

FINAL DRAFT

Highway 18/99W South Interchange Access Management Plan

McMINNVILLE, OREGON



KITTELSTON & ASSOCIATES, INC.
TRANSPORTATION PLANNING/TRAFFIC ENGINEERING



FINAL DRAFT

**HIGHWAY 18/99W SOUTH
INTERCHANGE ACCESS MANAGEMENT PLAN**

McMinnville, Oregon

PREPARED FOR:

Oregon Department of Transportation

Region 2
455 Airport Road SE
Salem, Oregon 97301
(503) 986-2655

City of McMinnville

230 NE Second Street
McMinnville, Oregon 97218
(503) 434-7311

PREPARED BY:

Kittelson & Associates, Inc.

610 SW Alder, Suite 700
Portland, OR 97205
(503) 228-5230

Project No. 4993.04

November 12, 2002

TABLE OF CONTENTS

Section 15

Section 29

Section 314

Section 422

Section 530

Section 652

Section 757

Section 869

LIST OF FIGURES

Figure 2-1: Interchange Access Management Area11

Figure 3-1: Sub-Area Map and Existing Access Locations16

Figure 3-2: Existing Lane Configurations and Traffic Control Devices18

Figure 3-3: Existing Traffic Volumes, Weekday PM Peak Hour20

Figure 4-1: Baseline Lane Configurations and Traffic Control Devices24

Figure 4-2: Trip Distribution Patterns27

Figure 4-3: Baseline Traffic Volumes, Weekday PM Peak Hour28

Figure 5-1a: Concept #1a34

Figure 5-1b: Concept #1b35

Figure 5-2a: Concept #2a36

Figure 5-2b: Concept #2b37

Figure 5-2c: Concept #2c38

Figure 5-2d: Concept #2d39

Figure 5-2e: Concept #2e40

Figure 5-3a: Concept #3a41

Figure 5-3b: Concept #3b42

Figure 5-3c: Concept #3c43

Figure 5-4: Concept #444

Figure 5-5: Concept #545

Figure 5-6: Concept #646

Figure 5-7: Concept #747

Figure 5-8: Concept #848

Figure 5-9: Concept #949

Figure 7-1: Short-Term Transportation Improvement Plan59

Figure 7-2: Highway 99W Cross Sections61

Figure 7-3: Medium/Long-Term Transportation Improvement Plan63

Figure 7-4: Highway 99W/Old Sheridan Road Long-Term Transportation Improvements64

Figure 7-5: Access Management and Circulation Plan65

LIST OF TABLES

Table 1-1: OAR 734-051-0200 Issues Addressed7

Table 1-2: OAR 734-051-0200 Issues Determined8

Table 3-1: Existing Transportation Facilities and Roadway Designations17

Table 3-2: Existing Condition Traffic Operations, Weekday PM Hour19

Table 3-3: Study Intersection Crash Histories (1996-2000)21

Table 4-1: Trip Generation25

Table 4-2: Existing Transportation Facilities and Roadway Designations26

Table 4-3: Future Baseline Traffic Operations, Weekday PM Peak Hour29

Table 5-1: Highway 18/99W Interchange Access Management Plan Concept Evaluation51

Table 6-1: Volume-to-Capacity Ratio for Refined Concept Evaluation, Weekday PM Peak Hour54

Table 6-2: Summary of 95th Percentile Queues, Weekday PM Peak Hour55

Table 7-1: Highway 18/99W IAMP Short-Term Improvement Summary60

Table 7-2: Highway 18/99W IAMP Long-Term Improvement Summary63

Table 7-3: Right-of-Way Requirements67

SECTION 1

Executive Summary

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Highway 18/99W Interchange is located in southern McMinnville, Oregon. Approximately 60 acres of vacant land in the Interchange Access Management Area is expected to develop over the next 10 years. To maintain the functional and operational integrity of the Highway 18/99W interchange as future development occurs, a series of short-term, medium-term, and long-term transportation improvements were identified. These improvements will be implemented by the City of McMinnville and the Oregon Department of Transportation (ODOT) as part of future Capital Improvement Projects and private development activities.

This Interchange Access Management Plan includes a summary of existing conditions, identification of the buildout potential of vacant lands, an evaluation of interchange configuration concepts, and a description of required transportation improvements. This plan was developed in collaboration with ODOT and the City of McMinnville, and was performed in accordance with the guidelines set forth in the State of Oregon's Access Management Standards for Highways (OAR 734-051) and the 1999 Oregon Highway Plan. Tables I-1 and I-2 identify the required elements for an Interchange Access Management Plan from OAR 734-051 and document how this plan satisfies the requirements. A summary of the key transportation improvements recommended as part of the Highway 18/99W Interchange Access Management Plan are provided below.

Short-Term Improvements

- Construct the Booth Bend Road Extension west from Highway 99W to intersect the Highway 18 Connector directly opposite the Education Services District (ESD) driveway. The Booth Bend Road Extension will be a three-lane section with bike lanes and sidewalks on both sides.
- Install traffic signals at the Booth Bend Road/Highway 99W and Booth Bend Road Extension/Highway 18 Connector intersections.
- Widen Highway 99W to three lanes from the Highway 18 Westbound Off Ramp to north of Booth Bend Road to provide northbound and southbound left-turn lanes at the future signalized Highway 99W/Booth Bend Road intersection.
- Close existing driveways and dedicate access control along the west side of Highway 99W from the Highway 18 westbound off ramp to Booth Bend Road and dedicate access control along the east side of the Highway 18 Connector from the Highway 18 off ramp to the Booth Bend Road extension.

Medium-/Long-Term Improvements

- Widen Highway 99W to four lanes with a raised-curb median lane from Old Sheridan Road to south of the Highway 18 bridge crossing.
- Consolidate private access driveways along Highway 99W and the Highway 18 Connector through redevelopment activities and the construction of internal circulation routes.
- Widen Booth Bend Road east of Highway 99W to a three-lane section with bike lanes and sidewalks on both sides.
- Widen the Old Sheridan Road/Highway 99W intersection to provide dual left-turn lanes from the southbound Highway 99W approach, a separate right-turn lane on the southbound Highway 99W approach, a separate left-turn on the eastbound Old Sheridan Road approach, and dual right-turn lanes on the northbound Highway 99W approach.
- Widen the Keck Drive/Highway 99W intersection to provide exclusive right-turn lanes on the northbound and southbound Highway 99W approaches, and a right-turn lane on the westbound Keck Drive approach.

TABLE 1-1

OAR 734-051-0200 Issues Addressed

OAR 734-051 Reference	OAR 734-051 Issue	How The Issue Is Addressed	Report Reference
0200(4)(f)	Definition of an interchange analysis area sufficient to ensure the safe operation of the facilities through a 20-year planning horizon	All interchanges located within the 1,320-foot spacing standard of the Highway 18 interchange ramp terminals are included in the analysis area, as well as the Keck Drive/Highway 99W intersection. The twenty year operations analysis assumes full buildout of the vacant lands in the vicinity of the interchange management plan area.	Chapter 2
0200(4)(f) and 0200(9)	The adequacy of the local roadway network	Existing and future baseline traffic operations are evaluated for the study intersections and recommended mitigation measures are provided for short- and medium-/long-term implementation.	Chapters 3 and 4
0200(4)(f) and 0200(8)	Right-of-way	Right-of-way dedication required to accommodate future road widening is identified as part of the short-term and medium-/long-term transportation improvements.	Chapter 7
0200(4)(f) and 0200(5)(6)(7)	Access control <ul style="list-style-type: none"> ■ Spacing standards ■ Roadway improvements ■ Driveway consolidations ■ Shared approaches 	Spacing standards from the OHP and OAR are used in the evaluation of future roadway and access locations. Local street improvements needed to support the interchange's operations are identified. A near-term and medium-/long-term access management strategy addressing driveway consolidation and closures is described. Shared approaches are addressed through determination of local road improvement needs.	Chapters 5, 6, and 7
0200(4)(f)	Parcel boundaries	Parcel boundaries are shown on the land use map in Chapter 2, the Sub-Area map in Chapter 3, and the local circulation/access map in Chapter 7	Chapters 2, 3, and 7
0200(4)(f)	Traffic volumes and flows (operational analysis)	A full operational analysis was conducted under existing conditions, future baseline conditions (without and with mitigation), and under future conditions for all concepts evaluated.	Chapters 3, 4, 5 and 6
0200(4)(f)	Traffic control devices	The Highway 99W/Highway 18 ramp terminal, Booth Bend Road/Highway 99W, and Highway 18 Connector/ESD driveway intersections are currently not signalized. The Old Sheridan Road/Highway 99W and Keck Drive/Highway 99W intersections are signalized. As part of future development, traffic signals are planned in the short-term at the Booth Bend Road/Highway 99W and Booth Bend Road Extension/Highway 18 Connector intersections. A traffic signal is planned in the medium-/long-term at the Highway 18 westbound off-ramp terminal/Highway 99W intersection. All traffic operations worksheets are provided in the Technical Appendix.	Chapters 3, 4, 5, and 6
0200(4)(f) and 0200(5)	Crash history	The existing crash history is summarized for all study intersections in Chapter 3.	Chapter 3
0200(4)(f) and 0200(5)	Roadway geometry	The existing lane configurations are shown in Figure 3-2, the short-term lane configurations are shown in Figure 7-1, and the medium-/long-term configurations are shown in Figure 7-4.	Chapters 3 and 7
0200(4)(b)(c)(f)	Current and planned land use and zoning in the vicinity of the interchange	The existing land uses and planned developments for the parcels in the vicinity of the interchange management area are described.	Chapters 3 and 4
0200(4)(f)	The location of all current and planned approaches	The location of all existing driveways is shown in Figure 3-1.	Chapter 3
0200(8)	Acquisition of access rights	As part of the identified short-term improvements, access control will be acquired along the Rice property frontage with a break provided for the Booth Bend Road Extension. The medium-/long-term improvements call for acquiring access control along both sides of the Highway 18 Connector and Highway 99W from Highway 18 to Old Sheridan Road.	Chapter 7

TABLE 1-2

OAR 734-051-0200 Issues Determined

OAR 734-051 Reference	OAR 734-051 Issue	How The Issue Is Determined	Report Reference
0200(4)(f) and 0200(5)(6)(7)	Driveway and roadway spacing and connections	The location of future public roads and private access driveways is shown in Figure 7-4.	Chapter 7.
0200(4)(f) and 0200(5)	Local street connections to ensure adequate access to properties and off-highway circulation	A public access road (Booth Bend Road Extension) will be constructed from Highway 99W to intersect the Highway 18 Connector directly opposite the ESD driveway. The Booth Bend Extension will provide a direct connection for vehicles traveling to/from the east of Highway 99W on Booth Bend Road and reduce the number of trips through the Old Sheridan Road/Highway 99W intersection.	Chapters 5, 6, and 7
0200(4)(f) and 0200(5)(9)	Median treatments	As part of the identified medium-/long-term improvements, curb-raised medians will be constructed on Highway 99W from the Highway 18 westbound off-ramp to terminal Booth Bend Road and from Booth Bend Road to Old Sheridan Road. In addition, a curb-raised median will be constructed on the Highway 18 Connector from the Booth Bend Road Extension to Old Sheridan Road.	Chapter 7
0200(4)(f) and 0200(5)(9)	Location and type of traffic control devices needed to ensure safe and efficient operations in the operational area of the interchange	In the short-term, the Highway 99W/Highway 18 ramp terminals will remain unsignalized. The Booth Bend Road/Highway 99W and Booth Bend Road Extension/Highway 18 Connector intersections will be signalized. In the medium-/long-term the Highway 18 Westbound Off-Ramp Terminal/Highway 99W intersection will be signalized.	Chapters 5, 6, and 7
0200(4)(b)(c)(f) and 0200(5)	Location of sidewalks and bicycle lanes	Existing sidewalks and bike lanes are described in Chapter 3. Future sidewalks and bike lanes are identified in roadway cross-section standards as part of future half-street improvements and capital improvement projects.	Chapters 3 and 7
0200(4)(b)(c)(f) and 0200(5)	Sidewalk and bicycle lane crossings (highway and ramp crossings)	Sidewalk and bicycle crossings shall be designed in accordance with current ODOT standards at the future Booth Bend Road/Highway 99W and Booth Bend Road Extension/Highway 18 Connector intersections.	Chapter 7
0200(4)(b)(c)(f) and 0200(5)	Location of potential transit facilities (turnouts, shelters, park and ride areas)	No fixed route transit service is provided within the City of McMinnville.	N/A
0200(4)(d)	A schedule for implementation of various plan elements	A schedule of the short-term and medium-/long-term improvements is provided in Chapter 7.	Chapter 7
0200(4)(c)(d)	Is new policy language needed in the City of McMinnville Comprehensive Plan to support adequate long-term interchange operations?	The City of McMinnville Comprehensive Plan will be updated to show the Booth Bend Extension as a Major Collector facility.	Chapter 7
0200(4)(c)	Are any land use changes/comprehensive plan (including TSP) amendments needed to implement the Interchange Access Management Plan	The Comprehensive Plan and TSP should identify the Booth Bend Extension as a Major Collector facility.	Chapter 7
0200(3)(10)	Are any deviations from OHP and OAR 731-051 standards and requirements needed?	A major deviation to the spacing standards is needed to provide a public road connection for the Booth Bend Road/Highway 99W intersection.	Chapter 7

SECTION 2

Introduction

INTRODUCTION

INTRODUCTION

The Highway 18/99W Interchange is located at the southern edge of McMinnville, Oregon. This interchange is designated the “99W Interchange” to differentiate it from the Highway 18/99W Interchange that lies further north in McMinnville. Highway 18 is designated as a Statewide Expressway. It traverses the southeast side of McMinnville and continues southwest towards the Oregon coast. Highway 99W is a State Regional Highway and provides a north-south connection through McMinnville. As shown in Figure 2-1, the highways intersect to form a triangle bounded by Highway 99W to the east, Highway 18 to the south, and the Highway 18 Connector to the northwest.

In response to recent development activities, the Oregon Department of Transportation (ODOT) and the City of McMinnville have identified the need to develop a long-term plan that addresses necessary transportation infrastructure improvements to manage future development. The long-term plan, referred to by the State of Oregon as an Interchange Access Management Plan (IAMP), needs to comply with the policies and standards for access spacing in an interchange area as set forth in the 1999 Oregon Highway Plan (OHP) (Reference 1) and the State of Oregon’s Access Management Standards (OAR 734-051) (Reference 2). This is required because the distance from the the requested approach to serve the Rice property on Highway 99W is less than 1,320 feet from the Highway 18 westbound ramp terminal.

This report presents the results of the IAMP for the Highway 18/99W Interchange area. It includes a summary of existing conditions (Section 3.0), future baseline conditions without road improvements (Section 4.0), transportation improvement concept development and screening (Section 5.0), refined concept evaluation (Section 6.0), and the recommended IAMP (Sec-

tion 7.0). The following paragraphs describe the goals and objectives of the IAMP and define the scope of work for this study.

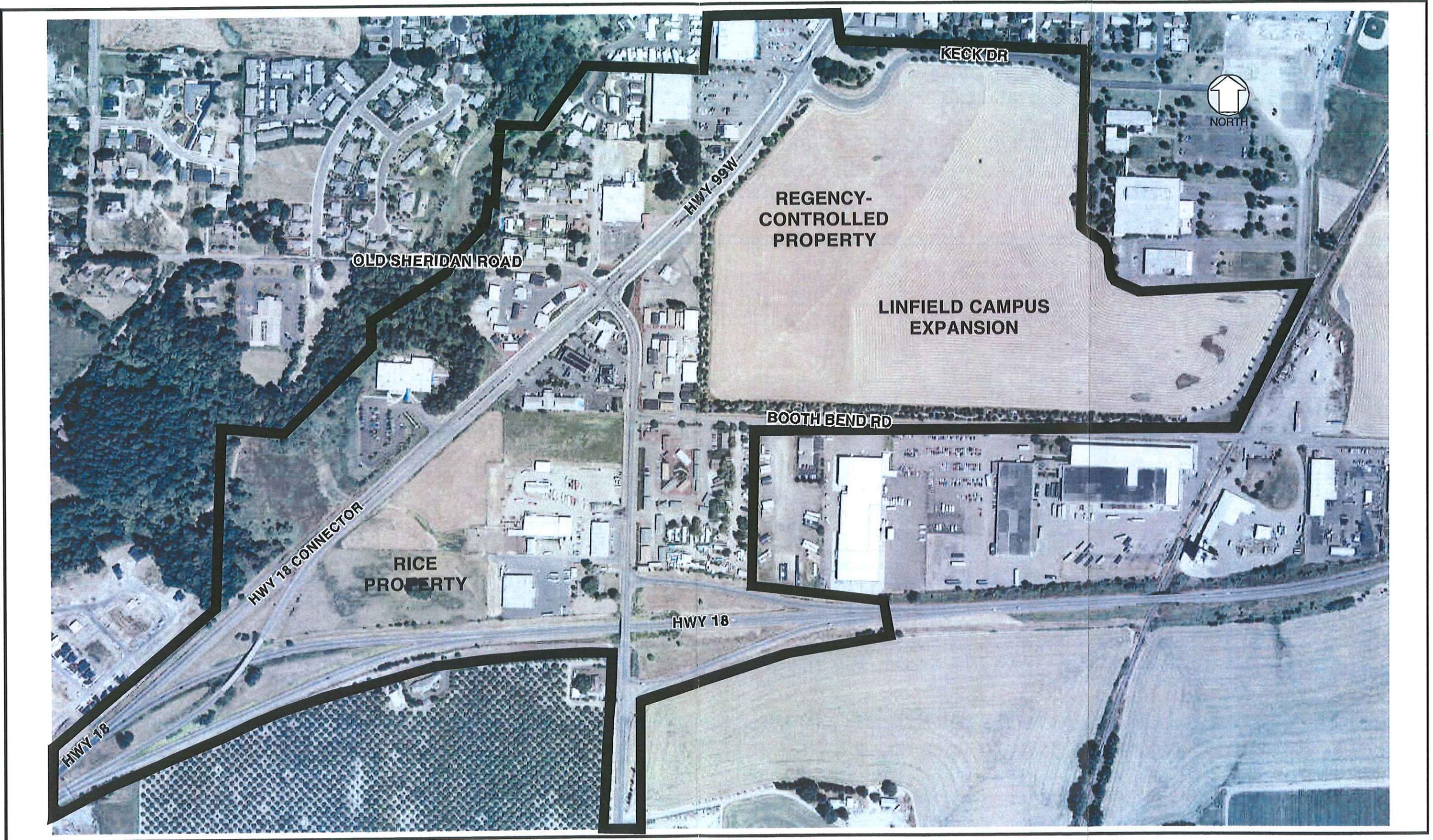
GOALS AND OBJECTIVES

As stated in Policy 3C: Interchange Access Management Areas of the OHP and OAR 734-051-200(1), “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.” The policy indicates that interchange access management plans should protect the “function of interchanges” and “minimize the need for major improvements of existing interchanges.” The policy goes on to state that “at the very least, (the plan should) improve current conditions by moving in the direction of the spacing standards.”

To ensure that the function of the interchange is protected over time, ODOT and local agencies are encouraged to develop IAMPs, particularly for areas where proposed future development would require a deviation from the access spacing standards. The goals of developing and implementing an IAMP are to:

- maximize the capacity of the interchange;
- provide for safe movement from the mainline facility;
- provide safe and efficient operations between connecting roadways; and
- minimize the need for major improvements to existing interchanges.

ODOT encourages collaboration with local agencies in the development of IAMPs and works to see that they are consistent with local transportation system plans, corridor plans, and comprehensive plans. In addition, the IAMP should include a list of all short-, medium-, and long-term actions recommended to improve operations and safety in the interchange area.



StudyAreaBoundary

INTERCHANGE ACCESS MANAGEMENT AREA

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

h:\projfile\4993\cdrfiles\4993F2-1.cdr

The IAMP should provide a blueprint for future development by identifying the access locations for all properties within the influence area of the interchange and the road improvements needed to meet the State's policy for managing interchange areas in the 20-year planning horizon. The IAMP should identify the supporting infrastructure necessary to accommodate access consolidations and provide connections for pedestrians and bicyclists. The IAMP should also identify opportunities for the State to acquire access rights and should place a priority on moving traffic off the expressway (Highway 18) and away from the interchange access management area.

PROJECT DEVELOPMENT PROCESS

A Technical Advisory Committee (TAC) was formed to lead the development and evaluation of the Highway 18/99W South IAMP. The TAC included staff from the following organizations:

- ODOT Region 2 Planning;
- ODOT Region 2 Access Management;
- ODOT Transportation Planning and Analysis Unit;
- ODOT Traffic Management Section;
- City of McMinnville Planning Department;
- City of McMinnville Public Works Department; and,
- Kittelson & Associates, Inc.

Together, the TAC identified the goals and objectives of the IAMP, defined the study scope and assumptions, developed various improvement concepts, evaluated operations results, and identified the recommended alternative and a list of short-, medium-, and long-term improvements. As part of the process, a total of four work sessions and meetings were conducted in Spring 2002. This report is a summary of the work that was conducted to develop the recommended IAMP.

SCOPE OF WORK

This report describes the roadway network, right-of-way, access control, and land parcels in the influence of the Highway 18/99W Interchange Access Management Area. The report examines traffic operations under existing and future year conditions with development of the vacant land and redevelopment within the study area. Various interchange design concepts were developed and evaluated under future year conditions. Specific access locations and frontage improvements for properties within the Highway 18/99W Interchange access management area were developed for the recommended concept.

The study intersections and analysis scenarios for this project were selected based on ODOT's spacing standards for expressway ramp facilities, a review of the surrounding roadway network, an examination of existing and potential future development or redevelopment, and discussions with ODOT and City of McMinnville staff. The spacing standard from an expressway ramp to the first major intersection on a two-lane or multi-lane crossroad is 1,320 feet (reference Tables 8 and 9 of OAR 734-051 [Division 51, 1999 OHP]).

All crossroads within 1,320 feet of the Highway 18 ramps were included in the analysis as well as the signalized Old Sheridan Road/Highway 99W and Keck Drive/Highway 99W intersections. Study intersections are listed below:

- Booth Bend Road/Highway 99W;
- Highway 18 Eastbound Ramp Terminal/Highway 99W;
- Highway 18 Westbound Ramp Terminal/Highway 99W;
- Old Sheridan Road/Highway 99W;
- ESD Driveway/Highway 18 Connector; and
- Keck Drive/Highway 99W.

Based on existing count data, discussions with ODOT and City of McMinnville staff, and the criteria set forth in the OIIP and OAR 734-051, it was determined that the traffic operations analysis would focus on the critical weekday p.m. peak hour. Current and forecast future traffic demand indicate that the weekday p.m. peak hour represents a reasonable worst-case period for analysis. In addition, traffic volumes on Highway 99W were adjusted upward to reflect peak summertime conditions.

A traffic operational analysis was performed for the Baseline scenario for the study years outlined below.

2002 Traffic Conditions: Represents existing conditions during the peak summertime period.

2003 (Short-Term) Traffic Conditions: Assumes full buildout of the Rice property (located within the area bounded by Highway 99W, Highway 18, and the Highway 18 Connector) and 1 year of growth in background traffic.

2010 (Medium-Term) Traffic Conditions: Assumes full buildout of Rice property and properties located northeast of the Highway 99W/Booth Bend Road intersection, in addition to 8 years of continued growth in background traffic volumes.

2022 (Long-Term) Traffic Conditions: Assumes full buildout of Rice property and properties located northeast of Highway 99W/Booth Bend Road, in addition to 20 years of continued growth in background traffic volumes.

For the initial concept development and evaluation process, the traffic operations at the study intersections were evaluated only under 2022 weekday p.m. peak hour conditions. For the detailed concept evaluation, traffic operations at the study intersections were evaluated under 2003 (short-term), 2010 (medium-term), and 2022 (long-term) weekday p.m. peak hour conditions.

SECTION 3

Existing Conditions

EXISTING CONDITIONS

The existing conditions analysis identifies the current land use conditions as well as the operational and geometric characteristics of transportation facilities within the study area.

EXISTING LAND USES

The land uses within the study area are divided into four sub areas:

Sub-Area "A" - properties located south of Old Sheridan Road and northwest of the Highway 18 Connector;

Sub-Area "B" - properties bounded by Highway 18, Highway 99W, and the Highway 18 Connector;

Sub-Area "C" - properties located east of Highway 99W and south of Booth Bend Road; and

Sub-Area "D" - properties located northeast of Highway 99W and north of Booth Bend Road.

The entire study area is located within the City of McMinnville's city limits and Urban Growth Boundary (UGB). Land located south of Highway 18 is currently outside of the UGB and was not accounted for in the future analysis scenarios. ODOT will address these areas in a separate study. Figure 3-1 shows the four sub-areas defined above. A description of each sub-area follows.

Sub-Area "A"

The land uses located west of the Highway 18 Connector include a vacant manufactured home sales lot on the southwest corner of the Old Sheridan Road/Highway 99W intersection and the Education Services District (ESD) offices west of the Highway 18 Connector and approximately 900 feet south of Old Sheridan Road. The vacant manufactured home sales lot has one approach on the Highway 18 Connector and one

approach on Old Sheridan Road. The remaining undeveloped land northwest of the Highway 18 Connector primarily consists of wetlands and is expected to remain undeveloped over the next 20 years.

Sub-Area "B"

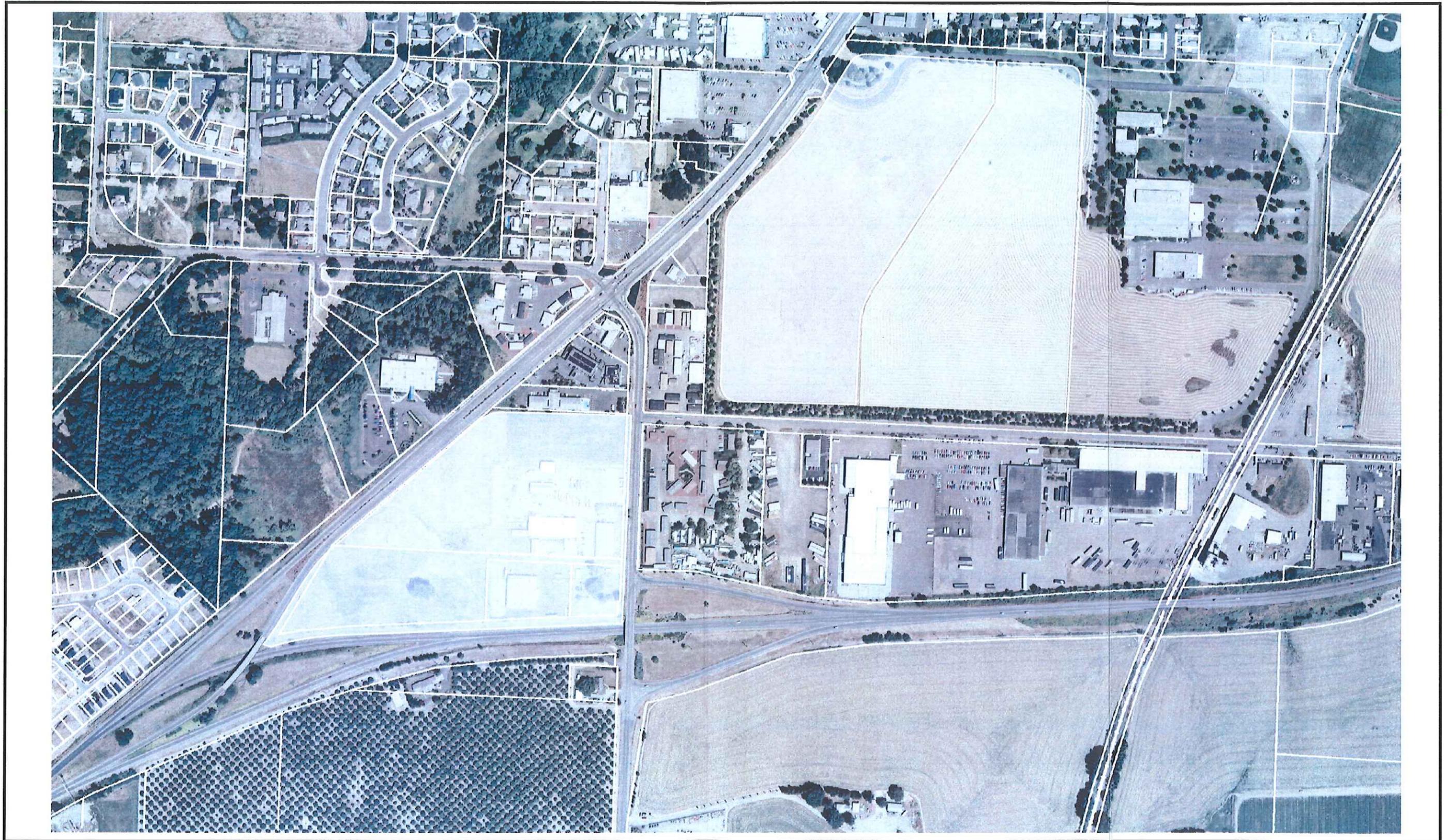
The land bounded by Highway 18, Highway 99W, and the Highway 18 Connector is zoned for commercial use. Land uses to the north of the triangular shaped property include a gas station with a quick service, sit-down restaurant; two motels; and a restaurant. Access to these uses is provided via three driveways on the Highway 18 Connector and two driveways on Highway 99W. The land located south of the existing commercial uses, referred to as the "Rice property," currently includes the Rice Furniture store. Access to the Rice property occurs via three full-movement driveways on Highway 99W. Redevelopment of the Rice property is planned, with a Lowe's Home Improvement Center and 107,000 square feet of outlying retail pads, including a rebuild of the Rice Furniture store.

Sub-Area "C"

Land uses located east of Highway 99W and south of Booth Bend Road are a manufactured home sales lot and manufactured home park. Access is provided via two full-movement driveways on Highway 99W and one full-movement driveway on Booth Bend Road.

Sub-Area "D"

Land use immediately east of Highway 99W and north of Booth Bend Road is currently a manufactured home sales yard. Access to this property is provided via one driveway on Booth Bend Road and one driveway on Highway 99W. The 28-acre property adjacent to Highway 99W is currently vacant and owned by Linfield College. This property is zoned for commercial use. Further to the east is undeveloped land also owned by Linfield College. The college plans to expand their campus in the future to include additional



SUB-AREA MAP AND EXISTING ACCESS LOCATIONS

AUGUST 2002

housing and classrooms. Access to the properties is likely to occur via Booth Bend Road and Keck Drive.

TRANSPORTATION FACILITIES

Roadway Facilities

ODOT maintains the highways within the study area, including Highway 99W, Highway 18, and the Highway 18/99W Connector. Booth Bend Road is maintained by the City of McMinnville. Old Sheridan Road is under Yamhill County jurisdiction and Keck Drive is privately owned and maintained by Linfield College. Key transportation facilities within the site vicinity are listed in Table 3-1. Lane configurations and traffic control devices for the study intersections are shown in Figure 3-2.

Transit Facilities

LINK public bus operates bus routes between McMinnville and Meridian Park Hospital in Tualatin; however, the service is limited and only available every few hours. Although there are no designated stops in the vicinity of the Interchange Management Area, the bus will stop on

demand. YAMGO provides public transit services to McMinnville on weekdays.

Pedestrian Facilities

In the interchange access management area, sidewalks are located:

- on both sides of Highway 99W from Old Sheridan Road to approximately 200 feet north of Booth Bend Road;
- on both sides of Highway 99W from Old Sheridan Road to Keck Drive;
- on the northwest side of the Highway 18 Connector from Old Sheridan Road to the ESD driveway; and
- on the southeast side of the Highway 18 Connector from Old Sheridan Road to the Paragon Motel access.

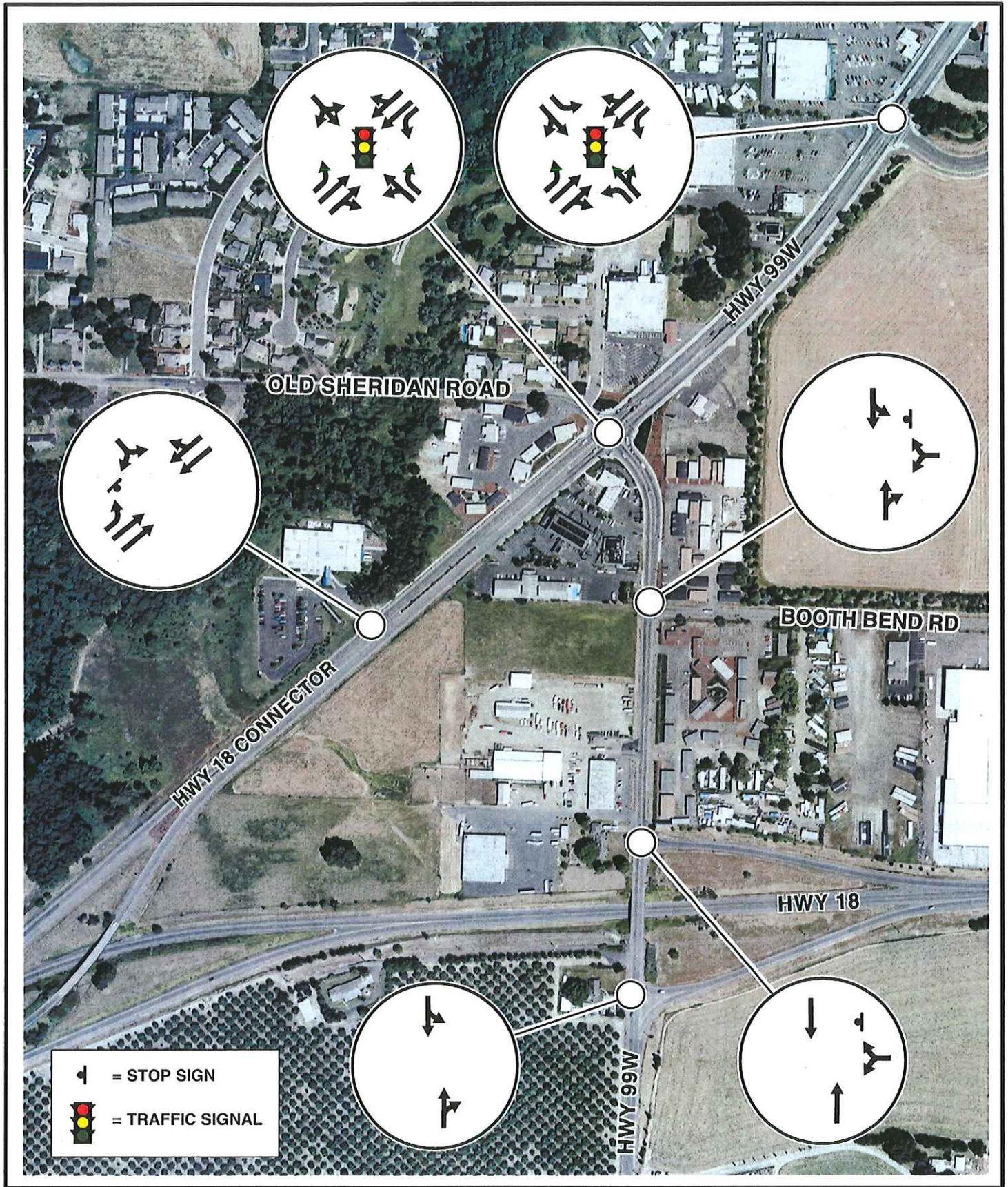
Bicycle Facilities

Bicycle lanes are on the Highway 18 Connector from the ESD driveway to Old Sheridan Road and on Highway 99W from Old Sheridan Road to Keck Drive.

TABLE 3-1

Existing Transportation Facilities and Roadway Designations						
Roadway	Classification	Cross Section	Speed Limit	Sidewalks?	Bicycle Lanes?	On-Street Parking?
Highway 99W	Regional Highway	2 lanes ¹	35 mph	Partial	No	No
Highway 18	Statewide Expressway	2 lanes	55 mph	No	No	No
Highway 18 Connector	Statewide Expressway	4 lanes w/ median	45 mph ²	Partial	Partial	No
Booth Bend Road	Major Collector	2 lanes	35 mph	No	No	No
Old Sheridan Road	Minor Arterial	2 lanes	25 mph	Partial	No	No
Keck Drive	Private	2/3 lanes	25 mph	No	No	No

1. Highway 99W maintains a five-lane section north of Old Sheridan Road.
 2. The posted speed on the Highway 18/99W Connector increases to 55 mph south of the ESD driveway.



**EXISTING LANE CONFIGURATIONS
AND TRAFFIC CONTROL DEVICES**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON

AUGUST 2002



**FIGURE
3-2**

TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

Manual turning movement counts were conducted at the study intersections during the weekday p.m. peak period (4 - 6 p.m.) in November and December 2001. A seasonal adjustment factor of +20 percent was applied to traffic volumes on Highway 99W and the Highway 18/99W Connector to reflect peak summertime conditions. The seasonal adjustment factor was developed based on a review of ODOT data from automatic traffic recorder stations on Highway 99W in Newberg and Amity.

Figure 3-3 shows the existing turning movement volumes for the weekday p.m. peak hour, rounded to the nearest five vehicles per hour. The traffic count sheets used in this study are provided in the Technical Appendix.

Existing Level of Service and Volume-to-Capacity Analysis

All level-of-service analyses described in this report were performed in accordance with the procedures presented in the 2000 Highway Capacity Manual (Reference 3). All analysis were performed for the weekday p.m. peak hour dur-

ing peak summertime conditions. A saturation flow rate of 1,800 vehicles per hour was assumed for all lane groups and a lost time of 4 seconds per phase was applied to each signalized study intersection.

All level-of-service analyses summarized in this report represent operating conditions for a peak 1-hour period (peak hour factor = 1.0), per the mobility standards outlined in the OHP. For Regional Highways such as Highway 99W, the OHP calls for a maximum volume-to-capacity ratio of 0.80 during peak hour operating conditions. The volume-to-capacity ratio provides a measure of the intersection's ability to accommodate forecast travel demand.

Using the traffic volumes shown in Figure 3-3, the existing volume-to-capacity ratios and levels of service at each of the study intersections were calculated and are shown in Table 3-2. As shown in Table 3-2, all study intersections meet ODOT's mobility standard of 0.80 or better under existing conditions.

TRAFFIC SAFETY

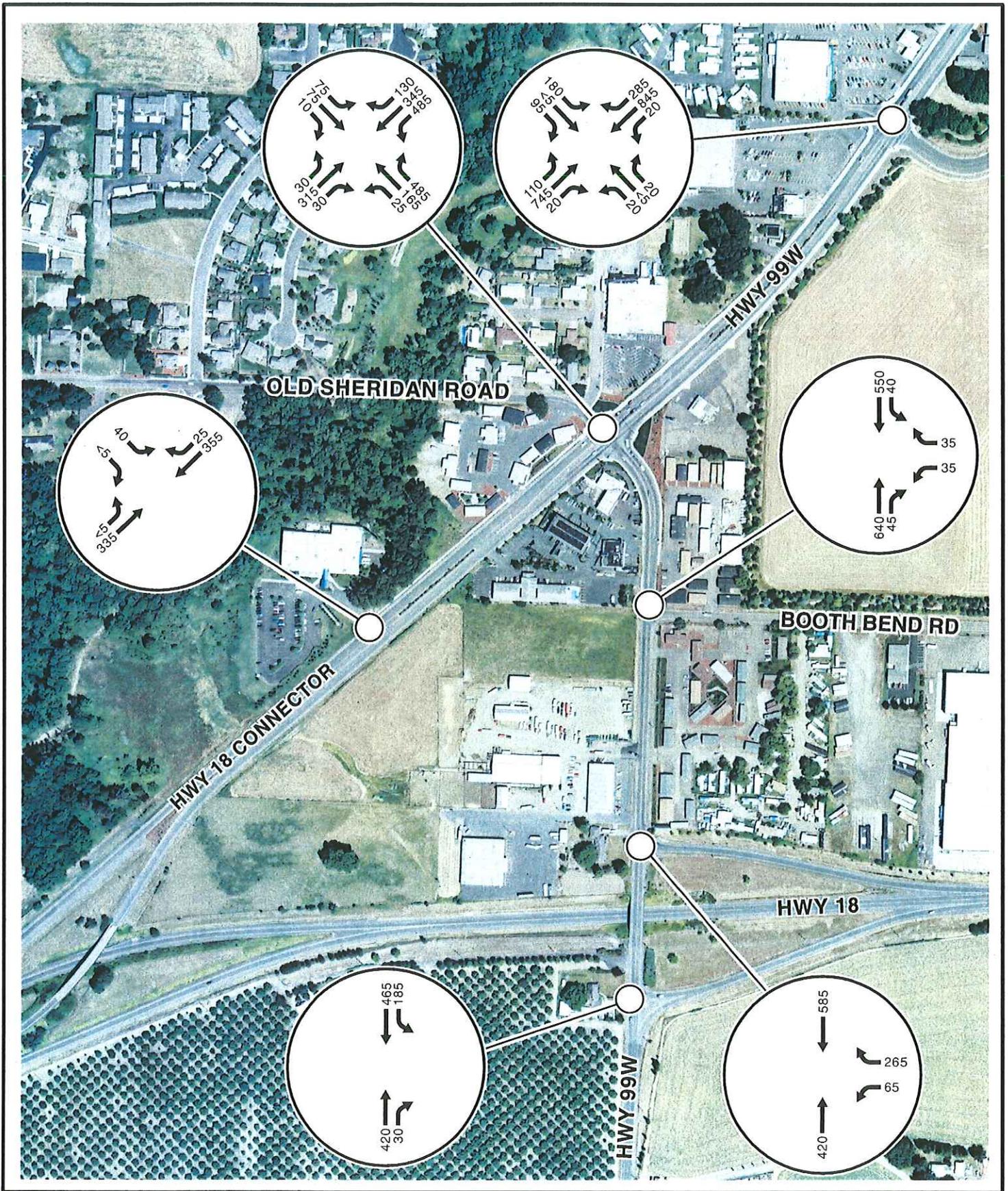
The crash histories of the respective study inter-

TABLE 3-2

Existing Condition Traffic Operations, Weekday PM Peak Hour			
Intersection	Traffic Control Type	Volume-to-Capacity Ratio	Level of Service
Keck Drive/Highway 99W	Signalized	0.63	B
Old Sheridan Road/Highway 99W	Signalized	0.67	D
Booth Bend Road/Highway 99W	Unsignalized	0.20 ¹	C
Highway 18 WB Ramp Terminal/Highway 99W	Unsignalized	0.66 ¹	D
Highway 18 EB Ramp Terminal/Highway 99W	Unsignalized	0.26 ¹	A
Highway 18 Connector/ESD Driveway	Unsignalized	0.09 ¹	B

¹ Represents v/c ratio for critical minor street approach or approach lane.

Note: The results presented in Table 2 indicate that all study intersections currently operate within acceptable operating thresholds during both the weekday p.m. peak hour.



**EXISTING TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR**

**HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002**



**FIGURE
3-3**

sections and roadway segments were reviewed in an effort to identify potential intersection safety issues. Crash records were obtained from ODOT for the 5-year period from January 1, 1996 through December 31, 2000. The summary crash data provided in Table 3-3 includes the severity and type of crashes over the 5-year analysis period at the study intersections and for the Highway 18/99W Connector.

As shown in Table 3-3, 45 crashes occurred at the Old Sheridan Road/Highway 99W intersection during the 5-year study period. Because there was a relatively high number of crashes at the intersection, a crash diagram was developed to determine whether there is a pattern in the reported crashes that would indicate a safety deficiency. The crash diagram shows that 12 of the 45 crashes involved left-turning vehicles on the northeast-bound Highway 18 Connector approach and on the southwest-bound Highway 99W approach that did not yield to oncoming traffic. The left-turn movements currently oper-

ate with protected-plus-permissive phasing. Review of the crash data indicated that the majority of left-turn collisions are attributable to the permissive phase of the left-turn movement and the relatively high speeds along this segment of roadway. It is possible that the number of collisions involving left-turning vehicles could be reduced by implementing protected-only phasing at the intersection.

The remaining crashes at the Old Sheridan Road/Highway 99W intersection primarily involved rear-end collisions and red-light running incidents on all approaches. No other pattern of crashes was observed from the data.

The crash data and collision diagram for the Old Sheridan Road/Highway 99W intersection are provided in the Technical Appendix.

TABLE 3-3

Study Intersection Crash Histories (1996-2000)								
Intersection/ Roadway Segment	Number of Crashes	Collision Type				Severity		
		Turning	Rear-End	Angle	Other	Property Damage Only	Personal Injury	Fatality
Intersection Crash Summary								
Highway 18 EB Ramp Terminal/Highway 99W	4	0	3	1	0	2	2	0
Highway 18 WB Ramp Terminal/Highway 99W	1	0	0	0	1	1	0	0
Booth Bend Road/ Highway 99W	4	1	2	0	1	3	1	0
Old Sheridan Road/ Highway 99W	45	20	10	13	2	27	18	0
Arterial Crash Summary								
Highway 18/99W Con- nector between Old Sheridan Road and 1,000 feet south- west of the Highway 18 off ramp	10	0	4	0	6	7	2	1

SECTION 4

Future Baseline Conditions

FUTURE BASELINE CONDITIONS

The future baseline conditions analysis identifies how the study area intersections will operate when the vacant parcels of land in the study area fully develop. The analysis summarized in this chapter provides a basis of comparison for future improvement options. This chapter includes an assessment of forecast growth rates in the study area, identification of forecast trip generation rates for the planned developments in the area, and an assessment of traffic operations at the study intersections. The traffic operations analysis was performed for 2003 (short-term), 2010 (medium-term), and 2022 (long-term) conditions.

TRAFFIC VOLUME GROWTH RATE

Based on a review of historical traffic volumes on Highway 99W and discussions with City of McMinnville and ODOT staff, an annual growth rate of 2.5 percent was applied to the traffic volumes to account for regional growth in the study area. The 2.5 percent annual growth rate was used to calculate existing traffic volumes to obtain 2003, 2010, and 2022 background traffic volumes at each of the study area intersections.

PLANNED TRANSPORTATION IMPROVEMENTS

At this time, no improvements in the Interchange Management Area are funded by ODOT or the City of McMinnville.

A traffic signal is planned as part of the development of the Rice property for the Highway 18 Connector/ESD Driveway intersection. The east leg of this intersection will provide access to the Rice property. Figure 4-1 shows the baseline lane configurations and traffic control at the study intersections. Note that the baseline condition assumes no connection is provided to the Rice property from Highway 99W.

PLANNED DEVELOPMENTS

City of McMinnville staff indicated that within the next 10 years three developments are planned for construction vacant parcels within the study area, including:

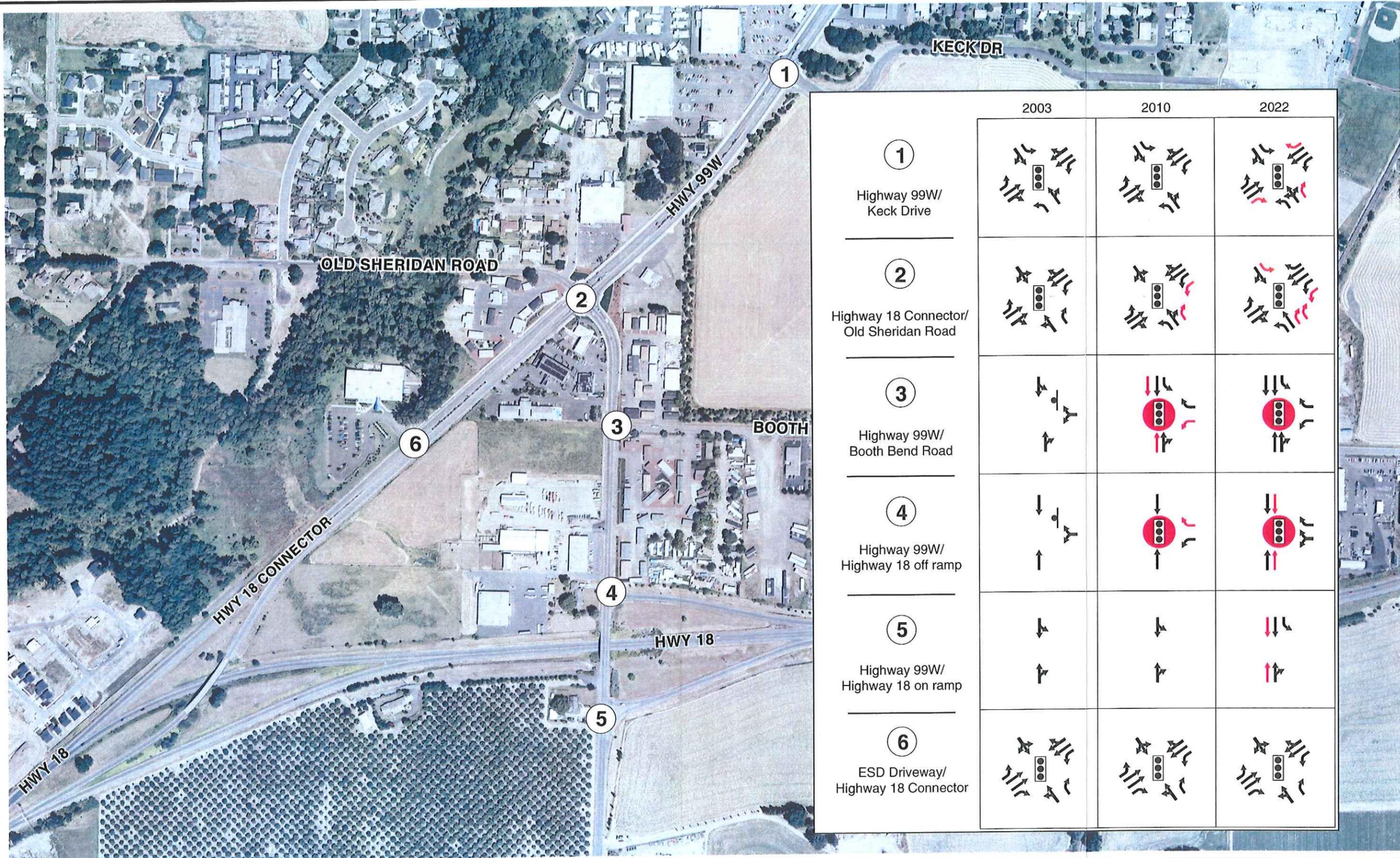
- Rice Property Retail Development
- Linfield College Expansion
- Linfield-Controlled Commercial Property Development

A detailed description of the proposed development activities and trip-generation characteristics for each development follow.

Rice Property Development

The Rice property, located in Sub-Area "B," includes approximately 24 acres of commercial land in the area bounded by Highway 18, Highway 99W, and the Highway 18 Connector. Currently, a Lowe's Retail Center is planned for the site. The retail center is planned to include a 146,730-square-foot Lowe's Home Improvement Store with a seasonal open-air garden center. The existing Rice Furniture Store will be replaced with a 40,000-square-foot building located on the southeast corner of the development. The planned development is anticipated to include four additional retail pads totaling 67,000 square feet. Full built-out is expected as early as 2003.

Estimates of weekday p.m. peak hour vehicle trip ends for the proposed Rice property development were calculated using trip-generation rates summarized in Trip Generation, 6th Edition published by the Institute of Transportation Engineers (ITE) (Reference 4). Full buildout of the site is forecast to generate 1,075 trips (515 in, 560 out) during the weekday p.m. peak. After accounting for pass-by trips on Highway 99W and the Highway 18 Connector, the proposed development is forecast to generate 795 net new trips (375 in, 420 out) during the weekday p.m. peak hour.



	2003	2010	2022
1 Highway 99W/ Keck Drive			
2 Highway 18 Connector/ Old Sheridan Road			
3 Highway 99W/ Booth Bend Road			
4 Highway 99W/ Highway 18 off ramp			
5 Highway 99W/ Highway 18 on ramp			
6 ESD Driveway/ Highway 18 Connector			

→ MITIGATION REQUIRED UNDER BASELINE CONDITIONS

BASELINE LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

h:\profile\4993\cdrfiles\4993F4-1.cdr

Linfield-Controlled Commercial Property Development

The Linfield-controlled retail property, located in Sub-Area “D”, includes 28 acres located east of Highway 99W, south of Keck Drive, and north of Booth Bend Road. Access to the property will occur via Booth Bend Road and Keck Drive. It is anticipated that the property will buildout with shopping center uses over the next 10 years.

For the purposes of estimating trip generation, it is assumed that the 28-acre retail property will develop with 25-percent coverage. This results in approximately 300,000 square feet of developable retail space. Using ITE trip generation rates for shopping centers, the retail property is estimated to generate 1,300 total weekday p.m. peak hour trips (625 in, 675 out) at full buildout. After accounting for pass-by trips, the development is expected to generate approximately 920 net new trips (435 in, 485 out) during the weekday p.m. peak hour.

Linfield Campus Expansion

Linfield College, located in Sub-Area “D”, is planning to expand their campus and develop

70 acres of new housing, classrooms, and physical plants. Access to the expansion will likely occur via a new north-south connection between Booth Bend Road and Keck Drive located east of Highway 99W. Completion of the expansion is expected to occur within the next 10 years.

Trip generation rates for the Linfield expansion were developed using the existing student-to-campus size ratio. Linfield College currently has an enrollment of 1,518 full-time students at the McMinnville campus and an existing campus size of 193 acres, resulting in a rate of 7.9 students per acre. Assuming that the ratio of students to campus size remains similar in the future, the 70-acre expansion could accommodate approximately 550 additional students. Using the ITE trip generation rate for a University/College, the expansion could result in approximately 230 new trips (70 in, 160 out) during the weekday p.m. peak hour.

Table 4-1 is a summary of the trip-generation estimates for each development during the weekday p.m. peak hour. The location of each individual development is shown on Figure 3-1.

TABLE 4-1

Trip Generation							
Land Use	Sub Area	ITE Code	Size	Daily Trips	Weekday PM Peak Hour		
					Total	In	Out
Home Improvement Store <i>(Less Pass-by Trips, 20%)</i>	B	862	146,730 sf	5,255 <i>(1,050)</i>	420 <i>(80)</i>	200 <i>(40)</i>	220 <i>(40)</i>
Rice Property Retail Pads <i>(Less Pass-by Trips, 30%)</i>	B	820	107,000 sf	7,120 <i>(2,135)</i>	655 <i>(200)</i>	315 <i>(100)</i>	340 <i>(100)</i>
Linfield-Controlled Commercial Property <i>(Less Pass-by Trips, 30%)</i>	D	820	300,000 sf	13,815 <i>(4,145)</i>	1,300 <i>(380)</i>	625 <i>(190)</i>	675 <i>(190)</i>
Linfield College Expansion	D	550	550 Students	1,665	230	70	160
Total Driveway Trips				27,855	2,605	1,210	1,395
Total Pass-by Trips				(7,330)	(660)	(330)	(330)
NET NEW TRIPS				20,525	1,945	880	1,065

As shown in Table 4-1, full buildout of the vacant parcels in the Interchange Access Management Area is forecast to generate approximately 27,855 weekday daily trips with 2,605 trips during the weekday p.m. peak hour. After accounting for pass-by trips, the vacant parcels could generate approximately 20,525 net new weekday daily trips, of which 1,945 net new trips are forecast to occur during the weekday p.m. peak hour.

Baseline Traffic Volumes

Baseline traffic volumes were developed for three analysis years: 2003 (short-term), 2010 (medium-term), and 2022 (long-term). The weekday p.m. peak hour was evaluated for all three analysis years. Table 4-2 shows the traffic volume components assumed in the growth forecasts for each analysis year. As shown in Table 4-2, an annual growth rate of 2.5 percent was applied to the existing volumes for all analysis periods. Full buildout of the Rice property is assumed to occur by 2003. Full buildout of the Linfield-controlled commercial property and the Linfield Campus Expansion is expected to occur by 2010. The traffic volumes for the planned developments shown in Table 4-1 were assigned to the roadway system using the trip distribution patterns shown in Figure 4-2. Figure 4-3 shows the baseline traffic volume forecasts for all study periods.

Intersection Operational Analysis

A level-of-service analysis was performed for the study intersections using the Synchro traffic analysis software tool. The analysis was performed for 2003, 2010, and 2022 baseline traffic conditions during the weekday p.m. peak hour. Table 4-3 is a summary of the level-of-service analyses at the study intersections.

2003 Conditions

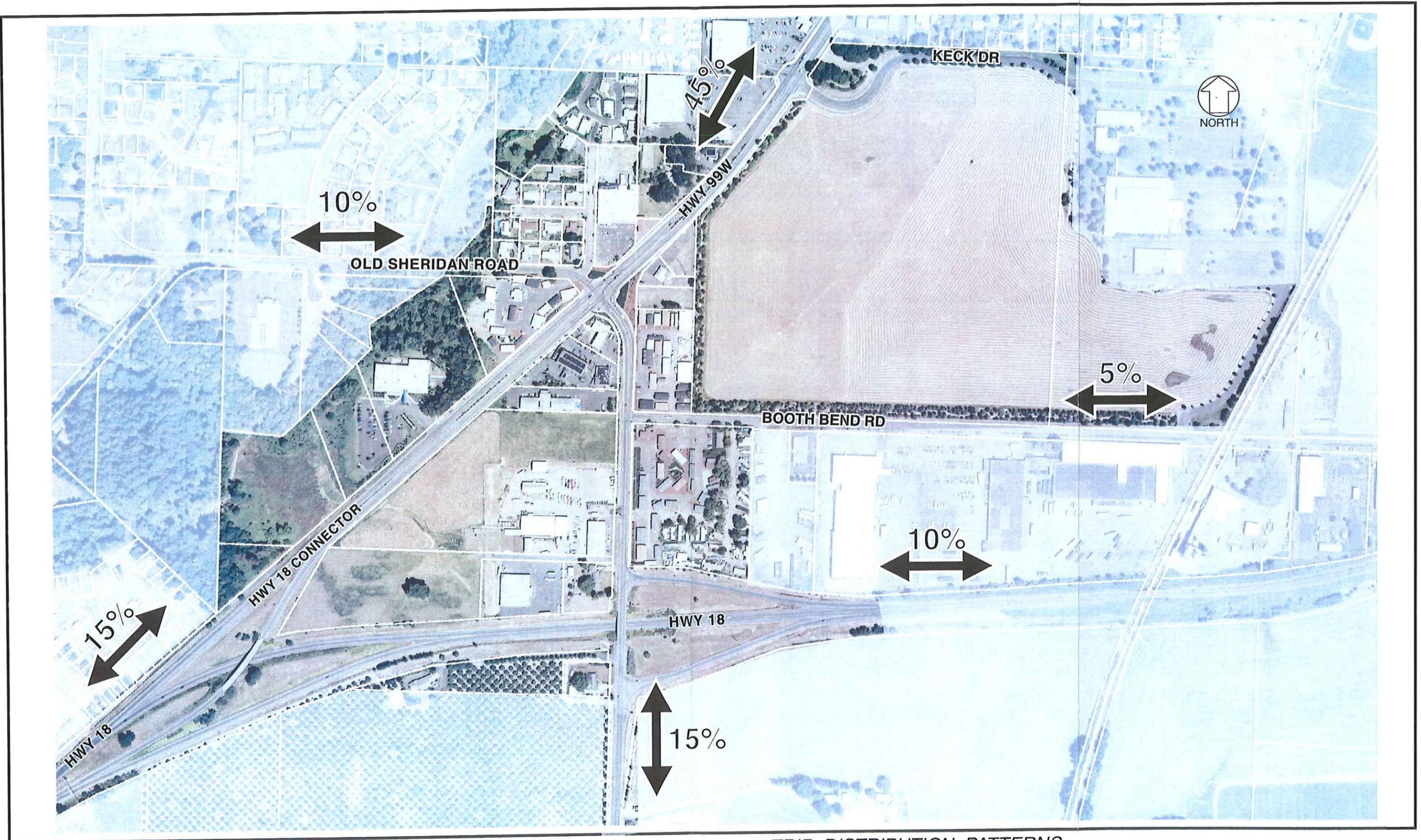
As shown in Table 4-3, under 2003 conditions the Old Sheridan Road/Highway 99W intersection is forecast to operate with a volume-to-capacity ratio greater than the mobility standard of 0.80 for Regional Highways. In addition, the stop-controlled westbound movement at the Highway 99W/Highway 18 eastbound off-ramp intersection is forecast to operate with a volume-to-capacity ratio of 0.91 and at level-of-service “F.”

2010 Conditions

Without any improvements in place, the Old Sheridan Road/Highway 99W, Booth Bend Road/Highway 99W, and Highway 18 Eastbound Ramp Terminal/Highway 99W intersections are forecast to operate over capacity under 2010 forecast conditions. With the addition of dual left-turn lanes on the southbound Highway 99W approach and a second right-turn lane on the

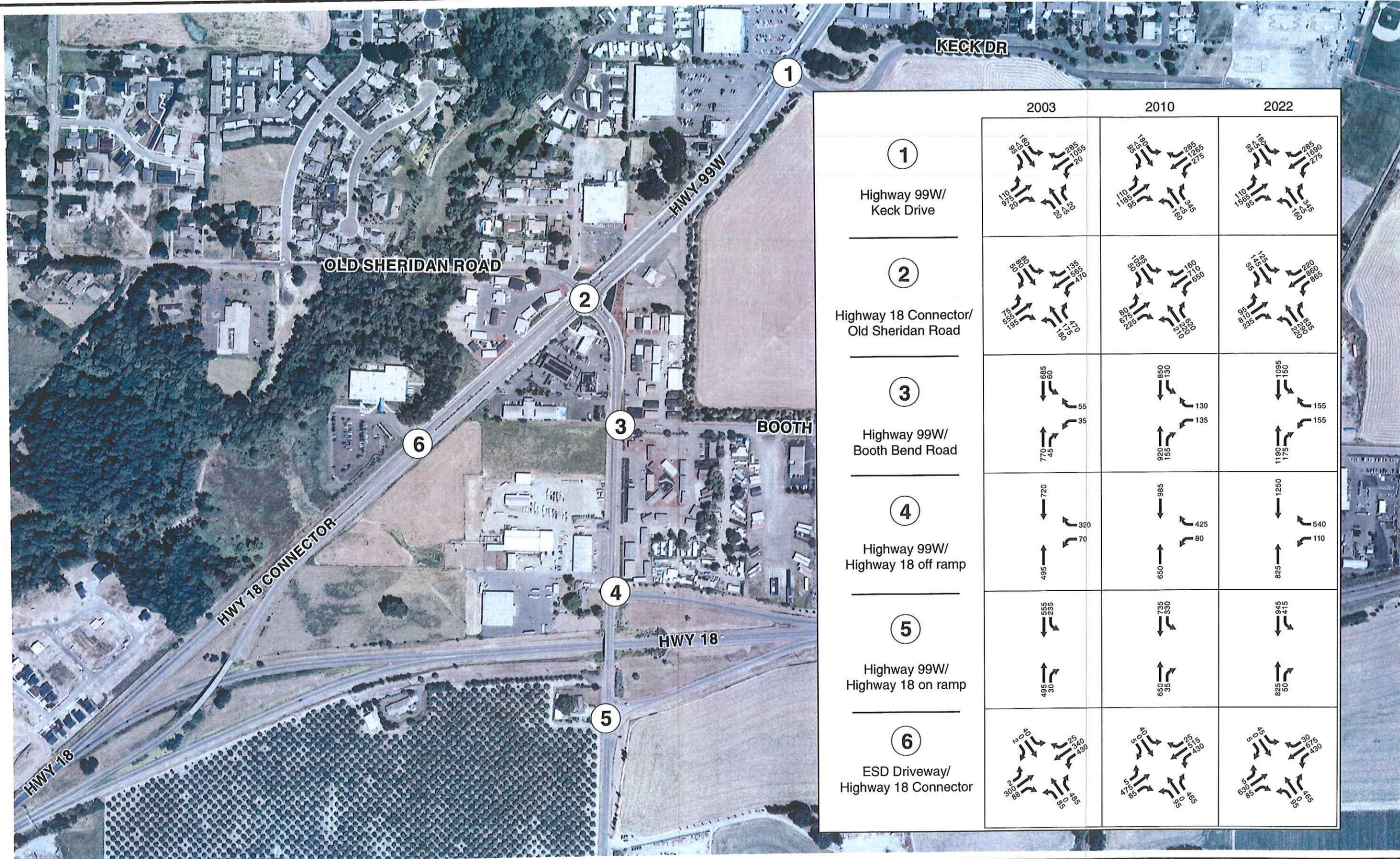
TABLE 4-2

Baseline Traffic Volume Components				
Analysis Year	2.5% Annual Growth of Existing Volume	Full Buildout of Rice Property	Full Buildout of Linfield-Controlled Commercial Property	Full Buildout Linfield Campus
Year 2003	■	■		
Year 2010	■	■	■	■
Year 2022	■	■	■	■



**TRIP DISTRIBUTION PATTERNS
FOR FUTURE PROPERTY DEVELOPMENT**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002



**BASELINE TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002

TABLE 4-3

Future Baseline Traffic Operations, Weekday PM Peak Hour						
Intersection	Year 2003		Year 2010		Year 2022	
	v/c Ratio	Level of Service	v/c Ratio	Level of Service	v/c Ratio	Level of Service
Keck Drive/Highway 99W Mitigated ¹	0.70	B	0.96	D	> 1	F
	-	-	0.74	C	0.89	C
Old Sheridan Road/Highway 99W Mitigated ¹	0.89	D	> 1	F	0.89	C
	-	-	0.95	E	0.85	C
Booth Bend Road/Highway 99W Mitigated ¹	0.46	E	> 1	F	>1	F
	-	-	0.55	B	0.68	B
Highway 18 EB Ramp Terminal/Highway 99W Mitigated ¹	0.91	F	> 1.0	F	> 1	B
	-	-	0.90	C	0.69	C
Highway 18 WB Ramp Terminal/Highway 99W	0.31	A	0.40	A	0.54	B
Highway 18 Connector/ ESD Driveway	0.46	A	0.50	B	0.58	C

Note: v/c = volume-to-capacity ratio

1. See Figure 4-1 for mitigated lane configurations.

northbound Highway 99W approach at the Old Sheridan Road/Highway 99W intersection, a volume-to-capacity ratio of 0.95 can be achieved. To accommodate this lane widening, Highway 99W would require a four-lane section with a raised-curb median between Old Sheridan Road and Booth Bend Road. The Booth Bend Road/Highway 99W intersection would operate acceptably under 2010 conditions with a four-lane section with a raised-curb median in place and installation of a traffic signal. The Highway 18 Eastbound Ramp Terminal/Highway 99W intersection would operate with installation of a traffic signal and construction of a separate westbound right-turn lane.

2022 Conditions

Under 2022 forecast conditions, a four-lane section with a raised-curb median is required on Highway 99W from Old Sheridan Road to south of the Highway 18 ramps. In addition, the Old Sheridan Road/Highway 99W intersection requires an additional lane on the northbound Highway 99W approach to provide a separate left-turn lane, a separate through lane, and dual right-turn lanes. The Old Sheridan Road approach at this intersection requires a separate left-turn lane and a shared through/right-turn lane. The Keck Drive/Highway 99W intersection requires separate right-turn lanes on the northbound and southbound approaches, and a separate westbound right-turn lane.

SECTION 5

Opportunities and Constraints

OPPORTUNITIES AND CONSTRAINTS

As part of the development of the IAMP, the Technical Advisory Committee (TAC) collaboratively developed and evaluated various interchange and roadway alignment concepts for the Highway 18/Highway 99W Interchange Access Management Area. The concepts were developed for a 20-year planning horizon and assume full buildout of the undeveloped properties in the site vicinity. The concepts were evaluated using a screening process to determine the most promising concepts worthy of a detailed assessment.

This section provides a description of the improvement concepts, evaluation criteria, and initial screening results.

CONCEPT DEVELOPMENT

A series of concepts were developed for the Highway 18/99W Interchange Access Management Area through a design charette process. These concepts were documented using sketch-level roadway and interchange concepts on an aerial map. The concepts are intended to address potential interchange reconfigurations and roadway alignment options in the 20-year planning horizon (2022 conditions). Furthermore, the concepts were developed assuming no construction, cost, or right-of-way constraints.

As indicated by the baseline conditions analysis (see Chapter 4.0), Highway 99W will require a four-lane section with a raised-curb median from Old Sheridan Road to the south of the Highway 18 Eastbound Ramp Terminal to achieve acceptable operations under 2022 conditions. In addition to this improvement, all concepts assume signalization of the Highway 99W/Booth Bend Road intersection. Figures 5-1 through 5-11 illustrate all of the concepts. A description of each concept follows.

Concept #1: No New Access to Highway 99W

Concept #1 represents the baseline condition (see Chapter 4.0). All access to the Rice property would occur via an east leg of the Highway 18 Connector/ESD Driveway intersection. This intersection would be signalized under this scenario. In addition, Concept #1 assumes that Highway 99W would be widened to a four-lane section with a raised-curb median from Old Sheridan Road to the south of the Highway 18 ramps. Two variations of Concept #1 were developed. Concept #1A assumes that the Booth Bend Road/Highway 99W intersection remains in its existing location. Concept #1B assumes that the Booth Bend Road/Highway 99W intersection is realigned to the south approximately 200 feet to increase the spacing from the Old Sheridan Road/Highway 99W intersection.

Concept #2: Realignment of Highway 99W and Old Sheridan Road

Under Concept #2, the Highway 18 Connector would form a "T" intersection at Highway 99W and Highway 99W would be realigned to allow vehicles continuing on Southbound Highway 99W or Northbound Highway 99W to be through movements rather than turn movements, as is the case under existing conditions. Five variations assuming different locations of the connector and Old Sheridan Road were developed for this scenario. Concept #2A and #2B assume that the Highway 18 Connector would intersect Highway 99W approximately 500 feet south of the existing Old Sheridan Road alignment. Booth Bend Road would be realigned slightly to the north to intersect Highway 99W directly opposite the realigned Highway 18 Connector. Concept #2A assumes access to the Rice property would occur opposite the realigned Old Sheridan Road approach, and Concept #2B assumes access to the Rice property would occur opposite the ESD Driveway.

Concept #2C assumes Old Sheridan Road would form a "T" intersection at Hwy 99W, and the Highway 18 Connector would intersect Highway 99W directly opposite Booth Bend Road. Both intersections would be signalized.

Concept #2D assumes Old Sheridan Road would be realigned to intersect the Highway 18 Connector and continue east to connect to Highway 99W directly opposite Booth Bend Road.

Concept #2E assumes the Highway 18 Connector would form a “T” intersection at Highway 99W just east of where the roads currently intersect. Old Sheridan Road would form a “T” intersection on the Highway 18 Connector and would operate as a two-way stop-controlled intersection. Booth Bend Road would be extended west to intersect the Highway 18 Connector directly opposite the ESD Driveway. Traffic signals would be installed at the Highway 99W/Booth Bend Road and Highway 18 Connector/Booth Bend Road Extension intersections.

Concept #3: Booth Bend Road Extension

Concept #3 assumes all study roadways maintain their existing alignment and that Booth Bend Road is extended west to intersect the Highway 18 Connector. Three alignment and traffic control variations were developed for Concept #3. Concept #3A assumes Booth Bend Road will intersect Highway 99W in its existing alignment. Concept #3B assumes Booth Bend Road will intersect Highway 99W approximately 200 feet south of its existing alignment. Both #3A and #3B assume a traffic signal at the Highway 18 Connector/ESD Driveway/Booth Bend Road Extension intersection. Concept #3C assumes the Booth Bend Road Extension would intersect the Highway 18 Connector north of the ESD driveway and would operate with right-in/right-out/left-in access.

Concept #4: Booth Bend Road Extension with Offset at Highway 99W

Concept #4 is identical to Concept #3A, with the exception that Booth Bend Road and the Booth Bend Road Extension would be offset by approximately 200 feet. To the east of Highway 99W, Booth Bend Road would maintain its current alignment and would form a signalized “T” intersection at Highway 99W. The Booth Bend Road Extension, which would provide

access to the Rice property, would intersect Highway 99W approximately 200 feet south of Booth Bend Road and would operate with right-in/right-out/left-in access.

Concept #5: Highway 18 Westbound Ramp Relocation

Concept #5 assumes the existing Highway 18 Westbound Ramp Terminal would be removed and a new ramp constructed at the Highway 18 Connector. Two variations for access to the Rice property were considered under this concept. Concept #5 assumes all access to the Rice property would occur on Highway 99W opposite Booth Bend Road.

Concept #6: Highway 18/99W East Diamond Interchange

Concept #6 assumes the construction of a westbound on-ramp and eastbound off-ramp directly opposite the existing Highway 18 ramps at Highway 99W. Both ramp terminals would be signalized. The existing ramps to/from the Highway 18 Connector and Highway 18 would be abandoned. Under this concept the Highway 18 Connector would be a dead-end road that would provide access to the ESD and Rice property.

Concept #7: Highway 18/99W East Diamond Interchange with Highway 99W and Booth Bend Road Realignment

Concept #7 is identical to Concept #6, with the exception that Highway 99W would be realigned to serve as the primary north-south travel route at Old Sheridan Road. The Highway 18 Connector would be realigned to form a “T” intersection at Old Sheridan Road approximately 450 feet west of Highway 99W. This intersection would likely operate with traffic signal control. In addition, Booth Bend Road would be realigned to intersect Highway 99W directly opposite Old Sheridan Road.

Concept #8: Highway 18/99W East Diamond Interchange with Highway 99W Realignment

Concept #8 assumes the same Highway 18/Highway 99W interchange ramp configuration as Concept #6 and Concept #7. Concept #8 also assumes Highway 99W would be realigned to serve as the primary north-south travel route in the vicinity of Old Sheridan Road. In addition, Concept #8 assumes Booth Bend Road would intersect Highway 99W in its existing alignment and all access to/from the Rice property would occur via the west leg of the intersection. The Highway 99W/Booth Bend Road would operate with traffic signal control.

Concept #9: Highway 18/99W West Diamond Interchange

Concept #9 assumes a full-diamond interchange would be constructed on Highway 18 at the Highway 18 Connector. The Highway 18 Connector would extend beyond Highway 18 and would likely tie back into Highway 99W south of Highway 18. Under this concept, access to the Rice property would occur via a signalized connection on Highway 99W opposite Booth Bend Road.

EVALUATION CRITERIA

Based on the OIIP and OAR 734-051, a list of criteria was developed by the TAG to evaluate the improvement concepts. The criteria include:

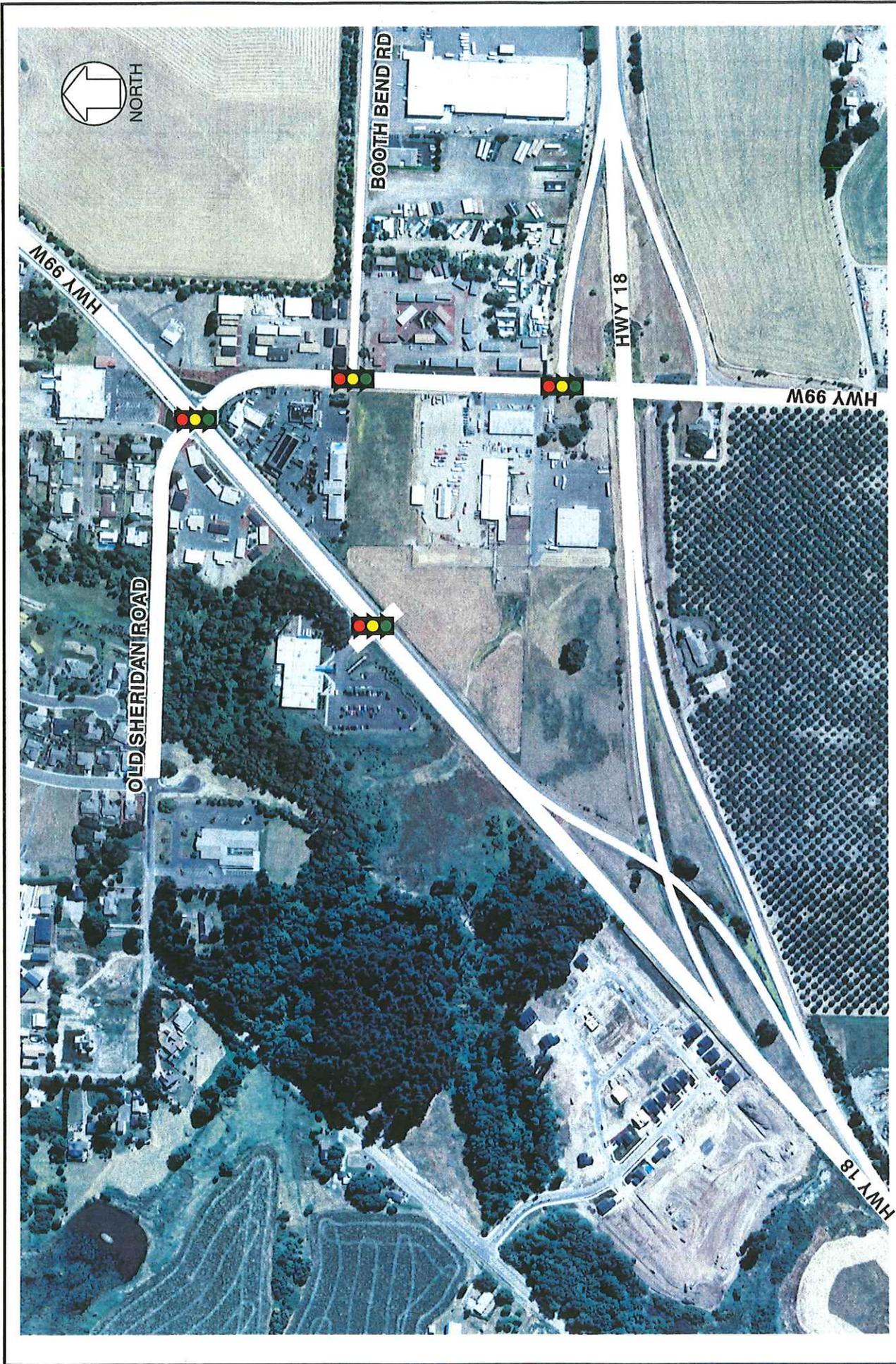
- Traffic operations;
- Right-of-way acquisition required;
- Property and land use impacts; and
- Construction cost.

As summarized in the Existing Conditions and Baseline Conditions sections, the Old Sheridan Road/Highway 99W and Highway 99W/Booth Bend Road intersections are the more critical study intersections and are the primary intersections affected by the concepts illustrated in Figures 5-1 through 5-11. For this reason, the operations evaluation for the nine concepts was performed based on an assessment of the volume-to-capacity ratios for the Old Sheridan Road/Highway 99W and Highway 99W/Booth Bend Road intersections under 2022 weekday p.m. peak hour conditions. Of these, the Old Sheridan Road/Highway 99W intersection is the more critical intersection. As previously stated, ODOT's mobility standard for Regional Highways is 0.80. Operations at the remaining study intersections are similar for all concepts. The traffic operations worksheets for all concepts are provided in the Technical Appendix.

The remaining criteria (right-of-way, property and land use impacts, and construction cost) were evaluated qualitatively based on an assessment of the amount of new road construction required and the impacts associated with each concept. A plus (+), zero (0), or minus (-) score was assigned to each concept. A plus (+) indicates a favorable impact, a zero (0) indicates a neutral impact, and a minus (-) indicates a negative impact. Concepts that did not require additional right-of-way received a plus (+) rating for the "Right-of-Way" and "Construction Cost" categories. Concepts that required further amendments to the City of McMinnville Comprehen-

sive Plan (i.e., UGB expansion) and concepts that divide existing parcels and require redevelopment received a minus (-) rating for "Property and Land Use Impacts." For cases where the TAG did not reach consensus or the impact was not clearly known, a mixed rating was assigned (e.g., 0/-). The results of the initial screening results of the various concepts are shown in Table 5-1.

As shown in Table 5-1, the Technical Advisory Committee identified two concepts that provide potential benefit to traffic operations at the Old Sheridan Road/Highway 99W intersection in comparison to the Baseline Condition (Concept #1A/B). These include Concept #2 (variation 'E' only) and Concept #3 (variations 'A/B', and 'C'). The remaining concepts either require significant road improvements, right-of-way acquisition, and/or do not provide operational benefits to the critical Old Sheridan Road/Highway 99W intersection. Consequently, these remaining concepts were excluded from further evaluation and consideration. A summary of the detailed operations analysis for Concepts #1A/B, #2E, and #3A/B are provided in Section 6.0.

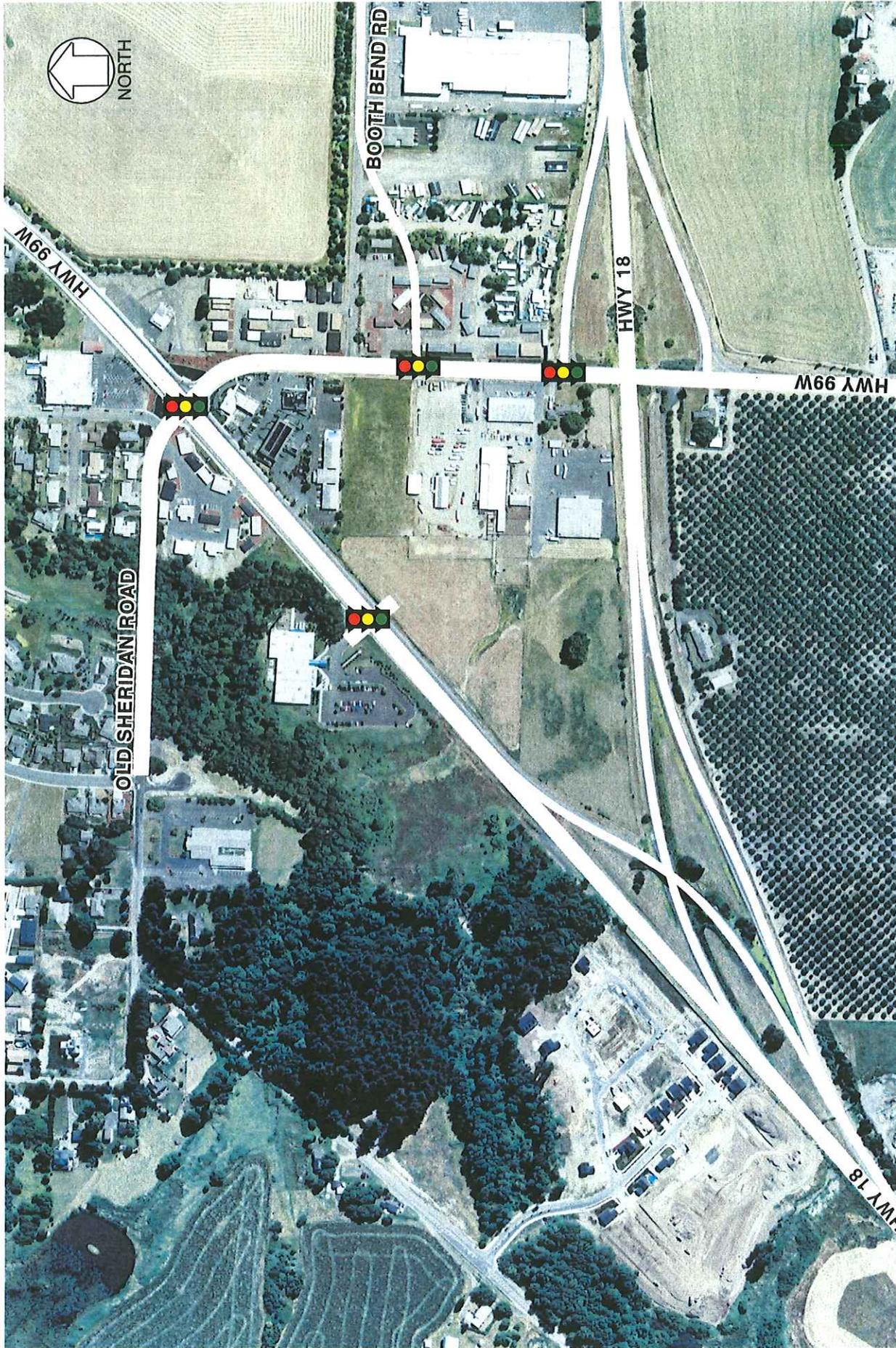


**CONCEPT #1A
NO NEW ACCESS TO HWY 99W
BASELINE CONDITION**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNIVILLE, OREGON
AUGUST 2002





**CONCEPT #1B
 NO NEW ACCESS TO HWY 99W
 AND REALIGNMENT OF BOOTH BEND ROAD**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

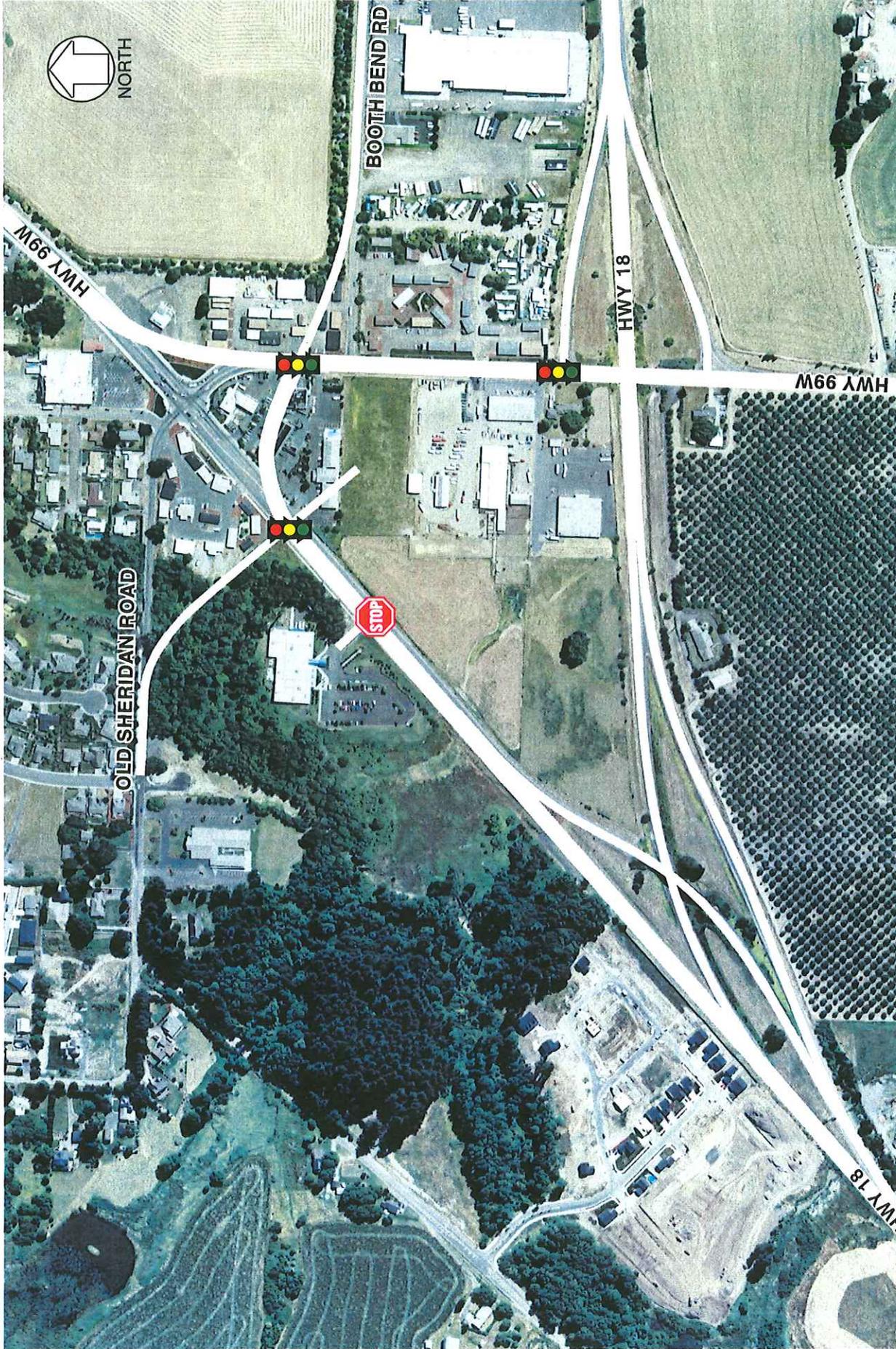
LEGEND



= SIGNALIZED INTERSECTION



FIGURE
5-1B



**CONCEPT #2A
REALIGNMENT OF HWY 99W AND OLD SHERIDAN ROAD**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON

AUGUST 2002

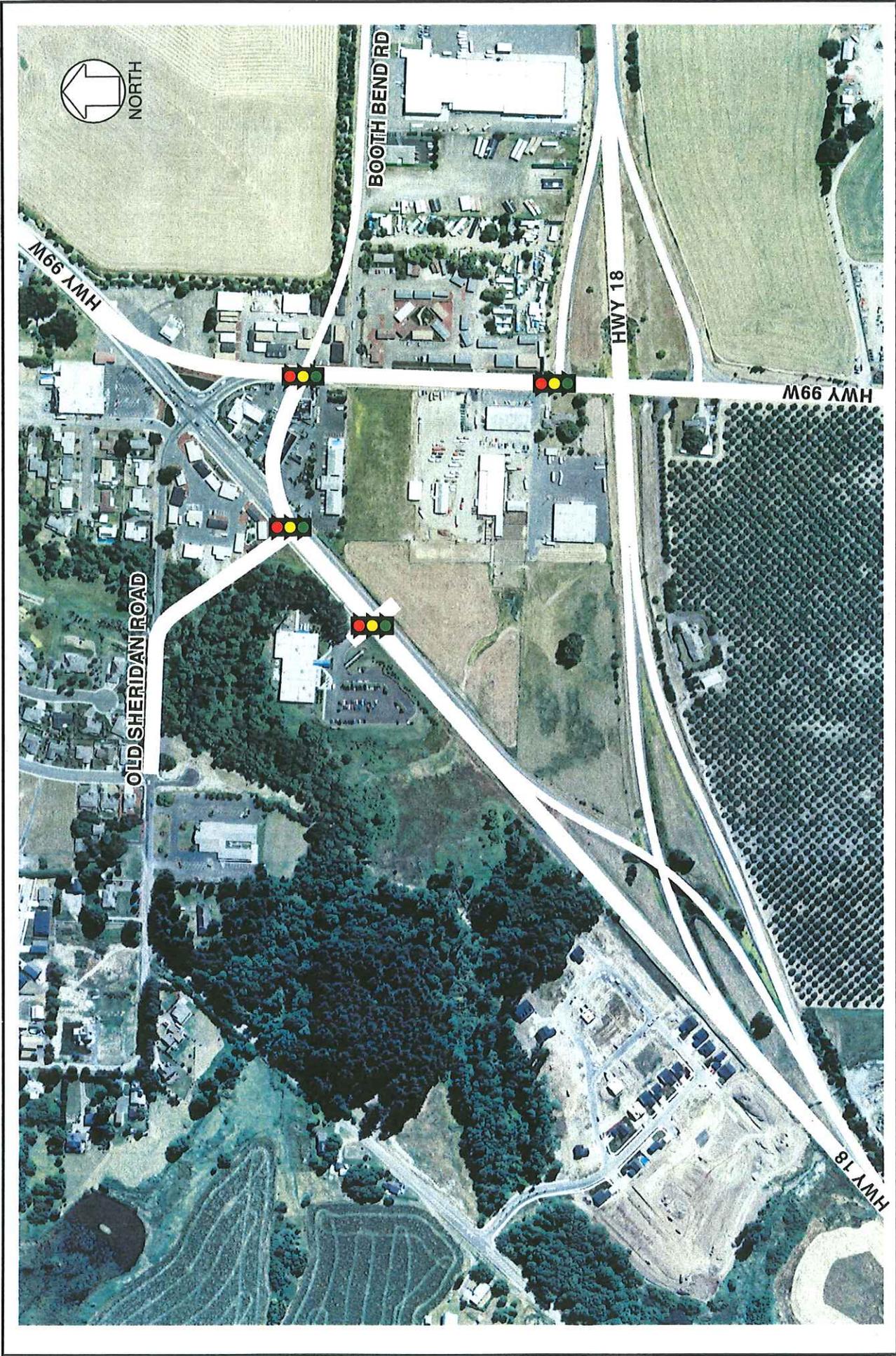
LEGEND

 = SIGNALIZED INTERSECTION

 = MINOR STREET
STOP-CONTROLLED INTERSECTION



**FIGURE
5-2A**



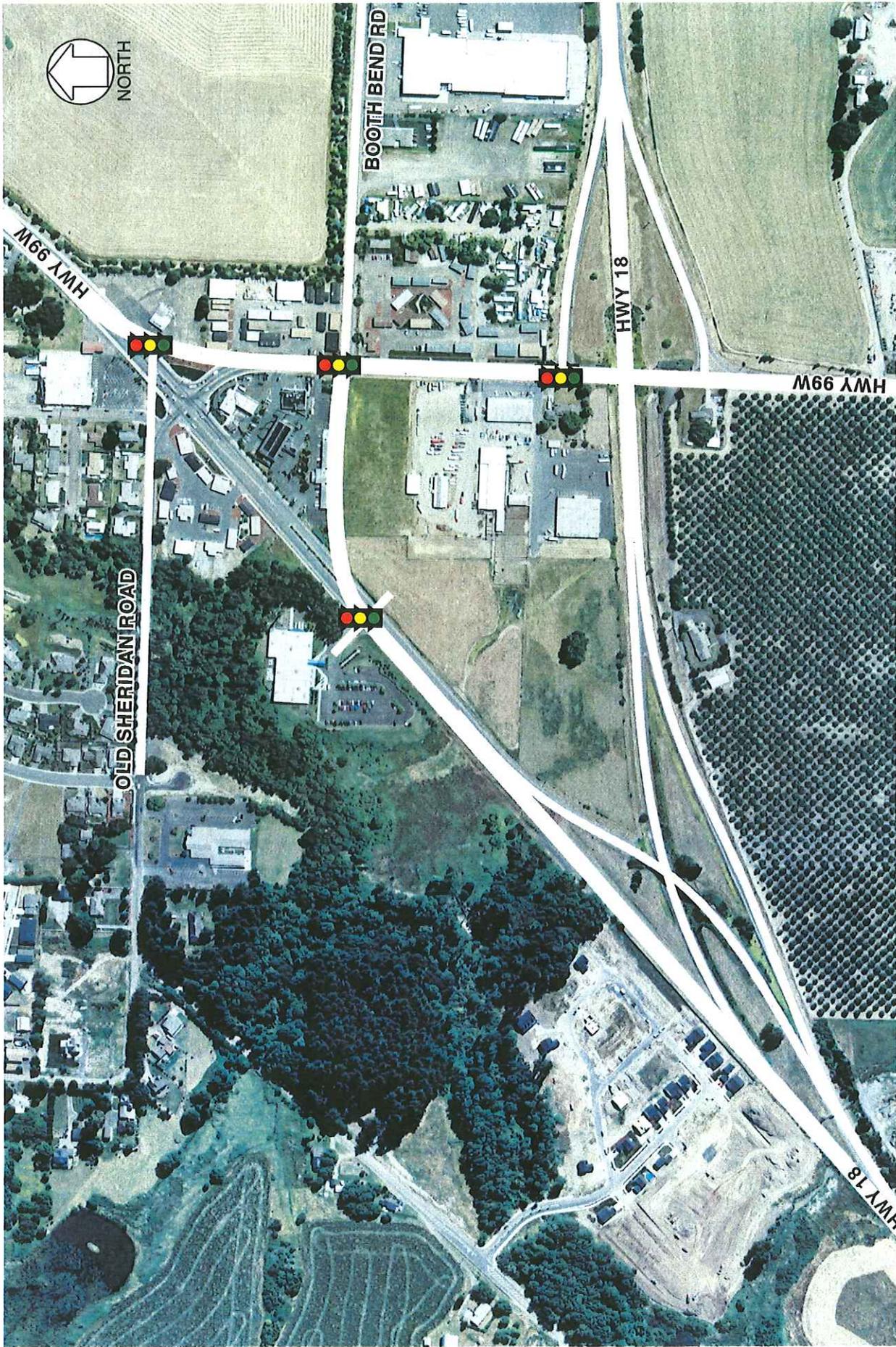
**CONCEPT #2B
REALIGNMENT OF HWY 99W AND OLD SHERIDAN ROAD**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002

LEGEND
 = SIGNALIZED INTERSECTION





**CONCEPT #2C
REALIGNMENT OF HWY 99W AND OLD SHERIDAN ROAD**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002

LEGEND

-  = SIGNALIZED INTERSECTION
-  = MINOR STREET STOP-CONTROLLED INTERSECTION

FIGURE 5-2C







**CONCEPT #2D
REALIGNMENT OF HWY 99W AND OLD SHERIDAN ROAD**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON

AUGUST 2002

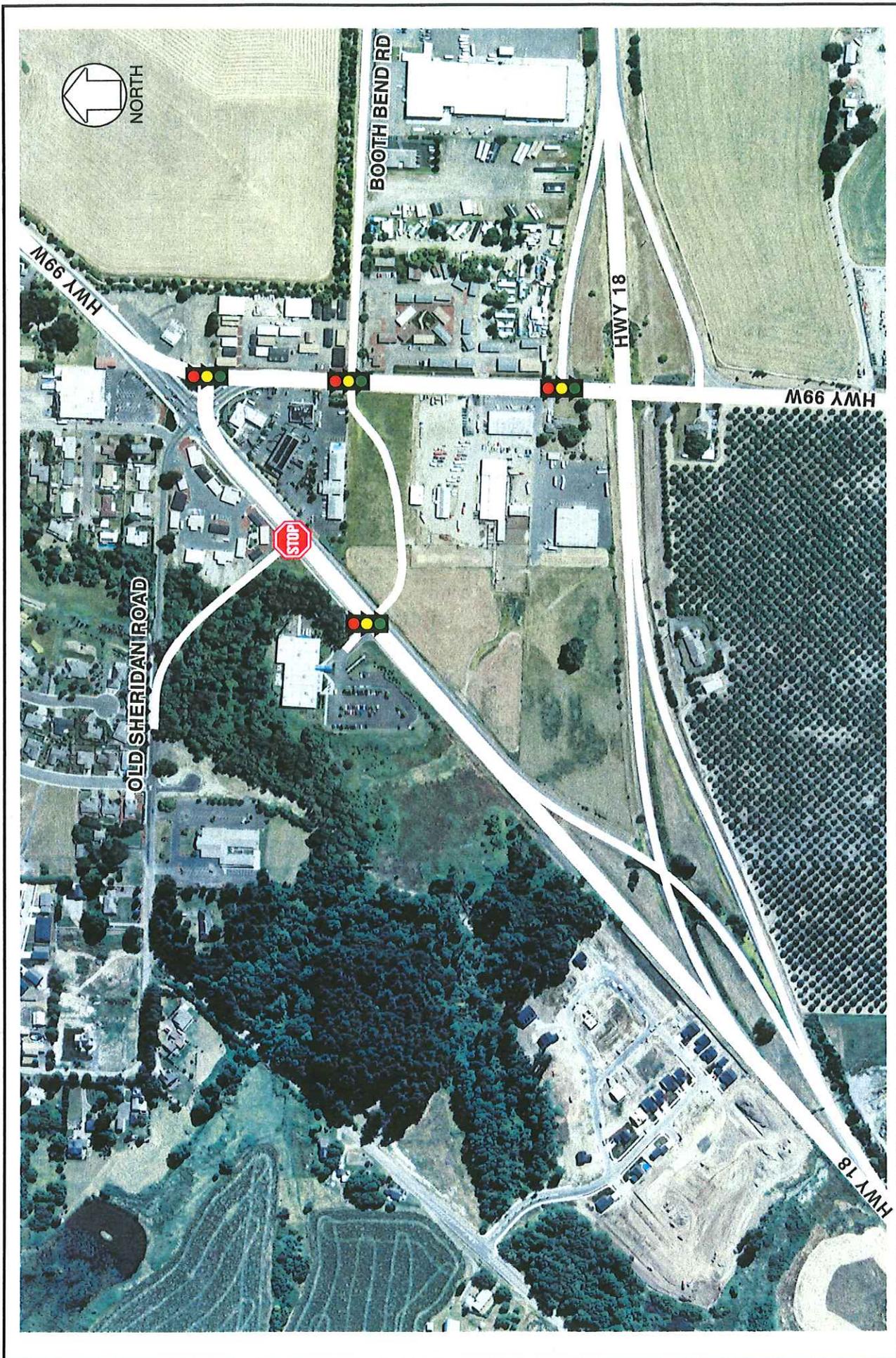
LEGEND

 = SIGNALIZED INTERSECTION

 = MINOR STREET
STOP-CONTROLLED INTERSECTION



FIGURE
5-2D



**CONCEPT #2E
REALIGNMENT OF HWY 99W AND OLD SHERIDAN ROAD**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNIVILLE, OREGON
AUGUST 2002

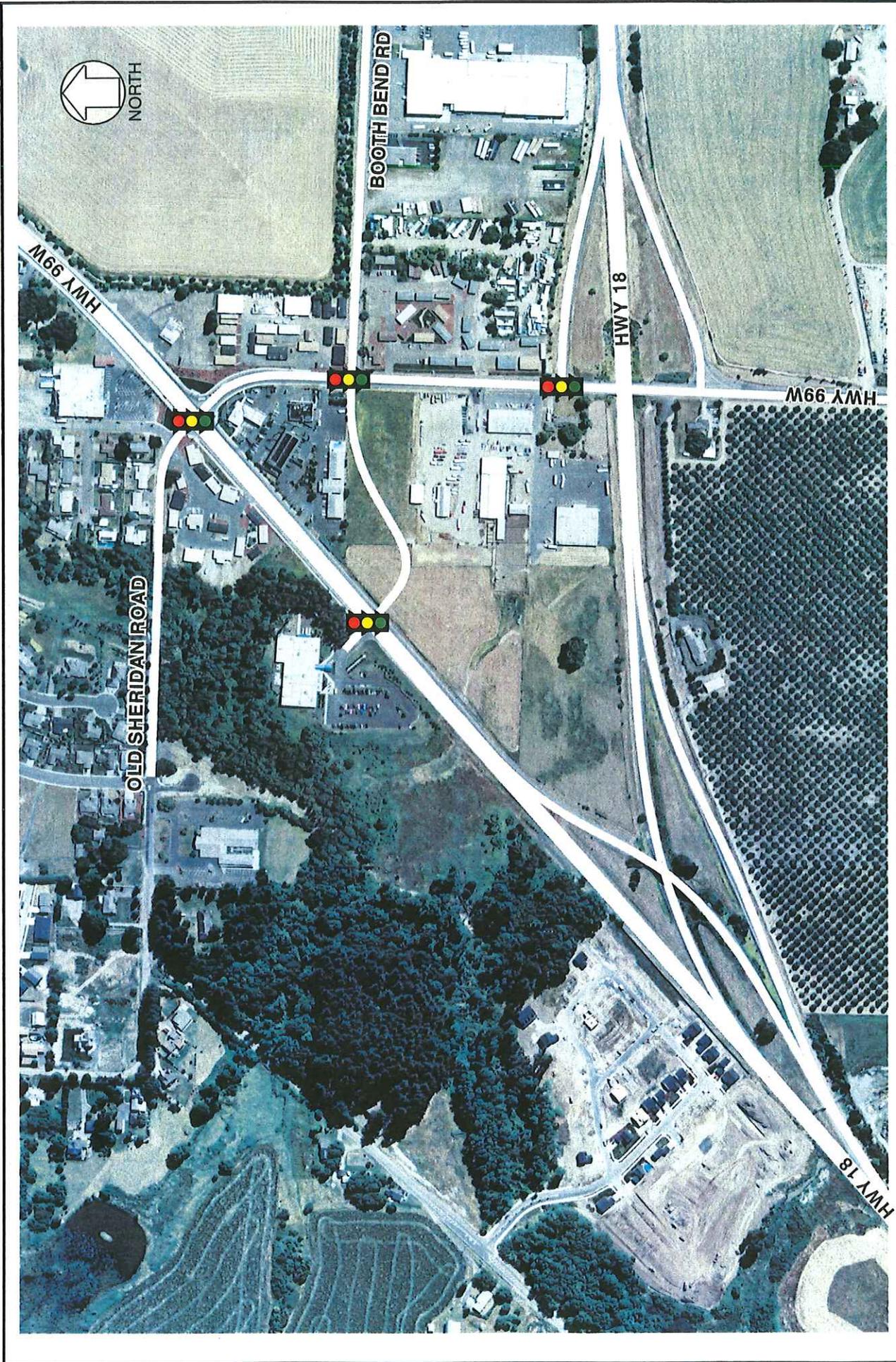
LEGEND

-  = SIGNALIZED INTERSECTION
-  = MINOR STREET STOP-CONTROLLED INTERSECTION

McMinnville



FIGURE 5-2E



LEGEND



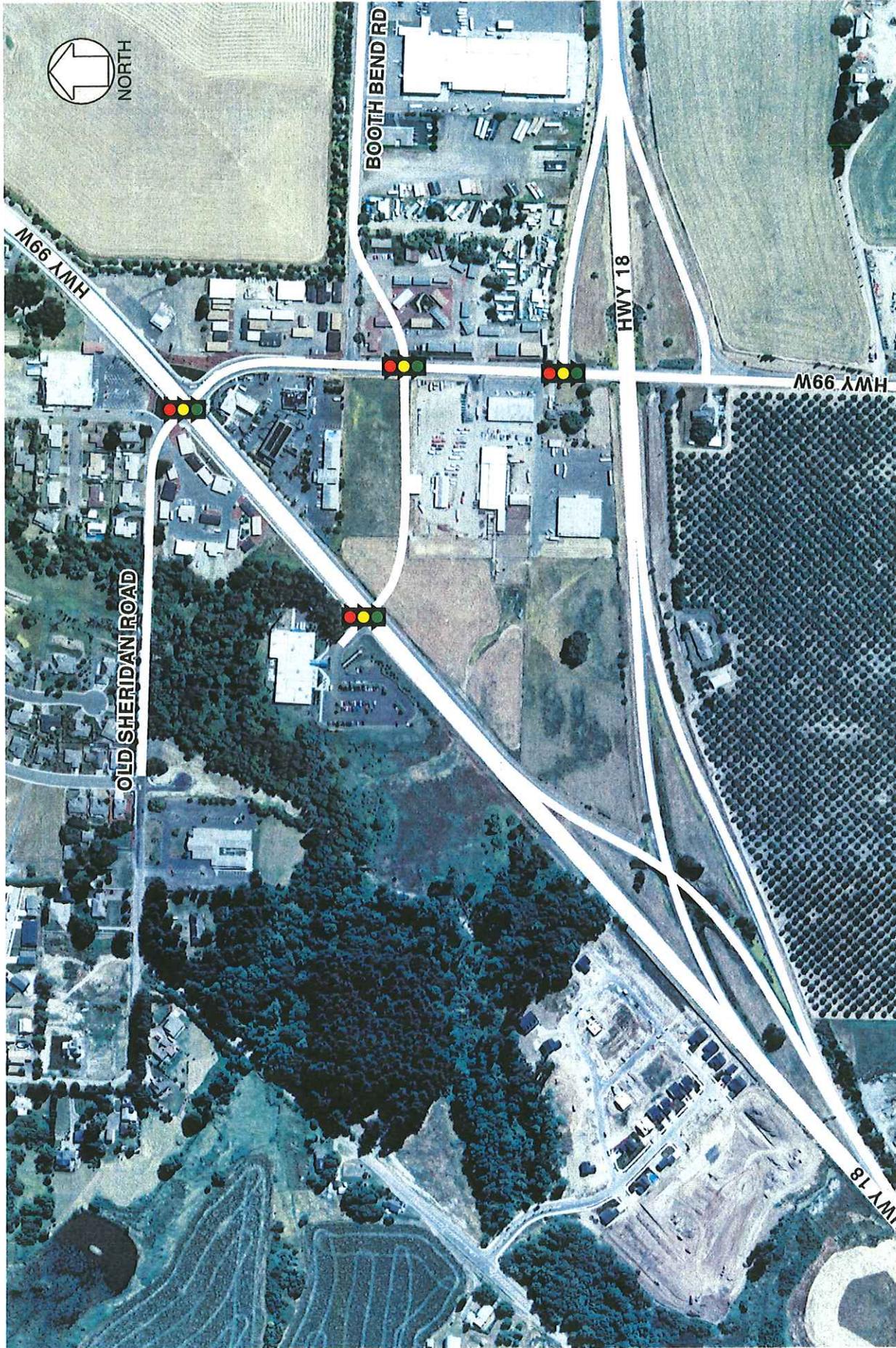
= SIGNALIZED INTERSECTION

**CONCEPT #3A
BOOTH BEND ROAD EXTENSION**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002



FIGURE
5-3A



LEGEND

 = SIGNALIZED INTERSECTION

**CONCEPT #3B
BOOTH BEND ROAD EXTENSION WITH REALIGNMENT**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON

AUGUST 2002



FIGURE
5-3B

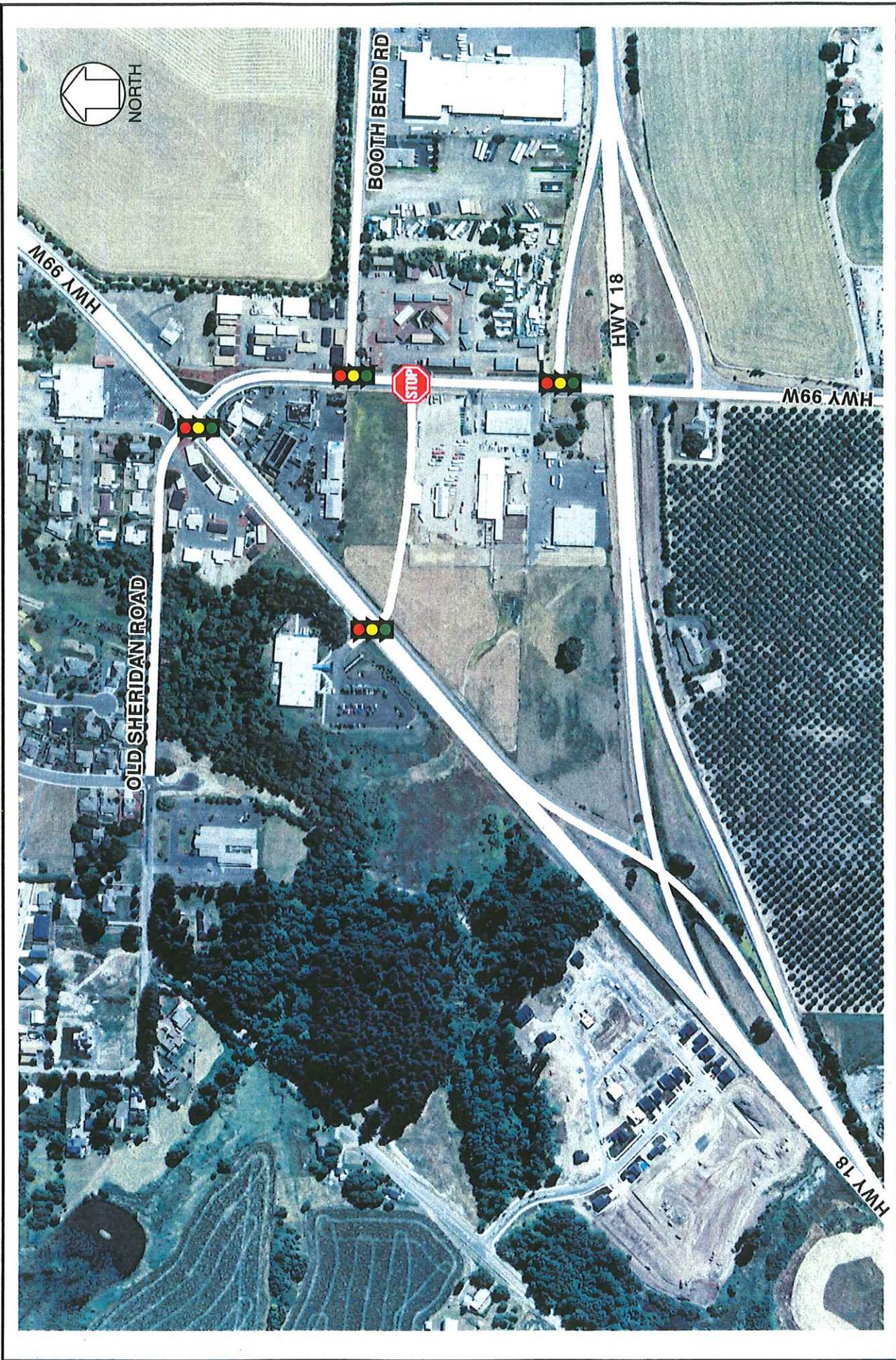


**CONCEPT #3C
 BOOTH BEND ROAD EXTENSION WITH
 NO LEFT-TURN EGRESS ON HIGHWAY 18 CONNECTOR**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

LEGEND

-  = SIGNALIZED INTERSECTION
-  = MINOR STREET STOP-CONTROLLED INTERSECTION



CONCEPT #4
BOOTH BEND EXTENSION WITH OFFSET AT HWY 99W

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

LEGEND

-  = SIGNALIZED INTERSECTION
-  = MINOR STREET STOP-CONTROLLED INTERSECTION

   **FIGURE 5-4**



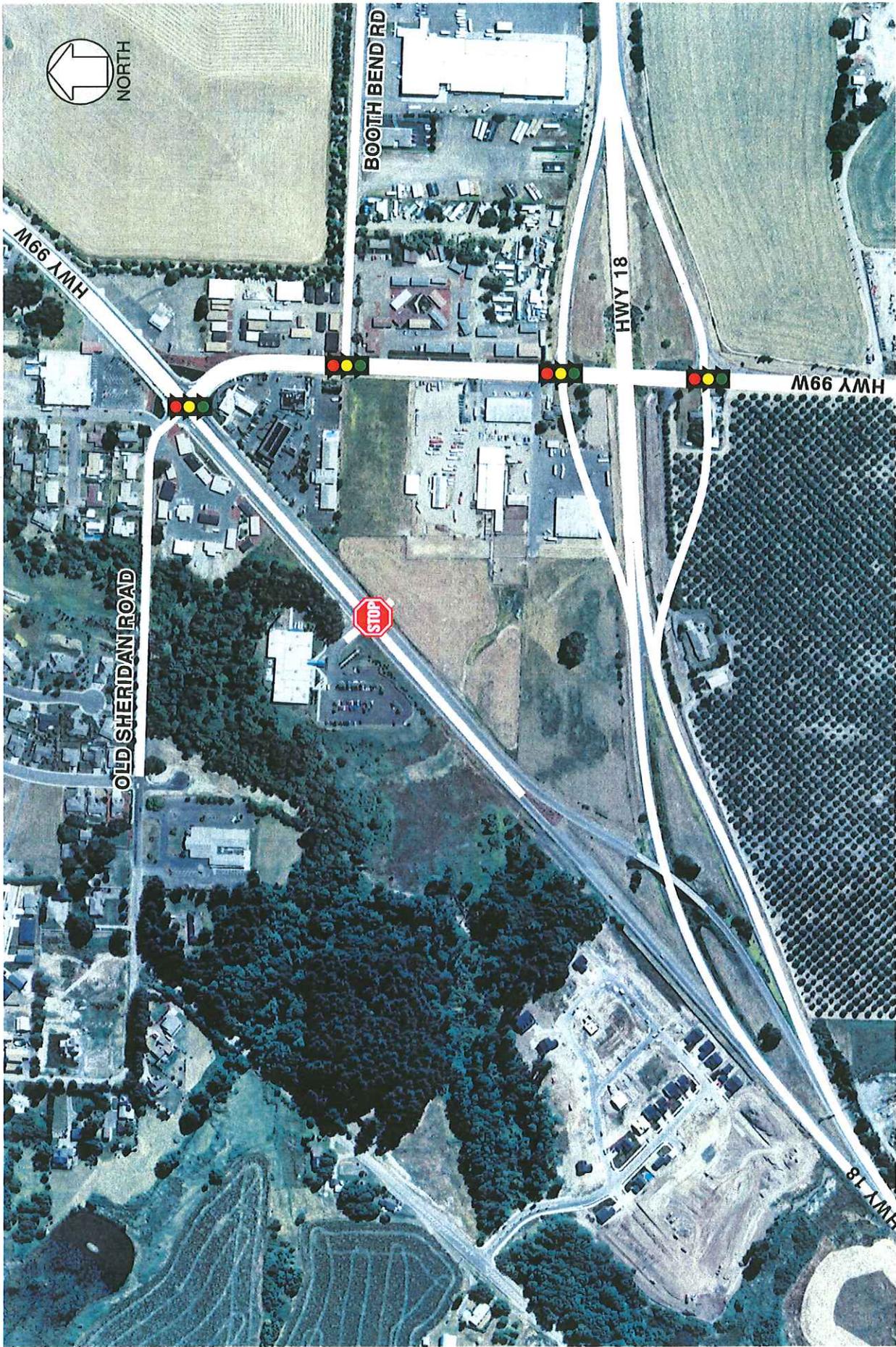
- LEGEND**
-  = SIGNALIZED INTERSECTION
 -  = MINOR STREET STOP-CONTROLLED INTERSECTION

**CONCEPT #5
HWY 18 WB RAMP RELOCATION**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002



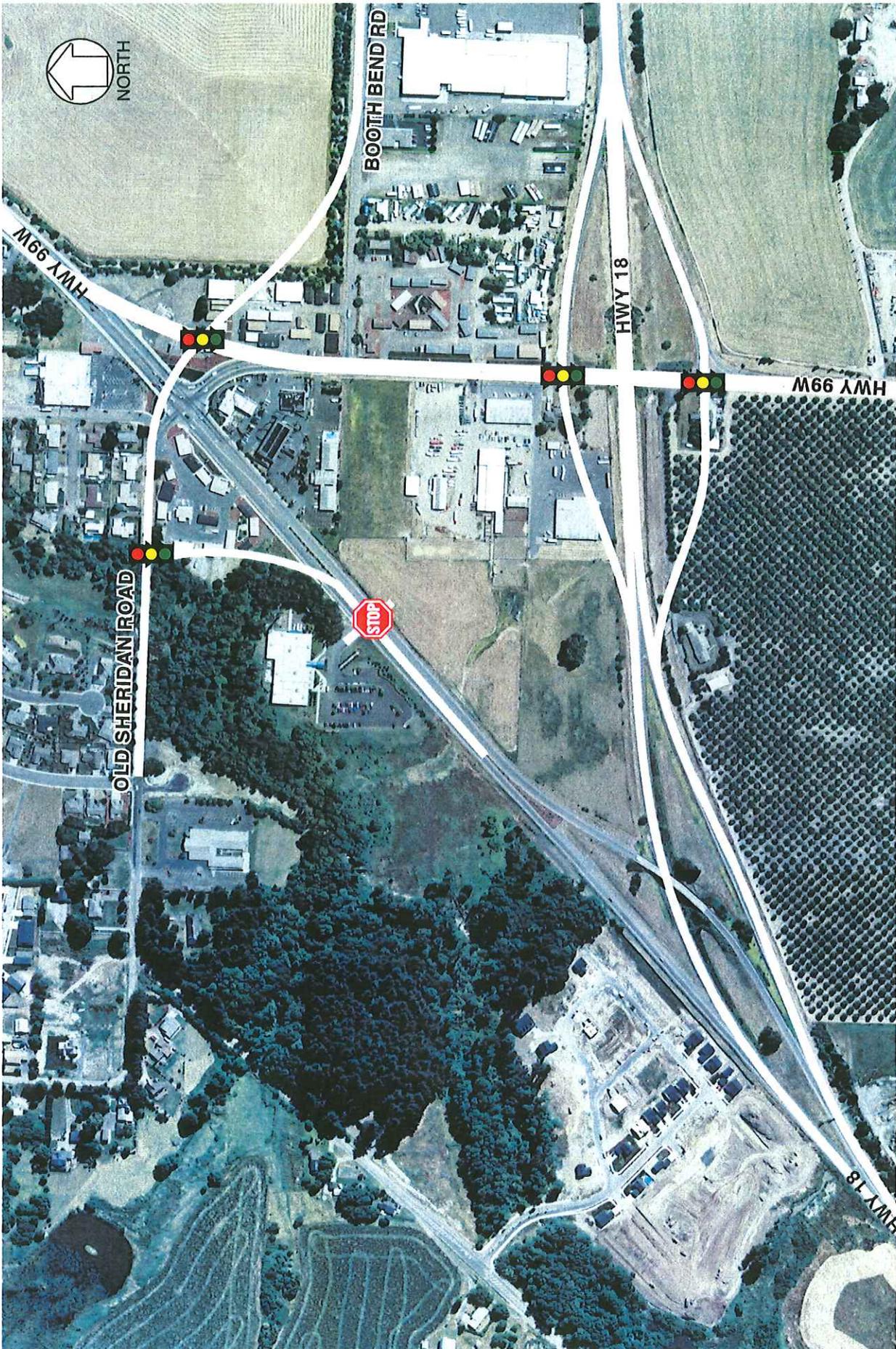
**FIGURE
5-5**



CONCEPT #6
HWY 18/99W EAST DIAMOND INTERCHANGE
 HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

LEGEND

-  = SIGNALIZED INTERSECTION
-  = MINOR STREET STOP-CONTROLLED INTERSECTION



CONCEPT #7
HWY 18/99W EAST DIAMOND INTERCHANGE
WITH HWY 99W AND BOOTH BEND REALIGNMENT

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

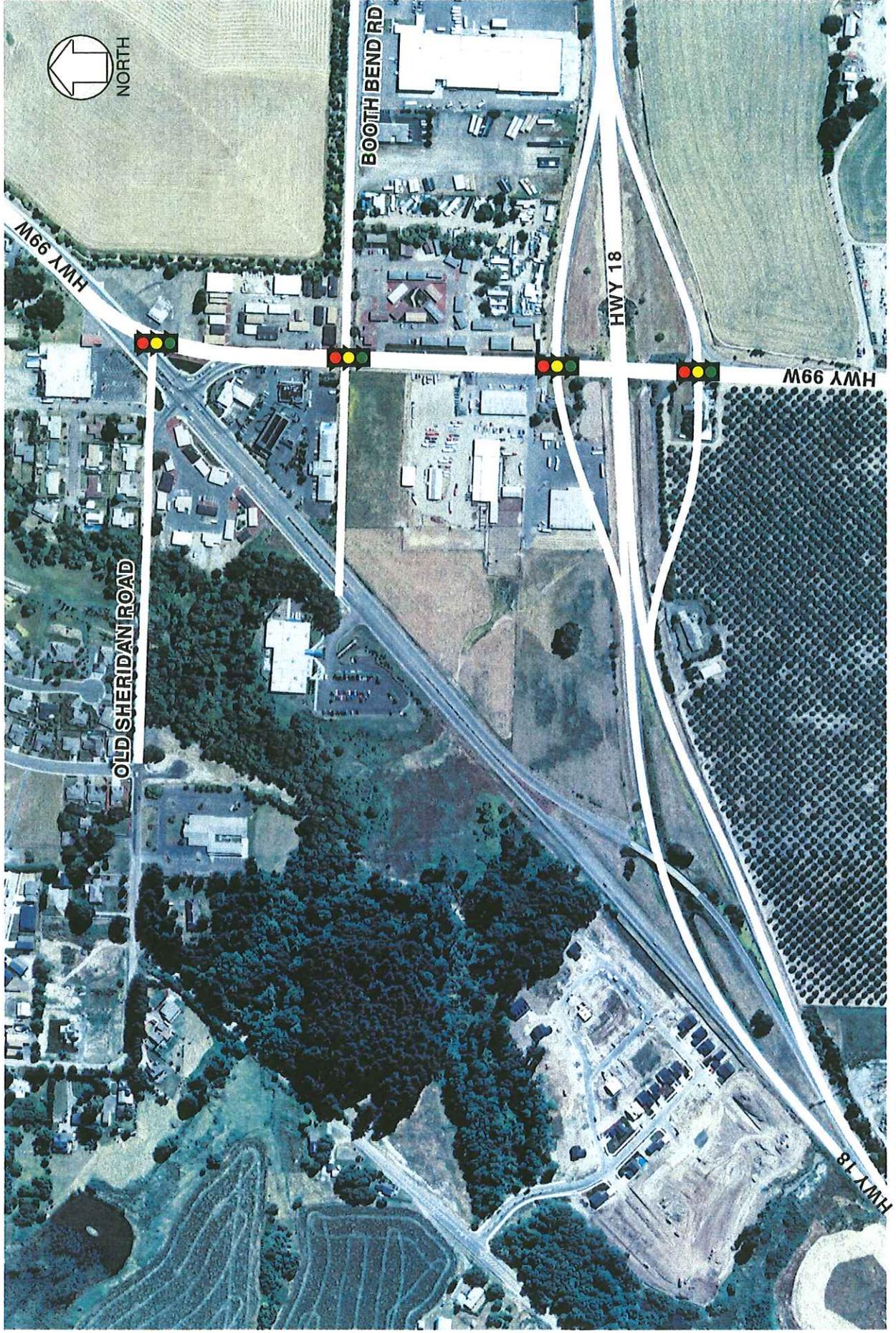
LEGEND

 = SIGNALIZED INTERSECTION

 = MINOR STREET
 STOP-CONTROLLED INTERSECTION



FIGURE
5-7



CONCEPT #8
HWY 18/99W EAST DIAMOND INTERCHANGE
WITH HWY 99W REALIGNMENT

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

LEGEND
 = SIGNALIZED INTERSECTION



LEGEND

 = SIGNALIZED INTERSECTION

CONCEPT #9
HWY 18/99W WEST DIAMOND INTERCHANGE
 HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

McMinville
 T
 K
 5-9

SECTION 6

*Refined Concept
Evaluation*

REFINED CONCEPT EVALUATION

From the evaluation criteria established, the TAC recommended further refinement and evaluation of the several concepts, shown below.

Concept #1A/B-Baseline condition with no new access allowed to Highway 99W. Concept #1A assumes Booth Bend Road remains in its existing location. Concept #1B assumes it is aligned approximately 200 feet south to increase spacing from the Old Sheridan Road/Highway 99W intersection.

Concept #2E-Assumes Old Sheridan Road is realigned to intersect the Highway 18 Connector approximately 500 feet southwest of Highway 99W. The Highway 18 Connector would form a "T" intersection with Highway 99W. In addition, Booth Bend Road would be extended west to the Highway 18 Connector.

Concept #3A/B-Assumes Booth Bend Road is extended west from Highway 99W to intersect the Highway 18 Connector directly opposite the ESD driveway. Concept #3A assumes Booth Bend Road remains in its existing location to the east of Highway 99W; #3B assumes it is realigned approximately 200 feet to the south.

Concept #3C-Assumes Booth Bend Road is extended west to the Highway 18 Connector and operates with right-in/right-out/left-in access approximately 200 feet northeast of the ESD access. The ESD driveway would maintain full access at its existing location on the Highway 18 Connector.

Intersection operations, signal progression, and vehicle queuing analyses were conducted for 2003, 2010, and 2022 conditions for the refined concepts. All analyses were performed for the weekday p.m. peak hour.

This section provides a summary of the four refined concepts and identifies the preferred concept recommended for adoption as part of

the Highway 18/99W Interchange Access Management Plan.

Intersection Operational Analysis

A progression analysis was performed for the four refined concepts using the Synchro traffic analysis software tool. Using the baseline conditions traffic volumes summarized in Section 4.0, turning movement volumes were developed for all study intersections for each of the four concepts considered for further evaluation. All of the analyses assume the signalized intersections will operate with actuated-coordinated traffic control and 120-second cycle lengths. Signal timing data for clearance intervals, minimum green times, and unit extension times for the intersections were obtained from ODOT. Green times and offsets were optimized using Synchro. The progression analysis was performed for 2003 (short-term), 2010 (medium-term), and 2022 (long-term) traffic conditions during the weekday p.m. peak hour. All turning movement volumes and level-of-service analysis worksheets are provided in the Technical Appendix.

For comparative purposes, the intersection operations analyses are only provided for the Old Sheridan Road/Highway 99W and Highway 99W/Booth Bend Road intersections. The operational results for the Keck Drive/Highway 99W and Highway 18 Ramp Terminal/Highway 99W intersections are identical to the results summarized in the baseline conditions section (Section 4.0) because the four concepts do not result in modifications to those intersections. In addition, the Highway 18 Connector/ESD driveway intersection meets ODOT mobility standards for all scenarios analyzed and was not included in the comparison.

Table 6-1 is a summary of the volume-to-capacity ratios for the four concepts under 2003, 2010, and 2022 weekday p.m. peak hour conditions. The Booth Bend Road/Highway 99W intersection is assumed to be signalized under all scenarios except Concept #1A/#1B under 2003 (baseline) conditions.

TABLE 6-1

Volume-to-Capacity Ratio Summary for Refined Concept Evaluation, Weekday PM Peak Hour				
Intersection	Concept #1A/#1B	Concept #2E	Concept #3A/#3B	Concept #3C
Year 2003 Conditions				
Old Sheridan Road/ Highway 99W	0.89	0.60	0.76	0.76
Booth Bend Road/ Highway 99W	0.33 ¹	0.76	0.67	0.65
Year 2010 Conditions				
Old Sheridan Road/ Highway 99W	0.95	0.62	0.79	0.92
Booth Bend Road/ Highway 99W	0.55	0.79	0.62	0.64
Year 2022 Conditions				
Old Sheridan Road/ Highway 99W	0.85 ²	0.77	0.87	0.86
Booth Bend Road/ Highway 99W	0.68	0.94	0.76	0.81

1. The Booth Bend Road/Highway 99W intersection operates with two-way stop control under this scenario.
2. Assumes construction of a northern right-turn lane on the Highway 18 Connector approach.

As shown in Table 6-1, with Concept #1A/#1B the Old Sheridan Road/Highway 99W intersection does not meet ODOT’s mobility standard of 0.80 under 2003 conditions. The Booth Bend Road intersection meets ODOT’s mobility standard for all concepts under 2003 conditions.

Under 2010 conditions, the Old Sheridan Road/Highway 99W intersection does not meet the mobility standards with Concepts #1A/#1B and #3C.

Under 2022 conditions, the Old Sheridan Road/Highway 99W intersection exceeds the mobility standard under Concepts #1A/B, #3A/B, and #3C. A volume-to-capacity ratio of 0.80 can be achieved under these scenarios with construction of a third northeast-bound through lane. The Booth Bend Road/Highway 99W intersection operates with a volume-to-capacity ratio of 0.94 under Concept #2E. This can be mitigated with construction of a second northbound

left-turn lane on Highway 99W. The mobility standard is met for Booth Bend Road/Highway 99W intersection under the remaining concepts, with the exception of Concept #3C, which operates just above the 0.80 mobility standard.

95th-Percentile Queuing Analysis

The 95th-percentile vehicle queues calculated using Synchro were summarized for the Highway 99W road segment between Old Sheridan Road and Booth Bend Road. The purpose of the queuing analysis is to determine if adequate storage is available for queuing for each concept under each analysis period. Table 6-2 shows the results of the queuing analysis rounded to the nearest 25 feet.

As shown in Table 6-2, Concept #1A/B requires 450 feet of storage and Concept #3C requires 325 feet of storage for the northbound left-turn movement at the Old Sheridan Road/Highway

99W intersection under 2003 traffic conditions. Adequate storage is not available to accommodate back-to-back vehicle queues on Highway 99W under these concepts without realigning the Booth Bend Road/Highway 99W intersection to the south. Adequate storage is available for the remaining concepts under 2003 conditions.

Under 2010 conditions, vehicle queues on the northbound right-turn lane at the Old Sheridan Road/Highway 99W intersection spill back nearly to the Booth Bend Road/Highway 99W intersection under Concept #1A/B. Under Concepts #2E and #3A/B, adequate storage is available to accommodate vehicle queues. Vehicle queues from the northbound left-turn lane under Concept #3C are expected to spill back to the Booth Bend Road/Highway 99W intersection under 2010 conditions.

Under 2022 conditions, which includes a four-lane section with a raised-curb median on Highway 99W, adequate storage is available to accommodate through and right-turn movements under all concepts. However, the available storage for the northbound left-turn lanes at the Old Sheridan Road/Highway 99W intersection is forecast to be exceeded under Concepts #1A/B and #3C.

Queuing Summary

As shown in Table 6-1, under Concept #1 (baseline condition), the mobility standard is not met at the Highway 99W/Old Sheridan Road intersection under the 2003, 2010, and 2022 scenarios. Lane widening is required to accommodate the added left-turn demand in the northbound direction from Highway 99W to the Highway 18 Connector. In addition, Booth Bend Road would

TABLE 6-2

Summary of 95th Percentile Queues, Weekday PM Peak Hour ¹						
Intersection	Movement	Available Storage (feet)	Required Storage (feet)			
			Concept #1A/#1B	Concept #2E	Concept #3A/#3B	Concept #3C
Year 2003 Conditions						
Old Sheridan Road/Hwy 99W	NB LT	250	450	100	175	325
	NBTH/RT	450	200	100	50	50
Booth Bend Road/Hwy 99W	SB LT	150	50	50	50	50
	SB TH	450	-	120	220	300
Year 2010 Conditions						
Old Sheridan Road/Hwy 99W	NB LT	250	175	125	200	550
	NB/RT	450	400	100	50	50
Booth Bend Road/Hwy 99W	SB LT	150	50	50	50	50
	SB TH	450	300	175	300	275
Year 2022 Conditions						
Old Sheridan Road/Hwy 99W	NB LT	250	350	150	50	275
	NB/RT	450	275	250	350	325
Booth Bend Road/Hwy 99W	SB LT	150	100	50	100	100
	SB TH	450	50	250	425	50

1. Approximately 200 feet of additional storage is available on Highway 99W under Concept #1B and #3B due to the realignment of Booth Bend Road south of its existing alignment.

need to be realigned south approximately 200 feet under Concept #1 to provide additional storage for vehicle queues on Highway 99W between Old Sheridan Road and Booth Bend Road.

Under Concept #2C (Booth Bend Road Extension with realignment of Old Sheridan Road to Highway 18 Connector; Highway 99W “through” route), two northbound left-turn lanes are required at the Highway 99W/Booth Bend Road intersection under 2022 conditions. Under 2022 conditions, the minor street left-turn movement at the unsignalized Old Sheridan Road/Highway 18 Connector intersection operates over capacity. In addition, adequate storage is not available for queuing on the Highway 18 Connector to serve the back-to-back left-turn movements at Old Sheridan Road and the Booth Bend Road Extension.

Concept #3A (Booth Bend Road Extension) can be implemented without any roadway realignment (Booth Bend Road can remain in its existing location). Adequate storage is available to accommodate the 95th percentile queues on all approaches. The mobility standards are met at all intersections, with the exception of the Highway 99W/Old Sheridan Road intersection, which is forecast to operate with a volume-to-capacity ratio of 0.87 under 2022 conditions. A volume-to-capacity ratio of 0.80 can be obtained under 2022 conditions with construction of a third northbound through lane on the Highway 18 Connector.

Concept #3C (right-in/right-out/left-in access to Rice property) would require realignment of Booth Bend Road to the south to provide additional storage for the northbound left-turn movement from Highway 99W to the Highway 18 Connector. In addition, the Old Sheridan Road/Highway 99W intersection is forecast to exceed mobility standards under 2010 conditions. Under Concept #3C, improvements to the Old Sheridan Road/Highway 99W intersection would be required sooner than with Concept #3A.

The TAC concluded that Concept #3A is the preferred concept on the basis of the operational analysis results summarized in this section and the initial concept evaluation provided in Section 5.0. The benefits of Concept #3A follow:

- All roadway improvements required for Concept #3A in the short-term can be constructed as part of development of the Rice Property.
- Concept #3A does not result in adverse impact to adjacent properties.
- Concept #3A meets ODOT mobility standards and requirements for queuing and progression under short-term and medium-term conditions.
- Concept #3A does not preclude Highway 99W from being realigned in the future (i.e., Concept #2E).
- Concept #3A provides superior system-wide operations compared to the remaining concepts.
- Concept #3A improves connectivity and accessibility for all modes of travel including pedestrians and bicyclists.

SECTION 7

*Interchange Access
Management Plan*

INTERCHANGE ACCESS MANAGEMENT PLAN

This plan provides a detailed description of the future transportation infrastructure required to maintain the operational integrity and safety within the Highway 18/99W Interchange Access Management Area pursuant to Action 3C.1 of the OHP. In addition, the IAMP protects the short- and long-term function of the interchange while minimizing the need for major improvements.

This plan describes necessary improvements, including right-of-way requirements, street cross-section elements, traffic control, and site-access locations for each property within the Interchange Access Management Area. The City of McMinnville and ODOT will require properties that redevelop in the Interchange Access Management Area to make the half-street improvements, right-of-way dedications, circulation, and access improvements identified in this plan. Implementation of the IAMP will ensure that the Highway 18/99W Interchange maintains its functional integrity over time and viable access is provided to all individual land uses. The IAMP also identifies locations where access control shall be obtained/acquired pursuant to Action 3C.5 of the OHP.

This plan was developed in accordance with the guidelines established in OAR 734-051-0200 (4) (Interchange Access Management Plans). The guidelines state that the IAMP:

- Be developed in coordination with the affected local government;
- Be performed in concert with transportation system plans, corridor plans, and local comprehensive plans;
- Conform with transportation system plans, corridor plans, and local comprehensive plans;
- Contain short-, medium-, and long-term actions to improve operations and safety in the interchange area;

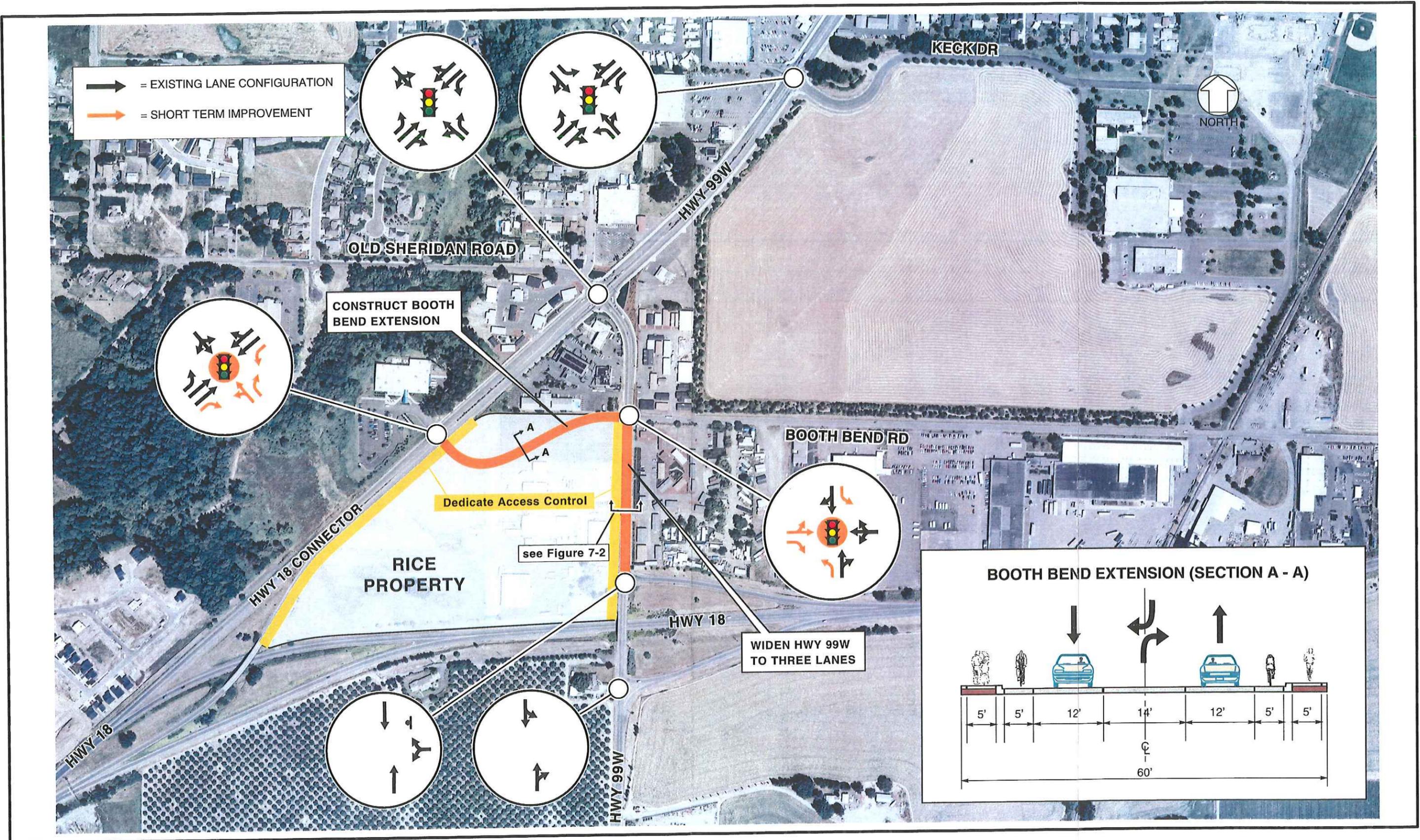
- Be developed no later than the time the interchange is designed or being redesigned; and
- Include current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches.

SHORT-TERM TRANSPORTATION IMPROVEMENTS

The short-term transportation improvements are required to occur along with the planned development of the Rice property. Development of the Rice property is anticipated to begin in late 2002 or early 2003. The short-term improvements are needed to meet ODOT and City of McMinnville operational standards under 2003 conditions and to allow for the ultimate lane widening improvements on Highway 99W required under 2022 conditions. Figure 7-1 shows the short-term improvements and Figure 7-2 shows the required roadway cross sections for Highway 99W between Booth Bend Road and the Highway 18 Westbound Off Ramp. A description of the required improvements are provided in Table 7-1.

MEDIUM- AND LONG-TERM TRANSPORTATION IMPROVEMENTS

The Highway 18/99W IAMP long-term transportation improvements are required to address future traffic demands and new development and redevelopment in the Interchange Management Area over the next 20 years. The improvements are required to meet ODOT and the City of McMinnville operational standards under 2022 forecast conditions. The timing of the improvements will depend on the need to have the improvements in place at the time development of a particular property occurs. At a minimum, right-of-way dedications shall be provided to accommodate the identified lane widening. The cross-access easements and access control dedications are necessary to meet the goals and policies described in the OHP and OAR 734-051. Figure 7-3 shows the required medium- and long-term improvements. Figure 7-4 shows the ultimate lane



SHORT-TERM TRANSPORTATION IMPROVEMENT PLAN

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

h:\profile\4993\cdrfiles\4993F7-1.cdr

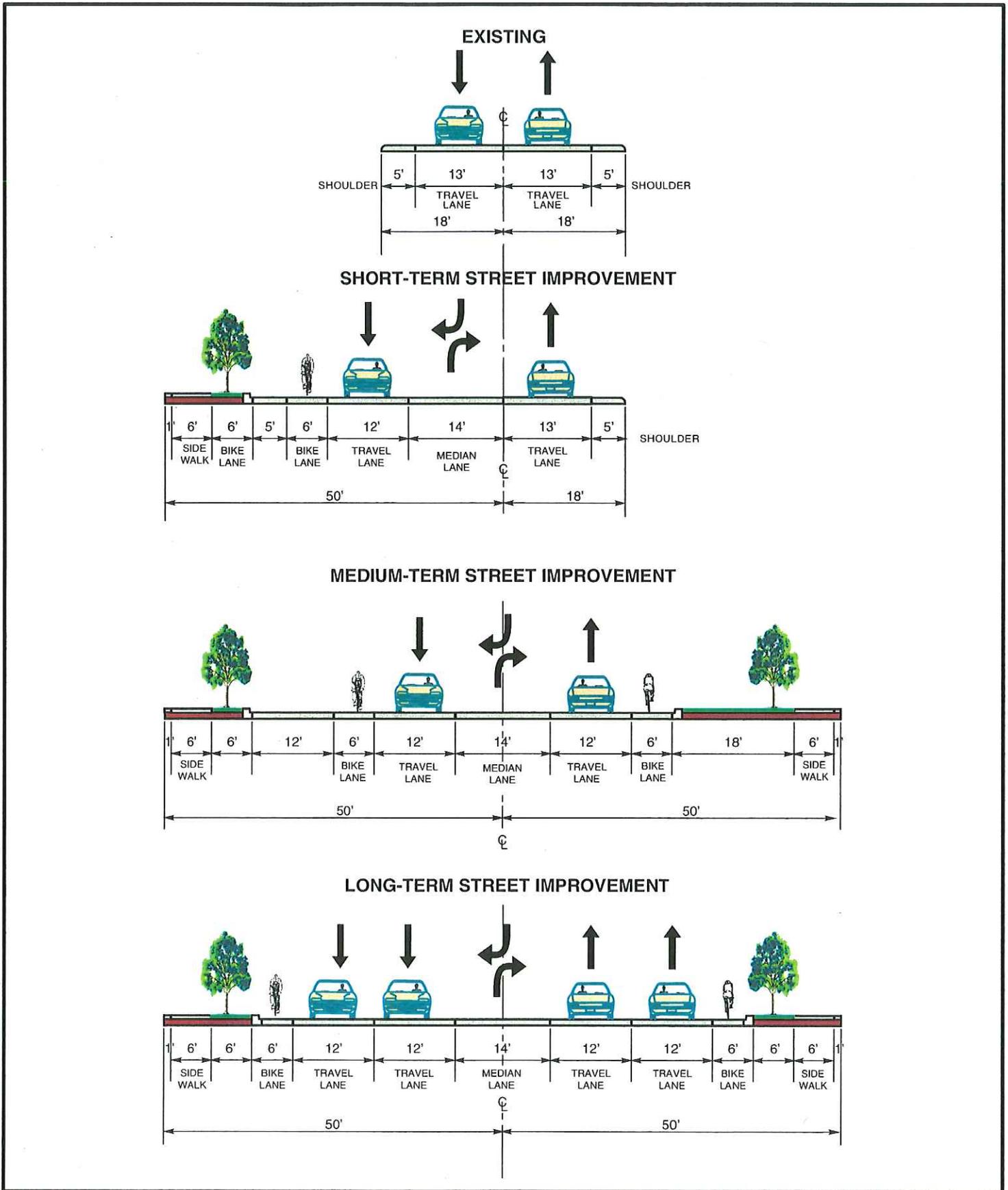
TABLE 7-1

Highway 18/99W IAMP Short-Term Improvement Summary	
Road Segment/ Intersection	Description of Improvement
Booth Bend Extension (Highway 99W to Highway 18 Connector)	<ul style="list-style-type: none"> ■ Extend Booth Bend Road from Highway 99W to the Highway 18 Connector/ESD Driveway intersection. ■ Construct the Booth Bend Extension with a 60-foot right-of-way width and a 48-foot curb-to-curb width that includes two 12' through travel lanes, a 14' center left-turn lane, two 5' bicycle lanes, and 5' sidewalks on both sides. ■ Install street lighting along the entire segment. ■ Provide right-of-way dedication to construct a future eastbound right-turn lane at the Highway 99W/Booth Bend Road intersection. ■ Provide interconnect conduit to connect the traffic signals at the Highway 99W/Booth Bend Road and Highway 18 Connector/Booth Bend Extension intersections.
Highway 18 Connector/ Booth Bend Extension Intersection	<ul style="list-style-type: none"> ■ Construct a traffic signal and northbound right-turn deceleration lane with right-of-way dedication. ■ Design mast arms and signal heads to accommodate protected left-turn phasing on Highway 99W.
Highway 18 Connector Improvements	<ul style="list-style-type: none"> ■ Provide interconnect conduit along the Highway 18 Connector from the Booth Bend Extension to the Old Sheridan Road-Highway 99W intersection. ■ Dedicate access control along entire Rice property frontage with a break provided at the Booth Bend Road-ESD driveway intersection. ■ Provide landscaping and street lighting along the site frontage. ■ Install a raised longitudinal median between Booth Bend Extension and the existing motel site-access driveway.
Highway 99W Improvements	<ul style="list-style-type: none"> ■ Widen Highway 99W to a three-lane section from the north of Booth Bend Road to the Highway 18 westbound ramp terminal. Widen 25 feet from centerline to allow two 12-foot travel lanes, a 14-foot center left-turn lane, and two future 6' bike lanes. ■ Dedicate 50 feet of right-of-way from centerline along the Rice property frontage to accommodate the future required five-lane section (one 14-foot turn lane, four 12-foot travel lanes, two 6-foot bike lanes, two 6-foot sidewalks, and utility easements). Construct sidewalks, landscaping, and street lighting along the Rice Property frontage at their ultimate location. ■ Dedicate access control along the entire Rice property frontage with a break provided at the Booth Bend Road/Highway 99W intersection.
Highway 99W/Booth Booth Bend Road Intersection	<ul style="list-style-type: none"> ■ Install a traffic signal and construct a southbound right-turn and left-turn lane.
Cross-Access Easements	<ul style="list-style-type: none"> ■ Provide cross-access easements with properties located north of Rice property to allow vehicular and pedestrian access to and from the Booth Bend Extension.

configurations and traffic control on Highway 99W, Booth Bend Road, and the Highway 18 Connector. Table 7-2 is a summary of the required medium- and long-term transportation improvements.

ACCESS MANAGEMENT AND CIRCULATION

As part of the Highway 18/99W South IAMP, future access locations and internal connections were evaluated for all properties within the Interchange Access Management Area. 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 OIIP. Access locations were developed to minimize impacts to



HIGHWAY 99W CROSS SECTIONS

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON

AUGUST 2002

FIGURE 7-2

h:\profile\4993\cdrfiles\4993F7-2.cdr

the primary facilities serving the interchange area: the Highway 18 Connector and Highway 99W. The intent of the Access and Circulation Management Plan is to identify the location of site-access driveways and internal circulation routes for properties that redevelop. The plan shall be applied by the City of McMinnville and ODOT in future land use decisions involving the properties located within the Interchange Access Management Area. Figure 7-5 shows the long-term access locations for properties located within the Highway 18/99W Interchange Access Management Area. A description of access to each roadway facility follows.

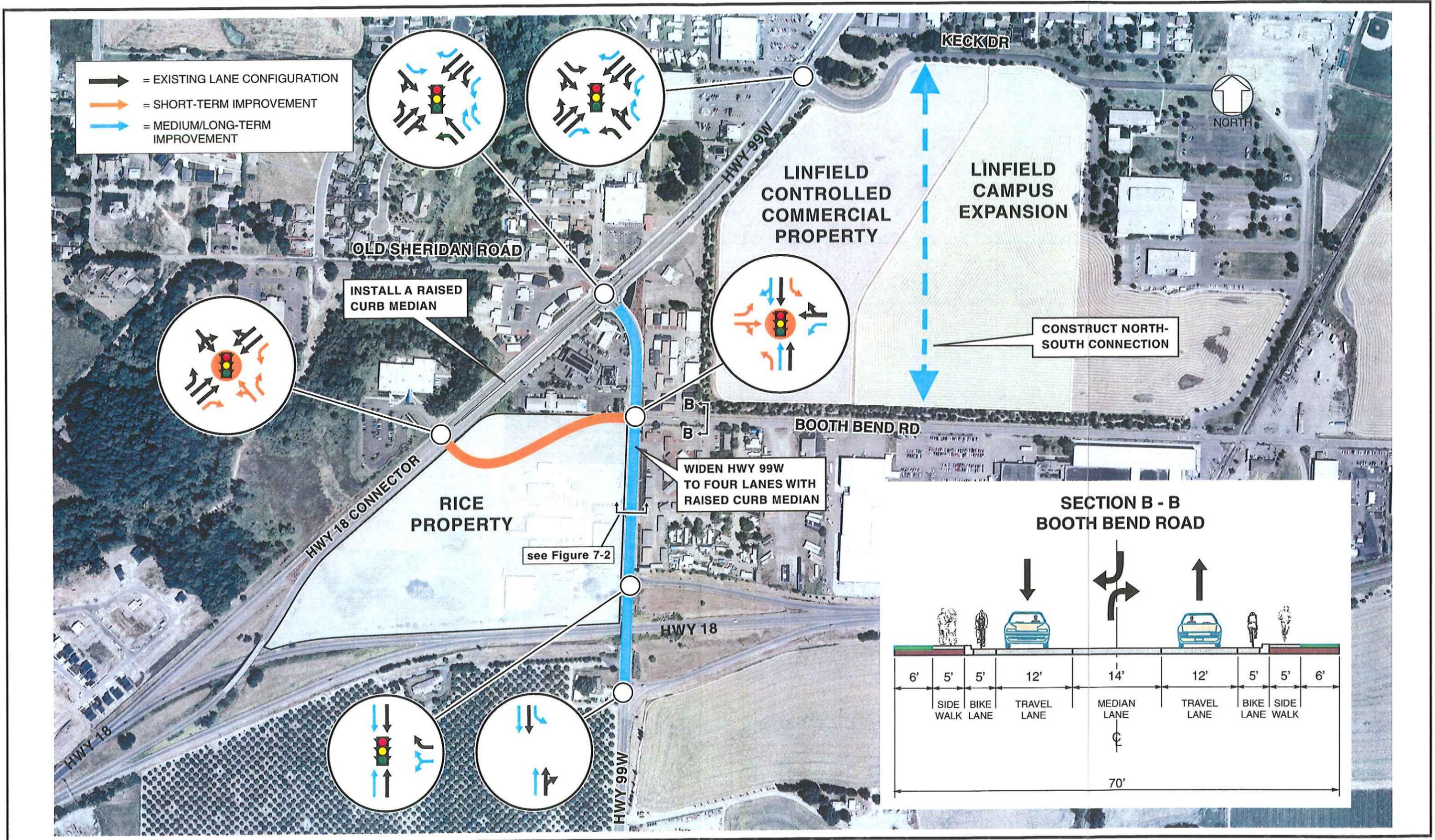
Highway 99W

Upon future property development, access will occur from the public road connections of Old Sheridan Road and Booth Bend Road. No additional private road access will be allowed between Old Sheridan Road and the Highway 18 Ramp Terminals. Access to the properties located east of Highway 99W will occur via Booth Bend Road.

Currently, the property located adjacent to the Old Sheridan Road/Highway 99W intersection to the south has full access off of Highway 99W and the Highway 18 Connector. In the future when this property redevelops, an internal circulation route (via cross-over easements and other measures) needs to be developed to allow access to

TABLE 7-2

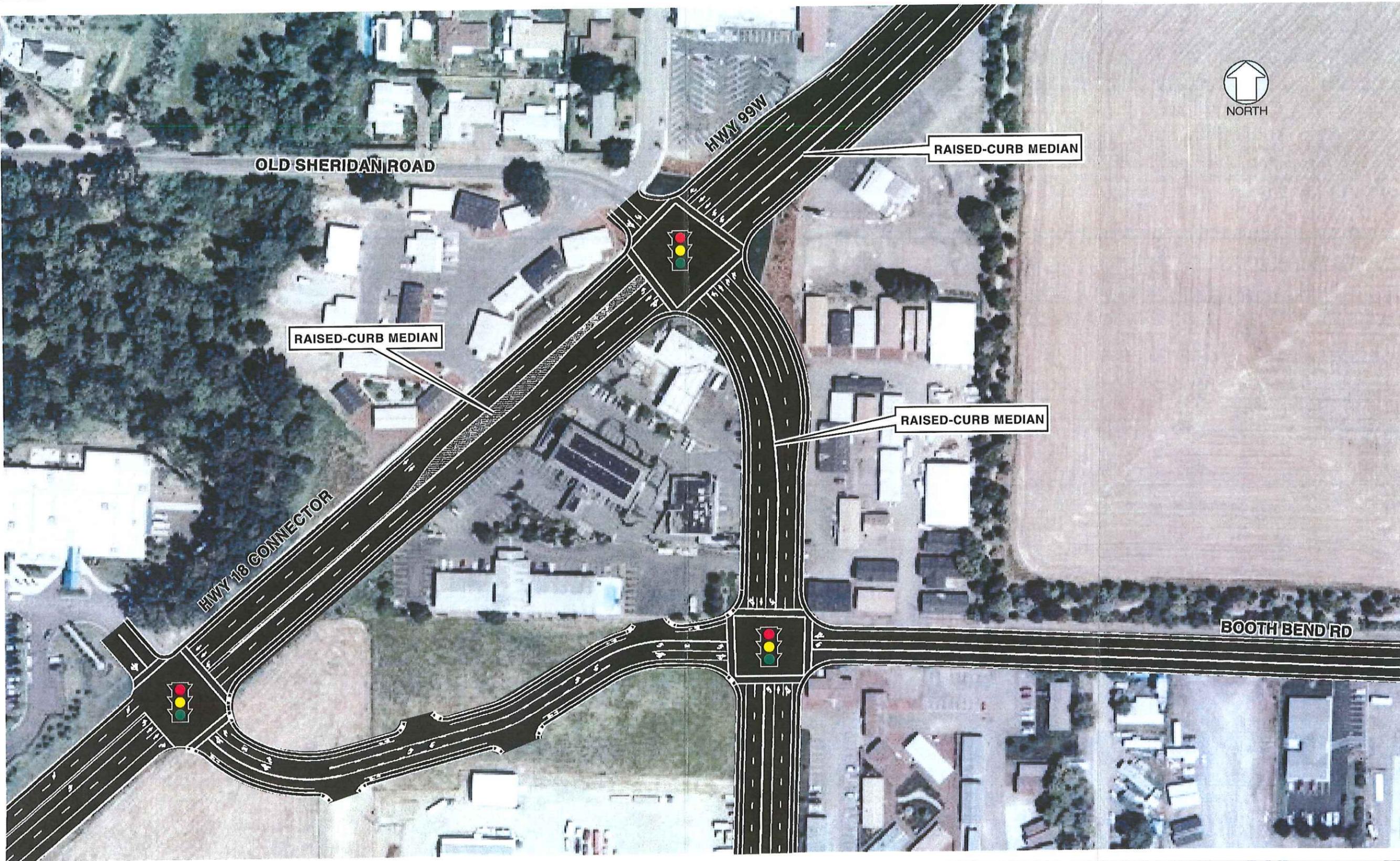
Highway 18/99W IAMP Long-Term Improvement Summary	
Road Segment/ Intersection	Description of Improvement
Highway 99W	<ul style="list-style-type: none"> ■ Dedicate and/or acquire 50-feet of right-of-way from centerline along the east side of Highway 99W between the Highway 18 westbound off-ramp terminal and Old Sheridan/Highway 18 Connector/Highway 99W intersection. ■ Construct a five-lane roadway section on Highway 99W between the Highway 18 WB ramp terminal and the Old Sheridan Road/Highway 99W intersection.
Old Sheridan Road/ Highway 99W Intersection	<ul style="list-style-type: none"> ■ Dedicate and/or obtain right-of-way on the approaches identified for the lane widening improvements described below. ■ Modify the Old Sheridan Road/Highway 99W traffic signal to accommodate the following lane geometry: a left-turn lane, through lane, and dual right-turn lanes on the northbound Highway 99W approach; dual left-turn lanes, two through lanes, and a separate right-turn lane on the southwest bound Highway 99W approach; a left-turn lane and through/right-turn lane on the eastbound Old Sheridan Road approach.
Highway 99W Bridge Crossing Over Highway 18	<ul style="list-style-type: none"> ■ Reconstruct the bridge structure crossing Highway 18 to include a five-lane section. ■ Signalize the Highway 18 WB Ramp Terminal/Highway 99W intersection when warranted.
Keck Road/Highway 99W Intersection	<ul style="list-style-type: none"> ■ Construct right-turn deceleration lanes on the northbound and southbound approaches. ■ Widen Highway 99W to provide dual southbound left-turn lanes
North-South Connector	<ul style="list-style-type: none"> ■ Develop a local street connection between Booth Bend Road and Keck Road east of Highway 99W that enhances connectivity and reduces the reliance on Highway 99W and Booth Bend Road.
Booth Bend Road	<ul style="list-style-type: none"> ■ Widen Booth Bend Road east of Highway 99W to a three-lane cross-section (two 12' travel lanes and a 14' median lane) with a 5' bike lane and 5' sidewalk on both sides.



MEDIUM-/LONG-TERM TRANSPORTATION IMPROVEMENT PLAN

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

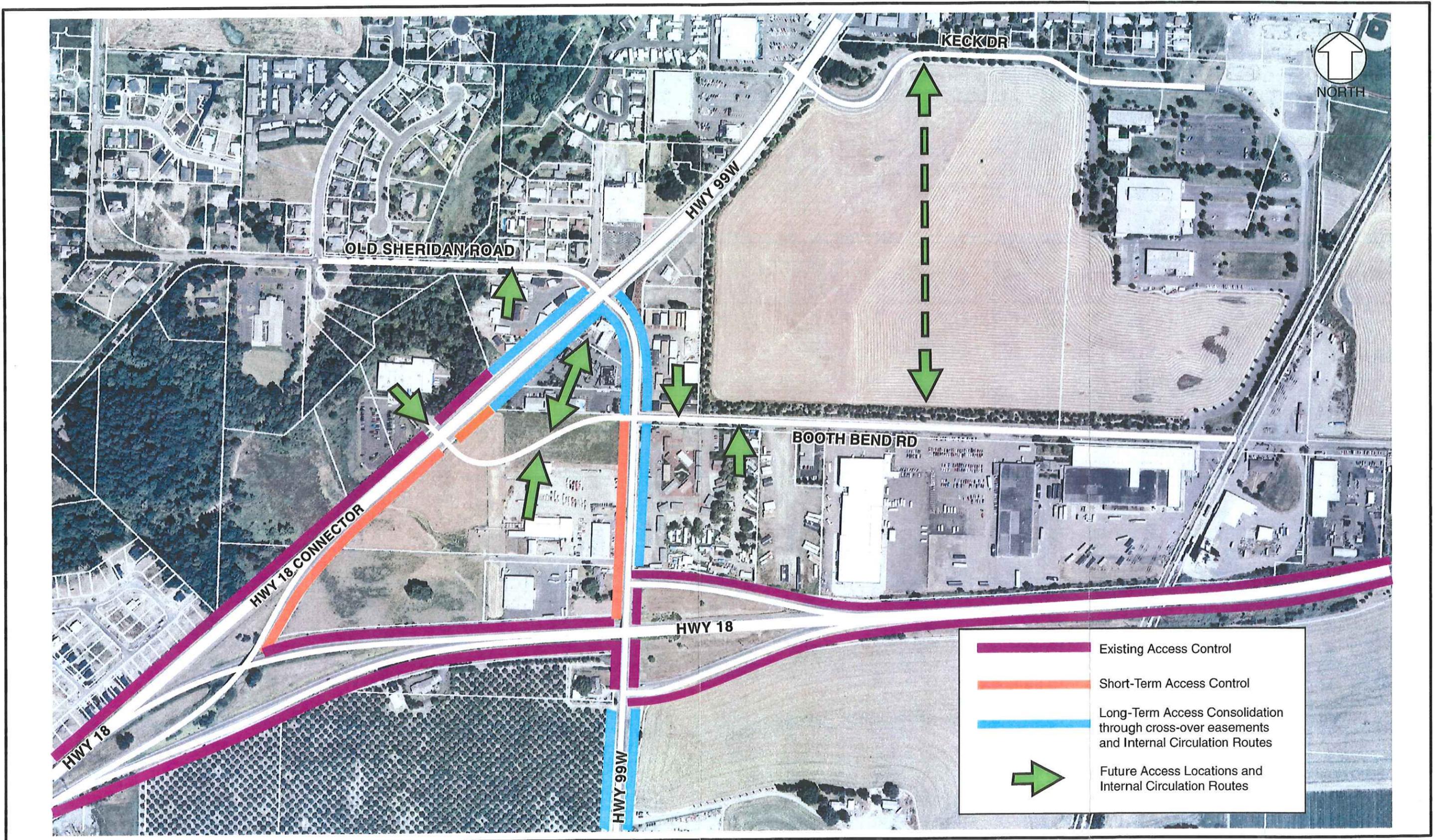
h:\profile\4993\cdrfiles\4993F7-3.cdr



**HIGHWAY 99W/OLD SHERIDAN ROAD
LONG-TERM TRANSPORTATION IMPROVEMENTS**

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
MCMINNVILLE, OREGON
AUGUST 2002





ACCESS MANAGEMENT AND CIRCULATION PLAN

HWY 18/99W SOUTH INTERCHANGE ACCESS MANAGEMENT PLAN
 MCMINNVILLE, OREGON
 AUGUST 2002

FIGURE 7-5

h:\projfile\5225\dwgs\techmemo4\5225F7-5.cdr

the Booth Bend Road extension. Through the establishment of the internal circulation route, the existing full-access driveways on the Highway 18 Connector and Highway 99W will be consolidated and ultimately closed. The consolidation of private-access driveways on the Highway 18 Connector is needed to move in the direction of ODOT's Access Spacing Standards and to reduce conflicts between vehicle queues from the signalized Old Sheridan Road/Highway 99W intersection and upstream/downstream driveways (Action 3C.2 and 3C.3 of the OIIP). The City of McMinnville shall ensure that future property redevelopment does not preclude the development of the internal connections to the Booth Bend Road Extension.

To minimize turning movement conflicts between existing driveways, a raised-curb median shall be constructed as part of future redevelopment projects and capital improvement projects on Highway 99W from Old Sheridan Road to Booth Bend Road and from Booth Bend Road to the Highway 18 Westbound Ramp Terminal.

Highway 99W south of Highway 18

- The plan area includes that section of Highway 99W south of the Highway 18 EB on-ramp that is within the interchange influence area. That area extends 1,320 feet south of the on-ramp.
- In this section, Highway 99W is designated as a "Regional" highway by the 1999 Oregon Highway Plan. The purpose of a regional highway is to provide connections and links to regional centers, statewide or interstate highways, or economic or activity centers of regional significance.
- In the plan area, there are two existing approach roads that do not meet spacing standards prescribed in OAR 734-051. Those approach roads are located approximately .1 mile south of the on-ramp (farm access) and .2 mile south of the on-ramp (private access to farm equipment sales and service facility).

- Existing, legally permitted, approach roads shall continue to be allowed within the plan boundary consistent with OAR 734-051-0200(2) in the short term.
- As redevelopment of property occurs, or if a road improvement project is proposed, the access spacing provisions of OAR 734-051 will be implemented to the maximum extent feasible by eliminating direct property access within the study area (within 1,320 feet of the Highway 18 on-ramp).
- The long-term strategy for this section of Highway 99W is to acquire all access rights within the plan area to eliminate conflicts and improve safety. ODOT will work with the appropriate jurisdiction (Yamhill County or the City of McMinnville) and area property owners to achieve this long-term goal.

Highway 18 Connector

Full access will only be provided between Old Sheridan Road and Highway 18 at the signalized ESD/Booth Bend Road Extension/Highway 18 Connector intersection. Upon completion of an internal circulation route between the property occupied by the Paragon Motel and the Booth Bend Road Extension, a raised median shall be constructed on the Highway 18 Connector between the Booth Bend Road Extension and Old Sheridan Road. This will restrict future access to right-in/right-out movements initially. In the long term, access along Highway 18 will be consolidated to the internal circulation route.

At the time the property located on the southwest corner of the Old Sheridan Road/Highway 99W intersection redevelops, existing access on the Highway 18 Connector shall be closed and a single access driveway should be provided on Old Sheridan Road at the western edge of the property boundary. The driveway shall be located so that it does not interfere with vehicle queues from the signalized Old Sheridan Road/Highway 99W intersection and is in alignment with access located on the north side of Old Sheridan Road.

As part of the short-term improvements, a raised-curb median will be constructed on the Highway 18 Connector from the Booth Bend Road Extension to the existing motel site-access driveway. The raised median shall be extended to Old Sheridan Road in the future as part of redevelopment activities and capital improvement projects.

Highway 18 west of the Highway 18 Connector

- The plan area includes that section of Highway 18 west of the Highway 18 Connector/west-bound on-ramp that is within the interchange influence area. That area extends 1,320 feet west of the on-ramp.
- In this section, Highway 18 is designated as a "Statewide (National Highway System) Expressway" by the 1999 Oregon Highway Plan. The purpose of a statewide expressway is to provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by interstate highways. Expressways are planned to provide safe and efficient high-speed and high-volume traffic movements.
- In the study area, there is one existing approach road that does not meet spacing standards prescribed in OAR 734-051. This approach road is

located within .1 mile of the on-ramp (west-bound left-turn refuge and private access to lumber mill).

- Existing, legally permitted, approach roads shall continue to be allowed within the plan boundary consistent with OAR 734-051-0200(2) in the short term.
- As redevelopment of property occurs, or if a road improvement project is proposed, the access spacing provisions of OAR 734-051 will be implemented to the maximum extent feasible by eliminating direct property access within the plan area (within 1,320 feet of the Highway 18 Connector).
- The long-term strategy for this section of Highway 18 is to acquire all access rights within the plan area to eliminate conflicts and improve safety. ODOT will work with the appropriate jurisdiction (Yamhill County or the City of McMinnville) and area property owners to achieve this long-term goal. In addition, ODOT will develop an access management (facility) plan for Highway 18 from the Highway 18 connector west to Steel Bridge Road.

TABLE 7-3

Right-of-Way Requirements	
Road Section	ROW Dedication Requirements*
Highway 99W ■ Between Old Sheridan Road and the Highway 18 Ramp Terminals	50 feet from centerline*
Booth Bend Road ■ Between the Highway 18 Connector to Highway 99W ■ East of Highway 99W	30 feet from centerline 30 feet from centerline
Highway 18 Connector	No additional ROW dedication required

* Additional right-of-way will be necessary south of the Old Sheridan Road intersection to accommodate the second northbound right-turn lane.

Highway 18 east of Highway 99W

- There are no existing approaches on Highway 18 within ¼-mile east of Highway 99W.
- ODOT maintains access control along this section of Highway 18.
- No new access approaches to Highway 18 will be allowed within ¼-mile of Highway 99W as part of future development activities or road improvements.

Booth Bend Road

Between the Highway 18 Connector and Highway 99W, the Booth Bend Road Extension will include up to three driveways on the north side and three driveways on the south side to serve future private development. The driveways shall be located to ensure that adequate storage is available for vehicle queues at the traffic signals and that queues do not spill back beyond the driveways. The driveways shall also be located to minimize turning-movement conflicts and be designed to accommodate truck turning movements.

East of Highway 99W, driveways into the properties adjacent to Highway 99W shall be located on the east property lines to maximize spacing from vehicle queues associated with the traffic signal on Booth Bend Road.

ACCESS CONTROL

As outlined in Action 3C.5 of the OIIP, ODOT will work with the City of McMinnville to obtain/acquire access control along the Highway 18 Connector and Highway 99W within the Interchange Access Management Area. In the short-term, access control will be obtained along the west side of Highway 99W from the Highway 18 Westbound Ramp Terminal to the Booth Bend Extension, and along the east side of the

Highway 18 Connector along the Rice property frontage, with a break provided for the Booth Bend Road Extension.

Under medium-/long-term conditions, access control will be obtained along both sides of Highway 99W and Highway 18 for a minimum of 1,320 feet from the Highway 18 interchange ramps. The acquisition of access control will ensure that the Access Management and Circulation element of the IAMP can be used to maintain the functional integrity of the Highway 18/99W Interchange Access Management Area. Figure 7-5 shows the access control locations.

RIGHT-OF-WAY REQUIREMENTS

As redevelopment occurs within the Highway 18/99W Interchange Access Management Area, half-street right-of-way widths shall be dedicated to the City of McMinnville or ODOT for properties with frontage along Highway 99W, the Highway 18 Connector, and Booth Bend Road. The right-of-way requirements are based on the City of McMinnville Street Design Standards and are needed to accommodate future road widening. Table 7-3 identifies the half-street right-of-way dedication requirements. To support the Highway 18/99W IAMP, the City of McMinnville and ODOT shall ensure that the appropriate right-of-way is obtained as part of redevelopment activities.

PROPOSED AMENDMENTS

The following amendments are proposed to support and allow adoption of the recommended Highway 18/99W Interchange Access Management Plan:

City of McMinnville

- The Booth Bend Road Extension (between the Highway 18 Connector and Highway 99W) shall be designated as a Major Collector facility in the City's Transportation Master Plan.
- The Booth Bend Road Extension shall include a 60-foot right of way. All other right-of-way dedicators shall be consistent with Table 7-3.
- The City shall require dedication of right of way from the properties that redevelop in the Interchange Access Management Area
- The City shall require half-street improvements from these properties, or a non-remonstrance agreement for future consideration.
- The City of McMinnville shall require properties within the Interchange Access Management Area to provide cross-access easements for all property development to ensure that individual properties are not landlocked or dependent on the Highway 18 Connector or Highway 99W for site access.

ODOT

- The Highway 18/99W Interchange Access Management Plan shall be adopted by the Oregon Transportation Commission as part of the Oregon Highway Plan.

SECTION 8

References

1. Oregon Department of Transportation. *1999 Oregon Highway Plan*. 1999.
2. Oregon Department of Transportation. *Division 51: Highway Approaches, Access Control, Spacing Standards and Medians*. Oregon Administrative Rules 734-051. 2000.
3. Transportation Research Board. *Highway Capacity Manual - HCM 2000*. 2000.
4. Institute of Transportation Engineers. *Trip Generation*, Sixth Edition. 1997