DATE: October 11, 2011

TO: Oregon Transportation Commission

FROM: Matthew L. Garrett
Director

SUBJECT: Adoption of Interstate 5 Interchange 19 Interchange Area Management Plan

Requested Action

Adopt the Interstate 5 Exit 19 Interchange Area Management Plan (IAMP).
Adoption of this IAMP implements Policy 3C of the Oregon Highway Plan. Findings of compliance in support of this action are found in Exhibit B. Adoption of the IAMP will constitute an amendment to the 1999 Oregon Highway Plan. The IAMP is consistent with the Jackson County Transportation System Plan.

Background

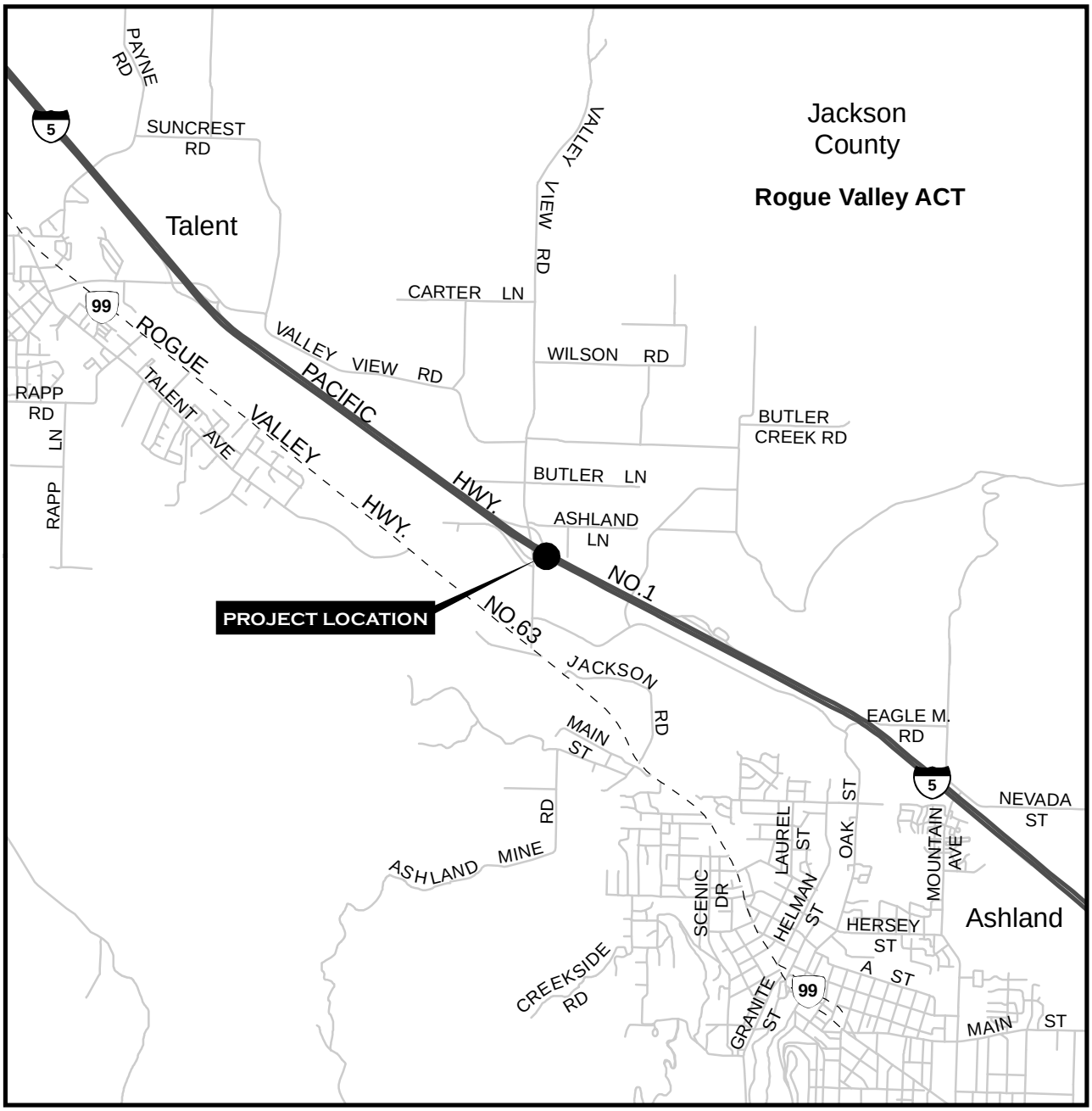
The IAMP was prepared in coordination with the City of Ashland and Jackson County. ODOT worked with these jurisdictions to develop an IAMP that protects the function of the interchange and identifies needed improvements. A Notice of Intent to Adopt and a copy of the plan were sent to the City of Ashland and Jackson County. No comments were received. The City of Ashland does not need to adopt, as the Interchange and related influence area lie outside the City's jurisdiction. Jackson County does not need to adopt as no policies or projects in the IAMP impact the County. Region planning staff contacted DLCD which indicated support for the plan; however, no written correspondence was received.

Attachments:

- Project Vicinity Map
- Project Location Map
- Exhibit A: Staff Report
- Exhibit B: Contact Information
- Exhibit C: IAMP Findings

PROJECT LOCATION

ODOT REGION 3



I-5 EXIT 19 INTERCHANGE AREA MANAGEMENT PLAN

LEGEND

PROJECT LOCATION

STATE HIGHWAY CLASSIFICATION

- INTERSTATE
- STATEWIDE
- REGIONAL / DISTRICT

- REGIONAL BOUNDARY
- COUNTY BOUNDARY
- ACT BOUNDARY

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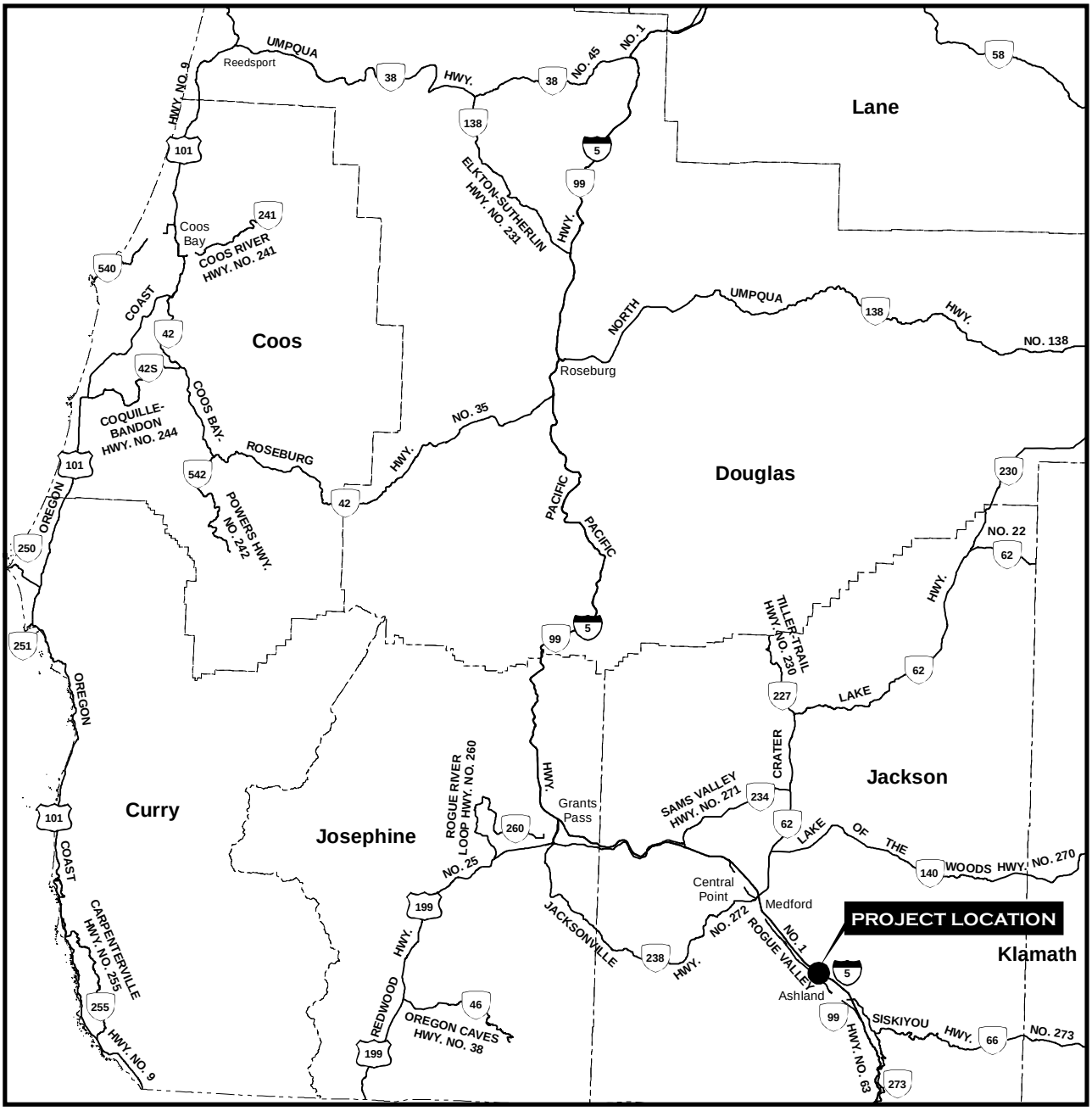
PROJECT VICINITY

ODOT REGION 3



I-5 EXIT 19 INTERCHANGE AREA MANAGEMENT PLAN

LEGEND

- PROJECT LOCATION
- STATE HIGHWAY
- COUNTY BOUNDARY
- STATE BOUNDARY

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I-5 Interchange 19 (North Ashland) Interchange Area Management Plan

I-5 Interchange 19 (North Ashland)
Interchange Area Management Plan

Prepared for

Oregon Department of Transportation, Region 3
3500 NW Stewart Parkway
Roseburg, Oregon 97470

Prepared by

David Evans and Associates, Inc.
2100 SW River Parkway
Portland, Oregon

November 2011

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List of Acronyms

ADT	Average Daily Traffic
ATMS	Advanced Traffic Management Systems
CORP	Central Oregon and Pacific Railroad
EBR	Engineering Baseline Report
HDM	Highway Design Manual
IAMP	Interchange Area Management Plan
ITS	Intelligent Transportation Systems
LOS	Level of Service
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
ORS	Oregon Revised Statutes
OTP	Oregon Transportation Plan
RTP	Regional Transportation Plan
RVCOG	Rogue Valley Council of Governments
RVITS	Rogue Valley Intelligent Transportation Systems
RVMPO	Rogue Valley Metropolitan Planning Organization
SPIS	Safety Priority Index System
SPUI	Single Point Urban Interchange
TAR	Traffic Analysis Report
TAZ	Transportation Analysis Zones
TDM	Transportation Demand Management
TMA	Transportation Management Association
TOC	Traffic Operations Center
TPAU	Transportation Planning Analysis Unit
TPR	Transportation Planning Rule
TSM	Transportation System Management
TSP	Transportation System Plan
UGB	Urban Growth Boundary
V/C	Volume to Capacity

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EXECUTIVE SUMMARY

The existing bridge at I-5 Interchange 19 is being replaced with funding provided by the OTIA III State Bridge Delivery Program. The new bridge will have three traffic lanes with a wide shoulder to accommodate bicyclists and pedestrians. The interchange ramp terminals will not be signalized, but will be configured to accept signals at a later date. The construction is scheduled to begin in mid 2010 and be completed by the end of 2012.

Interchange Area Management Plans (IAMP) are required for new and recommended for substantially modified interchanges. Public investments for new interchanges are very costly and it is in the interest of the State, local governments, citizens of Oregon, and the traveling public to ensure that the interchange functions as it was designed for as long a time period as possible.

Development of this IAMP is the planning process intended to assess existing and potential land use and transportation conditions, opportunities and limitations, identify long-range needs, and identify recommended improvements to the North Ashland Interchange (I-5 Interchange 19). This process includes identifying necessary improvements to the local street network in the vicinity of the interchanges to ensure consistency with operational standards.

Problem Statement

The existing bridge at I-5 Interchange 19, constructed in 1961, has been deemed structurally and geometrically deficient due to structural cracks, poor deck condition, narrow bridge width, substandard bridge railing, substandard vertical clearance, and the presence of roadside hazards. Additionally, there are currently no provisions for bicycle and pedestrian traffic.

Analysis of existing and projected future traffic volumes show that the existing bridge and ramps will not be able to adequately serve long-range transportation needs.

There are several public and private accesses to South Valley View Road within a quarter-mile of the interchange ramp terminals. Two public street approaches, Lowe Road and East Ashland Lane, are located within 50-feet of the southbound and northbound ramp terminals, respectively. These access points create potential vehicular conflicts and delay that may impact safety and traffic operations at the interchange.

IAMP Goals and Objectives

The goals of this IAMP are to develop a plan for improvements that can be implemented over time to improve safety and operations of Interchange 19 for all modes of travel, identify adequate local street network improvements, and protect the investment in I-5 and its interchanges by maintaining the function of the interchange.

The objectives of the IAMP are to identify necessary capacity improvements to the interchange and the area transportation system, evaluate a number of interchange alternatives, develop an access management plan, and develop and evaluate potential management actions that have the potential to protect the future function, capacity, and mobility of the interchange.

The IAMP goals and objectives acknowledge that the purpose of the interchange is to serve all modes of travel, not just automobiles.

Alternatives Analysis

The development of the IAMP included extensive traffic operations analysis of four interchange alternatives (including no-build) under three different future land use scenarios. Traffic operations analysis was also performed for each of the scenarios at four intersections on South Valley View Road within one quarter mile of the ramp terminal intersections. The analysis showed that the existing interchange and adjacent transportation system would not adequately accommodate future traffic volumes associated with intensified land uses that could be allowed under existing comprehensive plan designations.

The analysis identified a number of improvements to the interchange area that could address potential future operational problems resulting from increased traffic volumes. The analysis showed that signalization at the ramp terminals would provide adequate operations. Analysis also indicated that future widening of South Valley View Road to five lanes will be necessary to prevent queuing from the intersection of South Valley View Road and OR 99 from adversely impacting interchange operations.

1. DEFINITION AND BACKGROUND

As outlined in OAR 734-051-0155(7), an IAMP is "required for new interchanges and should be developed for significant modifications to existing interchanges." Public investments for new interchanges and major improvements to existing interchanges are very costly and it is in the interest of the State, local governments, citizens of Oregon, and the traveling public to ensure that the interchange functions as it was designed for as long a time period as possible.

Development of this IAMP is the planning process intended to assess existing and potential land use and transportation conditions, opportunities and limitations, identify long-range needs, and identify recommended improvements to the North Ashland Interchange (I-5 Interchange 19). This process includes identifying necessary improvements to the local street network in the vicinity of the interchanges to ensure consistency with operational standards.

Strictly a planning document, the IAMP does not address aesthetic design associated with recommended improvements. For example, the report does not differentiate between a non-traversable concrete median barrier and a landscaped median. One may be more appealing to the eye, but the IAMP does not differentiate between the two, since they would both perform the intended function. Aesthetic design issues are beyond the scope of the IAMP and better addressed through a separate process.

This IAMP follows detailed analyses conducted for preparation of the *Traffic Analysis Report for I-5 Interchanges 14 and 19* (TAR), dated August 22, 2006 and prepared by David Evans and Associates, Inc. The analyses summarized in the report were used to gain a better understanding of both the current and the future deficiencies of the two interchanges, and to examine the performance of a number of alternative interchange configurations under projected future traffic volumes. The TAR provides much of the background for the North Ashland Interchange IAMP.

Planning and Management Area

The North Ashland Interchange is a standard diamond type interchange located outside of the Ashland urban growth boundary but within the boundaries of the Rogue Valley Metropolitan Planning Organization. The interchange crossroad, South Valley View Road intersects the interstate at approximately 50 degrees. An ODOT facility, South Valley View Road is a designated spur, district-level highway, connecting with OR 99 (Rogue Valley Highway) located approximately a half mile to the south. The section of South Valley View Road between the interchange and OR 99 was a Jackson County facility before being transferred to ODOT's jurisdiction.

The defined boundaries of the Interchange Area Planning and Management Area (Planning Area), displayed in Figure 1-1, includes land where existing and future development has the potential to significantly affect the interchange function. It also encompasses key roadways in the vicinity that relate to traffic operations at the interchange.

The Planning Area is roughly bounded by OR 99 and the Central Oregon and Pacific Railroad (CORP) tracks to the south, West and East Valley View Roads to the north, and Irish Lane to the east. The western boundary is located approximately one half mile to the west of the interchange. The Planning Area consists primarily of land zoned for rural residential, exclusive farm uses and open space reserve. The land just south of the interchange along South Valley View Road is commercially zoned and currently has a number of businesses, including gas stations, a hotel and a fast food restaurant. The Planning Area also includes some commercially and residentially zoned land within the Ashland UGB. Based on the existing density of development and possible future UGB expansions significant future land use intensification could occur in the vicinity of the Planning Area.

Problem Statement

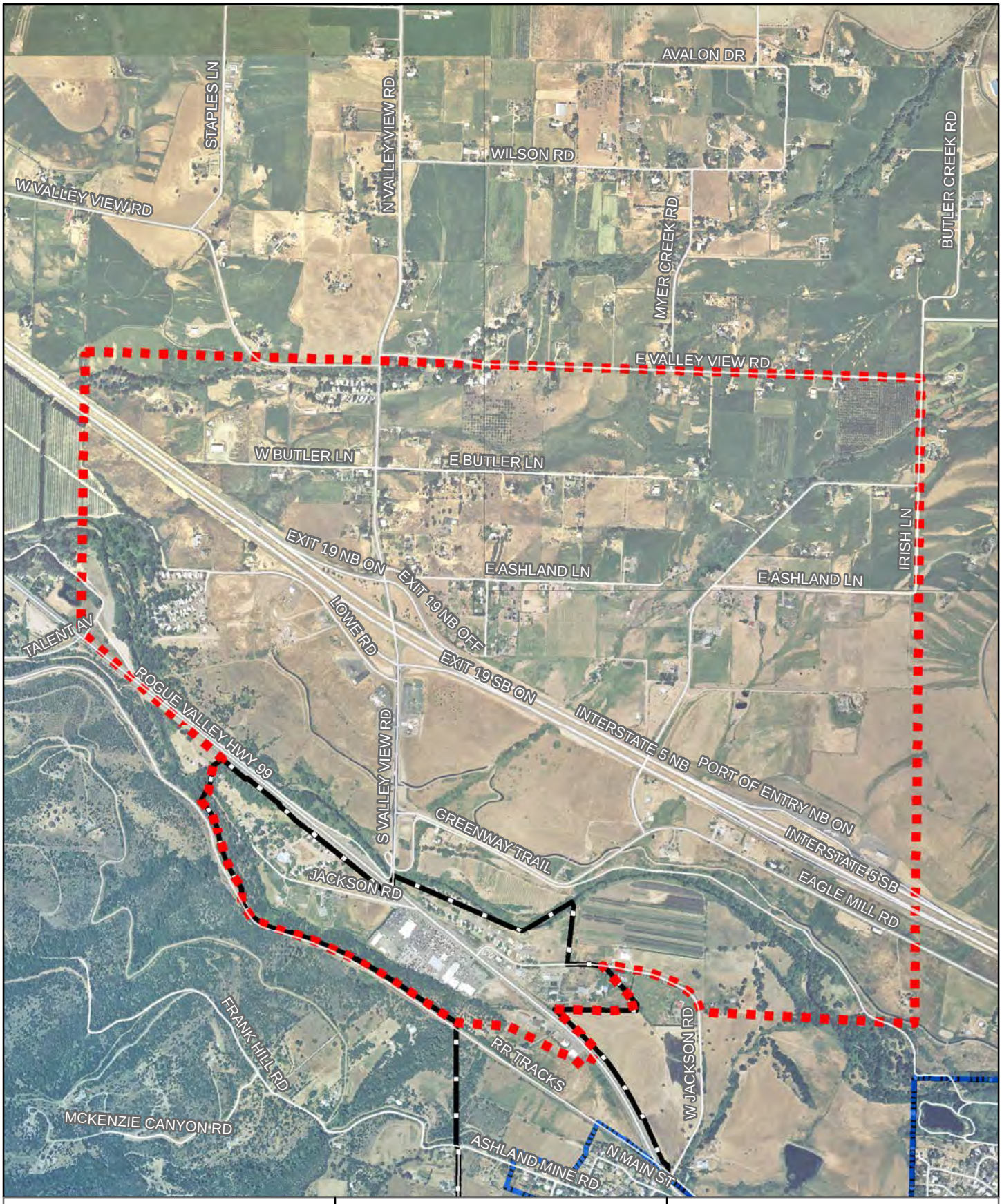
Operational and Safety Deficiencies

The TAR provided traffic operations analyses at key intersections and freeway facilities in the planning area. The traffic analyses addressed both existing conditions (2006) and future no-build conditions (2010 and 2030). The TAR showed that the existing bridge and ramps are functionally obsolete to adequately serve the long-range transportation needs.

Under existing (2006) conditions, traffic operations analyses of the North Ashland Interchange revealed that both ramp terminals currently meet ODOT mobility standards. However, queuing on the southbound exit ramp extends into the deceleration portion of the ramp. Queue lengths are expected to lengthen as traffic volumes increase in the future.

Under 2030 no-build conditions, the critical volume-to-capacity (v/c) at the northbound ramp terminal was calculated to be 0.95, which exceeds the mobility standard. The v/c at the southbound ramp terminal was calculated to be greater than 1.00 prior to the plan horizon year, which indicates that demand is expected to exceed intersection capacity prior to year 2030. Analysis predicts that queuing on the southbound exit ramp will be significant and will extend into the deceleration area of the ramp, creating a potential safety problem.

The northbound ramp terminal intersection has an unconventional configuration in which left turning vehicles from South Valley View Road to the I-5 northbound entrance ramp have a free movement. All other approaches must yield to the northbound through and left turning movements. This type of intersection control violates driver expectation and is generally not recommended for new construction, although analysis shows that this configuration provides superior traffic operations when compared with conventional two-way intersection stop control.



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GIS Data Source:
Jackson County

Legend

- IAMP Management Area
- Ashland City Limits
- UGB

Figure 1-1
Vicnity

Interchange 19 (North Ashland)
Area Management Plan

Existing peak hour traffic operations at the intersection of South Valley View Road with OR 99 currently meets the ODOT mobility standard. However, queuing on the single-lane southbound approach is significant, at nearly 800 feet. Future traffic operations are expected to worsen with major queuing on the southbound approach leg that could impact operations as far north as the North Ashland Interchange. Both the Jackson County TSP and Rogue Valley Regional Transportation Plan recognize the need for improvements to South Valley View Road between the North Ashland Interchange and OR 99. Proposed improvements to this segment of South Valley View Road consist of an upgrade to a five-lane arterial with sidewalks and bike lanes.

Compounding the operational problems at the ramp terminal intersections are the presence of several accesses to South Valley View Road very close to the interchange ramp terminal intersections. East Ashland Lane and Lowe Road each intersect South Valley View Road within approximately 200 feet of the northbound and southbound ramp terminals, respectively. Several other approaches are located within a quarter mile of the ramp terminals. These public and private approaches create potential vehicular conflicts and delay that may impact operations at the interchange. ODOT interchange area access spacing standards, as stated in OAR 734-051 (Division 51), specify that the first full-access approach should be located no closer than 1320 feet of ramp terminal intersections along the cross street. While Division 51 may not be fully attainable in this area, it is desirable to move in the direction of the standards through access management techniques such as consolidation or elimination of accesses and implementation of turn prohibitions. The purpose of these mitigation measures would be to ensure long-term public safety and operations of the interchange and associated immediate local street network.

The conflict between passenger vehicles and trucks due to the proximity of the northbound exit ramp to the Ashland Port of Entry entrance ramp has been identified as a deficiency by the Citizen's Advisory Committee. The Port of Entry, operated by ODOT Motor Carrier Transportation Division, provides truck size and weight enforcement, and it operates 24 hours a day, seven days a week. The merge point of the northbound Port of Entry entrance ramp is located approximately 2400-feet south of the gore point of the southbound exit ramp at Interchange 19. The high volume of slow-moving trucks accelerating to freeway speed is reported to cause difficulties for northbound drivers to safely move into the right lane as they prepare to exit at Interchange 19.

Structural and Geometric Deficiencies

The bridge structure (ODOT Bridge No. 08693) is a reinforced concrete deck-girder span constructed in 1961, and has only had guardrail upgrades since. An Engineering Baseline Report (EBR) was prepared in 2003 that determined that the bridge is structurally deficient. The EBR recommended that the bridge be replaced and listed the following structural and geometric deficiencies:

- Bridge is in Crack stage 3 and cracks are up to 0.030" in width
- Bridge is Structurally Deficient
- Deck is in need of rehabilitation

- Bridge railing is substandard
- Width of roadway on the bridge is substandard (two 12-foot lanes with 3-foot shoulders);
- Presence of roadside hazards including substandard guardrail terminals and bridge connections and median column protection

The EBR assumed that a feasible replacement structure would be a four-lane structure, and estimated the replacement cost at approximately $6.8 million.

The I-5 State of the Interstate Report, which was completed in 2000, also listed deficiencies, including:

- The existing pavement width on the crossroad does not provide adequate shoulders for emergency stops or safe pedestrian and bicycle movements
- The northbound and southbound exit ramps do not provide an adequate distance for deceleration based on the horizontal alignment
- The northbound and southbound entrance ramps do not provide an adequate distance for acceleration based on the horizontal alignment; and
- Signing at the northbound ramp terminal does not meet driver expectations.

Other deficiencies include:

- Vertical clearance less than 17.5’
- Lack of bicycle/pedestrian facilities

Bicycle and Pedestrian Deficiencies

There are currently no provisions for bicycle and pedestrian traffic.

ORS 366.514 specifies, in part, that “…reasonable amounts shall be expended as necessary to provide footpaths and bicycle trails, including curb cuts or ramps as part of the project. Footpaths and bicycle trails, including curb cuts or ramps as part of the project, shall be provided wherever a highway, road or street is being constructed, reconstructed or relocated.” Three exceptions are provided: “(a) Where the establishment of such paths and trails would be contrary to public safety; (b) If the cost of establishing such paths and trails would be excessively disproportionate to the need or probable use; or (c) where sparsity of population, other available ways or other factors indicate an absence of any need for such paths and trails.”

Goals and Objectives

The goals of this IAMP are to develop a plan for improvements that can be implemented over time to:

- Improve safety and operations of Interchange 19 for all modes of travel;
- Improve safety and operations of the I-5 mainline;

- Identify adequate local transportation network improvements for all modes of travel; and
- Protect the investment in I-5 and its interchanges and maintain the function of the interchange.

The objectives of the IAMP are to:

- Evaluate the need for capacity improvements based on the adopted, comprehensive land use plans of Jackson County and Ashland, the Regional Transportation Plan, and the mobility standards prescribed in the Oregon Highway Plan (OHP), the Highway Design Manual and the Jackson County Transportation System Plan (TSP).
- Evaluate concepts to improve safety and increase capacity of the interchange and roadways to address existing and future needs. The concepts that will be evaluated consist of the following:

1. No Build
2. Three-Lane Standard Diamond Interchange
3. Three-lane Standard Diamond Interchange with Northbound Loop On-Ramp(to carry traffic from northbound South Valley View Road to northbound I-5)
4. Two-Lane Standard Diamond Interchange with Roundabout Ramp Terminals

- Develop an access management plan that provides for safe and acceptable operations on the transportation network and that meet, or move in the direction of meeting the access spacing standards prescribed in the OHP.
- Develop and evaluate potential management actions that have the potential to protect the future function, capacity, and mobility of the interchange.
- Protect the capability of the interchange to provide for bicycle and pedestrian traffic.

Interchange Function

The North Ashland Interchange provides the main link between the I-5 corridor and the northern end of Ashland via OR 99, which intersects South Valley View Road approximately 2500-feet south of the interchange. South Valley View Road carries a significant volume of intraregional trips between Ashland and Medford. In addition to the heavy movement of intraregional trips, the interchange also serves local residents and businesses in the interchange vicinity.

Interstate 5 is a designated freight route and is on the National Highway System. The primary function of interstate highways is to serve inter-regional and interstate passenger and freight traffic. OR 99 is classified by the OHP as a District Highway. According to the OHP, the function of District-level highways is to “provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic.”

2. PLAN AND POLICY REVIEW

Relevant transportation and land use plans and policies are reviewed in this section to identify how they influence planning for the Interchange 19 (North Ashland) area. The purpose of this review is to ensure the necessary compatibility, consistency and compliance required by state law and ODOT policy. The pertinent transportation and land use plans and regulations are listed as follows:

- Statewide Planning Goals 1 (Citizen Involvement), 2 (Land Use Planning), 11 (Public Facilities and Services), 12 (Transportation), and 14 (Urbanization);
- Oregon Transportation Plan and amendments (OTP);
- Oregon Highway Plan and amendments (OHP);
- Oregon Administrative Rule 734-051 (Highway Approaches, Access Control, Spacing Standards and Medians);
- Oregon Administrative Rule 660 Division 12 (TPR);
- Rogue Valley Metropolitan Planning Organization 2009-2034 Regional Transportation Plan;
- Jackson County Transportation System Plan;
- Jackson County Comprehensive Plan;
- Jackson County Land Development Ordinance;

It also summarizes relevant information from the Interstate 5 State of the Interstate Report, the Traffic Analysis Report Interstate 5 Interchanges 14 and 19 (2006), and the Jackson County System Development Charges.

State of Oregon Goals and Plans

OAR 731-015-0065 requires IAMPs to be in compliance with applicable statewide planning goals.

Statewide Planning Goal 1 (Citizen Involvement) and OAR 660, Division 4

Goal 1, Citizen Involvement, insures the opportunity for all citizens to be involved in all phases of the planning process. The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and of information that enables citizens to identify and understand the issues. Goal 1 requires federal, state, regional, and special districts agencies to coordinate their planning efforts with the City of Ashland and Jackson County and make use of existing local established citizen involvement programs.

Key components of Goal 1 include:

- *To provide for widespread citizen involvement*. This means that the program shall involve a cross section of affected citizens in the City of Ashland as well as Jackson County.
- *To provide effective two-way communication with citizens.* Mechanisms shall be established to provide effective communication between citizens and the elected and appointed officials for the Ashland and Jackson County area.
- *To provide the opportunity for citizens to be involved in all phases of the planning process.* All phases include the process set forth and defined in the goals and guidelines that the City of Ashland and Jackson County rely on for Land Use Planning.
- *To assure technical information is available and provided in a user-friendly manner*. Policy decisions that affect citizens within the City of Ashland and Jackson County shall be available in an easy to understand format that is made readily available to the public with assistance to interpret the technical information.
- *To assure that policy makers provide feedback to citizens.* All recommendations resulting from involving citizens from the Ashland and Jackson County area and the rationale used to reach land-use policy decisions shall be compiled and made available in the form of a written record.

Statewide Planning Goal 2 (Land Use Planning) and OAR 660, Division 4

Goal 2, Land Use Planning, requires that a land use planning process and policy framework be established as a basis for all decisions and actions relating to the use of land. This Goal is one of five statewide planning goals that play a key role in management planning for the Interchange 19 (North Ashland) Interchange area. The other goals are Goals 11 (Public Facilities and Services), 12 (Transportation), and 14 (Urbanization).

Goal 2 is important for three reasons. First, Goal 2 requires planning coordination between those local governments and state agencies “which have programs, land ownerships, or responsibilities within the area included in the plan.” In this case, Goal 2 will require that ODOT coordinate with Jackson County, the City of Ashland, and the Rogue Valley MPO. A small portion of the study area is within the City of Ashland UGB, which would have planning authority over that area, and the majority of the study area is within Jackson County and subject to its planning authority. Coordination is particularly important because development within both the City of Ashland and Jackson County will impact use of the proposed interchange, and land use decisions in the area could affect future use and operation of the interchange.

A second important element of Goal 2 is its provision that land use decisions and actions are supported by an “adequate factual base.” This requirement applies to both legislative and quasi-judicial land use actions and requires that such actions be supported by “substantial evidence.” In essence, it requires that there be evidence that a reasonable person would find to

be adequate to support findings of fact that a land use action complies with the applicable review standards.

Third, Goal 2 requires that city, county, state and federal agency and special district plans and actions related to land use be "consistent with the comprehensive plans of cities and counties and regional plans adopted under Oregon Revised Statutes (ORS) Chapter 268." This review of adopted plans is provided to ensure that the interchange improvements are consistent with the plans. This provision is important because elements of an IAMP developed for Interchange 19 (North Ashland) will need to be adopted by Jackson County.

Statewide Planning Goal 11 (Public Facilities and Services) and OAR 660, Division 11

Statewide Planning Goal 11, Public Facilities and Services, requires cities and counties to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. The goal requires that urban and rural development be "guided and supported by types and levels of urban and rural public facilities and services appropriate for, but limited to, the needs and requirements of the urban, urbanizable and rural areas to be served."

Statewide Planning Goal 12 (Transportation) and OAR 660, Division 12

Goal 12, Transportation, requires cities, counties, metropolitan planning organizations (MPOs) and ODOT to provide and encourage a safe, convenient and economic transportation system. This is accomplished through development of TSPs based on inventories of local, regional and state transportation needs.

Goal 12 is implemented through OAR 660, Division 12, the Transportation Planning Rule (TPR). The TPR contains numerous requirements governing transportation planning and project development, several of which warrant comment in this report.

The TPR requires local governments to adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors and sites for their identified functions (OAR 660-012-0045(2))." This policy is achieved through a variety of measures, including:

- Access control measures, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;
- Standards to protect future operations of roads;
- A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;
- A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;
- Regulations to provide notice to ODOT of land use applications that require public hearings, involve land divisions, or affect private access to roads; and

- Regulations assuring that amendments to land use designations, densities and design standards are consistent with the functions, capacities and performance standards of facilities identified in the TSP. See also OAR 660-012-0060.

The Oregon Land Conservation and Development Commission's rules implementing Goal 12 do not regulate access management. ODOT adopted OAR Chapter 734, Division 51 to address access management and it is expected that ODOT, as part of this project, will engage in access management consistent with its Access Management Rule.

Statewide Planning Goal 14 (Urbanization), and OAR 660, Divisions 14 and 22

Goal 14, Urbanization, requires an orderly and efficient transition from rural to urban land use. This is accomplished through the establishment of UGBs and unincorporated communities. UGBs and unincorporated community boundaries separate urbanizable land from rural land. Land uses permitted within the urban areas are more urban in nature and higher intensity than in rural areas, which primarily include farm and forest uses.

Goal 14 is important because it focuses development within relatively compact boundaries of the UGB and to a lesser degree in unincorporated communities. This compact development helps contain the costs of public facilities such as transportation by reducing the need for facilities further out and helping jurisdictions better anticipate where growth will occur. The location, type, and intensity of development within the study area will impact use of the interchange and could affect future use and operation of the interchange.

Oregon Transportation Plan

The Oregon Transportation Plan (OTP) is the state's long-range multi-modal transportation plan. The OTP is the overarching policy document among a series of plans that together form the state transportation system plan (TSP). The OTP considers all modes of Oregon's transportation system as a single system and addresses the future needs of Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation and railroads. The current OTP assesses state, regional, and local public and private transportation facilities through 2030. The OTP establishes goals, policies, strategies and initiatives that address the core challenges and opportunities facing Oregon. It also provides the framework for prioritizing transportation improvements based on varied future revenue conditions.

This Plan supersedes the 1992 Oregon Transportation Plan. The 1992 OTP established a vision of a balanced, multi-modal transportation system and called for an expansion of ODOT's role in funding non-highway investments. The current OTP furthers these policy objectives with emphasis on maintaining the assets in place, optimizing the existing system performance, creating sustainable funding and investing in strategic capacity enhancements. Development of IAMPs is integral to maintaining assets and optimizing system performance.

An IAMP must be consistent with the applicable OTP goals and policies. Findings of compatibility will be part of the basis for IAMP approval. The most pertinent OTP goals and policies for interchange planning are as follows:

Goal 1 - Mobility and Accessibility

- Policy 1.3 – Relationship of Interurban and Urban Mobility

Goal 2 - Management of the System

- Policy 2.1 - Capacity and Operational Efficiency
- Policy 2.2 - Management of Assets

Goal 3 - Economic Vitality

- Policy 3.1 – An Integrated and Efficient Freight System
- Policy 3.2 – Moving People to Support Economic Vitality

Goal 4 – Sustainability

- Policy 4.1 – Environmentally Responsible Transportation System
- Policy 4.3 – Creating Communities

Goal 5 – Safety and Security

- Policy 5.1 – Safety and Security

Goal 7 – Coordination, Communication and Cooperation

- Policy 7.1 - A Coordinated Transportation System
- Policy 7.3 – Public Involvement and Consultation
- Policy 7.4 – Environmental Justice

Findings to the effect that all of the above pertinent policies are consistent with the adopted OTP need to be developed as part of an adoption package presented to the OTC.

Oregon Highway Plan

OAR 734-051-0155 requires IAMPs to be consistent with the OHP. The 1999 Oregon Highway Plan (OHP) establishes policies and investment strategies for Oregon's state highway system over a 20-year period and refines the goals and policies found in the OTP. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems. The policies applicable to planning for interchange improvements are described below, with impacts to interchange planning shown in italic.

Goal 1. System Definition, the following policies are applicable to the project:

- Policy 1B (Land Use and Transportation), which recognizes the need for coordination between state and local jurisdictions;

Coordination with local jurisdictions will occur throughout the preparation of the IAMP. A Technical Advisory Committee (TAC) has been formed to inform the IAMP. Members include representatives from the Department of Land Conservation and Development, Rogue Valley Council of Governments, the City of Ashland, Jackson County, the City of Talent, the Rogue Valley MPO, the Federal Highway Administration, the Oregon Bridge Delivery Partners, and the Oregon Department of Transportation.

- Policy 1C (State Highway Freight System), which states the need to balance the movement of goods and services with other uses;

  The traffic operations analysis will account for freight movement as well as passenger vehicle movement. Interstate 5 is a designated freight route.

- Policy 1F (Highway Mobility Standards), which sets mobility standards for ensuring a reliable and acceptable level of mobility on the highway system by identifying necessary improvements that would allow the interchange to function in a manner consistent with OHP mobility standards; and

  The purpose of the IAMP is to understand the relationship between land uses and traffic in the areas of the new interchange, and to enable land uses to be planned so that the public investment in the facility is best protected.

- Policy 1G (Major Improvements), which requires maintaining performance and improving safety by improving efficiency and management before adding capacity.

  Reconstruction of Interchange 19 (North Ashland) is intended to reduce congestion while improving operations and safety, not to add capacity.

Goal 2. System Management, the following policies are applicable to the project:

- Policy 2B (Off–System Improvements), which helps local jurisdictions adopt land use and access management policies; and

  The IAMP will include sections describing existing and future land use patterns and implementation measures as well as a summary of the Traffic Analysis Report for Interchange 14 and 19 (2006). Implementation of the IAMP may require an intergovernmental agreement between ODOT, the City of Ashland, and Jackson County and may require amendments to city, county, and MPO plans and ordinances.

- Policy 2F (Traffic Safety), which improves the safety of the highway system.

  The purpose of the reconstructed interchange will be to improve safety as well as traffic operations.

Goal 3. Access Management, the following policies are applicable to the project:

- Policy 3A: (Classification and Spacing Standards), which sets access spacing standards for driveways and approaches to the state highway system;

- Policy 3C (Interchange Access Management Areas), which sets policy for managing interchange areas by developing an IAMP that identifies and addresses current interchange deficiencies and short, medium and long term solutions; and
- Policy 3D (Deviations), which establishes general policies and procedures for deviations from adopted access management standards and policies.

  Section 6 of this IAMP document contains an access management plan that identifies approaches to the interchange crossroad that do not meet the OHP spacing standards and will require deviations.

Oregon Bicycle and Pedestrian Plan

The purpose of the Oregon Bicycle and Pedestrian plan is to implement the Actions recommended by the OTP; guide ODOT and local governments in developing bikeway and walkway systems; explain the laws pertaining to the establishment of bikeways and walkways; fulfill the requirements of the TPR; and provide standards for planning, designing and maintaining bikeways and walkways.

Highway Design Manual (HDM)

The purpose of the HDM is to establish mobility standards when evaluating potential design configurations.

OAR 660 Division 12 (TPR—including recent amendments)

The purpose of the Transportation Planning Rule (TPR) is "to implement Statewide Planning Goal 12 (Transportation) and promote the development of safe, convenient and economic transportation systems that are designed to reduce reliance on the automobile so that the air pollution, traffic and other livability problems faced by urban areas in other parts of the country might be avoided." A major purpose of the Transportation Planning Rule (TPR) is to promote more careful coordination of land use and transportation planning, to assure that planned land uses are supported by and consistent with planned transportation facilities and improvements.

This rule identifies transportation facilities, services and improvements which may be permitted on rural lands consistent with Goals 3, 4, 11, and 14 without a goal exception. These include replacement of an intersection with an interchange, channelization, and medians. The local government must identify reasonable build design alternatives, assess their impacts, and select the alternative with the least impact.

The Land Conservation and Development Commission adopted amendments to the TPR in March, 2005 that clarify how plan amendments and zoning changes impact to transportation facilities are assessed. The amendments stipulate that a significant effect occurs only if a plan amendment or zone change affects the facility by the end of the planning period, not if the effect occurs at any point during the planning period. The primary focus of this rule is keeping land use and transportation in balance. The current amendments include new provisions that pay particular attention to proposed plan or land use regulation amendment within one-half

mile of interstate interchanges. The concern here is to protect the state's significant investments in interchanges and in the interstate system.

Oregon Administrative Rule Chapter 734, Division 51 (Highway Approaches, Access Control, Spacing Standards and Medians)

OAR 734-051-0155 requires IAMPs to be consistent with applicable access management plans. OAR 734-051 governs the permitting, management, and standards of approaches to state highways to ensure safe and efficient operation of the state highways and address the following:

- How to bring existing and future approaches into compliance with access spacing standards, and ensure the safe and efficient operation of the highway;
- The purpose and components 0f an access management plan; and
- Requirements regarding mitigation, modification and closure of existing approaches as part of project development.

Section 734-051-0125, Access Management Spacing Standards for Approaches in an Interchange Area establishes interchange management area access spacing standards. Section 734-051-0155 specifies elements that are to be included in IAMPs, such as short-, medium-, and long-range actions to improve and maintain safe and efficient roadway operations within the interchange area.

An access management plan has been developed as a part of this IAMP effort (see Section 6) to address the standards set forth in Division 51. It includes an inventory of existing public and private approaches and documents constraints and considerations that will be factored into findings for compliance with Division 51. The access management plan provides short, medium and long-term actions that are intended to move in the direction of meeting the Division 51 access management spacing standards.

Transportation Plans

Rogue Valley Metropolitan Planning Organization 2009-2034 Regional Transportation Plan

The Rogue Valley Council of Governments (RVCOG), the designated metropolitan planning organization (MPO) for Jackson County and the seven cities (Ashland, Talent, Phoenix, Jacksonville, Medford, Central Point, and the unincorporated community of White City,) prepared the Regional Transportation Plan (RTP) as one of its transportation planning responsibilities. The RTP is a multi-modal transportation plan designed to meet the anticipated 25 year transportation needs within the MPO planning area boundary. The RTP serves as a guide for the management of existing transportation facilities and for the design and implementation of future transportation facilities through the year 2034. The Rogue Valley Metropolitan Planning Organization updated and adopted the current Regional Transportation Plan for 2009-2034 on March 24, 2009. The RTP provides a summary of the regional transportation actions anticipated to occur in the planning area through 2034. The actions

presented are in the context of the respective modes and planning issues and include: multi-modal safety and security; transportation system management; transportation demand management; street system; bicycle and pedestrian facilities; transit system; parking; future conditions; and plan consistency. The RTP goals are:

Goal 1. Plan for, develop, and maintain a balanced multi-modal transportation system that will address existing and future needs.

Goal 2. Optimize safety and security on the transportation system.

Goal 3. Use transportation investments to foster compact, livable communities. Develop a plan that builds on the character of the community, is sensitive to the environment, and enhances quality of life.

Goal 4. Develop a plan that can be funded and that reflects responsible stewardship of public funds.

Goal 5. Maximize the efficient use of transportation infrastructure for all users and modes.

Goal 6. Use incentives and other strategies to reduce reliance on single-occupant vehicles.

Goal 7. Provide an open, balanced, credible process for planning and developing the transportation system.

Goal 8. Encourage use of cost-effective emerging technologies to achieve regional transportation goals.

Goal 9. Use transportation investments to foster economic opportunities.

Each goal has several associated policies.

The land use element designates the City of Phoenix, approximately 8 miles north of the IAMP study area in North Ashland, as the nearest Transit Oriented Development (TOD) high-growth area. The TODs were originally developed in the Transit Oriented Development and Transit Corridor Design Strategies Final Report (August 1999).

Jackson County Transportation System Plan

Jackson County and ODOT began updating the transportation element of the comprehensive plan in 2001 and completed the adopted Jackson County TSP in March of 2005. The primary study area for the TSP consists of all areas of Jackson County located outside the UGBs of incorporated cities, although it does include issues identified in local TSPs or the RTP that affect state and county facilities inside UGBs. The proposed improvements are required to be compatible with Jackson County TSP goals and policies.

The plan and policy review, technical background and needs analysis, goals and policies, and TSP sections of the TSP will replace the transportation element in the County Comprehensive Plan. The technical background and needs section describes the road, public transit, bicycle and pedestrian, air, rail, marine, pipeline/transmission systems. The TSP also includes a financing section.

The TSP has livability, modal components, and integration goals with associated policies and strategies to implement each goal. The livability goal is "to develop and maintain a safe and multi-modal transportation system capable of meeting the diverse transportation needs of Jackson County while minimizing adverse impacts to the environment and to the County's quality of life." There are no policies or strategies related to this goal specifically applicable to the interchange project.

The TSP includes bicycle and pedestrian-related policies applicable to the project area. Policy 4.2.4-A,d "Provide bicycle lanes in urban areas and adequate shoulders in rural areas, in addition to parallel bikeways, as part of arterial and collector roadway improvement projects" illustrates Jackson County's desire to provide bicycle facilities and connections to make cycling an attractive alternative to driving. Pedestrian related policies are addressed in the TSP under Policy 4.2.3-A "The County will include pedestrian facilities and connections as a fundamental component in the maintenance and development of the overall County transportation system. The County transportation system will promote a safe, linked pedestrian system that connects residential areas to schools, recreation, commercial centers, employment centers, and other activity centers."

The goal of the modal component is "to plan an integrated transportation system that maintains existing facilities and responds to the changing needs of Jackson County by providing effective multi-modal transportation options." One of the strategies under the vehicular system policies is that improvement projects should attempt to reduce conflicts between traffic generated by logging, agriculture, and aggregate and other traffic (4.2.1-B, b.). There are also policies to support freight mobility and coordination between the County and ODOT. The integration goal is "to achieve the livability and modal elements goals by integrating land use planning, system financial planning, environmental planning and application of policies to address transportation needs in specific locations. The TSP does not identify any Interchange 19 (North Ashland) improvements in its project list. However, the TSP does call for improvements to South Valley View Road from Interstate 5 to OR 99: widening to five lanes and adding bicycle and pedestrian facilities. Such improvements would have a direct impact on vehicular, bicycle, and pedestrian movements at the interchange.

Comprehensive Plan and Zoning Ordinance

OAR 731-015-0065 requires IAMPs to be compatible with the acknowledged comprehensive plans of affected cities and counties.

Jackson County Comprehensive Plan

The Board of Commissioners approved amendments to the Jackson County Comprehensive Plan on January 12, 2004, which became effective March 12, 2004. Ordinance No. 2006-3 was adopted May 31, 2006 and became effective July 30, 2006. The Jackson County Comprehensive Plan and Map (see Figure 2-1) is the official long-range land use policy document for Jackson County. The plan sets forth general land use planning policies and allocates land uses to resource, residential, commercial and industrial categories. The plan serves as the basis for the

coordinated development of physical resources and the development or redevelopment of the county based on physical, social, economic and environmental factors. The comprehensive plan establishes the purpose, map designation criteria, and the basis for determining the appropriate zoning district for each land use.

The Transportation Element provides findings, policies and implantation measures that aim to maintain and improve the County's transportation system.

The most recent County TSP was adopted March 16, 2005. This IAMP includes an analysis of comprehensive plan designations and land uses. The three land use scenarios evaluate various levels of build-out of vacant and under-utilized land. Upon completion, the county must adopt the IAMP as a policy and implementation document before ODOT can present the IAMP to the Oregon Transportation Commission (OTC) for review and approval. If the IAMP is adopted, subsequent changes to the county's comprehensive plan will need to be compatible with the IAMP.

Jackson County Land Development Ordinance

The IAMP includes an analysis of zoning designations and land uses within the Interchange 19 vicinity (see Figure 2-2). The three land use scenarios will evaluate various levels of build-out of vacant and under-utilized land. Upon completion, the county must adopt the IAMP as a policy and implementation document before ODOT can present the IAMP to the Oregon Transportation Commission (OTC) for review and approval. If the IAMP is adopted, subsequent changes to the county's comprehensive plan will need to be compatible with the IAMP

Other Plans

Interstate 5 State of the Interstate Report

The Interstate 5 State of the Interstate Report (2000) describes the existing and forecasted operating, geometric, safety, and physical conditions for the Interstate 5 mainline and interchanges within Oregon. The existing North Ashland Interchange 19 has a standard diamond. Since its construction in 1964, the interchange underwent minor improvements such as installation of guardrail and concrete barriers, and re-grading of shoulder slopes.

The existing geometric design of the North Ashland Interchange does not meet current design guidelines. For example, the location of access points close to ramp terminals can create congestion and un-channelized ramp terminals that can confuse drivers and create a potential for wrong-way movements. A detailed deficiency assessment identified the following:

- The existing pavement width on the crossroad does not provide adequate shoulders for emergency stops or safe pedestrian and bicycle movement.
- The northbound and southbound exit ramps do not provide an adequate distance for deceleration based on the horizontal alignment.

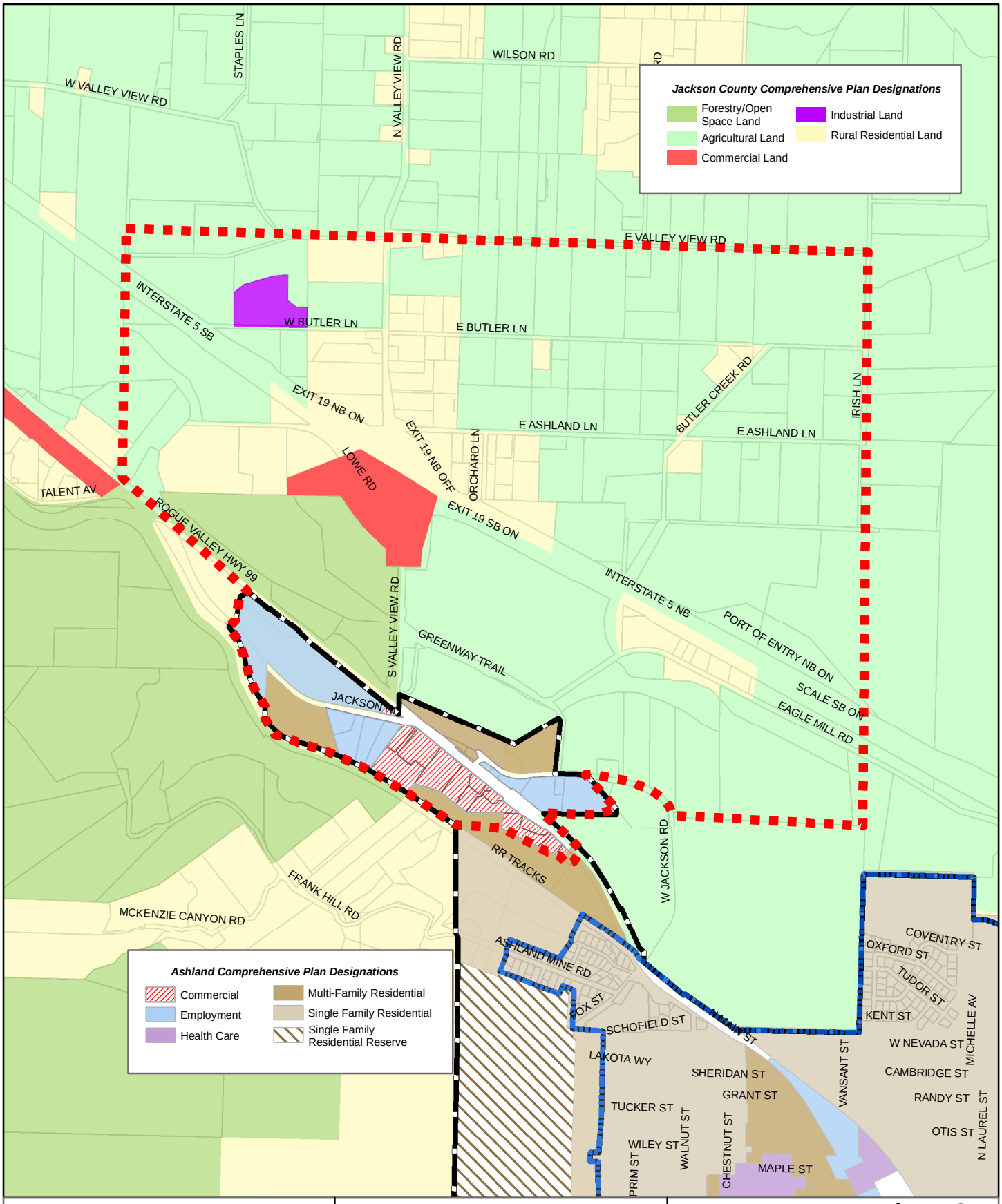


Figure 2-1
Comprehensive Plan Designations

Interchange 19 (North Ashland) Area Management Plan

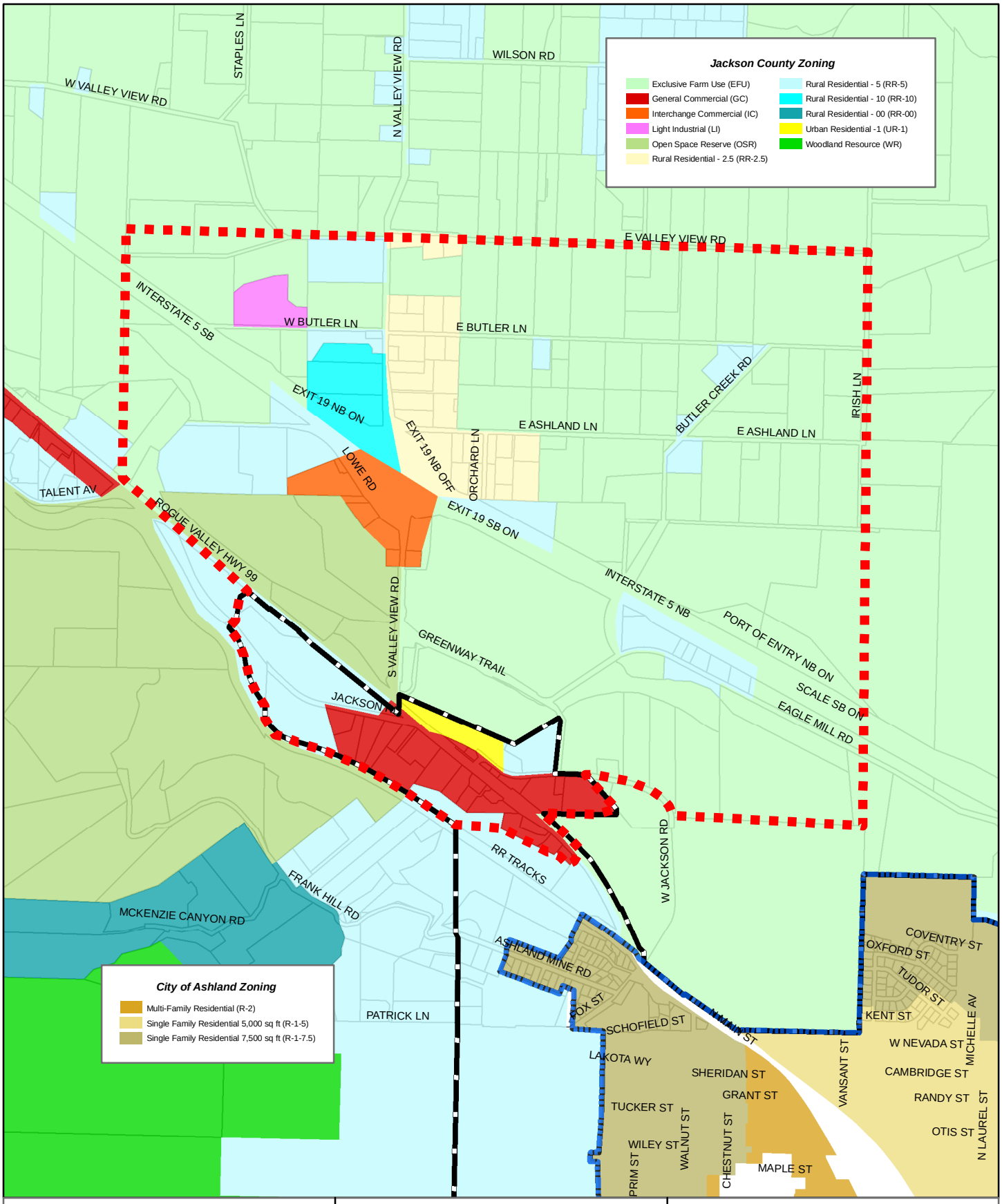


Figure 2-2
Zoning

Interchange 19 (North Ashland) Area Management Plan

- The northbound and southbound entrance ramps do not provide an adequate distance for acceleration based on the horizontal alignment.
- Signing at the northbound ramp terminals does not meet driver expectations.

Based on the State of the Interstate Report, year 2000 average daily traffic south of the interchange recorded 23,700 vehicles and 34,100 vehicles north of the interchange – suggesting increased volumes as the Interstate 5 corridor approaches the Medford vicinity. The traffic pattern is characteristic of commuters traveling between Medford and Ashland. South Valley View Road crosses Interstate 5 at this interchange and has an average daily traffic volume of 13,500 vehicles. The stop sign controlled southbound off-ramp operates at a volume-to-capacity (V/C) ratio of 0.71, indicating moderately congested conditions. The northbound stop sign controlled off-ramp operates at a V/C ratio of 0.41, indicating less congested conditions.

An investigation of detailed crash data revealed 27 reported accidents within a 5-year period from 1994 to 1998 – a majority occurring in the northbound direction of travel.

The structure was evaluated as a part of the *Interstate 5 State of the Interstate Report* and found that the structure has a sufficiency rating of 94.0. Anything above a sufficiency rating of 80 precludes the structure for rehabilitation. Although deemed structurally sufficient, the bridge is nonetheless classified as “functionally obsolete” based on the National Bridge Inventory inspection criteria. As such, several safety features of the structure are inadequate according to current standards. The combined effect of these two rating systems implies that this structure should be a medium priority for improvements.

The 1997 ODOT Pavement Condition Report classifies the highway segment between mile point 18.70 and 28.33 as having an 85.3 and 62.7 overall section index – corresponding to a “good” and “fair” condition category. A good rating indicates a stable pavement with minor cracking, patching, and deformations. A fair rating indicates a generally stable pavement with moderate cracking, minor areas of structural weakness, and acceptable ride quality. According to the Interstate Report, action may be needed to ensure the highway segment does not fall below the fair category.

Traffic Analysis Report Interstate 5 Interchanges 14 and 19

Critical design elements of the bridge improvements at Interchange 19 will be selected based in part on the results of the traffic analysis contained in this report. This report focuses on the design of the bridges, ramp terminals, and roadway sections immediately adjacent to the interchange. The purpose of the Traffic Analysis Report is: 1) to provide the Oregon Department of Transportation (ODOT) and the Oregon Bridge Delivery Partners (ODBP) with adequate safety and operations analysis information to select appropriate bridge improvements for the Bundle #314 projects, and 2) for subsequent use in the IAMP projects at the Green Springs and North Ashland Interchanges.

This report provides an inventory of existing roadways, provides existing and future traffic operations analyses, safety analysis, and evaluates several build options at each interchange designed to address existing or projected transportation needs.

3. SUMMARY OF EXISTING CONDITION ANALYSES

This section provides a summary of existing traffic operations analysis findings related to I-5 Interchange 19 (North Ashland Interchange). Analysis of existing and future conditions was originally conducted for the *Traffic Analysis Report* (TAR) for I-5 Interchanges 14 and 19 (Green Springs and North Ashland Interchanges, dated August 22, 2006. This IAMP effort focuses only on Interchange 19. A separate IAMP addressing Interchange 14 is being prepared concurrently with the Interchange 19 IAMP project.

Although the TAR analyzed future traffic operations, this section reviews only the sections of the TAR pertaining to existing conditions. The present IAMP project develops revised future traffic volume projections that are be based on a new regional travel demand model. This section also provides an inventory of existing roadways and the safety analyses presented in the TAR.

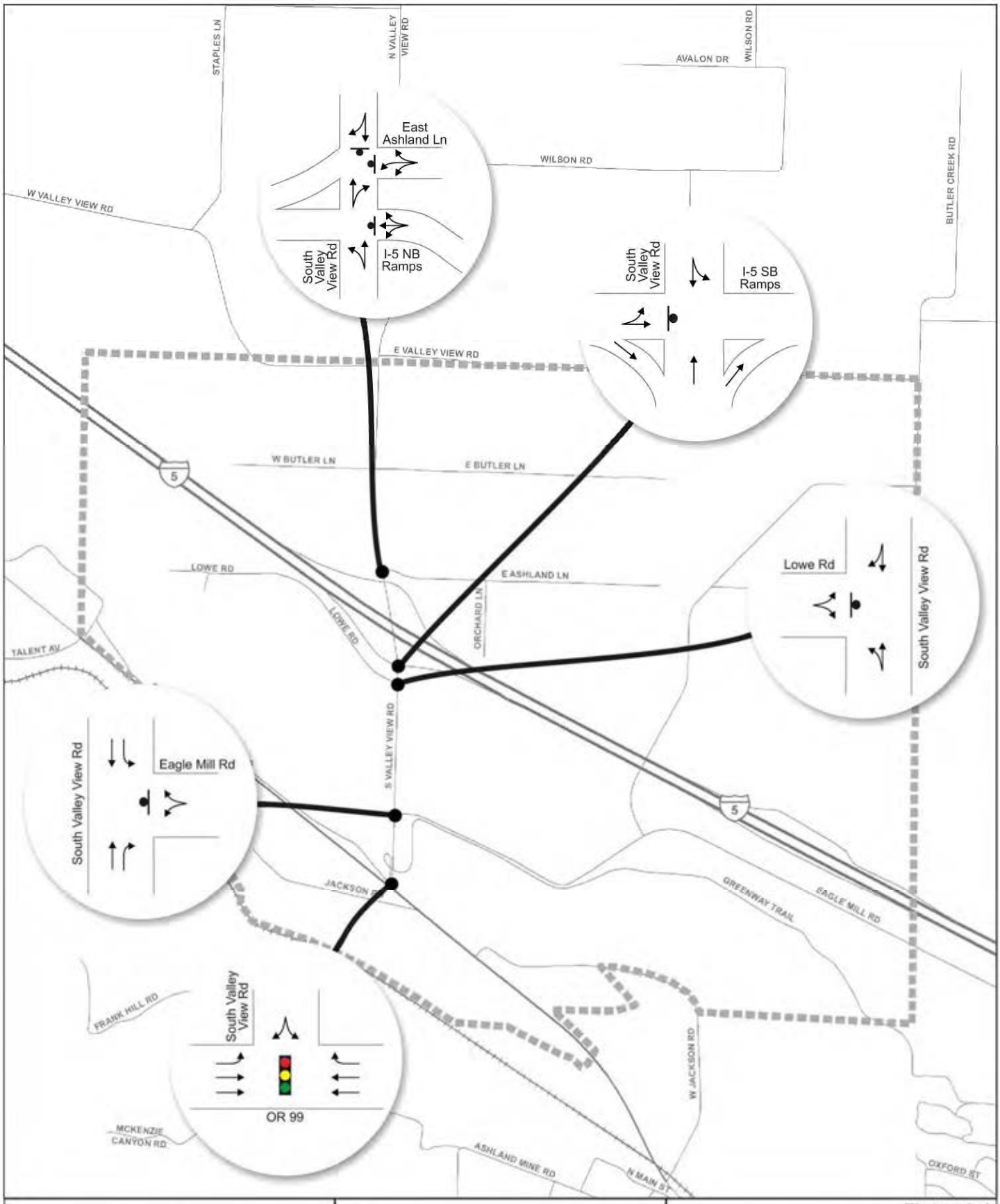
Analysis Area

This interchange has a standard diamond configuration. South Valley View Road from the interchange to OR 99 is under ODOT jurisdiction, serving an interchange crossroad and providing access between the Rogue Valley Highway (OR 99) and I-5. While located outside of Ashland's Urban Growth Boundary, this interchange is heavily used by commuters within the Rogue Valley MPO area. The North Ashland Interchange analysis area consists of all the major intersections along South Valley View Road from East Ashland Lane located directly north of the I-5 northbound ramp terminal intersection, to OR 99, which lies about 2500 feet south of the interchange.

Figure 3-1 illustrates the analysis area, showing existing lane configurations and traffic control at the analysis area intersections. Table 3-1 provides roadway names, jurisdictional authorities, functional classifications, posted speeds (if available), number of lanes and operational standards for analysis area roadways. This information was collected through a site visit and review of the Oregon Highway Plan (OHP), Highway Design Manual (HDM) and the Jackson County Transportation System Plan (TSP).

Traffic Counts

Traffic counts, conducted on May 16, 2006, consisted of 16-hour and 3-hour AM and PM peak period counts at analysis area intersections, and a 24-hour count on the I-5 mainline. The counts included full FHWA 13-class vehicle classifications. Table 3-2 below provides a list of all intersection count locations including the count type.



1,000 500 0 1,000
Feet

GIS Data Source: Jackson County

Legend

IAMP Management Area

Traffic Signal

Stop Sign

Figure 3-1
Existing Lane Configurations and Traffic Control Devices

Interchange 19 (North Ashland) Area Management Plan

Table 3-1. Analysis Area Roadway Inventory

Roadway/ Highway Name	Jurisdiction	ODOT Highway Classification	City Functional Classification	Posted Speed	No. of Lanes	Operational Standard (V/C Ratio)		
						OHP[1]	HDM[2]	County[3]
I-5 (Pacific Highway No. 1)	ODOT	Interstate Hwy, NHS, FR[4]	-	65	4	0.80	0.75	-
I-5 Ramp terminal Intersections	ODOT	Interstate Hwy, NHS, FR[4]	-	-	1	0.85	0.75	-
OR 99 (Rogue Valley Hwy)	ODOT	District Hwy	Arterial	45, 55[5]	5	0.90	0.85	0.95
South Valley View Road	ODOT	District Hwy	Arterial	45, 55[6]	2, 3	0.90	-	-
Eagle Mill Road	Jackson County	-	Minor Collector	45	2	-	-	0.95
Lowe Road	Jackson County	-	Local Street	-	2	-	-	0.95
East Ashland Lane	Jackson County	-	Local Street	-	2	-	-	0.95

Notes:

1. Oregon Highway Plan (OHP), Table 6. Standards apply to planning and design projects of existing and no-build conditions through the planning horizon (2030).
2. Highway Design Manual (HDM), Table 10-1. Standards apply to planning and project design projects of build conditions through the planning horizon (2030).
3. Jackson County Transportation System Plan.
4. 45 mph east of S. Valley View Rd, 55 mph west of S. Valley View Rd.
5. 45 mph south of I-5, 55 mph north of I-5.
6. NHS: National Highway System; FR: Freight Route

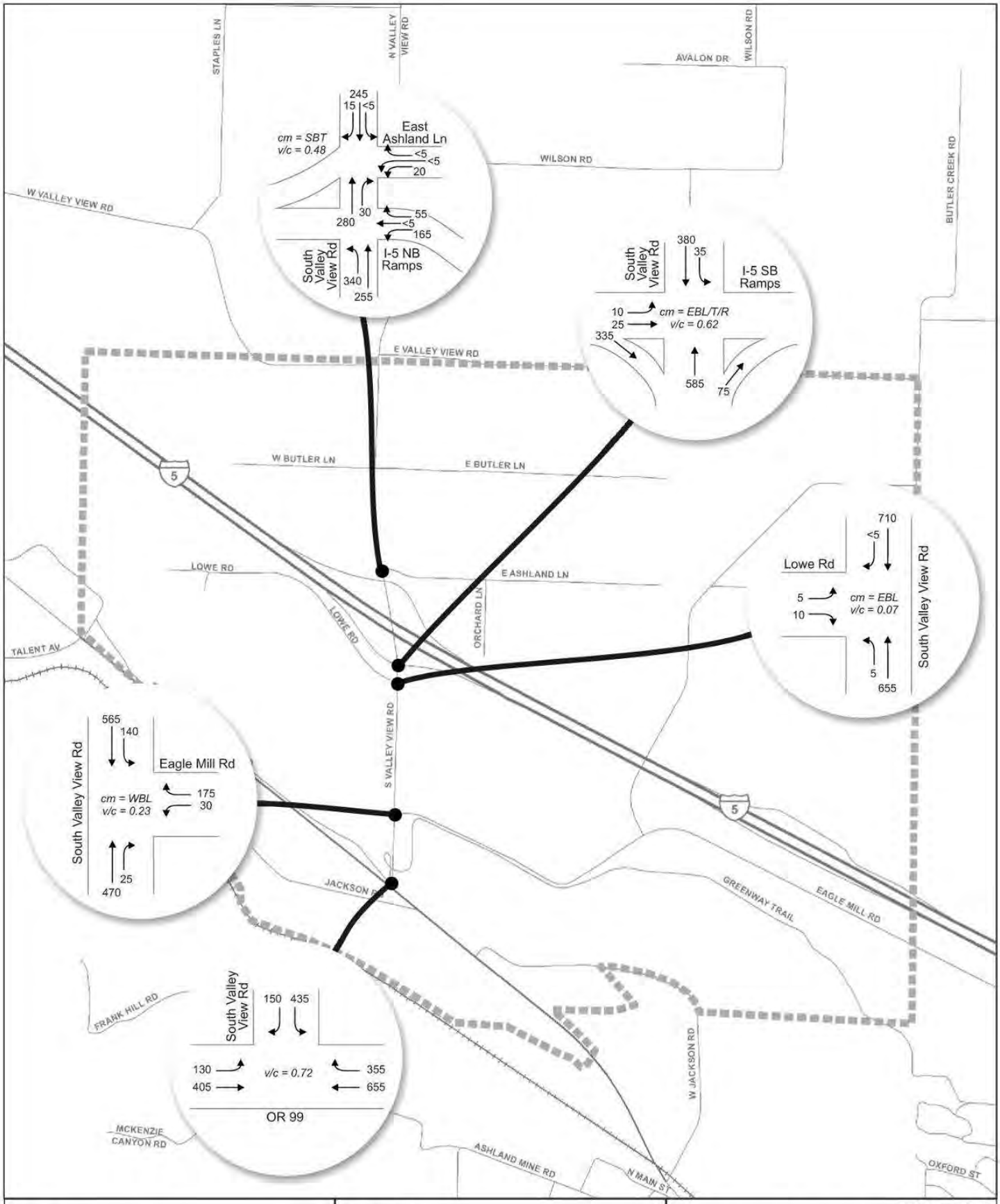
Table 3-2. Intersection Turning Movement Count Locations and Types

Location	Type of Count
I-5 Mainline, Both Directions, South Of North Ashland Interchange	24 Hour
South Valley View Road At East Ashland Lane	16-Hour (6 AM – 10 PM)
North Ashland Interchange 19 : Northbound Ramps At South Valley View Road	16-Hour (6 AM – 10 PM)
North Ashland Interchange 19: Southbound Ramps At South Valley View Road	16-Hour (6 AM – 10 PM)
South Valley View Road At Lowe Road	3-Hour AM and PM
South Valley View Road At Eagle Mill Road	3-Hour AM and PM
South Valley View Drive At Rogue Valley Highway (Or 99)	16-Hour (6 AM – 10 PM)

Note: All 16-hour and 3-hour counts conducted May 16, 2006. 24-hour I-5 mainline count conducted from 22:00 May 15 to 22:00 May 16, 2006.

Traffic volumes are typically subject to seasonal variation. Therefore, the traffic counts conducted in May needed to be seasonally adjusted to roughly correspond to traffic volumes that are seen in the peak month, which is typically July or August. The ODOT Transportation Planning Analysis Unit (TPAU) has developed procedures to convert traffic volumes taken at any

time of the year to peak month volumes. TPAU methodology was employed to adjust the May 2006 volumes. Year 2006 seasonally adjusted PM peak hour volumes are shown in Figure 3-2.



1,000 500 0 1,000
Feet

GIS Data Source: Jackson County

Legend

IAMP Management Area

cm = Critical Movement (stop controlled intersections)
v/c = Intersection Volume Capacity (signalized intersections)
Critical Movement Volume to Capacity (stop controlled intersections)

Figure 3-2
Existing (2006) PM Peak Hour Traffic Volumes and Intersection Operations

Interchange 19 (North Ashland) Area Management Plan

Existing Traffic Operations

Intersection Analyses

Table 3-3 summarizes the results for all analysis area intersections and also presents agency operational standards to enable comparison with intersection results. Table 3-4 summarizes queuing on critical approach legs at the same intersections. Critical movements at unsignalized intersections are typically the minor street left turns or, in the case of single-lane approaches, the minor street approaches. These movements are required to yield to all other movements at the intersection and thus are subject to the longest delays and have least capacity. Left turns from the major street are also subject to delays since motorists making these maneuvers must also yield to on-coming major street traffic.

Table 3-3. Existing (Year 2006) PM Peak Hour Traffic Operations Analysis Results

Intersection	Critical Movement	V/C Ratio	LOS	Operational Standard (V/C Ratio)		
				OHP[1]	HDM[2]	County[3]
S. Valley View Rd & OR 99	n/a[4]	0.72	C	0.90	0.85	0.95
S. Valley View Rd & Eagle Mill Rd	WBL	0.23	D	0.90	-	-
S. Valley View Rd & Lowe Rd	EBL	0.07	D	0.90	-	-
S. Valley View Rd & I-5 SB Ramps	EBL/T/R	0.62	A	0.85	0.75	0.95
S. Valley View Rd & I-5 NB Ramps	WBL/T/R	0.48	C	0.85	0.75	0.95
S. Valley View Rd & E. Ashland Ln	WBL/R	0.05	C	-	-	0.95

Notes:
1. Oregon Highway Plan Mobility Standards (Table 6).
2. ODOT Highway Design Manual Mobility Standards (Table 10-1)
3. Ashland Municipal Code requires that traffic operations on City facilities do not exceed capacity (v/c < 1.00) and defers to ODOT standards for intersections with State highways within the City. OHP District Highway mobility standard is shown.
4. Signalized intersection. LOS and v/c are for overall intersection.
5. Refers to left turn from Main Street to Ashland Street.

Table 3-4. Existing (Year 2006) 30th Highest Hour 95th Percentile Queues

Intersection	Movement	95% Queue
S. Valley View Rd & OR 99	SBL/R	775[2]
	EBL	175[1]
	WBR	125[1]
S. Valley View Rd & Eagle Mill Rd	WBL/R	175
	SBL	75
S. Valley View Rd & Lowe Rd	EBL/R	25
	NBL/T	25
S. Valley View Rd & I-5 SB Ramps	EBL/T/R	125
	SBL/T	75
S. Valley View Rd & I-5 NB Ramps	WBL/T/R	175
	SBT	175[2]
S. Valley View Rd & E. Ashland Ln	WBL/R	50

Notes:
1. Storage bay at or above capacity.
2. Queue extends into adjacent intersection(s)

Northbound and Southbound Ramp Terminals

Traffic operations analyses at the interchange revealed that both ramp terminals currently meet ODOT OHP mobility standards. However, under seasonally adjusted volume conditions, queuing on the southbound exit ramp is calculated to extend into the deceleration portion of the ramp. Queue lengths are expected to lengthen as traffic volumes increase in the future.

The northbound ramp terminal intersection has an unconventional configuration in which left turning vehicles from South Valley View Road to the I-5 northbound entrance ramp have a free movement. All other approaches, consisting of the I-5 northbound exit ramp and southbound South Valley View Road, must yield to the northbound through and left turning movements. This type of intersection control violates driver expectation and is generally not recommended for new construction. However, since the heaviest movement at this intersection is the left turn from northbound South Valley View Road to I-5 northbound, this configuration provides optimal capacity of any unsignalized configuration. The TAR provided a safety analysis that found no evidence of an elevated crash rate at this intersection related to the unconventional intersection control.

South Valley View Road at Rogue Valley Highway (OR 99)

This intersection currently has a v/c ratio of 0.72 during seasonally-adjusted, PM peak-hour traffic volume conditions. This meets the OHP mobility standard of 0.90 for District-level highways. However, queuing on the single-lane southbound approach is significant, at nearly 800 feet. Future traffic operations are expected to worsen with major queuing on the southbound approach leg. The Jackson County TSP recognizes the need for improvements to South Valley View Road between the North Ashland Interchange and OR 99, as this segment of arterial carries the high traffic volume. Proposed improvements to this segment of South Valley View Road consist of an upgrade to a five-lane arterial.

Freeway Ramp Merge/Diverge Analysis

Analyses were conducted for each of the merge and diverge segments for the entrance and exit ramps at the interchange under existing 30th highest hour traffic volume conditions. The analyses showed that traffic operations at each of the ramp merge and diverge sections meet the OHP mobility standard for interstate freeways.

Safety Analysis

The TAR conducted a thorough safety analysis to determine if there were any significant documented safety issues within the analysis area and to recommend measures at specific locations or general strategies for improving overall safety.

The safety analysis included a review of crash history data supplied by the ODOT Crash Analysis and Reporting Unit for the period between January 1, 2002 and December 31, 2004, which were the three most recent full years for which crash data is available at the time. The analysis also examined ODOT Safety Priority Index System (SPIS) data and compared calculated crash rates from analysis area roadways with statewide averages.

Overall, analysis found no apparent crash patterns at any of the study area intersections or freeway segments, and no single intersection demonstrated a significant safety problem. There were no reported crashes during the three year study period at either of the North Ashland Interchange ramp terminals. However, there were four crashes resulting in three injuries at the intersection of South Valley View Road at Lowe Road, which is very close to the interchange, directly to the south of the southbound ramp terminal intersection. The primary types of crashes occurring at this location are turning and rear end. While the intersection spacing is much closer than what is advised under current interchange design standards, there is no evidence that the crashes were caused by the close spacing. Regardless, the TAR recommended that future improvements to the interchange should include a relocation of the intersection to a point further south. Relocation of Lowe Road, and other potential access management actions, will be explored in the Access Management Plan, provided in Section 6 of this report.

Future Conditions

The TAR provided traffic operations analysis of interchange area roadways for no-build and various build alternatives under future traffic conditions: 2010 year of build and 2030 plan horizon year. The analysis was prepared prior to completion of the new Rogue Valley MPO Transportation Demand Model (RVMPO model), which did not include data for the Ashland area. Consequently, future traffic volumes were developed using a TPAU-approved methodology that involved determination of growth factors based on historical growth. In the intervening months, the RVMPO model has come online. Therefore, the analysis performed for this IAMP revised future traffic volume projections, and they are now based on the projected population, household and employment data used in the RVMPO model.

Access Management

The TAR provided an assessment of existing public and private accesses along South Valley View Road within the interchange influence area, as well as a review of access management standards as listed in the Oregon Highway Plan (OHP).

OHP Table 16: Minimum spacing standards applicable to freeway interchanges with two-lane crossroads specifies the following minimums for rural area type:

- 1320 feet distance to the first approach on the right; right in/right out
- 1320 feet distance to the first intersection where left turns are allowed
- 1320 feet distance between the last right in/right out approach and the start of taper for the entrance ramp

There are several access points that do not meet the above spacing standards, including some that are located within close proximity to the ramp terminals. Directly north of the northbound ramp terminal, East Ashland Lane, as well as several private residential driveways, intersects with South Valley View Road. East Ashland Lane provides access to a few homes and experiences very low volumes. Directly south of the southbound ramp terminal, Lowe Road, as well as several driveways (gas stations, a hotel and fast food restaurant) intersects South Valley

View Road. Traffic volumes to the south of the interchange are significantly higher than those to the north of the interchange. As traffic volumes increase, the potential conflicts and delays associated with these accesses will have an increasingly significant impact on traffic operations at the interchange.

The TAR listed the following non-conforming accesses in the vicinity of the North Ashland Interchange 19:

- The intersection of East and West Butler Lane is less than 1320 feet from the northbound ramp terminal. The distance is estimated to be approximately 1100 feet.
- The intersection of East Ashland Lane is less than 1320 feet from the northbound ramp terminal. The distance is estimated to be less than 200 feet.
- The intersection of Lowe Road is less than 1320 feet from the southbound ramp terminal. The distance is estimated to be less than 200 feet.
- The driveways serving high-volume commercial establishments on both sides of South Valley View Road are less than 1320 feet from the southbound ramp terminal. The distance is estimated to be approximately 700 feet.

Numerous driveways serving fields and individual residences are also present both north and south of the interchange.

No determination was made as to which public and private approaches have valid access permits.

The TAR provided a list of changes to the local street network that would be necessary to fully comply with the OHP Access Management Standards. Most of the changes consisted of consolidating driveways and relocating streets away from the interchange crossroads. Specific access management actions are identified in Section 6 of this report.

Bicycle and Pedestrian Facilities

The TAR provided a discussion of the provision of pedestrian and bicycle facilities as a component of the interchange improvement project. This section provides a summary of this discussion.

Oregon Revised Statues (ORS) govern the provision of bicycle and pedestrian facilities. ORS 366.514 (Use of highway fund for footpaths and bicycle trails) specifies, in part, that "…reasonable amounts shall be expended as necessary to provide footpaths and bicycle trails, including curb cuts or ramps as part of the project. Footpaths and bicycle trails, including curb cuts or ramps as part of the project, shall be provided wherever a highway, road or street is being constructed, reconstructed or relocated."

ORS 366.514 does provide for exceptions. ORS 366.514 (2) states:

> "Footpaths and trails are not required to be established under subsection (1) of this section:
>
> (a) Where the establishment of such paths and trails would be contrary to public safety;

(b) If the cost of establishing such paths and trails would be excessively disproportionate to the need or probable use; or

(c) Where sparsity of population, other available ways or other factors indicate an absence of any need for such paths and trails."

Interchange 19 is located in a relatively sparsely-populated, rural area, bounded largely by land zoned exclusive farm use, agricultural, and rural residential, with some highway-oriented commercial zoning located along the South Valley View corridor between I-5 and OR 99. This interchange therefore falls under exception (c). However, although sidewalks and a striped bicycle lane are not being provided at this time, sufficient width will be constructed as part of this project to accommodate such facilities should they later be warranted.

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4. INTERCHANGE ALTERNATIVES AND FUTURE YEAR TRAFFIC ANALYSIS

This section presents analysis of traffic conditions under year 2010 and 2030 conditions. Two land use intensification scenarios were also developed to gauge the potential consequences of rapid development in excess of what is planned for in the regional travel demand model. The results of the analysis of these scenarios are presented below.

Future Traffic Volume Development

A baseline future traffic scenario and traffic volumes for two alternate land use scenarios were developed for the future year analysis.

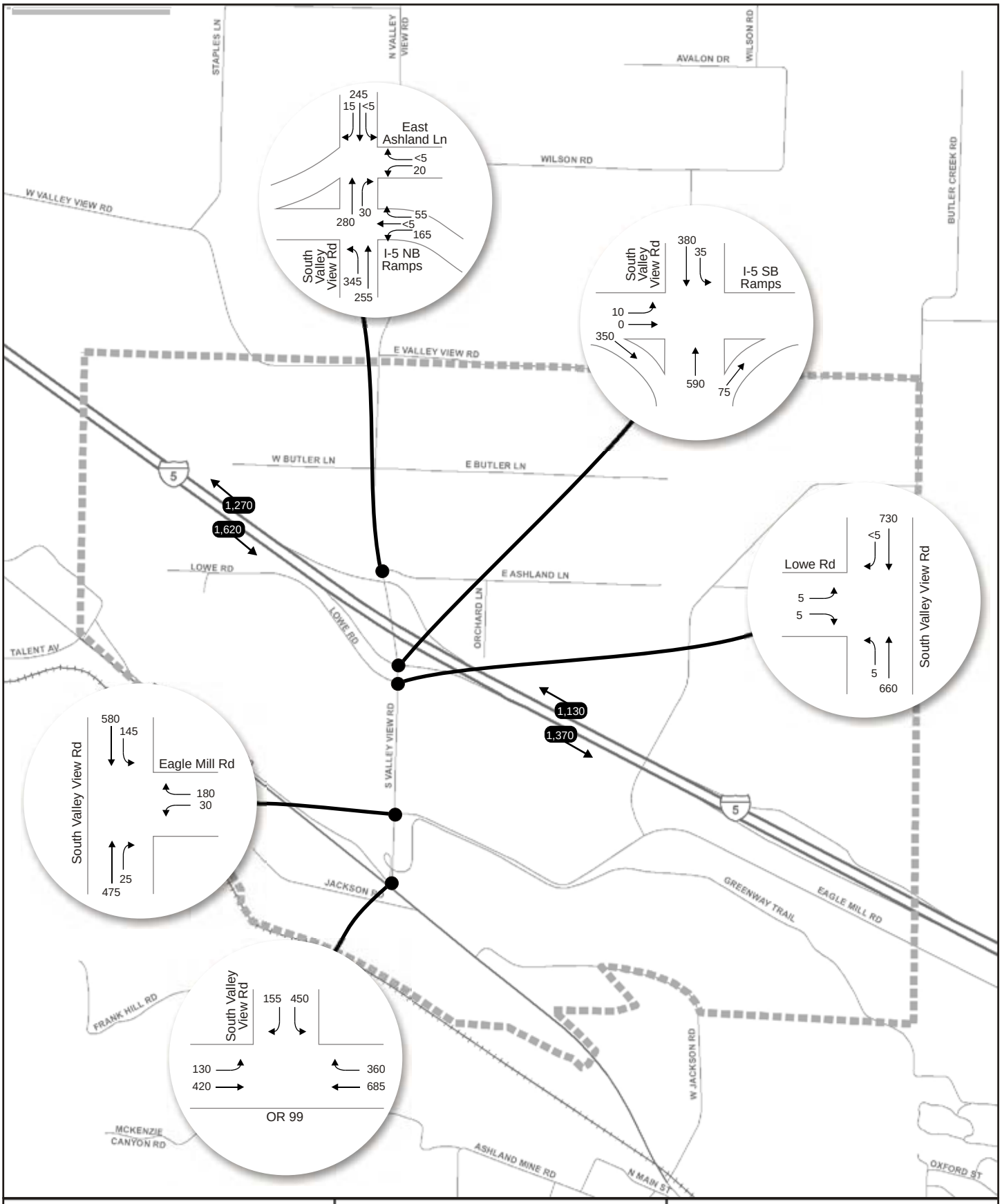
Baseline Traffic Growth

The Rogue Valley Travel Demand Model (RVMPO model) was used to develop future traffic volumes in the Interchange 19 study area. Traffic volumes and traffic analysis based on RVMPO model data is referred to as the Baseline scenario, and it will form the basis of design decisions for the future interchange.

The 2006 Traffic Analysis Report for Interchanges 14 and 19 (TAR) was prepared prior to the completion of the RVMPO model, and the future growth rate was based on historical traffic volumes on area highway facilities. This methodology resulted in an average annual growth rate (AAGR) for traffic volumes of 2.1% that was applied to all movements at all intersections.

The RVMPO model provides a more rigorous basis for forecasting traffic volumes because future vehicle trips are based on existing and projected land uses (population, household and employment by zone) as well as network attributes and driver behavior, rather than a blanket growth rate such as that used in the TAR. The land use assumptions in the RVMPO model are consistent with the current land uses and the Comprehensive Plan and Zoning designations. The forecast year assumptions of households (which are directly related to population) are based on a county-wide forecast consistent with overall state forecasts that is then allocated across the region through a local city/county process. Employment assumptions developed by the RVMPO are related to expected growth in population and other economic forecasts. The RVMPO model volumes were obtained by DEA in June 2007. The model in use at that time had a base year of 2002 and a forecast year of 2030.

It should be noted that in this case, the model traffic growth rates are lower than what was predicted in the 2006 TAR. Year 2010 and 2030 Baseline traffic volumes are shown in Figure 4-1 and Figure 4-2, respectively.



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GIS Data Source: Jackson County

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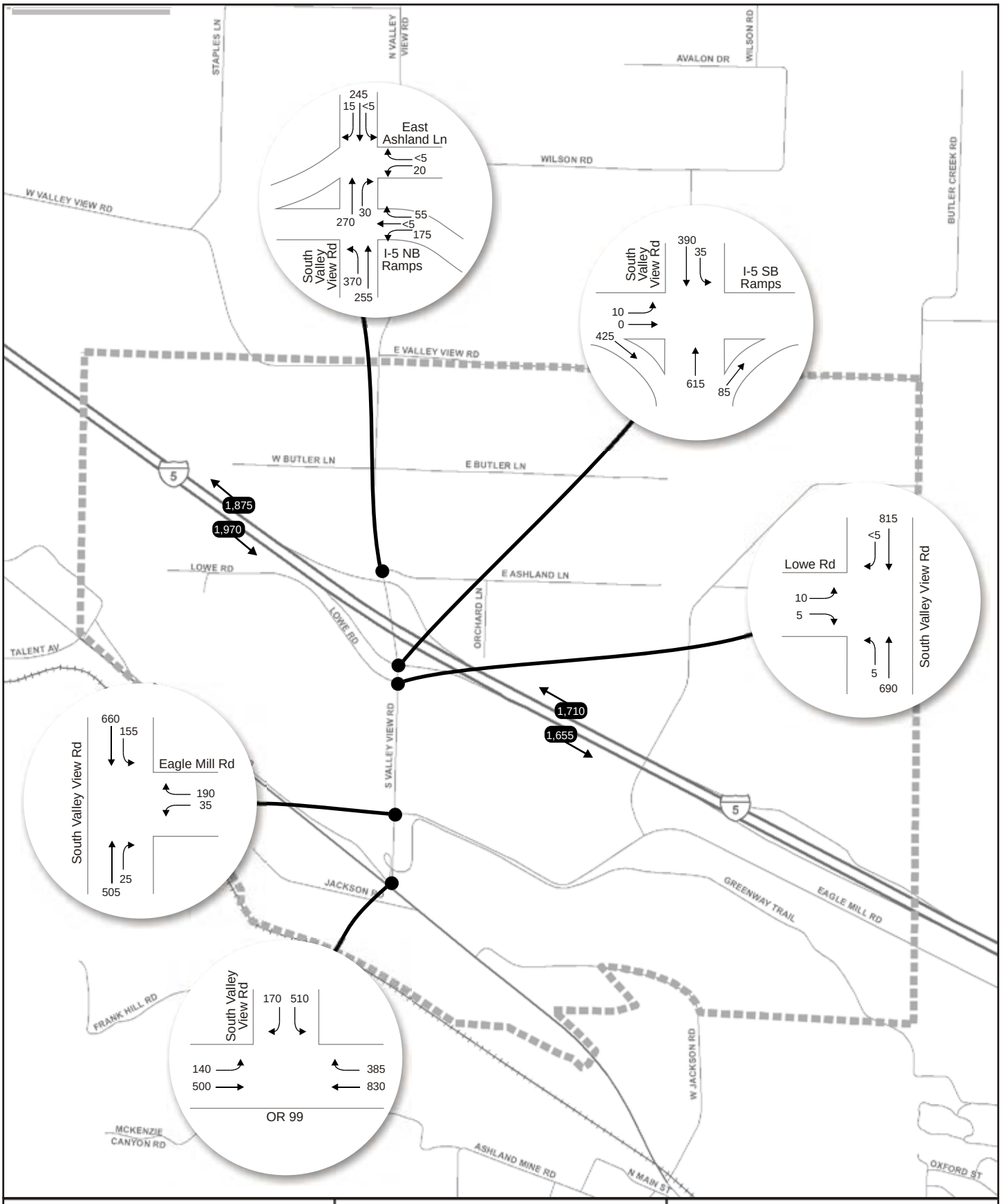
IAMP Management Area

Figure 4-1
2010 Baseline Land Use
PM Peak Hour Traffic Volumes

Interchange 19 (North Ashland)
Area Management Plan



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GIS Data Source: Jackson County

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IAMP Management Area

Figure 4-2

2030 Baseline Land Use
PM Peak Hour Traffic Volumes

Interchange 19 (North Ashland)
Area Management Plan

Land Use Intensification Scenario Rationale

In addition to the Baseline land development/traffic volume scenario, two Land Use Intensification Scenarios were developed for the purpose of evaluating the impacts of potential future development in excess of that predicted by the RVMPO model. Both Land Use Intensification Scenarios reflect highly generalized assumptions about future land development. They are intended to be used only as a basis for identification of possible future needs and for evaluation of various potential management measures, which could include local system improvements, transportation system management measures, transportation demand management measures, or land use and development actions. Potential management measures are discussed in greater detail in Section 5 and Section 6.

Land Use Intensification Scenario #1

Land Use Intensification Scenario #1 evaluates the potential cumulative impacts at the study area intersections of significant residential development in rural areas north of the interchange on land that is currently zoned for either exclusive farm use or rural residential. This scenario assumes the development of approximately 1,100 households to the north of the interchange in excess of what is predicted in the RVMPO model.

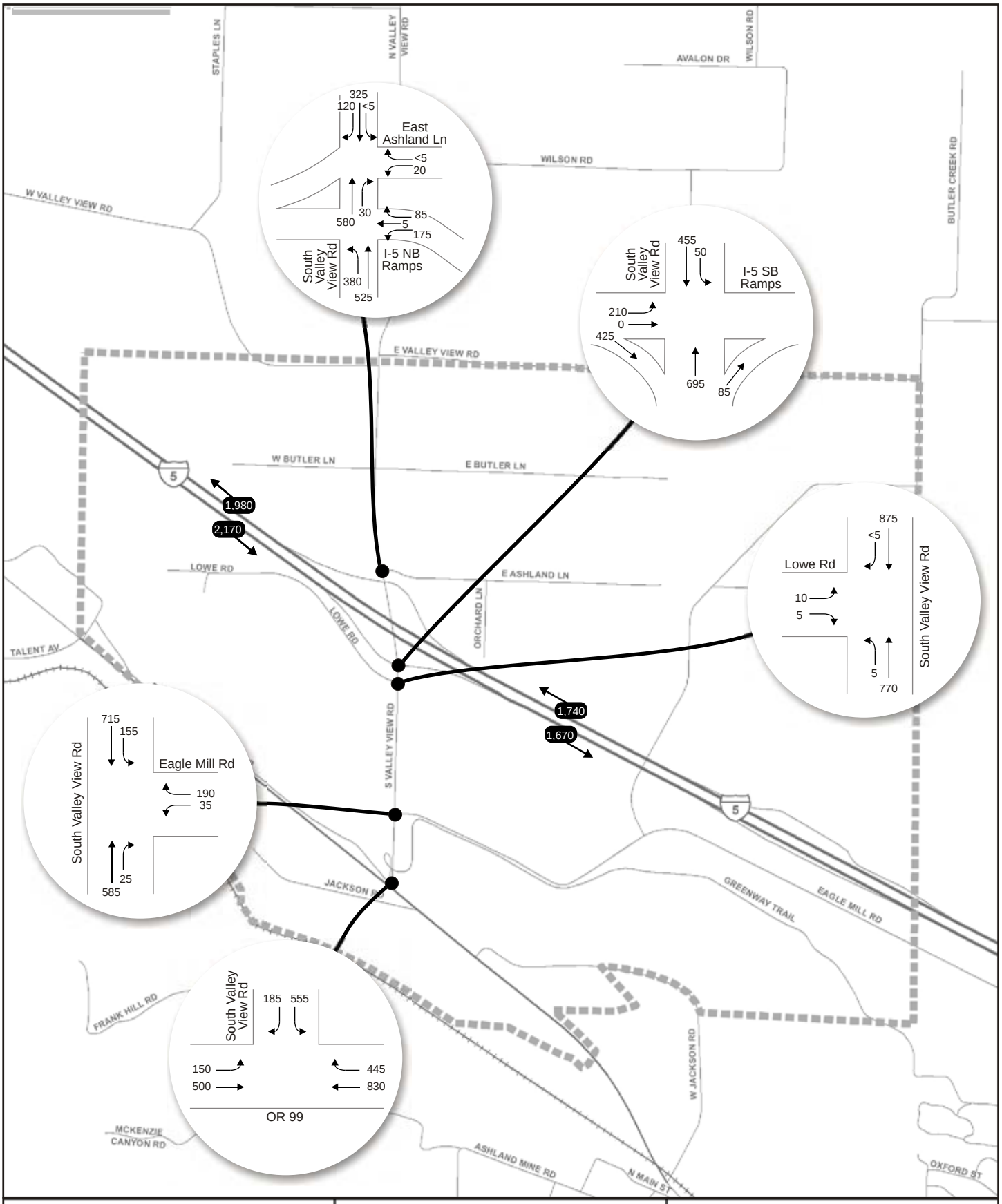
Average PM peak hour trip rates were applied to the additional households at a rate of 1.02 trips per household, which is equivalent to the *ITE Trip Generation* average trip rate for the Single-Family Residential land use.

Although Land Use Scenario #1 would be expected to add about 1,100 PM peak hour trips to the overall transportation network, it was assumed that such development would spur additional roadway connections and not all of the trips would use South Valley View Road and Interchange 19. Therefore, approximately 800 additional PM peak hour trips were added to the interchange in excess of the Baseline volumes from the RVMPO model.

To distribute the trips on the network, a select-zone analysis was performed for TAZ 671 from the RVMPO travel demand model. TAZ 671 comprises land directly to the north of the interchange. The select zone shows the directional distribution of trips that originate or terminate within the TAZ on key network links. Traffic operations at the interchange ramp terminals were then analyzed with the increased traffic volumes for each interchange alternative. Year 2030 traffic volumes for Land Use Scenario #1 are shown in Figure 4-3.

Land Use Intensification Scenario #2

A set of assumptions for Land Use Scenario #2 were developed based on discussions with staff from Jackson County, the City of Ashland and the TAC. This land use scenario assumes employment growth within the city of Ashland that exceeds the growth projected in the RVMPO model. This employment growth is assumed to be accompanied by residential growth in areas north of Ashland. In other words, this scenario assumes that most of the additional future employees in Ashland will reside in communities north of Ashland.



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GIS Data Source: Jackson County

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IAMP Management Area

Figure 4-3
2030 Land Use Intensification Scenario #1
PM Peak Hour Traffic Volumes

Interchange 19 (North Ashland)
Area Management Plan

Under these assumptions, Land Use Scenario #2 results in 275 additional PM peak hour trips in the interchange 19 area. About two-thirds of the trips are assumed to travel from northbound South Valley View Road to northbound I-5, and one-third are assumed to travel north on OR 99, which is consistent with a PM peak hour commuting pattern *from* Ashland *to* Medford, Phoenix, Talent, and other communities north of Ashland.

Three-quarters of the future employment growth is assumed to occur within the Interchange 14 study area because that is where much of the vacant and redevelopable land is located. The remaining ¼ of the employment growth is assumed to be dispersed throughout the remainder of the city. It is the trips from this development that are assumed to contribute to Land Use Scenario #2 traffic.

Year 2030 traffic volumes for Land Use Scenario #2 are shown in Figure 4-4.

Interchange Alternatives

Traffic operations analyses were performed on three interchange build alternatives, plus the existing interchange consisting of a two-lane bridge and unsignalized ramp terminals (No-build). The purpose of this analysis was to provide a basis for determination of the preferred alternative. This section provides a brief description and accompanying diagram of each interchange alternative. Note that the diagrams are for illustration purposes only and are not to scale. The diagrams are intended to illustrate lane configurations and allowable turning movements for each interchange type.

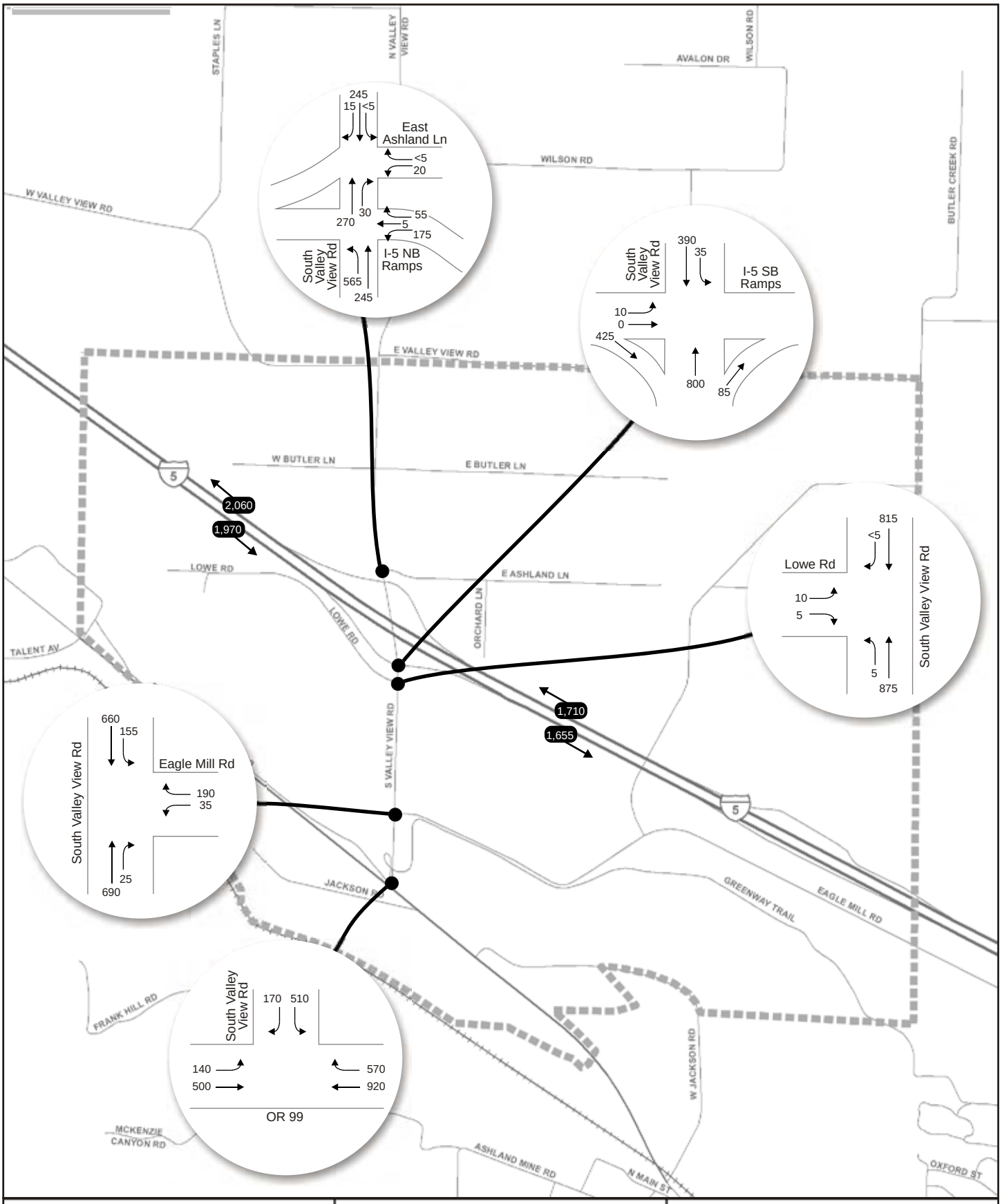
For each interchange alternative a five-lane section on was assumed for South Valley View Road between the interchange and OR 99 under year 2030 conditions. This widening is identified in the Jackson County TSP.

Standard Diamond Interchange with Three-Lane Bridge

This alternative, shown in Figure 4-5, consists of a three-lane bridge with left-turn lanes on South Valley View Road for vehicles entering northbound and southbound I-5. The ramp terminal intersections were analyzed under unsignalized conditions. The northbound ramp terminal was analyzed under both standard configuration with stop control only on the exit ramp approach and free movements for both northbound and southbound South Valley View Road, and the existing unconventional control, with stop control on the exit ramp terminal and southbound South Valley View Road.

Standard Diamond Interchange with Three-Lane Bridge and Northbound Loop Ramp

This alternative, shown in Figure 4-6, has a three-lane bridge with a left-turn lane on southbound South Valley View Road at the southbound ramp terminal for vehicles wishing to turn onto southbound I-5. The exit ramp terminals are stop controlled at their intersections with South Valley View Road. This configuration provides a loop ramp to accommodate the heavy movement from northbound South Valley View Road to northbound I-5.



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GIS Data Source: Jackson County

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IAMP Management Area

Figure 4-4
2030 Land Use Intensification Scenario #2
PM Peak Hour Traffic Volumes

Interchange 19 (North Ashland)
Area Management Plan

Standard Diamond Interchange with Two-Lane Bridge and Roundabout Ramp Terminals

Single-lane roundabouts control traffic movements at the northbound and southbound ramp terminals for this interchange alternative, which is shown in Figure 4-7. Analysis for this alternative assumed that the Lowe Road approach has been relocated to a location further away from the southbound ramp terminal. Year 2030 analysis of this alternative includes bypass lanes for the heavy northbound I-5 to southbound South Valley View Road movement and the northbound South Valley View Road to southbound I-5 movement. These lanes allow motorists to negotiate the intersections without the need to yield to traffic circulating in the roundabout. Year 2010 analysis does not include the bypass lanes because they would require a four- or five-lane section on South Valley View Road south of the interchange, which is only included in 2030 conditions.

The northbound ramp terminal is shown with five approach legs, consisting of the northbound I-5 exit and entrance ramps, South Valley View Road, and East Ashland Lane. A minor realignment of the north leg of South Valley View Road would likely be necessary to accommodate the East Ashland Lane approach. It should be noted that there are a number of potential policy and design issues associated with the five-legged roundabout configuration. Future study of this interchange design may show that East Ashland Lane would need to be moved so as to not intersect with the roundabout at the northbound ramp terminal.

This alternative provides two potential advantages. First, if implemented in conjunction with the planned bridge improvements, roundabouts at the ramp terminals would require only a two-lane bridge, which could provide cost savings over a three-lane structure. Another possible advantage is that roundabout intersection control could be implemented at a future date if and when traffic operations or safety problems arise under standard stop control. Roundabouts may prove to be a desirable alternative to traffic signals, as operational problems may occur prior to signal warrants being met.

Traffic Impact Analysis

This section summarizes the future year traffic operations analysis for no-build conditions plus the two interchange alternatives described in the previous section. Analysis was performed for year 2010 baseline conditions (presumed to be year of build) and for year 2030 baseline conditions for each of the interchange alternatives. In addition, each of the interchange alternatives plus no-build was analyzed under the two year 2030 land use intensification scenarios. All analyses of build conditions for year 2030 conditions assumed a five-lane section on South Valley View Road between the interchange and OR 99. Widening of the roadway is an identified project in the Jackson County TSP.

Results of the analysis for 2010 baseline conditions and all 2030 land use conditions are shown in Table 4-1 through Table 4-8.

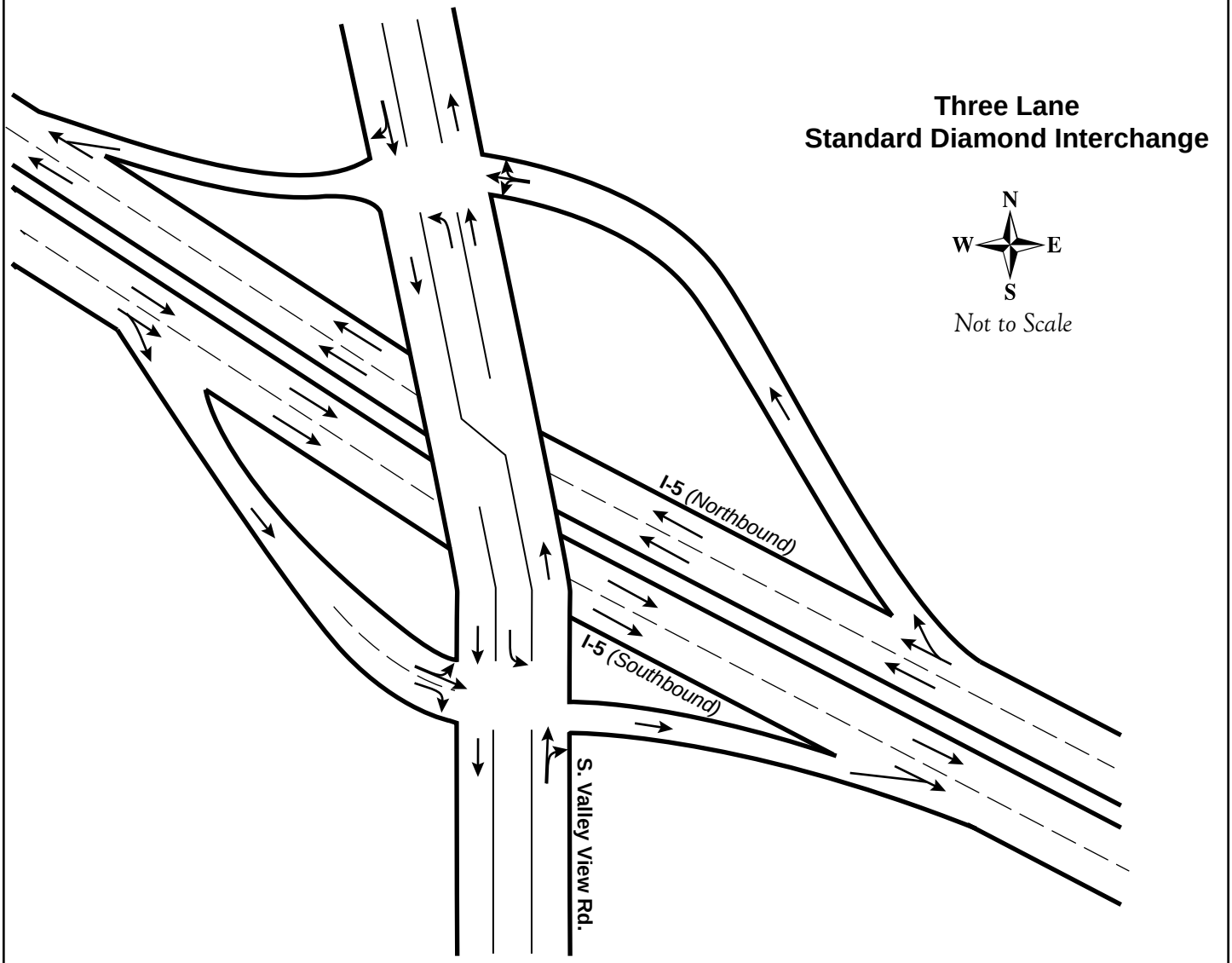


Figure 4-5
Three Lane Standard Diamond Interchange

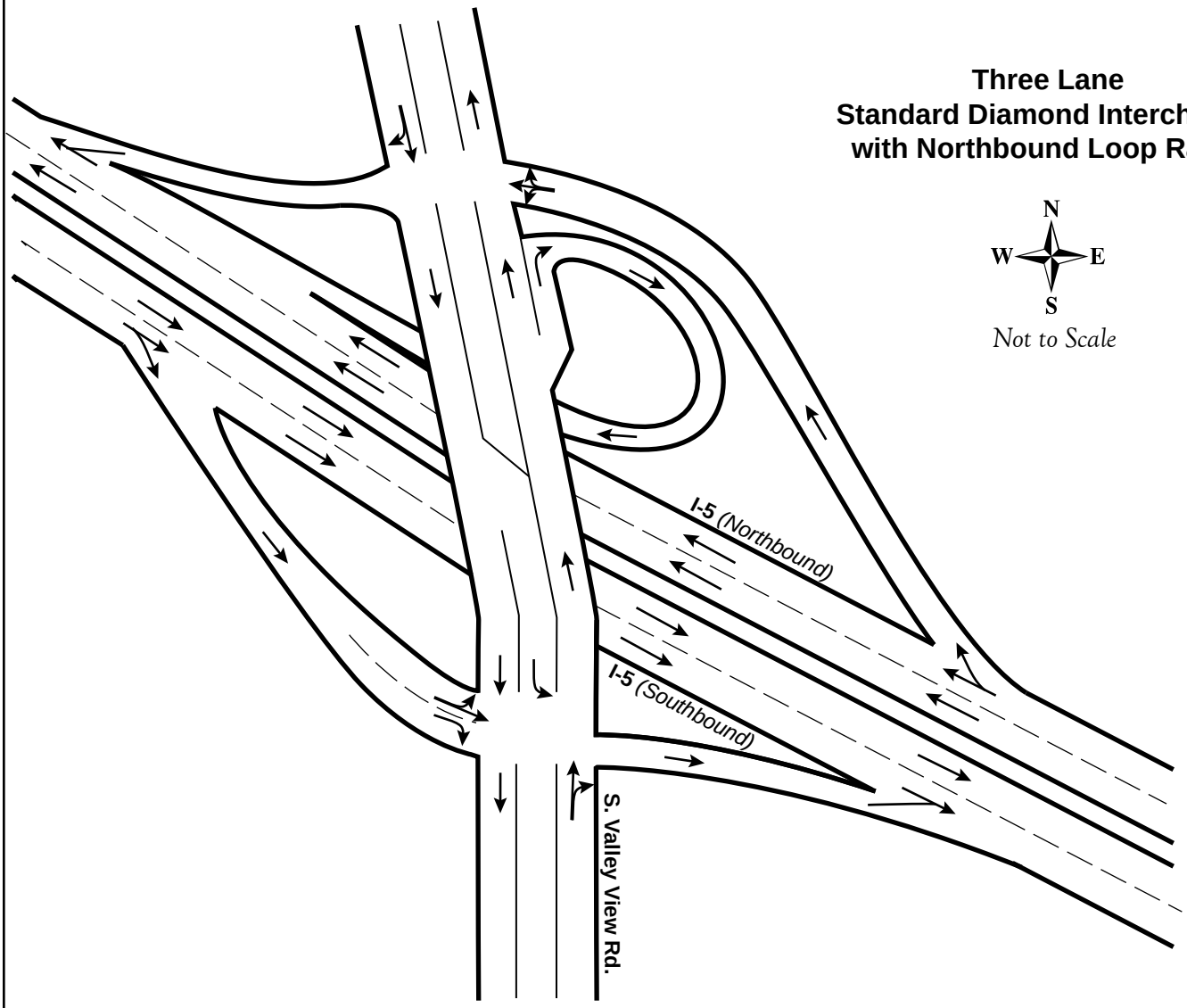


Figure 4-6
Three Lane Standard Diamond Interchange with Northbound Loop Ramp

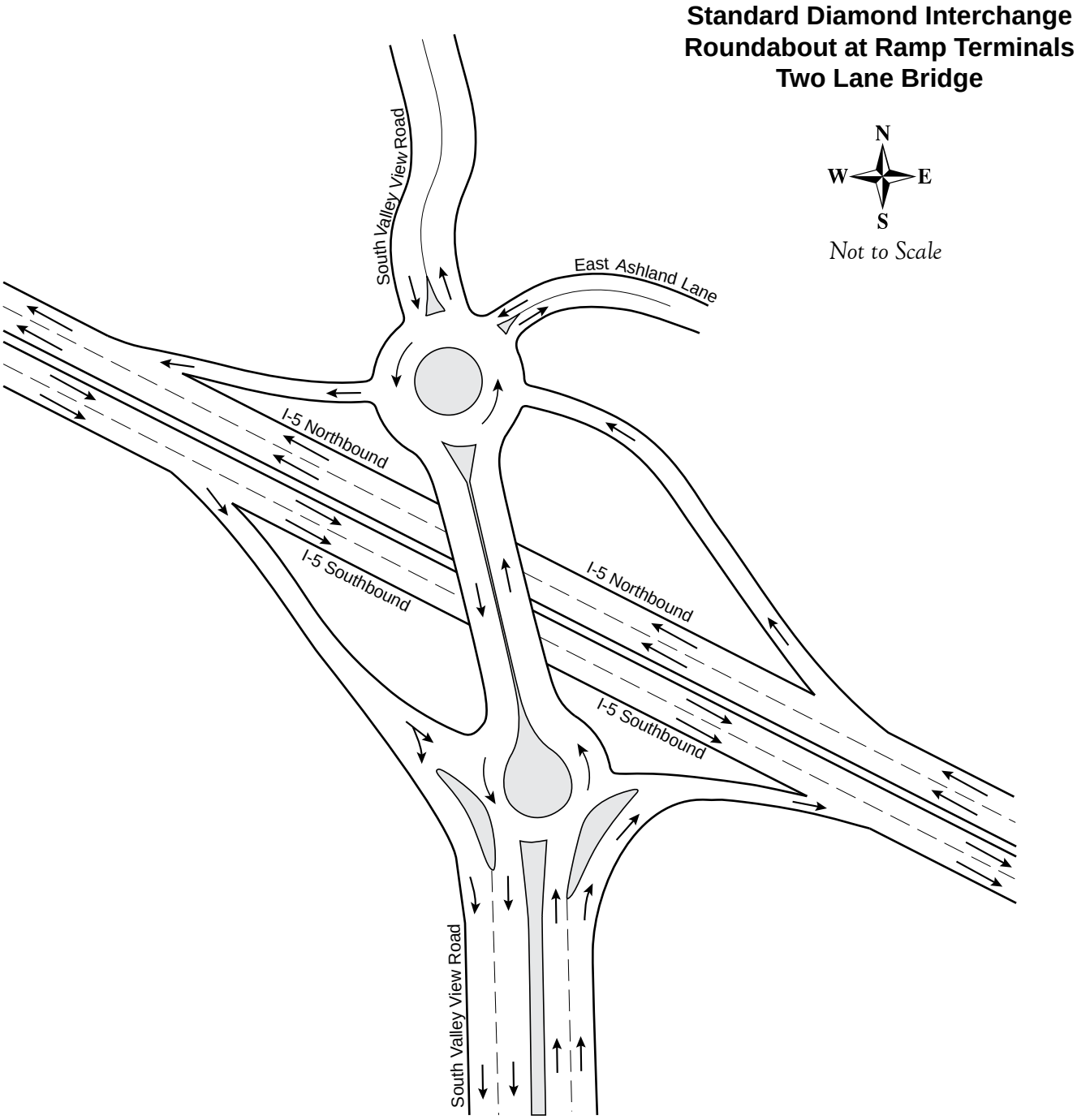


Figure 4-7
Three Lane Standard Diamond Interchange
Roundabout at Ramp Terminals - Two Lane Bridge

Table 4-1. Intersection Traffic Operations - 2010 Baseline Conditions

Intersection[1]	Interchange Alternative							
	No-Build		3-Lane Bridge		3-Lane w/Loop		2-Lane Roundabouts	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
OR 99 & S. Valley View Rd	0.78	C	0.78	C	0.78	C	0.78	C
Eagle Mill Road & S. Valley View Rd	0.33	D	0.33	D	0.33	E	0.33	D
Lowe Rd & S. Valley View Rd	0.05	E	0.05	F	0.05	F	0.05	F
I-5 SB Ramps & S. Valley View Rd	0.64	B	0.57	B	0.57	B	0.67	A
I-5 NB Ramps & S. Valley View Rd	n/a[2]	C	**1.54**[3]	D	0.38	A	0.57	A
E. Ashland Ln & S. Valley View Rd	0.05	E	0.05	A	0.05	A		

Notes:
1. For unsignalized intersections, the v/c and LOS are for the critical movement, which is typically a stopped side street movement. For signalized intersections the v/c and LOS are for the overall intersection.
2. Intersection sign configuration not allowed in HCM analysis.
3. Intersections with v/c ratios that do not meet the HDM mobility standard are shaded in black.

Table 4-2. 95th Percentile Queues - 2010 Baseline Conditions

Intersection	Movement	No Build	3-Lane Bridge	3-Lane w/Loop	2-Lane Roundabouts
OR 99 & S. Valley View Rd	SBL	475	500	550	550
	SBR	75	75	75	75
	EBL	175	150	150	150
	EBT	100	100	100	100
	WBR	150	150	150	150
	WBT	250	250	250	275
Eagle Mill Rd & S. Valley View Rd	WBL	100	100	200	75
	WBR	75	75	75	75
	SBL	75	75	75	75
Lowe Rd & S. Valley View Rd	EBL	25	25	25	25
	EBR	25	50	25	25
	NBL	50	25	25	25
I-5 SB Ramps & S. Valley View Rd[1]	EBL/T	275	50	50	100
	EBR		150	175	
	SBL/T	75	50	50	25
	NB				75
I-5 NB Ramps & S. Valley View Rd[1]	WBL	175	200	100	100
	WBT/R		50	50	
	NB				100
	SBT/R	100			100
E. Ashland Ln & S. Valley View Rd	WBL/R	50	50	50	<25

Notes:
1. Shaded cells indicate either free or nonexistent movements where queues are not generated.

Table 4-3. Intersection Traffic Operations - 2030 Baseline Conditions

Intersection[1]	Interchange Alternative							
	No-Build		3-Lane Bridge		3-Lane w/Loop		2-Lane Roundabouts	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
OR 99 & S. Valley View Rd	**0.88**[3]	D	0.65	B	0.65	B	0.65	B
Eagle Mill Road & S. Valley View Rd	0.48	F	0.27	C	0.27	C	0.27	C
Lowe Rd & S. Valley View Rd	0.13	F	0.08	D	0.08	D	0.08	F
I-5 SB Ramps & S. Valley View Rd	**0.77**[3]	D	0.70	A	0.70	A	0.62	A
I-5 NB Ramps & S. Valley View Rd	n/a[2]	D	**1.86**[3]	F	0.40	A	0.59	A
E. Ashland Ln & S. Valley View Rd	0.05	E	0.05	A	0.05	A		

Notes:

1. For unsignalized intersections, the v/c and LOS are for the critical movement, which is typically a stopped side street movement. For signalized intersections the v/c and LOS are for the overall intersection.
2. Intersection sign configuration not allowed in HCM analysis.
3. Intersections with v/c ratios that do not meet the HDM mobility standard are shaded in black.

Table 4-4. 95th Percentile Queues - 2030 Baseline Conditions

Intersection	Movement	No Build	3-Lane Bridge	3-Lane w/Loop	2-Lane Roundabouts
OR 99 & S. Valley View Rd	SBL	700[2]	175	175	175
	SBR	75	125	50	75
	EBL	175	150	150	125
	EBT	175	75	75	75
	WBR	225	100	100	125
	WBT	550	250	250	250
Eagle Mill Rd & S. Valley View Rd	WBL	225	50	75	50
	WBR	50	75	75	75
	SBL	75	75	100	75
Lowe Rd & S. Valley View Rd	EBL	50	50	50	200
	EBR	25	25	25	25
	NBL	50	25	25	25
I-5 SB Ramps & S. Valley View Rd[1]	EBL/T	425	50	50	50
	EBR		150	125	
	SBL/T	75	50	50	50
	NB				75
I-5 NB Ramps & S. Valley View Rd[1]	WBL	175	225	100	100
	WBT/R		50	50	
	NB				75
	SBT/R	200[2]			100
E. Ashland Ln & S. Valley View Rd	WBL/R	50	50	50	<25

Notes:

1. Shaded cells indicate either free or nonexistent movements where queues are not generated.
2. Queue spills into downstream intersection.
3. Some 2030 Baseline results are better than 2010 results. This is because all 2010 scenarios assume a three-lane section on South Valley View Road and 2030 scenarios assume a five-lane section.

Table 4-5. Intersection Traffic Operations - 2030 Land Use Intensification Scenario #1 Conditions

Intersection[1]	Interchange Alternative							
	No-Build		3-Lane Bridge		3-Lane w/Loop		2-Lane Roundabouts	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
OR 99 & S. Valley View Rd	**0.92**[3]	C	0.67	B	0.67	B	0.67	B
Eagle Mill Road & S. Valley View Rd	0.57	D	0.29	C	0.29	C	0.29	C
Lowe Rd & S. Valley View Rd	0.16	D	0.10	F	0.10	E	0.10	F
I-5 SB Ramps & S. Valley View Rd	**>2.00**[3]	F	**>2.00**[3]	F	**>2.00**[3]	F	**0.88**[3]	D
I-5 NB Ramps & S. Valley View Rd	n/a[2]	F	**>2.00**[3]	F	0.72	C	**0.85**[3]	C
E. Ashland Ln & S. Valley View Rd	0.09	F	0.09	B	0.09	A		

Notes:

1. For unsignalized intersections, the v/c and LOS are for the critical movement, which is typically a stopped side street movement. For signalized intersections the v/c and LOS are for the overall intersection.
2. Intersection sign configuration not allowed in HCM analysis.
3. Intersections with v/c ratios that do not meet the HDM mobility standard are shaded in black.

Table 4-6. 95th Percentile Queues - 2030 Land Use Intensification Scenario #1 Conditions

Intersection	Movement	No Build	3-Lane Bridge	3-Lane w/Loop	2-Lane Roundabouts
OR 99 & S. Valley View Rd	SBL	375	200	200	200
	SBR	75	75	75	75
	EBL	175	150	150	150
	EBT	150	75	75	75
	WBR	200	150	150	150
	WBT	600	300	275	275
Eagle Mill Rd & S. Valley View Rd	WBL	100	75	75	125
	WBR	75	75	75	75
	SBL	75	100	100	75
Lowe Rd & S. Valley View Rd	EBL	50	50	50	375
	EBR	25	25	25	0
	NBL	75	25	25	475
I-5 SB Ramps & S. Valley View Rd[1]	EBL/T	1450[2]	1200[2]	1075[2]	250
	EBR		1275[2]	1100[2]	
	SBL/T	100	50	75	100
	NB				600
I-5 NB Ramps & S. Valley View Rd[1]	WBL	1125	600	125	225
	WBT/R		250	75	
	NB				275
	SBT/R	1375[2]			400
E. Ashland Ln & S. Valley View Rd	WBL/R	50	50	50	<25

Notes:

1. Shaded cells indicate either free or nonexistent movements where queues are not generated.
2. Queue spills into downstream intersection.

Table 4-7. Intersection Traffic Operations - 2030 Land Use Intensification Scenario #2 Conditions

Intersection[1]	Interchange Alternative							
	No-Build		3-Lane Bridge		3-Lane w/Loop		2-Lane Roundabouts	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
OR 99 & S. Valley View Rd	**0.91[3]**	E	0.65	C	0.68	C	0.68	C
Eagle Mill Road & S. Valley View Rd	0.63	F	0.45	D	0.45	D	0.45	D
Lowe Rd & S. Valley View Rd	0.17	F	0.10	E	0.10	F	0.10	F
I-5 SB Ramps & S. Valley View Rd	**0.80[3]**	E	0.70	A	0.70	A	**0.81[3]**	B
I-5 NB Ramps & S. Valley View Rd	n/a[2]	F	**>2.00[3]**	F	0.40	A	**0.76[3]**	B
E. Ashland Ln & S. Valley View Rd	0.05	F	0.05	A	0.05	A		

Notes:

1. For unsignalized intersections, the v/c and LOS are for the critical movement, which is typically a stopped side street movement. For signalized intersections the v/c and LOS are for the overall intersection.
2. Intersection sign configuration not allowed in HCM analysis.
3. Intersections with v/c ratios that do not meet the HDM mobility standard are shaded in black.

Table 4-8. 95th Percentile Queues - 2030 Land Use Intensification Scenario #2 Conditions

Intersection	Movement	No Build	3-Lane Bridge	3-Lane w/Loop	2-Lane Roundabouts
OR 99 & S. Valley View Rd	SBL	1325[2]	200	175	200
	SBR	75	75	75	75
	EBL	150	150	125	150
	EBT	125	75	75	100
	WBR	200	150	175	175
	WBT	1300[2]	375	325	350
Eagle Mill Rd & S. Valley View Rd	WBL	1625[2]	125	100	150
	WBR	75	75	75	75
	SBL	425	100	100	100
Lowe Rd & S. Valley View Rd	EBL	50	50	50	475
	EBR	25	25	25	0
	NBL	100	25	25	650
I-5 SB Ramps & S. Valley View Rd[1]	EBL/T	600	50	50	25
	EBR		125	125	
	SBL/T	100	50	50	50
	NB				150
I-5 NB Ramps & S. Valley View Rd[1]	WBL	450	825	100	150
	WBT/R		675	50	
	NB				125
	SBT/R	425[2]			125
E. Ashland Ln & S. Valley View Rd	WBL/R	25	25	50	<25

Notes:

1. Shaded cells indicate either free or nonexistent movements where queues are not generated.
2. Queue spills into downstream intersection.

Northbound Ramp Terminal Intersection Control

The existing sign configuration at the northbound ramp terminal (free movement for northbound South Valley View Road and stop control on all other approaches) is not allowed in Highway Capacity Analysis (HCM) methodology. Therefore, no v/c ratios are reported for the no-build condition. An examination of delay and queuing values derived from traffic simulation modeling appears to provide a reasonable representation of future intersection operations. Simulation modeling shows an average delay of 21 and 25 seconds for 2010 and 2030 baseline conditions, respectively. The 95th percentile queues for the critical westbound approach (I-5 southbound exit ramp) were calculated to be 175 feet (about seven vehicles) under both 2010 and 2030 baseline conditions. These results generally indicate that, despite the unconventional intersection control, traffic operations are expected to function with acceptable levels of peak hour delay and queuing through year 2030, assuming traffic volume growth is consistent with RVMPO model projections. However, the analysis indicates that this configuration could not provide adequate traffic operations under either of land use intensification scenarios.

The three-lane bridge alternative was analyzed assuming standard intersection control at the northbound ramp terminal (free movements for northbound *and* southbound South Valley View Road and stop control on the southbound I-5 exit ramp). Analysis for this configuration resulted in unacceptable v/c ratios of 1.54 and 1.86 for the critical westbound (southbound I-5 exit ramp) approach under 2010 and 2030 baseline conditions, respectively. An examination of delay and queuing values derived from simulation modeling showed somewhat better operations for the approach, with an average delay of 63 seconds and a 95th percentile queue of 225 feet for the critical approach under 2030 baseline conditions.

Although actual traffic operations with standard intersection control might be somewhat better than indicated by the calculated HCM v/c ratios, the existing unconventional intersection control appears to provide less overall delay and queuing. Alternative intersection control, such as signalization or roundabouts, may be appropriate if future traffic volumes significantly exceed those predicted in the RVMPO model, as the analysis showed that stop-controlled ramp terminals would not provide adequate operations under either of the land use intensification scenarios.

Loop Ramp at Northbound Ramps

Provision of a loop ramp at the northbound ramp terminal provides for improved efficiency that would result in the northbound ramp terminal meeting the mobility standard under all future land use scenarios. Furthermore, a loop ramp would likely preclude any future need for signalization.

Roundabout Control at Northbound and Southbound Ramp Terminals

Analysis of the roundabout alternative was performed using a methodology outlined in *NCHRP 572: Roundabouts in the United States.* The results of the analysis show that roundabouts appear to provide adequate operations with lower v/c ratios, shorter queuing and lower average delay when compared to the other alternative intersection control configurations. The

calculated 2030 v/c ratios under traffic volumes associated with Land Use Intensification Scenario #1 marginally exceed the mobility standard at the southbound ramp terminal[1].

Lowe Road at South Valley View Road

The calculated v/c for the unsignalized Lowe Road approach is less than 0.20 under all future 2030 land use conditions. Although the calculated v/c ratio is low, delays for exiting vehicles at Lowe Road are expected to be substantial due to the high volume of through traffic on South Valley View Road. As traffic volumes continue to increase on South Valley View Road, very few acceptable gaps will be available for traffic exiting from Lowe Road. A potential result could be an increased risk of collisions as some motorists grow impatient and accept ever smaller gaps in the traffic stream. The potential future operational and safety problems, combined with the close proximity of Lowe Road to the interchange ramp terminals in violation of OAR 734-051, warrant the serious consideration of full closure and relocation of the Lowe Road approach to a location further south on South Valley View Road.

OR 99 at South Valley View Road

The calculated v/c ratio at the intersection of OR 99 with South Valley View Road is calculated to exceed the mobility standard under all 2030 land use scenarios for no-build conditions. Upon completion of the widened South Valley View Road, the analysis indicates that the v/c for all 2030 land use conditions would meet the mobility standard. Future build analysis of the intersection was based on a configuration consisting of a three-lane southbound approach with one southbound right-turn lane and dual southbound left-turn lanes.

Other Study Area Intersections

All other intersections within the study area are expected to operate adequately through year 2030, assuming traffic volume growth is consistent with RVMPO model projections.

Preliminary Traffic Signal Warrant Analysis

An analysis of ODOT preliminary traffic signal warrants indicated that traffic signals would not be warranted at either ramp terminal intersection under 2010 or 2030 baseline conditions. However, the increased traffic volumes associated with Land Use Scenario #1 would be sufficient to warrant traffic signals at the northbound and southbound ramp terminals. Land Use Scenario #2 would cause preliminary traffic signal warrants to be met at the northbound ramp terminal only.

Meeting preliminary signal warrants does not guarantee that a signal shall be installed. Before a signal can be installed a field warrant analysis is conducted by the Region. If warrants are met, the State Traffic Engineer will make the final decision on the installation of a signal.

[1] Analysis using SIDRA software, a commonly-used roundabout analysis methodology, resulted in significantly better v/c ratios for the roundabouts. Use of this methodology resulted in mobility standards being met for all land use scenarios. The NCHRP 572 methodology is regarded as a conservative approach because it is based on data from US roundabouts.

A summary of preliminary traffic signal warrants is provided in Table 4-9.

Table 4-9. ODOT Preliminary Signal Warrant Analysis Summary

Location	Year/LU Scenario	TPAU Preliminary Traffic Signal Warrant	
		Case A	Case B
I-5 SB Ramps & S. Valley View Rd	2010 Baseline	NO	NO
	2030 Baseline	NO	NO
	2030 LU #1	YES	YES
	2030 LU #2	NO	NO
I-5 NB Ramps & S. Valley View Rd	2010 Baseline	NO	NO
	2030 Baseline	NO	NO
	2030 LU #1	NO	YES
	2030 LU #2	NO	YES

Freeway Ramp Merge/Diverge Analysis

Analyses of freeway ramp merge and diverge operations were performed at each of the entrance and exit ramps in accordance with ODOT methodology. The results indicate that mainline operations on I-5 in the vicinity of the interchange ramps would meet mobility standards under future conditions. The analysis assumes that all geometric characteristics of the ramp merge and diverge points meet applicable design standards. The results are summarized in Table 4-10 below.

Table 4-10. Freeway Merge/Diverge Analysis Results

Movement	V/C Ratio			
	2010 Baseline	2030 Baseline	2030 LU #1	2030 LU #2
SB Diverge	0.49	0.59	0.68	0.59
SB Merge	0.35	0.42	0.42	0.42
NB Diverge	0.33	0.48	0.49	0.48
NB Merge	0.31	0.53	0.49	0.51

Motor Carrier Port of Entry

The ODOT Motor Carrier Ashland Port of Entry (PoE) is located on northbound I-5 less than one mile from Interchange 19. The PoE provides truck size and weight enforcement 24 hours per day, seven days per week, and registration services during business hours on Monday through Friday. A significant portion of northbound truck traffic on I-5 is required to stop at the PoE. The northbound PoE merge point is located approximately 2000 feet upstream from the diverge point for Interchange 19. While no safety issues have been documented regarding conflicts between passenger vehicles and trucks on I-5, some individuals have expressed concerns about the potential hazards of such conflicts, and the occasional difficulty some motorists experience when attempting to position themselves in the left lane to exit at Interchange 19.

An upcoming corridor study will provide a detailed operational and safety analysis of the I-5 corridor between Ashland and Medford. This corridor study will include an examination of the interaction between traffic at the PoE and Interchange 19.

Summary of Future Conditions Analysis Findings

The analysis of future conditions yielded the following findings:

- All analyses of build conditions for year 2030 conditions assumed a five-lane section on South Valley View Road between the interchange and OR 99. Widening of the roadway is an identified project in the Jackson County TSP.
- The existing unconventional intersection control at the northbound ramp terminal (free movement for northbound South Valley View Road and stop control on all other approaches) appears to provide less overall delay and queuing than standard intersection control. The analysis showed that the existing configuration would function at acceptable levels under 2030 baseline conditions. However, the analysis indicates that this configuration would not provide adequate traffic operations under either of land use intensification scenarios. Alternative intersection control, such as signalization or roundabouts, may become necessary if future traffic volumes significantly exceed those predicted in the RVMPO model.
- Analysis of standard intersection control at the northbound ramp terminal (free movements for northbound *and* southbound South Valley View Road and stop control on the southbound I-5 exit ramp) resulted in unacceptable traffic operations under all 2030 land use scenarios.
- Provision of a loop ramp at the northbound ramp terminal would provide improved efficiency that would result in the northbound ramp terminal meeting the mobility standard under all future land use scenarios. Furthermore, a loop ramp would preclude the need for future signalization.
- Analysis indicates that roundabouts at the ramp terminal intersections would provide adequate operations with better v/c ratios, shorter queuing and lower average delay when compared to the other unsignalized intersection control configurations.
- Analysis results indicate that the close proximity of Lowe Road to the interchange ramp terminals may result in unacceptable traffic conditions as traffic volumes increase. Therefore, it is recommended that the existing Lowe Road approach to South Valley View Road be closed and moved further to the south.
- Traffic operations at the intersection of OR 99 with South Valley View Road is not expected to meet the ODOT mobility standard under all 2030 land use scenarios for no-build conditions. Upon completion of the widened South Valley View Road, the analysis indicates that the v/c for all 2030 land use conditions would meet the mobility standard. Future build analysis of the intersection was based on a configuration consisting of a three-lane southbound approach with one southbound right-turn lane and dual southbound left-turn lanes.

- All other intersections within the study area are expected to operate adequately through year 2030 under all land use scenarios.
- An evaluation of ODOT preliminary signal warrants indicates that traffic signals will not be warranted under 2030 baseline conditions. Preliminary signal warrants are met at both ramp terminals under 2030 Land Use Scenario #1 conditions, and at the northbound ramp terminals only under 2030 Land Use Scenario #2 conditions.
- Analyses of freeway ramp merge and diverge operations at each of the entrance and exit ramps indicate that mainline operations on I-5 in the vicinity of the interchange ramps would meet all applicable operations standards under future conditions.

Since the analysis was completed, a preferred option, the *Standard Diamond Interchange with Three-Lane Bridge*, has been identified and is currently under construction. At this time, the non-standard traffic control configuration for the northbound ramps will remain,

5. MANAGEMENT ACTIONS AND LAND USE POLICIES

An integral part of the IAMP process is providing a strategy and plan to protect the function of the interchange and its influence area. This section explores a set of measures under the heading "management actions" that could be employed at or near Interchange 19.

Potential Management Actions

Management actions, as applied to Interchange Area Management Plans (IAMPs) are intended to preserve the capacity of an interchange for as long as possible. The toolkit of potential management actions includes four overarching strategies:

- **Local System Improvements** that enhance the local street network to disperse trips and reduce congestion near an interchange;
- **Transportation Demand Management Actions** that provide travel options to reduce the number of trips or vehicles on the road;
- **Transportation System Management Actions** that improve system efficiency and reduce delays;
- **Land Use and Development Actions** that guide land use development to result in fewer trips in the interchange area.

Many management actions are most applicable when applied throughout a region or in a large urban area. Nonetheless, a positive impact may be produced even if the measure is limited to Ashland or study area. The management tools with potential to preserve capacity at Interchange 19 are described below. The discussion includes a brief description, a qualitative assessment of applicability and potential benefits, a summary of the issues that would be required to implement them, and a qualitative assessment of potential adverse impacts.

Benefits of Management Actions at Interchange 19

Management actions have the potential of reducing the number of trips at the interchange area, and in effect, slowing the growth of trips. As a result, management actions can extend the life of the interchange and provide for incremental implementation of Interchange 19 area improvements, allowing individual components to be funded and built when needed. Given the funding constraints and statewide demand for interchange improvements, it could take several years to develop a funding package and construct all the improvements recommended in the IAMP.

Local System Improvements

Local system improvements relate to enhancing the effectiveness of the local street network to provide circulation and access for the community near the interchange without relying solely on the interchange or its approach roadways.

Enhancing the Local Street Network

The City of Ashland is accessed from I-5 by three interchanges (11, 14 and 19). The Interchange 19 study area is bisected by Interstate 5 (I-5) and the OR 99, which run parallel to each other in a southeasterly-northwesterly direction through the study area and connects the cities of Ashland and Talent. South Valley View Road, an ODOT spur from I-5 to OR 99, crosses the study area in a north-south direction from OR 99 and Interchange 19 then continues north as a rural collector. Eagle Mill Road is a designated collector that links traffic from South Valley View Road to northern Ashland. Lowe Road provides access to businesses and a mobile home park located west of South Valley View Road.

Largely rural to semi-rural, built land uses within the study area comprise a small commercial area south of the freeway in the vicinity of the southbound on/off ramps and a mobile home park located on the western periphery of the study. A higher concentration of commercial development is situated further south along the south side of OR 99 as it enters the city of Ashland. Land uses north of the interchange consist of low density residential. The Jackson County Comprehensive Plan designates most of the study area as Agricultural, Forestry/Open Space Rural Residential Land, with some commercial south of the interchange. The portion of the study area along the OR 99 corridor that lies within the Ashland Urban Growth Boundary (UGB) falls under the Ashland Comprehensive Plan. Here, the land use designations consist of Commercial, Employment, and Multi-Family Residential.

A significant local street system deficiency is the existing location of the Lowe Road approach to South Valley View Road. It has been widely acknowledged that this public roadway is too close to the southbound interchange ramp terminal. As traffic volumes continue to grow, operational and safety problems are expected to worsen at this intersection. Additionally, several private approaches to South Valley View Road do not meet the Division 51 access spacing standard. Realignment of Lowe Road and the development of a more extensive local street network could provide alternative accesses for many businesses and eliminate many of the current deficiencies.

The Jackson County Transportation System Plan (TSP) identifies two roadway improvement projects within the study area. Widening of South Valley View Road to five lanes between I-5 and OR 99 is listed as a Tier 1 Long Term (financially constrained 2014-2023) project in the County TSP and as a long-term (2016-2030) project in the Rogue Valley Regional Transportation Plan (RTP). The second project, improvements to Eagle Mill Road, is listed in the County TSP as a Tier 2 (unfunded) project. Both projects would incorporate bicycle and pedestrian facilities into the design.

Access Management

Access management is a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways. Access management strategies are designed to extend the operational life of the interchange by reducing congestion, improving

traffic flow, reducing crashes, and reducing conflicting vehicle movements. Access management techniques include:

- ***Access Spacing***: By increasing the distance between traffic signals, flow of traffic on major arterials can be improved. This also reduces congestion and improves air quality for heavily traveled corridors.
- ***Driveway Spacing***: Fewer driveways spaced further apart could allow for more orderly merging of traffic and present fewer challenges to drivers.
- ***Turning Lanes:*** Dedicated left- and right-turn lanes, and indirect left-turns and U-turns could be considered to keep through-traffic flowing.
- ***Median Treatments:*** Two-way left-turn lanes and non-traversable, raised medians are examples of some of the most effective means to regulate access and reduce accidents.

Applicable Strategies, Benefits, and Implementation Issues

Local system improvements are critical to providing access to property and ensuring sufficient capacity for development to occur. To reduce conflicts along existing and planned roadways, access management measures should be explored that, for example, reduce the total number of approaches to South Valley View Road in the vicinity of the interchange by creating shared driveways and shared parking for adjacent businesses. These seemingly small measures can have a significant impact on congestion and nominal safety within a corridor. Development of a more extensive local street network could provide alternative accesses thereby also reducing access points to South Valley View Road. Specific access management and local circulation recommendations for the Interchange 19 area are detailed in Section 6.

Both the Jackson County TSP and the Rogue Valley RTP acknowledge potential future circulation issues within the Interchange 19 study area. To accommodate projected future traffic volumes, South Valley View Road is targeted for long term widening to five lanes between I-5 and OR 99. In conjunction with the South Valley View Road project, planned improvements to Eagle Mill Road include curve realignments to enhance safety and increase capacity at the intersection. A third component toward improving circulation centers on a realignment of Lowe Road that would close its existing approach to South Valley View Road (detailed discussion in Section 6). ODOT has expressed a desire to relocate the roadway to an alignment south of the existing commercial area, thus removing an access point considered too close to the interchange. One option could potentially align Lowe Road with Eagle Mill Road – forming a four-way signalized intersection at South Valley View Road.

Transportation Demand Management Strategies

Transportation Demand Management (TDM) strategies are designed to reduce vehicle demand, especially for commute trips in the peak periods. Typically, TDM strategies include provision of services or facilities intended to shift travelers to different modes, to non-peak times, or by trip elimination choices, such as telecommuting. TDM strategies are most effective in areas with high concentrations of employment and where a robust transit system exists. Generally, the strategies are easiest to implement where there are large employers or where a transportation

management association (TMA) has been established to pool the efforts of many smaller employers.

TDM Strategies that Shift Modes

The following strategies are designed to offer choices and encourage people to commute in a way other than driving alone, resulting in fewer vehicles on the road during the peak periods.

Carpool Programs: This strategy encourages and supports commuters to share the ride with other commuters who live and work in the same general area. Carpools may receive preferential parking, or incentives such as a small stipend, reduced parking rate or coupons. Carpools enjoy the benefit of a reduced commute cost because the price of gasoline and parking is typically shared.

Vanpool Programs: This strategy involves providing vans for groups to use for commuting. These can be employer sponsored vans, private vans, or agency sponsored vans. Vanpools can be arranged for large employers, or for locations where several employers are located in close proximity.

Transit: Transit can be a cost saving and stress-reducing alternative to commuting by personal automobile. In order for transit to be a reliable alternative to personal automobiles, transit service should be offered approximately every 30 minutes and extend beyond the peak periods. Transit commuters need to have confidence that they will be able to get home if they need to leave work early or stay late.

Bicycling: Many people choose to commute by bicycle for health, stress-reduction, and environmental reasons. The provision of safe and convenient bicycle facilities have long been recognized as one of the key prerequisites for increased bicycling for transportation purposes. Conversely, the absence of good, safe bicycle facilities discourages all but the most dedicated cyclists from using this mode for transportation. In addition, the provision of showers, clothing storage, and safe, secure bicycle parking is recommended.

Walking: When people live close to work, they may have the option to walk. Some do so for health, stress reduction, and for the connection they feel with their community when they do so. Most transit riders are also walkers for some portion of their commute. Safe walking facilities such as sidewalks and separated paths are important features to incorporate in projects to encourage walking.

TDM Strategies that Shift Trips to Non-Peak Periods

Employers can have a significant impact on reducing peak hour trips by reducing the number of employees who are expected to arrive during the morning peak (approximately 7 am to 9 am) and depart during the evening peak (approximately 4 pm to 6 pm). Methods to reduce peak hour arrivals and departures include offering flexible work schedules, and shifting work schedules.

Flexible Work Schedules: An example of a flexible work schedule might require employees to be present during core hours of 9:30 to 3:30, and allowing arrivals and departures around

that time while maintaining an 8 hour work day. Another example involves working fewer days per week, such as working 4-10s (four ten-hour days), with one day off.

Off-Peak Shifts: An example of an off-peak shift might be having a work day start at 6 am and end at 2 pm. Another shift might start at 2 pm and end at 9 pm. This is a common practice in industry because it allows for multiple shifts in a 24-hour period.

TDM Strategy that Eliminates Trips

One TDM strategy can eliminate trips altogether.

Telecommuting: This strategy allows employees to work from home for some portion of or all of their work. Telecommuting is gaining popularity and acceptance and is available to more professions as a result of improvements in technology. Various office functions including technical support, call center operations, and order processing are increasingly being conducted using telecommuting and dispersed workers. Employers who offer telecommuting are able to market it as a benefit, and telecommuting often results in cost savings to the employer because of reduced office space and equipment requirements.

Applicable Strategies, Benefits, and Implementation Issues

Policies and goals from the State, Jackson County, Rogue Valley Metropolitan Planning Organization (RVMPO), and City of Ashland contain provisions that embrace TDM measures. Urban areas with populations over 25,000 are required by the Oregon Transportation Planning Rule (TPR) to address TDM. Subsequently, the RVMPO has adopted Policy 6.A-2, stating that TDM measures “should be considered before transportation capacity expansion is determined to be necessary”.

The Rogue Valley Regional Transportation Plan (RTP) acknowledges differences between TDM outreach strategies for employers and the public. A variety of marketing and promotional activities, such as flyers, trip reduction programs, and other incentives, are available to employers interested in promoting alternate commute options. Informing the general population about non-SOV travel options relies more on public outreach. Reaching the public at-large relies on general marketing such as brochures, commercials, and special events such as Car Free Day.

The Rogue Valley Transit District (RVTD) has had a TDM program in place for the region since 1993. The Rogue Valley Transportation District (RVTD) provides bus service to and from Ashland via Bus Route 10 twice an hour between 5:00 am and 6:30 pm on weekdays. The frequency of bus service provided (every 30 minutes) meets the general threshold deemed necessary for the transit system to be considered an effective TDM measure.

Workers who are employed in Ashland and reside in neighboring cities or rural areas outside the city might benefit from TDM programs instituted in Ashland. This might result in a modest reduction of trips using the interchange. Implementing TDM strategies is most successful when there are incentives and when making the switch to a non-personal-auto mode of travel is relatively simple – particularly for intermediate to long distance trips. Establishment of

Transportation Management Associations (TMA) are useful because a TMA typically takes on the responsibility of promoting TDM programs, organizing carpool and vanpool programs, obtaining grants, distributing incentives, and working with transit agencies to provide additional transit service and/or reduced cost transit passes.

The Rogue Valley Transportation Management Association (TMA), encompassing the Medford metropolitan area (including the City of Ashland) is a voluntary alliance of private and public sector interests established in 2002 to increase the efficiency of the local transportation system. As described in Policy 6.A-3 of the RTP, the purpose of the TMA is to "work with major employers to adopt trip reduction goals, policies and programs designed to reduce site vehicular trip generation, and to offer specific incentives in partnership with regional TDM projects."

The City of Ashland examined long-term growth projections and travel demand that led to a determination that an area-wide TDM policy, combined with Transportation System Management (TSM) strategies would yield an overall system that operates within capacity. TDM measures considered in Ashland's analysis were:

- Improved pedestrian and bicycle system connectivity, access, and circulation;
- Enhanced transit coverage and service;
- Employer-based transit incentives (e.g. university student pass program);
- Rideshare, carpool, and vanpool programs; and
- Mixed use land development

Compact, mixed-use developments placed near transit routes, often referred to as transit oriented development (TOD), are effective at locating residents and employment centers near transit services – thereby increasing commute mode option that could potentially reduce automobile dependency. For example, a TOD placed in the vicinity of the OR 99/South Valley View Road intersection would be served by RVTD Bus Route 10. The area is currently planned and zoned with a combination of commercial, employment based, and higher density residential that could provide an environment that is conducive to transit service.

Telecommuting and transit are effective alternatives regardless of trip distance. The transportation element of the Ashland Comprehensive Plan cited the increased number of residents who work at home – effectively doubling between 1980 and 1990 from 3.7% to 7.1% respectively. According to the 2000 Census, home occupations have increased further to 8.4% of the population.

Transportation System Management Strategies

Transportation System Management (TSM) strategies are designed to make maximum use of existing transportation facilities, and include:

- Traffic engineering measures that improve the operations and efficiency of streets and intersections

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

These strategies are described below.

Traffic Engineering Measures

Traffic engineering measures such as signal timing changes, provision of turn lanes, turn restrictions, and restricting on-street parking to increase the number of travel lanes without road widening are included in this category. These traffic engineering measures are routinely included as part of the traffic analyses used in conjunction with the design process for intersection and roadway projects. Optimizing traffic signal operations, for example, is performed by the traffic engineer before specifying the number of lanes and queue storage requirements for the intersection design.

Such measures must consider all movements at an intersection, including side-street traffic, main street traffic, transit, bicycles, and pedestrians. Competing priorities can arise between modes and directions of traffic and both county and state policy and objectives must be considered when setting priorities. For example, additional turn lanes may reduce delay at intersections for automobiles, but increase the crossing distance for pedestrians, making their crossing less safe. Or, turn movement restrictions may increase throughput on a roadway, but reduce access to business. Decisions regarding access restrictions especially require involvement and input from the community.

Section 4 provides operations analysis results and system improvement recommendations at interchange area intersections.

System Monitoring and Traveler Information Systems

System monitoring employs Intelligent Transportation Systems (ITS) technologies that enable jurisdictions to monitor traffic, respond to traffic crashes and vehicle breakdowns more quickly, and communicate with the motoring public in real time. System monitoring requires deployment of infrastructure like a Traffic Operations Center (TOC) with video and closed circuit TV, and surveillance cameras, detection cameras and traffic sensors on highways to improve the capability of agencies to keep track of the transportation system on a real time basis. This system monitoring capability allows the operators in a TOC to dynamically adjust signal timing, dispatch emergency vehicles, and provide information to the motorists.

The real time traffic information can be shared with travelers in a variety of ways, by variable message signs, highway advisory radio, 5-1-1 Traveler Phone Information, web sites, and specialized warning systems (such as fog warnings), to let them make their own decisions about when to drive and what route to choose.

Facility Management Systems

Various system elements can be used to improve the performance the street and highway system or provide operational advantages for specific users. Facility management systems are tied into the system monitoring and traveler information systems discussed above and can be used to benefit users of alternative modes of transportation and TDM programs discussed in the previous section of this memorandum.

Ramp Meters: Ramp meters, which are used on the on-ramps to freeways and other limited access highways, can be used for two different purposes. First, ramp meters can discourage drivers from using freeways to bypass congestion on local roads. Second, when traffic demand is high, ramp metering can adjust the metering rate such that the density on the freeway remains below the critical value, thereby increasing flow or preventing traffic breakdown of the freeway mainline. Its benefits can be reaped when the traffic flows are neither too light (in which case metering is not needed) nor too high (in which breakdown will happen anyway). Ramp meters increase travel times and meter the rate of flow entering the highway. In its simplest application, ramp meters set minimum intervals between vehicles entering the freeway from the ramp with a fixed-time signal.

Preferential lanes: This strategy involves the reservation of a travel lane for a preferred group such as high occupancy vehicles and transit. This strategy is often used at ramp meter locations, allowing transit to bypass waiting vehicles and providing travel time savings and reliability for transit.

Traffic Signal Priority: This strategy is used primarily for transit in regions that experience significant congestion and delay at intersections. In general, the strategy allows transit to receive a green light for a few seconds before other vehicles so that it can advance ahead of a queue, or it can hold a light green for a few seconds longer to allow a bus to get through a signal before it turns red.

Applicable Strategies, Benefits, and Implementation Issues

Traffic system management strategies, including optimization of traffic signal timing, are routinely practiced by ODOT for facilities under its jurisdiction. It was assumed in the analyses performed for the IAMP that the signals in the South Valley View Road corridor would be interconnected and that the signal timing would be coordinated to optimize traffic operations. This would include potential future signals at the Interchange 19 ramp terminals.

The Rogue Valley Intelligent Transportation Systems (RVITS) plan, completed in 2004, is a 20-year plan that identifies advanced technologies and management techniques that can relieve traffic congestion, enhance safety, provide services to travelers, and assist transportation system operators in implementing suitable traffic management strategies. RVITS projects recommended for implementation address the following categories:

- Travel and Traffic Management: improve travel time, reduce crashes, provide incident response, and provide traveler information

- Communications: e.g., provide early warning for delays or closure of the Siskiyou Pass
- Public Transportation Management: intended to enhance existing RVTD systems and to improve transit traveler information
- Emergency Management: reduce emergency response times and integrate emergency management with transportation and transit management
- Information Management: collect, archive, and manage various types of transportation-related data
- Maintenance and Construction Management: aimed at improving the safety of motorists and workers in construction zones, improve efficiency of construction management and control, enhance construction scheduling, and tracking weather conditions that affect maintenance

Facility monitoring strategies, such as ramp meters, preferential lanes, and signal priority, will not likely be considered at Interchange 19 in the short term since freeway congestion is not expected to be a concern in 2030. If I-5 should become congested in the future, metering of interchange ramp terminals throughout the Rogue Valley region may become necessary.

Land Use and Development Actions

Several potential land use and development actions are available with the potential to directly or indirectly influence the transportation impacts of future development. Some potential actions include:

- Using trip allocations or trip caps to directly manage traffic impacts of developments;
- Retaining the current Comprehensive Plan designations and land use zoning

Use Trip Budgets to Directly Manage Traffic from Development

The practice of limiting trips, or placing “trip caps” or “trip budgets” involves permitting development projects based on the number of trips each will generate, in the context of development within a specified area. Using a trip budget program could also provide a measure of flexibility for developers while limiting the total impact of development. A development that did not use all the allowable traffic generation potential of its land might be able to pass on its unused traffic potential to an adjacent development that could be allowed to generate more traffic. As long as the total traffic generation from the area remained within limits, the interchange operations would be protected.

There are several scenarios by which more traffic could be generated in the Ashland-Talent vicinity than what is currently identified in the RVMPO model[2]. These include: developing with

[2] The predicted 2030 traffic volumes in the RVMPO regional travel demand model form the basis for the future baseline traffic analysis described in Section 4. Traffic design parameters of the future replacement bridge (e.g., number of lanes, turn lane lengths and traffic signals) are also based on projected traffic volume data from the regional model. The model population and employment projections correspond to those in the Jackson County Comprehensive Plan, which are based on statewide projections generated by the Oregon Employment Department.

an emphasis on high-traffic uses within current zoning; rezoning to allow more intensive uses; and expanding the urban growth boundary. Traffic congestion could become severe if properties in the vicinity of the interchange are developed more intensively than assumed for the model under these scenarios. Specifically, if the interchange area becomes a hub for high-generation land uses, such as big box retail chains, fast food restaurants and convenience stores, operations at the interchanges could degrade significantly.

The flexibility offered a developer under the current zoning and Comprehensive Plan provides wide variation in the number of households and amount of employment that can occur on a parcel. Thus, traffic volume forecasts in the model could be exceeded if each property owner develops to maximum intensity. This, in turn, could lead to increased congestion and potentially cause failing traffic operations at the interchange.

Retain Current Comprehensive Plan Designations and Land Use Zoning

This strategy would represent commitment by Jackson County to retain the current Comprehensive Plan and zoning for the Interchange 19 area. The Jackson County Comprehensive Plan maintains a commercial area south of the interchange and low intensity rural residential mostly north of the interchange. Elsewhere within the study area, with the exception of an industrial parcel in the northwest quadrant, land is preserved for agricultural use or for forestry/open space. The Ashland Comprehensive Plan provides for residential, employment, and commercial development at the southern edge of the study area along the OR 99 corridor.

Transportation modeling draws guidance from comprehensive plans, but requires making assumptions about the type, intensity and location of development that can occur within each zone. As described in Section 4, trip generation modeling was performed for the Interchange 19 study area assuming two different scenarios in addition to the base RVMPO model assumptions. In reality, land use development and intensities will occur in a way that is unique from these scenarios, but the scenarios provide examples for evaluation. Under both scenarios the critical v/c ratios at one or both ramp terminals for a three-lane facility with unsignalized ramp terminals would exceed HDM and OHP mobility standards in 2030.

Changes to the current land use zoning could dramatically affect the number of trips generated, trip patterns, and traffic volumes at intersections and the interchange. As a result, traffic operations at the interchange may approach capacity more rapidly than anticipated, shortening the life of the new interchange and hastening the need for costly investments for additional interchange improvements. For this reason, managing the number of trips generated in the interchange area could be an effective measure to extend the life of the interchange.

Applicable Strategies, Benefits, and Implementation Issues

Based on analysis results discussed in Section 4, there is not a strong technical basis for either trip budgets or restricting Comprehensive Plan amendments or zoning changes. Traffic modeling has demonstrated that the interchange will have enough reserve capacity to

accommodate growth beyond the existing land use designations with the implementation of potential long-term improvements such as signalization of the ramp terminals and widening of South Valley View Road. However, actual development patterns and traffic growth may create conditions under which such measures are warranted in the future.

Summary of Recommended Measures

Vehicle trip generation associated with potential future growth in the region could cause traffic operations at a new interchange to fail to meet HDM mobility standards prior to its 20-year design life. The intensity, timing and location of actual development may result in more congestion than is estimated by the model. Therefore, several measures are recommended to maintain and preserve the capacity of the interchange and key area intersections.

This section presents a brief summary of the strategies that are recommended. A broader description of each strategy is provided in the previous section.

- Implement the **Access Management Strategy** for the Interchange 19 area, summarized in Section 6;
- Apply **Transportation System Management** strategies when implementing traffic signal system, including signal interconnect, coordination, and optimization.
- **Enhance the local street network** as land develops by enhancing existing street connections and accessways between developments and providing links to promote alternative modes of transportation other than the automobile.
- Implement **Transportation Demand Management** strategies in cooperation with other jurisdictions within the RVMPO.
- Consider inclusion of Interchange 19 if RVMPO **ITS/ATMS or ramp metering** system is employed.

Implement Access Management Strategy

Implementation of the access management strategy is critical to the long-term safe and efficient operations of the interchange. Section 6 provides short term, medium term, and long term recommendations for access management improvements in the Interchange 19 area. Each of these recommendations should be implemented.

Implement Traffic System Management Measures

As noted above, TSM measures are assumed to be included when the signals are designed and constructed, including potential future signals at the Interchange 19 ramp terminals. This includes signal interconnect, and optimized signal timing. Specific intersection control recommendations are contained in Section 4. Additional or more advanced features are not recommended for Interchange 19, unless included as part of an area-wide implementation.

Enhance the Local Street Network

Improving the local street network in the vicinity of the interchange is essential to maximizing the life of any of the new designs at Interchange 19. Traffic circulation and nominal safety can be enhanced by realigning Lowe Road to intersect South Valley View Road at a point opposite Eagle Mill Road, to form a four-way intersection. This is a suggested concept in the Jackson County TSP and the Rogue Valley RTP, and it is also recommended in the Access Management Plan found in Section 6. Another recommended improvement is the widening of South Valley View Road to five lanes between I-5 and OR 99. This improvement would improve operations and safety in the heavily-traveled corridor, which would reduce the likelihood of congestion in the corridor from impacting interchange operations.

Implement Transportation Demand Management as the Region Continues to Develop

TDM strategies that encourage the use of carpools, vanpools, bicycling and walking should be continued. An active Transportation Management Association (TMA) would be useful to promote travel options, coordinate shared rides, obtain grants, advocate for transit service, and provide incentives to participants. Jackson County and the City of Ashland may wish to establish a mechanism by which employers of a certain size are required to participate in a TMA, or provide incentives to employers who choose to participate in a TMA.

Consider Including Interchange 19 in Rogue Valley area ITS/ATMS or Ramp Metering Implementation

While an ITS or ATMS program would not be appropriate to employ in just the Ashland area in the foreseeable future, the Ashland area interchanges might be included as part of a Rogue Valley region implementation. The ultimate decision about the employment of ramp metering, ITS, and ATMS would belong to ODOT, but would benefit from cooperation by Jackson County and the City of Ashland.

6. ACCESS MANAGEMENT

A major component of the IAMP, access management is an essential tool for maintaining capacity, traffic flow, and safety in the vicinity of an interchange. Implementation of effective access management measures has the effect of protecting the public investment in the interchange facilities, enabling it to accommodate traffic volumes safely and efficiently into the future while ensuring circulation necessary for good access to the highway. The IAMP acknowledges the vital need of adjacent property owners to maintain roadway access to their businesses and residences. However, driveways and minor street intersections near a ramp terminal can drastically increase conflicts, causing operational problems, reducing the capacity of the intersections, and generally degrading service for all system users. Hence, the IAMP must balance the competing needs of compatible land uses, private access, and function of the transportation system.

Although access management imposes some restrictions and reduction of access for property in close proximity to the interchange, access management actions in this IAMP do not prevent the properties from being used or developed in a manner consistent with their adopted comprehensive planning designations. Access management instead will help to ensure that property owners continue to be able to utilize site advantages of their properties by improving traffic circulation, mobility, and freeway access.

The access management measures for this IAMP form an ***Access Management Plan***, which represents medium/long-term measures that may be triggered as land use changes occur (new development or redevelopment), future improvement projects are implemented, or as safety and operational issues arise.

Access Standards and Objectives

Access management must balance the competing needs of traffic capacity and safety with local access needs. The Oregon Highway Plan (OHP) devotes an entire section to the discussion of access management. More detailed requirements, action definitions, and the access spacing standards for state highways are specified in Oregon Administrative Rule (OAR) 734-051 (Division 51): Highway Approaches, Access Control, Spacing Standards, and Medians[3]. Ideally, a project will include provisions by which access within the project limits can be made fully compliant with Division 51. In many instances, however, access needed for existing development will not allow these standards to be met. When the requirements and standards cannot be met, progress toward meeting the applicable standards must be demonstrated.

Division 51 and the OHP contain standards for private driveway and public road approach spacing based on highway classifications and speeds. Access spacing standards are measured from the center of one access to the center of the next access on the same side of the road. These standards were used in the preparation of this IAMP. Proposed construction projects

[3] A complete copy of Division 51 can be found online at: http://www.oregon.gov/ODOT/HWY/ACCESSMGT/docs/DIVISION_51.pdf

and land use changes near Interchange 19 will require approach permits from ODOT in order to demonstrate compliance with the standards applicable to this project and the objectives of this plan as listed below:

- The first full intersection on the crossroad at an interchange should be no closer than 1,320 feet for fully developed urban interchanges with multi-lane crossroads.
- Approach roads that are less than 1,320 feet but no closer than 750 feet should be limited to right-in/right-out access only.
- All access from abutting properties to the interchange and interchange ramps should be restricted.
- In attempting to meet access management spacing standards, exceptions may be allowed to take advantage of existing property boundaries and existing or planned public streets, and to accommodate environmental constraints.
- Where feasible, private approaches should be consolidated or replaced with public streets to provide consolidated access to multiple properties.
- All properties impacted by the project should be provided reasonable access to the transportation system.
- Approaches on opposite sides of roadways should be aligned, where feasible, to reduce turning conflicts.

As part of the approach permit approval process, requests for deviations from these standards can be made as outlined in Division 51. Deviation findings would need to be prepared if necessary, to explain why the approach cannot meet the standards. For example, modifying approach roads in the planning area to adhere to spacing standards might create safety and traffic operation problems. The Region Access Management Engineer may require that a plan identifies measures to reduce the number of approaches to the highway in order to approve a deviation for a public approach.

A traffic impact study should be performed upon development or redevelopment of parcels in the study area in the context of the normal development process under existing rules. The study should address access points and potential safety issues. The traffic evaluation may result in a possible need for access control (including restrictions that prohibit certain movements). For example, implementation of right-in/right-out restrictions near an interchange is typical. Under certain circumstances left-in movements may also be appropriate where turn restrictions are applied. Providing an allowance for U-turns or alternative routes may be necessary in combination with the restrictions in order to increase accessibility to/from intersections with restricted movements.

Access Management Plan and Enhanced Local Street Network

The access management plan consists of medium/long-term measures for the interchange area and recommendations to enhance the local street network. These measures do not infer any chronological significance to recommendations, but rather are triggered by events other than

the planned interchange project. The measures would be implemented when one or more of the following occurs:

- Land use changes or development occurs
- Future highway improvement projects are planned
- Safety and/or operational problems arise

Such measures will be coordinated with Jackson County prior to implementation. The plan is intended to address existing roadway and circulation deficiencies, enhance redevelopment opportunities, reduce vehicular conflicts, and preserve the functional integrity of the interchange. These measures are particularly important in the vicinity of Interchange 19 as development and redevelopment progresses, future highway improvements are implemented, and/or safety and operational issues become apparent. The medium/long-term access management measures, illustrated in Figure 6-1, include:

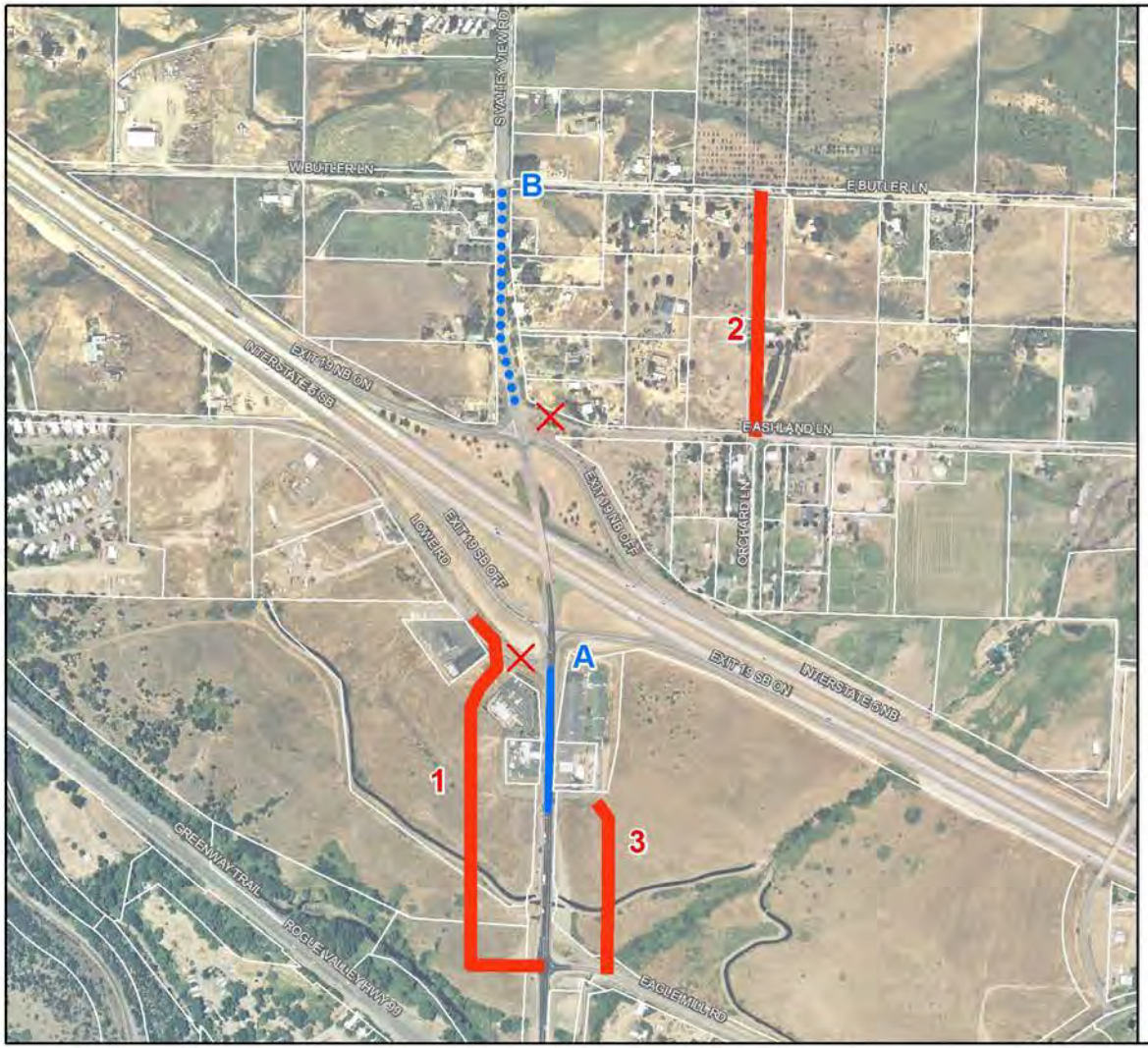
A. Install a non-traversable median barrier from the I-5 southbound ramp terminal approximately 700 fee southward along South Valley View Road.

B. Consolidate/close driveways along South Valley View Road, where feasible, as properties redevelop between the I-5 northbound ramp terminal and East Butler Lane.

In addition, the following enhancements to the local street network are recommended, as illustrated in Figure 6-1:

1. Close the existing Lowe Road approach to South Valley View Road concurrently with construction of a Lowe Road extension southward to connect with South Valley View Road opposite Eagle Mill Road. Connect Lowe Road extension to existing access road (currently serving Burger King Restaurant).
2. Close East Ashland Lane approach to South Valley View Road concurrently with extending Orchard Lane northward to East Butler Lane.
3. Construct a new road extending northward from Eagle Mill Road that can serve adjacent parcels and access businesses along the east side of South Valley View Road.

The street connections displayed in Figure 6-1 are conceptual and should be used for planning purposes only.



Access Management Measures:

A. Install non-traversable median barrier from I-5 southbound ramp terminal approximately 750 feet southward along South Valley View Road

B. Consolidate/close driveways along South Valley View Road from I-5 northbound ramp terminal to East Butler Lane

Enhance Local Street Network:

1. Close existing Lowe Road approach to South Valley View Road concurrently with construction of a Lowe Road extension southward to connect with South Valley Road opposite Eagle Mill Road. Connect Lowe Road extension to existing access road (currently serving Burger King Restaurant)
2. Close E. Ashland Lane approach to South Valley View Road concurrently with extending Orchard Lane northward to East Butler Lane
3. Construct a new road extending northward from Eagle Mill Road that can serve adjacent parcels and access businesses along the east side of South Valley View Road

N

1,000 500 0 1,000 Feet

GIS Data Source: Jackson County

Legend

- Non-Traversable Median Barrier
- Access Consolidation/Closure
- Potential New Street Connections
- Close Public Access

Figure 6-1

Circulation Plan with Enhanced Local Street Network

Interchange 19 Area Management Plan

Implementation of Access Management Plan

The measures identified in the access management plan will be implemented as development (or redevelopment) occurs or when appropriate criteria are met. However, approval or delay of implementation may be determined by the Region Access Management Engineer. Implementation criteria for the various access management measures and local street improvements are described below.

Access Management Measures:

A. Install a non-traversable median barrier from the I-5 southbound ramp terminal approximately 750 feet southward along South Valley View Road.

   Installation of the median barrier should be considered when one or more of the following criteria are met:

   - *Average daily traffic for South Valley View Road south of the I-5 southbound ramp terminals exceeds 28,000[4] vehicles per day*
   - *The annual accident rate is greater than the statewide annual average accident rate for similar roadways or the section has an ODOT SPIS[5] rating in the top 10 percent*

B. Consolidate/close driveways along South Valley View Road, where feasible, as properties redevelop between the I-5 northbound ramp terminal and East Butler Lane.

   Consolidation or closure of driveways should be considered when properties redevelop and when reasonable access can be provided with a single access point or via a local street.

Local Street Network Enhancements:

1. Close the existing Lowe Road approach to South Valley View Road concurrently with construction of a Lowe Road extension southward to connect with South Valley View Road opposite Eagle Mill Road. Connect Lowe Road extension to existing access road approximately 700 feet south of the I-5 southbound ramp terminal (currently serving Burger King Restaurant).

   Extension should be considered when one or more of the following criteria are met:

   - *South Valley View Road is widened to five or more lanes*
   - *The median barrier on South Valley View Road is installed south of the I-5 southbound ramp terminal*

   The extension could be phased to allow for more flexible funding options with the initial phase connecting to the existing access road approximately 700 feet south of the I-5 southbound ramp terminal.

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[4] 1999 Oregon Highway Plan, Policy 3B, Medians

[5] Safety Priority Index System

2. Close East Ashland Lane approach to South Valley View Road concurrently with extending Orchard Lane northward to East Butler Lane.

   Local street connection should be considered when one or more of the following criteria are met:

   - *Average daily traffic for South Valley View Road north of the I-5 northbound ramp terminals exceeds 17,000[6] vehicles per day*
   - *The annual accident rate is greater than the statewide annual average accident rate for similar roadways or the section has an ODOT SPIS rating in the top 10 percent*

3. Construct a new road extending northward from Eagle Mill Road that can serve adjacent parcels and access businesses along the east side of South Valley View Road.

   Extension should be considered when one or more of the following criteria are met:

   - *South Valley View Road is widened to five or more lanes*
   - *The median barrier on South Valley View Road is installed south of the I-5 southbound ramp terminal*
   - *Adjacent properties develop*

[6] National Cooperative Highway Research Program, Synthesis 332, Access Management on Crossroads in the Vicinity of Interchanges, Transportation Research Board, 2004