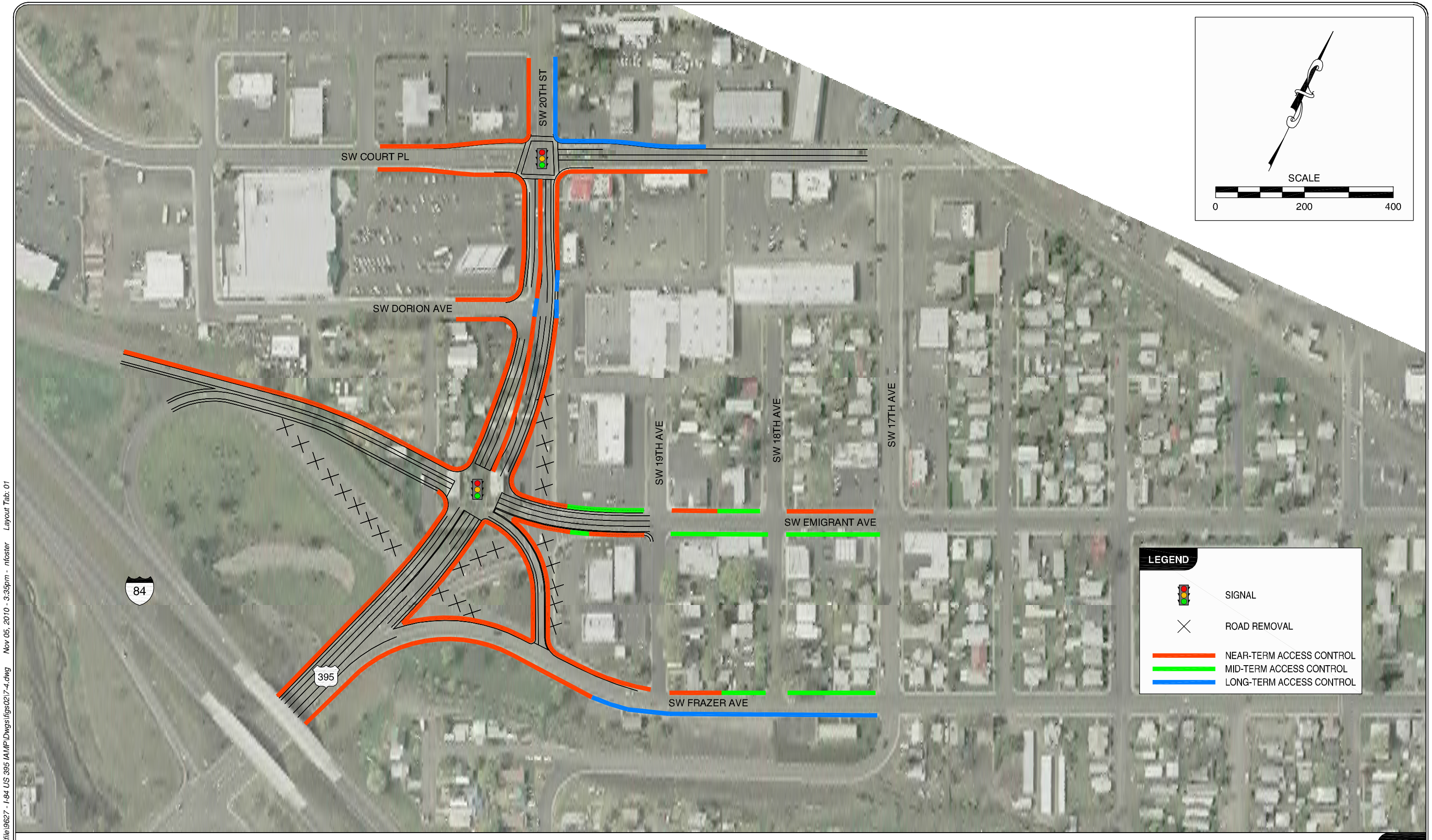
Possible Exceptions/Deviations from Standards

The deviations that will be required for these two phases are related to access spacing and are discussed in the following subsections.

ACCESS MANAGEMENT PLAN

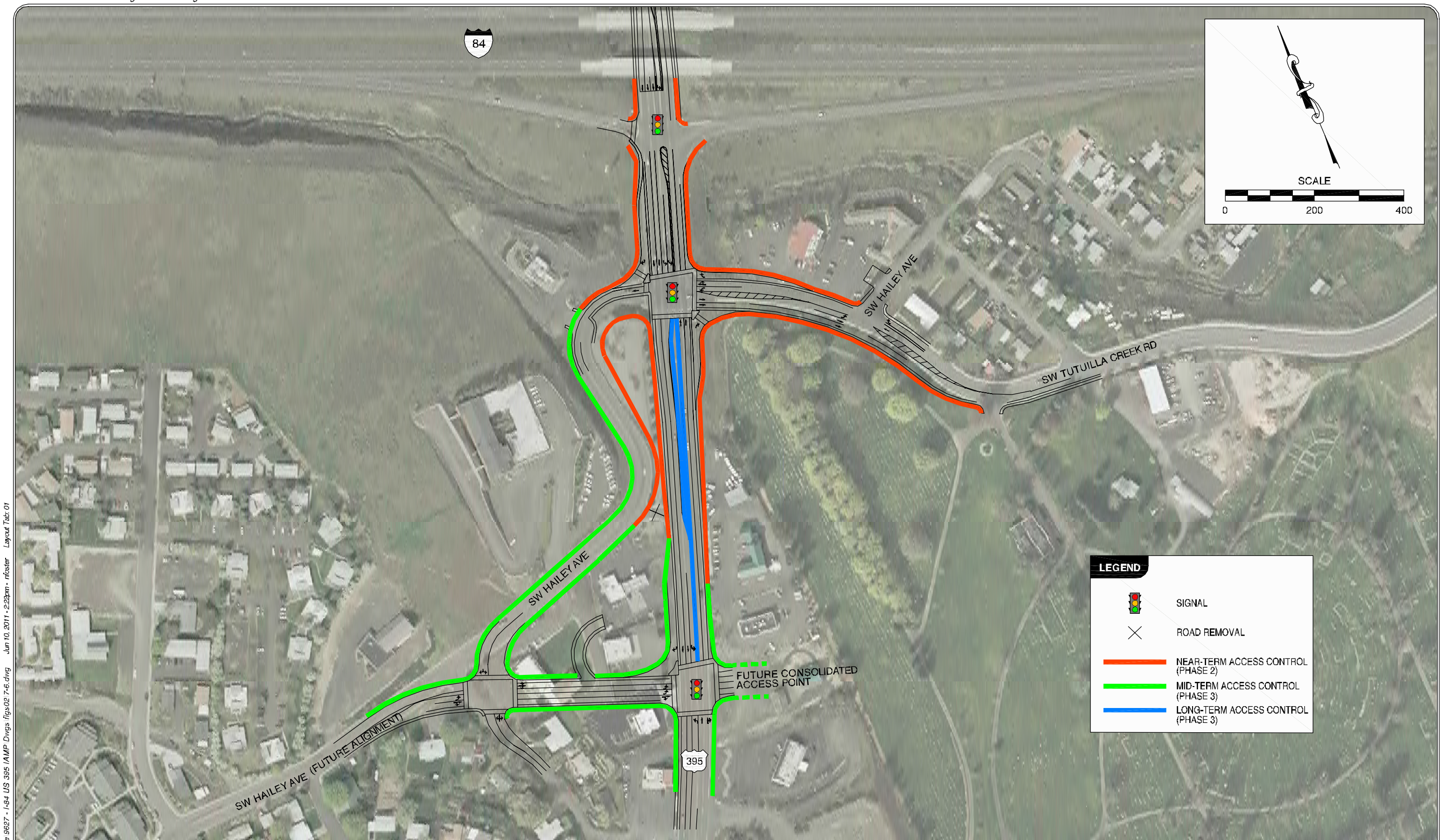
As part of the I-84/US 395 IAMP, access locations were evaluated based on ODOT's Division 51 Access Management standards and an assessment of traffic operations and safety as described in Action 3C.3 of the 1999 Oregon Highway Plan. Accordingly, an Access Management Plan (AMP) is developed to preserve the operational integrity and safety of primary roadways (e.g., US 395, SW Emigrant Avenue, etc…) serving the interchange area, while maintaining viable access to all parcels in the IMSA. The AMP contains both a plan for actions to be taken on City of Pendleton roadways (i.e. SW Tutuilla Creek Road, SW Hailey Avenue, and SW 20th Street) and adopted into the City's TSP, and a plan, which is implemented by ODOT on state highway facilities (i.e., I-84, US 395, SW Emigrant Avenue, and SW Frazer Avenue) and adopted into the OHP as part of the facility plan.

On the north side of the IMSA, an AMP is identified for the near-, medium-, and long-term timeframes. An AMP is identified on the south side for each improvement phase, as well as the near-, medium-, and long-term timeframes. The overall AMP is illustrated in Figures 7-4 and 7-5. Justification is also provided for public access locations where deviations from ODOT's access management standards are necessary. Access management will be implemented as part of ODOT and City project development and delivery processes or as future land use changes occur, as is described in the following subsections.



IAMP ACCESS MANAGEMENT PLAN, NORTH SIDE
PENDLETON, OREGON

FIGURE 7-4



*Planning concept potentially reduces vehicle-carrying capacity of the highway; further evaluation of the project design will be required at the time of implementation to ensure compliance with ORS 366.215.

IAMP ACCESS MANAGEMENT PLAN, SOUTH SIDE
PENDLETON, OREGON

FIGURE 7-5

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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 26 private approaches and 17 public street approaches on the north side of the IMSA and 9 private and 3 public approaches on the south side 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 ORS374.305 & 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:

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

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, better local street connectivity, and reducing conflict points. ; and,

- Restricting highway access but improving arterial access by introducing shared access, cross-over easements, consolidated access when separate parcels are assembled for redevelopment, and access via collector or local streets.

The time period over which the measures outlined in the following text will be implemented will depend on the rate of redevelopment within the IMSA and when the 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.

North Side Access Management

Figure 7-4 illustrates the AMP for the north side of the IMSA. The AMP is divided into three timeframes: near-term, mid-term, and long-term. The near-term plan illustrates how access will be controlled with the initial construction of identified north side improvements (referred to as Phase 1 - North Side improvements). After the north side improvements are constructed, ODOT and the City could then begin implementing the mid-term plan, based upon parcels redeveloping or safety and operational needs warranting access restrictions. It is envisioned that further down the road, after the mid-term measures are warranted, the long-term plan would be implemented based upon the need to address increasing traffic volumes. The following is a description of the AMP for each major roadway.

SW 20th Street

The realignment of SW 20th Street will necessitate complete access control for most private properties between the new I-84 Westbound terminal and SW Court Place. A median would be constructed with the project from the I-84 Westbound terminal to SW Court Place, with a break to allow northbound and eastbound left-turns at SW Dorion Avenue. In the near-term this would be a full-access median break, then restricted to left-in/right-in/right-out only in the mid-term, and finally to right-in/right-out only in the long-term. The need to restrict this access will be based on queues spilling back through this intersection.

Full access would remain at the SW Court Place signalized intersection. North of this intersection, new access points would not be allowed on the west side of SW 20th Street up to the existing shopping center driveway. On the east side of the road, the City will look for opportunities to consolidate access of properties as they redevelop over the long-term time frame.

SW Emigrant Avenue-SW Frazer Avenue

The overall long-term goal for the SW Emigrant Avenue-SW Frazer Avenue couplet is that no individual properties will have direct access to the street between the ramp terminal and SW 17th Avenue. Access to properties along the couplet should be provided via one of the side streets (i.e., SW 17th, SW 18th and SW 19th Avenues). The short block lengths along the couplet ensure that nearly every parcel, except those southeast of SW Frazer Avenue along the base of the hillside, have alternative access available on a side street.

Accesses along either roadway that are shown to be restricted in the near-term are either in close proximity to the interchange (i.e., between the ramp terminal and SW 19th Avenue) or are minor access points (e.g. left or right in/out only). Additionally, these parcels have alternative full access onto a side-street (i.e., SW 19th Avenue). As traffic volumes increase, ODOT and the City will need to work with the property owners of the parcels shown in the mid-term timeframe to ensure that reasonable access to these parcels can be provided via a side-street.

The long-term access plan has some unique challenges that likely cannot be overcome until the properties on the southeast side of SW Frazer Avenue redevelop. The topography of the hillside prevents the westernmost property from being able to access SW Frazer Place and the other property near the SW 17th Avenue/SW Frazer Avenue intersection from being able to access the road along most of the property frontage. Additionally the existing site configuration of this property near the intersection precludes it from accessing SW Frazer Place where topography would allow. Therefore access to these properties will likely need to remain on SW Frazer Avenue. Ideally these accesses would be aligned with SW 18th and 19th Avenues.

US 395

The only approach that currently exists on US 395 north of I-84 is the right-turn slip lanes onto SW Frazer Avenue. In order to maintain efficient operations at the I-84 Westbound ramp terminal intersection, these lanes would remain. No new approaches would be allowed onto US 395.

SW Dorion Avenue

The access management plan for SW Dorion Avenue is to not allow any new accesses along the roadway between SW 20th Street and the existing Safeway access and SW 21st Street intersection.

SW Court Place

The access management plan for SW Court Place is to not allow any new accesses along the roadway between SW 20th Street and the existing Safeway and Wal-Mart accesses (approximately 330 feet from SW 20th Street).

SW Court Avenue

New accesses will not be allowed on the southeast side of SW Court Avenue from the SW 20th Street intersection back to the first existing access to Melanie Square (approximately 310 feet from SW 20th Street). Accesses onto SW Court Avenue currently exist on the northwest side of the roadway for the same distance back from SW 20th Street. The City will look for opportunities to consolidate access points here as properties redevelop and cross-easements can be established.

South Side Access Management

Figure 7-5 illustrates the AMP for the south side of the IMSA. The AMP is outlined according to the incremental or phased implementation of the south side improvements. The following is a description of access management along the three major south side roadways.

US 395

The AMP for US 395 is primarily focused on not allowing new private accesses to the highway and minimizing existing approach connections over time through closures and consolidations. This plan will be implemented in the near-, mid-, and long-term time frames as outlined in Figure 7-5. The existing public short connection between US 395 and SW Hailey Avenue south of the SW Hailey Avenue intersection will be closed in the near-term with the South Side - Phase 2 improvements. When the realigned SW Hailey Avenue connection is established at US 395 as part of the South Side Phase 3 improvements, further access consolidation and closures will be implemented in the mid- and long-term time frames.

In the long-term, the accesses in this segment of US 395 between Tutuilla Creek Road and the realigned Hailey Avenue may be restricted to right-in/right-out access by a raised center median that will be constructed to address future operational and/or safety issues.

SW Hailey Avenue

The AMP plan for SW Hailey Avenue is focused on closing the short connection to US 395 as mentioned above and to not allow any new accesses in the vicinity of US 395 in the near-term. In the mid to long-term time frames when the realigned SW Hailey Avenue connection is established to US 395, the AMP will focus on establishing access control along the realignment so as to preserve its safety and operational integrity.

SW Tutuilla Creek Road

The AMP for SW Tutuilla Creek Road is to minimize the number of driveways through consolidation and closure of private driveways. An eastbound left-turn lane to SW Hailey Avenue will be constructed in conjunction with the widening of SW Tutuilla Creek Road in order to facilitate safe and efficient access to properties along the north side of SW Tutuilla Creek Road.

Deviations to the Division 51 Access Management Standards

A number of accesses will not meet the applicable OAR Division 51 access spacing standard. Deviations are 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. Additional deviations for private accesses may be considered during implementation. As was previously mentioned, ODOT guarantees Access Permit protection, as allowed within ORS374.305 & 310, to all existing private accesses. Each will remain a valid access as long as the existing uses remain on property/site and there is no capital improvement project that would trigger review of the access (per OAR 734.051.0285).

North Side Access Points

Public Access to SW Dorion Avenue

Deviations to the access spacing requirement identified in OAR Division 51 are required at the SW Dorion Avenue/SW 20th Street intersection, which will be located approximately 380 feet northwest

of the I-84 Westbound ramp terminal, as shown in Figure 7-4. 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:** SW Dorion Avenue provides access for several residential and commercial properties. This access is not necessarily a reduction in access numbers. However, it is a reduction in that today it is a full access and under this plan it would move in the direction of becoming a right-in/right-out only access in the long-term.

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

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

> **Response**: This access management plan meets the intent of the Division 51 rules as it reduces vehicle turning conflicts within the interchange access management area, and protects the flow of highway traffic traveling to/from the interchange by moving in the direction of restricting the access to right-in/right out only in the long-term.

Public Access to SW Court Avenue/SW Court Place

Deviations to the 1,320-foot access spacing requirement identified in OAR Division 51 are required at SW Court Avenue/SW Court Place, located approximately 660 feet northwest of the I-84 Westbound ramp terminal. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

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

> **Response:** Restricting this access would eliminate much of the functionality of the new SW Court Place overcrossing of the railroad by disrupting the connection it provides between northwest and downtown Pendleton. It would also divert more traffic down SW 20th Street and the SW Emigrant Avenue-SW Frazer Avenue couplet, which would further increase congestion at the I-84 westbound ramp terminal. This rerouting of traffic would result in increased congestion and safety issues elsewhere on the system.

Public Accesses to 19th and 18th Avenues

The access management plan for the SW Emigrant Avenue-SW Frazer Avenue couplet does not meet the 1,320-foot access spacing requirement identified in OAR Division 51 at SW 19th and 18th Avenues and require that the Region Access Management Engineer approve a deviation to the standards. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation 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**: As a part of the access management plan for the SW Emigrant Avenue - SW Frazer Avenue couplet, several private accesses to individual properties will be consolidated along the couplet in the long-term. These properties will use these side-streets in order to access the couplet. These properties will be land locked if these local street accesses are not allowed.

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

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

> **Response**: The access management plan meets the intent of the Division 51 rules as it reduces vehicle turning conflicts within the interchange access management area, and protects the flow of highway traffic traveling to/from the by consolidating access points.

Public Access to SW Frazer Avenue

The access management plan for SW Frazer Avenue does not meet the access spacing requirement identified in OAR Division 51 and requires that the Region Access Management Engineer approve a deviation to the standards. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

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

> **Response**: This access allows traffic to access SW Frazer Avenue from the I-84 Westbound ramp terminal. If this access is not in place then traffic will be diverted onto SW Court Avenue, which will increase congestion at the ramp terminal and the SW 20th Street/SW Court Avenue intersection.

South Side Access Points

Public Access to SW Hailey Avenue

The access management plan for SW Hailey Avenue/US 395 intersection does not meet the access spacing requirement identified in OAR Division 51 and requires that the Region Access Management Engineer approve a deviation to the standards. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

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

> **Response:** Removing this access would force more traffic to utilize the signalized SW Hailey Avenue intersection, which would increase queuing and congestion at that intersection. It is

important that southbound traffic on US 395 does not queue back from this intersection through the I-84 Eastbound ramp terminal. Providing the right-turn in access here in its own lane removes southbound right-turning traffic from the southbound through lanes and reduces queues in those lanes.

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

Response: The Burger King property has no other options for reasonable access for US 395 traffic.

(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: In order to meet the access spacing standard on the east side of US 395, the SW Tutuilla Creek Road intersection would need to realigned and this realignment would impact the Olney Cemetery and other properties east of US 395.

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

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

Response: This approach is currently a full-access and this plan will restrict it to egress (right-in) only and, as mentioned above, will remove traffic from the southbound US 395 through lanes, which will reduce the likelihood of queues backing up to the ramp terminal.

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

Response: This access management plan moves in the direction of Division 51 rules by restricting the approach to ingress (right-in) only in the long-term.

Public Access to SW Hailey Avenue under Phase 3

The access management plan for the SW Hailey Avenue realignment under Phase 3 does not meet the 1,320 feet access spacing requirement identified in OAR Division 51 and requires that the Region Access Management Engineer approve a deviation to the standards. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation 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 location of this access will provide public access to numerous residential and commercial properties, while consolidating a number of existing private accesses to US 395.

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

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

> **Response:** This plan greatly increases the spacing from the I-84 Eastbound ramp terminal to the first full access on the west side of US 395. Currently, SW Hailey Avenue has a full signalized access approximately 200 feet from the ramp terminal and this plan will move in the direction of the standard and increase that spacing by approximately 800 feet. Relocating the SW Hailey Avenue approach also allows for more green-time to be provided to US 395 at the SW Tutuilla Creek Road intersection, which will reduce the likelihood of queues backing up from that intersection on US 395 through the ramp terminal. There are also currently a number of full access points on this area of US 395 that will move in the direction of being consolidated to this access approach in the long-term.

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

> **Response**: This access management plan moves in the direction of the Division 51 rules by increasing the spacing to the first full signalized access on the west side of US 395.

Public Access to SW Tutuilla Creek Road under phases 2 and 3

The access management plan for SW Tutuilla Creek Road does not meet the 1,320 feet access spacing requirement identified in OAR Division 51 and requires that the Region Access Management Engineer approve a deviation to the standards. Under the provisions of OAR 734-51-0135(3), the Region Access Management Engineer may approve a deviation if:

(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:** In order to meet the access spacing standard on the east side of US 395, the SW Tutuilla Creek Road intersection would need to realigned and this realignment would impact the Olney Cemetery and other properties east of US 395.

Section 8
Implementation Plan

Implementation Plan

This section describes the IAMP implementation strategy, which includes an I-84/US 395 Interchange Function and Policy Definition and Overlay District. 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 and financing mechanisms are updated as needed over time.

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

- Amend the City's Transportation System Plans and Comprehensive Plans;
- Amend the Oregon Highway Plan (OHP);
- Codify and map an Interchange Area Overlay District that defines the area wherein regulations and requirements associated with protecting the interchange apply;
- Coordinate planning activities per the Transportation Planning Rule (OAR 660-012);
- Review the IAMP and mobility standards for the interchange prior to adopting local plan amendments;
- Regularly revisit transportation funding strategy

PLAN ELEMENTS

In addition to adoption of the IAMP described in Section 7, implementation of the I-84/US 395 IAMP requires adoption of an "Interchange Function and Policy Definition" and Interchange Management Area Plan Overlay District.

Interchange Function and Policy Definition

The I-84/US 395 interchange is an urban interchange that connects US 395, a statewide highway and freight route, with I-84. It is one of five interchanges serving Pendleton. US 395 serves as a major connection between the north and south sides of the Pendleton community. US 395 is a five-lane facility through the I-84 interchange area and then transitions into a couplet facility north of the freeway comprised of SW Frazer and SW Emigrant Avenues. This couplet provides access to downtown Pendleton. Much of the traffic flow in this area is focused on the SW Emigrant Avenue/SW 20th Street intersection, with traffic coming to and from the couplet of SW Court Avenue and SW Dorion Avenue and US 30 (Westgate Avenue). These roads also provide access to downtown, as well as to the Eastern Oregon Correctional Facility, Eastern Oregon Regional Airport at Pendleton, and other industrial and residential areas. The couplet also connects to OR 11, which travels north into Milton-Freewater, Oregon and Walla Walla, Washington. To the south, US 395

serves commercial uses and connections to residential areas before continuing south through the communities of John Day and Burns.

The City of Pendleton should adopt a clear definition of the I-84/US 395 Interchange function into its 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.

Following is the function and policy definition for the I-84/US 395 Interchange:

> *"The transportation function of the I-84/US 395 Interchange is principally to provide safe and efficient access to downtown Pendleton and the residential and commercial areas south of I-84, including local traffic traveling between these two areas. In addition to this primary function, the I-84/US 395 Interchange remains an important facility for accessing the Eastern Oregon Correctional Facility, Blue Mountain Community College, and the residential areas north of downtown. The interchange also serves regional traffic coming from/going to US 395 south of Pendleton, and OR 11 and OR 37 north of downtown."*

Interchange Area Management Plan Area Overlay District

To ensure the continued operational and safety integrity of the interchange, the City of Pendleton should adopt an Interchange Area Management Plan Overlay District[1]. Future development and land use actions within the Overlay District will be monitored to ensure that within the Interchange Area Management Plan Overlay District volume-to-capacity (v/c) ratios do not worsen operations beyond 0.86 along US 395 from the I-84 Westbound ramp terminal to the realigned SW Hailey Avenue intersection. This value is chosen since it is the highest shown along the corridor in Section 6. This can be accomplished through the IAMP Monitoring and Development Review Guidelines for the Overlay District included within the amendments to the City's Land Use and Development Ordinances and described in the following sections (*see the Technical Appendix for more information*).

ADOPTION ELEMENTS

Implementation of the I-84/US 395 IAMP will occur at several levels of government. As required by OAR 734-051, the City of Pendleton will be required to amend its Transportation System Plan and Comprehensive Plan to incorporate elements of the I-84/US 395 IAMP. In addition, new ordinances or amendments to existing ordinances, resolutions, and Inter-Governmental Agreements (IGA) will be required to insure that the access management, land use management, and coordination elements of the IAMP are achieved. This adoption process will include Planning Commission/City Council hearings. Following successful adoption at the city level, the I-84/US 395 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.

[1] The Interchange Area Management Overlay District coincides and is consistent with the Interchange Management Study Area in the IAMP.

To implement the I-84/US 395 IAMP, the following actions shall occur:

1. The City of Pendleton shall adopt the I-84/US 395 IAMP as part of the City of Pendleton Transportation System Plan and Comprehensive Plan. The IAMP shall serve as the long range comprehensive management plan for providing the transportation facilities that are specifically addressed in this plan, as well as the Access Management Plan and the planned local street network for the area.

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

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

4. The Oregon Transportation Commission shall amend the Oregon Highway Plan to include the I-84/US 395 IAMP.

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

TSP and Comprehensive Plan Amendments

The following outline discusses the major Transportation System Plan amendments that will need to occur at the city and state levels to support adoption of the I-84/US 395 IAMP.

City of Pendleton

- The City shall adopt the I-84/US 395 Interchange Area Management Plan by reference as an element of the City's Transportation System Plan.

The following interchange policy statements shall be included in the City of Pendleton Transportation System Plan:

"The transportation function of the I-84/US 395 Interchange is principally to provide safe and efficient access to downtown Pendleton and the residential and commercial areas south of I-84, including local traffic traveling between these two areas. In addition to this primary function, the I-84/US 395 Interchange remains an important facility for accessing the Eastern Oregon Correctional Facility, Blue Mountain Community College, the residential areas north of downtown, and the planned relocation of St. Anthony Hospital. The interchange also serves regional traffic coming from/going to US 395 south of Pendleton, and both OR 11 and OR 37 north of downtown."

"The City shall establish an Interchange Overlay District (IOD) to ensure that the impacts of future development within the vicinity of the interchange are consistent with its intended function and the long-range plan for this facility, as documented in the adopted I-84/US 395 Interchange Area Management Plan. While it is recognized that proposed development outside of the adopted IOD also may be required to document expected impacts to the interchange, the City shall adopt specific requirements for development proposed within the IOD to ensure that direct impacts to the interchange are anticipated and, if necessary, mitigated."

- The IAMP Transportation Improvement Plan, as illustrated in Figures 7-1 through 7-3 and listed in Table 7-1, for City facilities shall be included in the transportation improvements project list of the Transportation System Plan.
- The IAMP Access Management Plan elements, as illustrated in Figures 7-4 and 7-5, for City facilities shall be included in the transportation improvements project list of the Transportation System Plan
- The extension of SW 30th Street to Tutuilla Road as described in Section 6 and illustrated in Figure 8-1 shall be included in the transportation improvements project list of the Transportation System Plan.
- A new north-south crossing of I-84 west of US 395, as shown under Concept W1 and described in Section 6, shall be included in the transportation improvements project list of the Transportation System Plan

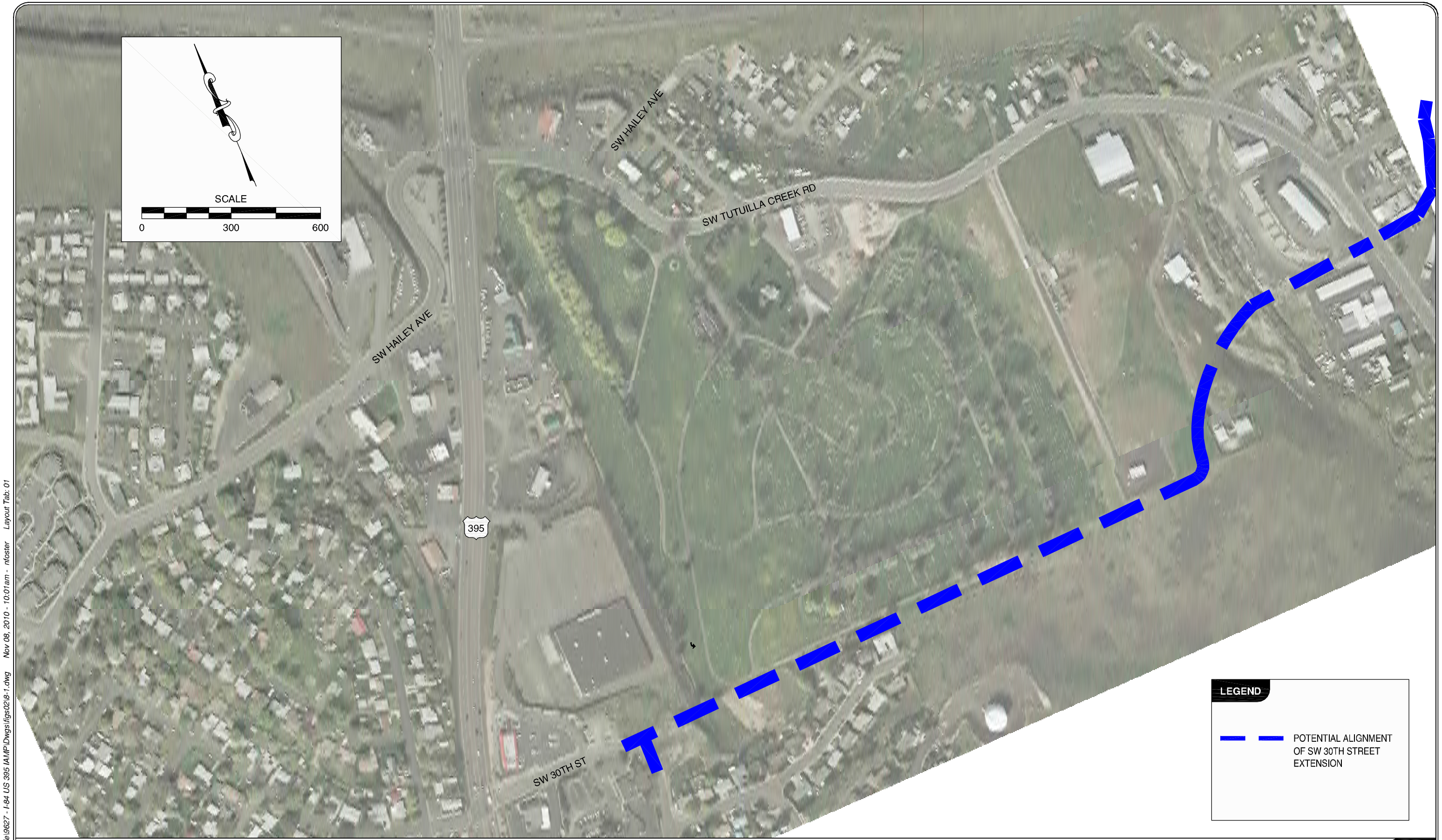
Oregon Transportation Commission

- The I-84/US 395 IAMP shall be adopted by the Oregon Transportation Commission as part of the Oregon Highway Plan.
- The IAMP Transportation Improvement Plan, as illustrated in Figures 7-1 through 7-3 and listed in Table 7-1, for state facilities shall be adopted as part of the facility plan amendment to the Oregon Highway Plan.
- The IAMP Access Management Plan elements, as illustrated in Figures 7-4 and 7-5, for state facilities shall be adopted as part of the facility plan amendment to the Oregon Highway Plan.
- The alternative mobility standard of a volume-to-capacity (v/c) ratio of 0.86 along US 395 from the I-84 Westbound ramp terminal to the realigned SW Hailey Avenue intersection shall be adopted as part of the facility plan amendment to the Oregon Highway Plan.

Other City Amendments

The following outlines other major amendments that will need to occur at the city level to support adoption of the I-84/US 395 IAMP.

- The City shall adopt an Interchange Area Management Plan Overlay District that includes the submittal requirements, review standards, and administration fees for IAMP monitoring and updates for land use amendment and design review applications within the district.



NOTE: ALIGNMENT SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY AND THE ACTUAL ALIGNMENT MAY VARY

POTENTIAL SW 30TH STREET EXTENSION ALIGNMENT
PENDLETON, OREGON

FIGURE 8-1

IMPLEMENTATION ELEMENTS

The implementation of each phase of the Transportation Improvement Plan shown in Figures 7-1 through 7-3 should be based on operational and safety triggers. Table 8-1 summarizes these implementation triggers, which should be included in the Intergovernmental Agreement between ODOT and the City, described below.

TABLE 8-1 IMPLEMENTATION TRIGGERS

Phase	Trigger
Phase 1	The 95th-percentile northbound left-turn queue at the existing SW Emigrant Avenue/SW 20th Street intersection backs past the I-84/US 395 Westbound ramp terminal[1].
Phase 2	The 95th-percentile southbound left-turn queue at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection spills into the US 395 through lanes and backs up into the I-84/US 395 Eastbound ramp terminal.
Phase 3	The 95th-percentile southbound left-turn queue at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection spills into the US 395 through lanes and backs up into the I-84/US 395 Eastbound ramp terminal (after Phase 2 is constructed).

[1]This currently occurs during the 30th highest hour

MONITORING ELEMENTS

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

Intergovernmental Agreement (IGA)

To ensure that the I-84/US 395 IAMP continues to preserve operational integrity and safety of the I-84/US 395 Interchange, the City of Pendleton and ODOT will develop an IGA stipulating each agency's funding obligations to the transportation improvements in the Plan and to the following monitoring and update program:

- The agencies will review the IAMP pursuant to the "review triggers" described below to ensure that the original assumptions and recommendations regarding the interchange, local circulation system, funding obligations, access management, land use management, and coordination efforts are still appropriate and effective given the current and projected future conditions inside the interchange management area. This review should be conducted through a meeting initiated by the City of Pendleton or ODOT and should include all affected agencies.
- In addition to the established triggers for IAMP review, the agencies can request a review of the IAMP at any time if, in their determination, specific land use or transportation changes warrant a review of the underlying assumptions and/or recommendations within the IAMP.

- If the participants in the IAMP review meeting agree that, once the impacts of the "trigger" that necessitated the review are examined, an IAMP amendment is not warranted, a recommendation of "no action" may be documented and submitted in the form of a letter to the City of Pendleton City Council 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 and an Oregon Transportation Commission hearing, as an amendment to the City of Pendleton Transportation System Plan and as an update to the Oregon Highway Plan.

IAMP Review Triggers

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

- Every fifth year from the date of IAMP adoption or latest update.
- Plan map and zone changes that have a "significant affect" per the Transportation Planning Rule[2] and impact the I-84/US 395 Interchange, or that are located within the IMSA.
- The 95th-percentile northbound left-turn queue at the existing SW Emigrant Avenue/SW 20th Street intersection backs past the I-84/US 395 Westbound ramp terminal.
- The 95th-percentile southbound left-turn queue at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection spills into the US 395 through lanes and backs up into the I-84/US 395 Eastbound ramp terminal.
- Mobility measures at the I-84 ramp terminals exceed the adopted alternative mobility standard of a volume-to-capacity ratio of 0.86 along US 395 from the I-84 Westbound ramp terminal to the realigned SW Hailey Avenue intersection.

Development Review within the Overlay District

The following outlines the transportation requirements for development and zone change applications within the I-84/US 395 Interchange Overlay District and describes how the City of Pendleton and ODOT should coordinate. The intent of the overlay district and associated transportation requirements is to allow the City and development within the District to rely upon the planning work completed for the IAMP that identifies the transportation needs in the area and utilize a streamlined development review process requiring limited additional transportation analysis if the development is consistent with the Plan.

[2] Plan map or zone changes that result in equal or less trips than would be generated by approved uses under the current designation would not have a "significant affect."

Transportation Assessment Report

For all development applications located within the I-84/US 395 Interchange Overlay District, the applicant shall prepare and submit to the City a Transportation Assessment Report that documents the following:

a) Expected weekday p.m. peak hour trip generation.
b) Identifies how the development complies with the IAMP and what off-site improvements will be constructed as part of the development.
c) Reviews proposed site-access driveways and streets to ensure compliance with the IAMP Access Management Plan and that adequate intersection sight distance and traffic control will be provided.
d) Reviews on-site parking and circulation plan to ensure safe and efficient travel for all modes of travel and includes AutoTurn analyses for anticipated trucks and emergency service vehicles.

Transportation Impact Study

All development applications located within the I-84/US 395 Interchange Overlay District that meet the following conditions are required to prepare and submit a Transportation Impact Study (TIS) to demonstrate the level of impact of the proposed development on the surrounding street system:

a) A zone change and/or comprehensive amendment that results in an increase in trips as compared to allowed uses under the existing designation.

The determination of impact or effect, and the scope of the TIS, shall be coordinated with the City of Pendleton and ODOT. The TIS shall also document all elements required as part of the Transportation Assessment Report (see above). The developer shall be required to mitigate impacts attributable to the project.

ODOT Coordination

- The City shall not deem the land use application complete unless it includes a Transportation Assessment Report or, if required, a TIS prepared in accordance with the requirements as described above.
- The City shall provide written notification to ODOT once the application is deemed complete. This notice shall include an invitation to ODOT to participate in the City's site team review meeting (Pursuant to the city's Pre-Application Requirements).
- ODOT shall have at least 20 days, measured from the date 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.

Administration Fee

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

Section 9
OAR and OHP
Compliance

OAR and OHP Compliance

The following section discusses the Oregon Administrative Rule (OAR) and 1999 Oregon Highway Plan (OHP) policy based compliance issues that pertain to the development of the I-84/US 395 IAMP.

OAR COMPLIANCE

The I-84/US 395 IAMP was developed in collaboration with the City of Pendleton and ODOT and was developed in accordance with the guidelines set forth in the State of Oregon's Oregon Administrative Rules for Interchange Access Management Planning and Interchange Area Management Planning. Table 9-1 identifies the required planning elements from OAR 734-051 and documents how the I-84/US 395 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 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 and overlay district elements identified in this plan will result in operational 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, medium, 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 Pendleton travel demand model was updated to include the most current planned land uses. 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
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. This analysis led to an update of the Pendleton travel demand model to include the most current planned land uses.	Section 4 Section 5 Section 6 Section 7

OAR 734-0051-0155 Requirement	How Addressed	Report Reference
Is consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission-0155(7)(g)	The I-84/US 395 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 Pendleton amending its Transportation System Plan to incorporate the transportation improvements associated with the IAMP. In addition, implementation of the IAMP will occur through the City of Pendleton amending the Land Use and Development Ordinance to include an IAMP overlay district. The overlay district 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 alternate 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 I-84/US 395 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 7-3 and 8-1).	Section 7 Section 8
Median treatments	Median treatments are proposed for US 395 and SW 20th Street to meet ODOT access management standards (Figures 7-4 and 7-5).	Section 7
Location and type of traffic control devices needed to ensure safe and efficient operations in the operational area of the interchange	The I-84 Westbound ramp terminal will be signalized in Phase 1. Figures 7-1 through 7-3 show all necessary traffic control within the IMSA.	Section 7
Location of sidewalks and bicycle lanes	Sidewalks and bicycle lanes will be constructed with roadway improvements. Figures 7-1 through 7-3 show the locations of future sidewalks and bicycle lanes.	Section 6 Section 7
Sidewalk and bicycle lane crossings (highway and ramp crossings)	See above.	See above

THE PLAN WILL DETERMINE		
OAR 734-051-0155 Requirement	**Determination**	**Report Reference**
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.	NA
Is new policy language needed in the City of Pendleton Comprehensive Plan to support adequate long-term interchange operations?	The City of Pendleton will amend its comprehensive plan to include the overlay district. In addition, the City will amend its land use and development ordinance to implement the overlay district.	Section 8
Are any land use changes/comprehensive plan (including TSP) amendments needed to implement the Interchange Area Management Plan?	The City of Pendleton will amend its Transportation System Plan to incorporate the transportation improvements associated with the IAMP. The City of Pendleton will amend the Land Use and Development Ordinance to include an Interchange Area Management Plan Overlay District that contains the submittal requirements and review standards for land use amendment and development proposals within the district. 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 alternate 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 I-84/US 395 IAMP was developed in accordance with the policies set forth in the Oregon Highway Plan (OHP). The following identifies the OHP policies that pertain to the I-84/US 395 IAMP and how the IAMP satisfies the requirements.

Policy 1A: State Highway Classification System. The state highway classification system includes five classifications: Interstate, Statewide, Regional, District, and Local Interest Roads. In addition, there are four special purpose categories that overlay the basic classifications: special land use areas, statewide freight route, scenic byways, and lifeline routes.

Within the IMSA, there are three ODOT highways. Interstate-84 is an Interstate Highway and is part of the National Highway System (NHS). US 395 is a statewide highway. OR 37 (the SW Emigrant Avenue-SW Frazer Avenue couplet) is a District Highway.

> *How Addressed:* The I-84/US 395 IAMP recognized the respective functions of each highway. The north-south connection from Concept W1 that is to be included in the City's TSP will remove local traffic from US 395, helping it to better serve its function as a statewide highway and a freight route.

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 Pendleton, ODOT, and DLCD. The IAMP will be implemented by the City of Pendleton through an Interchange Management Overlay District that will require coordinated agency review on all future development or land use actions within the District.

Policy 1C: State Highway Freight System. This policy recognizes the need for the efficient movement of freight through the state. Interstate-84 and US 395 are designated freight routes.

> *How Addressed:* The transportation improvement plan improves traffic operations and safety along US 395 and at the interchange, which will ensure that freight mobility is preserved.

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

> *How Addressed:* The I-84/US 395 IAMP demonstrates that the interchange will not meet ODOT mobility standards through the 20-year horizon and proposes alternate mobility standards. 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 I-84/US 395 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:* The City of Pendleton and ODOT have met and discussed improvements to the local system and who will be responsible for these improvements. 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:* The potential safety issues identified within the IMSA relate to queues spilling back from other intersections into the ramp terminals. The transportation improvement plan outlined in Section 7 addresses these issues. 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-84/US 395 Interchange, a freeway interchange that has a multi-lane crossroad. The spacing standards in an urban area for this type of interchange are:

1 mile (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 I-84/US 395 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 and US 395 are designated Freight Routes.

How Addressed: transportation improvement plan improves traffic operations and safety along US 395 and at the interchange, which will ensure that freight mobility is preserved.

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

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

Section 10
References

References

1. Oregon Department of Transportation. 1999 Oregon Highway Plan. 1999

2. Oregon Department of Transportation. Analysis Procedures Manual. 2006.

3. Transportation Research Board. Highway Capacity Manual. 2000.

4. U.S. Department of Transportation Federal Highway Administration. *Signalized Intersections: Informational Guide.* 2004.